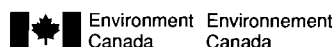


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PROCEEDINGS  
VOLUME 2

# FOURTH INTERNATIONAL CONFERENCE ON ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT

April 22-26, 1996  
Chiang Mai, Thailand



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# **FOURTH INTERNATIONAL CONFERENCE ON ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT**

## **CONFERENCE PROCEEDINGS VOLUME 2**

**April 22-26, 1996  
Chiang Mai, Thailand**

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These Proceedings, Volumes 1 & 2, include papers prepared by speakers, conference participants, and other interested parties, remarks of the opening speakers, summaries of workshop discussions, selected exhibit materials, and the Conference evaluation from the Fourth International Conference on Environmental Compliance and Enforcement, April 22-26, 1996, in Chiang Mai, Thailand.

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Opinions expressed are those of the authors, and do not necessarily represent the views of their organizations.



## **DEDICATION TO THE VICTIMS OF CHERNOBYL**

These Proceedings are dedicated to the Victims of the Chernobyl disaster, a global environmental catastrophe. Participants were reminded of the 10th anniversary of the disaster in the closing moments of the Fourth International Conference by Ms. Svitlana Kravchenko who read a statement and requested a moment of silence in memory of the victims of Chernobyl who are still bearing its consequences.

Two million eight hundred thousand people, including more than half million children under the age of 14, are now living in areas contaminated by the Chernobyl catastrophe despite the fact that approximately 200,000 people and more than 2000 settlements were moved from the contaminated zone. 150,000 people, including children, received radiation poisoning to the thyroid, which exceeded permissible limits. Today the Ukrainian list of Chernobyl's victims consists of 405,576 persons, in addition to 36,000 persons who are on the military-medical list of the Ministry of Internal Affairs and Security Service of Ukraine. Diseases of the respiratory and digestive systems, as well as the endocrine and blood circulation systems, account for a significant percentage of the mortality rate of children living in contaminated zones. Experts now consider that the Chernobyl disaster has created a new epidemic called Chernobyl AICD. All children of the Chernobyl zone have reduced immune systems.



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**FOURTH INTERNATIONAL CONFERENCE ON  
ENVIRONMENTAL COMPLIANCE AND  
ENFORCEMENT  
VOLUME 2**



## **SPECIAL TOPIC WORKSHOP K**

### **Take-Back Laws Enforcement**

Papers on this special topic address the following issues:

- extent of such laws and types of activities to which they are applied: Take-back laws reflect a new trend internationally to require producers of certain types of products to take them back after use by customers for recycling or proper disposal;
- what the requirements are and of whom;
- how compliance with these laws can be achieved given the difficulties of tracing products in trade both domestically and internationally;
- approaches countries have established to promote compliance;
- approaches countries have established to monitor compliance;
- types of enforcement responses developed for violations and their success; and
- cooperative approaches needed between and among nations to facilitate compliance, detection of violations, and enforcement response.

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Currently no papers are available on this subject because experience in this area is still too limited. For this reason also, no workshop was held.

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## SPECIAL TOPIC WORKSHOP L

### **Creating Enforceable Permit Programs and Requirements: Discussion Focus on Water Pollution and Contamination of Drinking Water Supplies**

Papers and Workshop L discussions focus on the following issues:

- How permit programs have been designed to balance pressures to get permits issued in a timely fashion with the need to ensure enforceable permits and real impacts on environmental quality.
- Different approaches for how to improve or ensure enforceability in developing new laws, regulations, and permit requirements.
- What works and does not work well in drafting laws, regulations, standards, and permits.
- Problems that have been encountered in numerous settings with examples of regulations and permits that are impossible or difficult to enforce and the actions taken to improve them. Problems include poor drafting, such as inadequate or unclear definitions of terms, inadequate authorities or supporting requirements to obtain information to monitor compliance, unclear or overlapping intergovernmental responsibilities, unclear writing, technical infeasibility, inconsistent roles, etc.

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See related papers in other International Conference and Workshop Proceedings:

1. Developing Enforceable Environmental Regulations and Permits, *S. Fulton and E. Gilberg*, Volume I, Budapest, Hungary
2. Swedish System of Integrated Permitting — Whether it Enhances Compliance and Enforceability, *L. Svermdal*, Volume I, Budapest, Hungary
3. Compliance and Enforcement Strategies in East-Germany — Saxony as an Example, *D. Angst*, Volume I, Budapest, Hungary
4. A Clear Approach Gives Full Compliance, *H. de Vries*, Volume I, Budapest, Hungary
5. Principles of Environmental Enforcement, *C. Wasserman*, Volume I, Budapest, Hungary
6. Designing Enforceable Environmental Requirements, *T. Smith*, Volume II, Budapest, Hungary
7. Summary of Theme Discussion: Designing Enforceable Environmental Requirements, *M. Mulkey*, Volume II, Budapest, Hungary

---

## **CREATING ENFORCEABLE PERMIT PROGRAMS AND REQUIREMENTS: DISCUSSION FOCUS ON WATER POLLUTION AND CONTAMINATION OF DRINKING WATER SUPPLIES**

Co-Facilitators and Rapporteurs: Paul van Erkelens, Linda G. Crerar.

### **GOALS**

This session addressed the following issues:

- How permit programs have been designed to balance pressures to get permits issued in a timely fashion with the need to ensure enforceable permits and real impacts on environmental quality.
- Different approaches for how to improve or ensure enforceability in developing new laws, regulations, and permit requirements.
- What works and does not work well in drafting laws, regulations, standards, and permits.
- Problems that have been encountered in numerous settings with examples of regulations and permits that are impossible or difficult to enforce and the actions taken to improve them.

### **1 INTRODUCTION**

Several participants discussed, in two separate workshops, the need for requirements that are clearly defined and understandable and the need to communicate to the regulated community what is expected of them to reach compliance.

### **2 PAPERS**

The Pollution of Surface Waters Act in the Netherlands: A Story of Successful Enforcement, P. van Erkelens, M. Olman.

The Enforcement of the Drinking Water Quality in The Netherlands, J. Lijmbach-Hendrikx.

Potassium and Nitrate Pollution of Surface Water in the Catchment Area of the "Blankaert" Water Production Centre in Flanders (Belgium), R. Baert, R. Loontjens, M. Devos.

Protecting Drinking Water Quality Through the Clean Water Act and the Safe Drinking Water Act, B. Devlin.

### **3 DISCUSSION ISSUES**

The session began with a summary of some basic concepts regarding developing requirements. It is important to be clear about what the environmental outcome is that is to be achieved before you begin drafting your requirements. Requirements must be clear and understandable and adapted to the specific area (country). Precisely define sources or activities

subject to the requirements and include any exceptions or variances. It is very important to be specific about how compliance will be determined. What will compliance look like when it is achieved by the regulated community? In addition, requirements must include all timelines and/or deadlines that the regulated community must meet to comply. One of the most critical elements of enforceable requirements is that they are based on technology or methods that are available, reliable and affordable. Creating standards and requirements that cannot be met will significantly reduce the creditability of the regulating agency.

Discussion centered around the difficulties in implementing permitting/requirement programs. Participants shared similar concerns and problems in regard to getting people to change their behavior whether it be a major industry or individual actions. Countries with mature permitting programs shared their processes for managing and gaining compliance with point source industries and businesses. All countries are facing similar problems in effectively dealing with non-point or diffuse pollution sources such as agriculture and stormwater runoff. Non-point problems do not lend themselves readily to permit/license type of solutions.

Participants discussed the need for good data regarding the status of the environment. Many countries are developing information and data by watershed or region. This data, both scientific and resource availability, is important for helping build an understanding and awareness with the public and the entities to be regulated as to the importance of complying with environmental requirements.

Some participants were just in the first stages of drafting and implementing their country's laws that protect the environment. All participants agreed that good environmental laws as the base from which to build your requirements/regulations is a must. Enforcement and compliance from the regulated community would not be possible without these underlying laws. Some countries discussed the difficulties of having many different environmental laws and agencies responsible for carrying out these laws. These overlapping responsibilities and roles create confusion and conflict and make compliance of the regulated community more difficult. Some countries have consolidated their environmental laws into one law or are starting out with a comprehensive law that will regulate the environment for the country.

Much of the discussion centered on the need for balancing enforceable requirements with voluntary efforts. Participants agreed that starting with the education of young children in school will be very important to developing and maintaining the "public will" to support good environmental management. There are several activities that promote education and awareness that include public outreach and media campaigns. It was suggested that every country should adopt a "national environment day" that could help focus environmental education. It is also important that as you enhance the public's knowledge and willingness to change their behavior that opportunities are provided for them to "do the right thing." An example would be providing waste collection sites in areas where they had not previously existed coupled with an educational campaign to not litter. Participants agreed that educational programs are more cost effective than implementing major permitting and enforcement programs which are very resource intensive. Other examples of involving people in changing behavior was including industry groups in monitoring and gaining compliance from members of their own industry through peer pressure or other mechanisms.

It is important that environmental information come from a credible source that is trusted by the people or the regulated community. In some countries the government may not be a trusted creditable source of information. In these cases, it is important to involve others (citizens, NGOs, industry) in the collection and dissemination of environmental information. Involving others will also help gain understanding and awareness of the problems, help with solutions



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and take more responsibility in implementing the requirements/standards. It is also important to look for incentives both financial and other economic or social incentives that will motivate the regulated community to comply with requirements.

#### **4 CONCLUSION**

*"YOU CAN NOT HAVE AN ECOLOGICAL PARADISE IN A SOCIAL ECONOMIC DESERT."*

All participants underlined that clear surface water and safe drinking water must be a top priority. Some countries choose a way of using one integral environmental law to realize this. Other countries prefer separate legislation because they do not want solving the clean water problem to be mixed up with other environmental issues and difficult legislation. Another problem in solving the clean water problem is that the use of watershed requirements does not fit to existing responsibilities.

During the discussions it became clear that environmental requirements that are enforceable are critical for gaining compliance from the regulated community but these requirements cannot be drafted in a vacuum. It is essential that the requirements are developed in the context of the country's social and economic conditions. Adopting requirements that cannot be complied with by the country's industry or population in a timely, reliable and affordable fashion will be difficult if not impossible to enforce and may result in "political" backlash that causes more harm to the environment.



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## **THE POLLUTION OF SURFACE WATERS ACT IN THE NETHERLANDS: A STORY OF SUCCESSFUL ENFORCEMENT**

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### **SUMMARY**

Water Boards carry responsibility for water defenses (flood control) and water volumes in the Netherlands. They share responsibility for water quality with the Department of Water Management and Traffic.

There has been a significant reduction in the pollutant load on surface waters since 1970. The same applies to industrial emissions. This article describes the success achieved in enforcing the Pollution of Surface Waters Act.

### **1 THE NETHERLANDS -- WATER, WATER EVERYWHERE**

Central Government, the provinces and local authorities are well-known Government bodies and many people understand more or less what they do. The Water Board (the oldest democratic form of administration in the Netherlands) is less well known. Nevertheless, Water Boards, along with the Department of Water Management and Traffic, perform indispensable work in maintaining the quality of life in the Netherlands.

More than 50% of the Netherlands, an area in which more than eight million people live and work, would be flooded if there were no dunes or water defenses. The numerous dykes, locks, retaining dams, canals and ditches keep the country habitable.

Water Boards carry this responsibility. Apart from looking after water defenses and water volumes, the Boards share responsibility for water quality with the Department of Water Management and Traffic. They are continuously active countering pollution and improving the quality of the surface water.

### **2 WATER CONTROL**

Protecting man, animals, land and property against flooding is the oldest task of the Water Boards. They were set up hundreds of years ago to perform this role. Work still goes on today throughout the country in further reinforcing sea and river dykes, taking due account of falls in ground levels and rises in the water level. The major floods of 1995 revealed that the river dykes also merit greater attention.

### **3 WATER QUANTITY MANAGEMENT**

The Netherlands has a comprehensive system of watercourses (streams, ditches and canals). In the high parts the Water Boards ensure effective drainage to avoid any water overload. In dry periods water is retained or fed in using retaining dams and pumps. Water is also stored temporarily in special buffers. In the low parts of the country the water is kept at the required level using pumps, for example in polders.

### **4 QUALITY MANAGEMENT**

Water Boards share responsibility with the Department of Water Management and Traffic for the quality of surface water in the Netherlands. In the past this meant that the water had to be clean enough for the preparation of drinking water, for agriculture and horticulture, as a raw material for products, etc. Nowadays that has been expanded to include the entire ecosystem: water has to be clean enough for the plants and animal life to which it plays host.

One important element of quality management is the treatment of waste water. Treatment underwent rapid development with the arrival of the Pollution of Surface Waters Act. The Act prohibits the discharge of polluting or harmful substances into surface waters without a license. The discharge license is an important instrument in the battle against water contamination, giving the Water Boards a means of controlling discharges of waste substances. Requirements may be laid down in the license governing the nature and volume of the substances to discharge. Such requirements may demand that companies modify their production process or pretreat the waste water. This may also prove an attractive option financially as a levy is linked to the license which is lower if the waste water is less polluted.

The Act also gave a major boost to the construction and expansion of sewage treatment plants. This move, combined with improved techniques, has doubled the Netherlands' treatment capacity in recent years. Nowadays there are some 500 sewage treatment plants handling more than 90% of the sewage from domestic households and industry. As a result of the stringent requirements again being set for treated sewage, Water Boards are having to make major investment in building new treatment plants or modifying existing ones. One of the targets is a drastic reduction in phosphates and nitrogen in the years ahead.

When sewage is treated by a biological process, a residual product remains: sewage sludge. This contains heavy metals and pesticides, which renders it unusable as an agricultural fertilizer. Now it is dried and incinerated or composted.

### **5 THE POLLUTION OF SURFACE WATERS ACT: THE MOST SUCCESSFUL PIECE OF ENVIRONMENTAL LEGISLATION**

In 1995 the Pollution of Surface Waters Act celebrated its twenty fifth birthday. Without question, it can be qualified as the most successful piece of environmental legislation. Its introduction enabled the task of improving the quality of surface water to be tackled in a systematic manner from 1970 onwards. Spectacular results have been achieved in virtually every part of the country. The total discharge of oxygen-binding substances has been reduced by over 80% in 25 years thanks to all the measures adopted (Table 1). To some extent this has

been achieved by building sewage treatment plants in municipalities and on company sites. Over and above this, industry has adopted cleanup and preventive measures. The oxygen content in the major Dutch surface waters can be described as good in most cases nowadays.

**Table 1. Production of oxygen-binding substances ( $10^6$  pollution per capita) and the surface water load**

Year	1970	1980	1990	1995
Companies	33,0	13,7	9,8	10,2
Households	12,5	14,3	14,9	15,3
Removed in sewage treatment plant	5,5	12,6	17,0	18,6
Discharged to surface water	40,0	15,4	7,7	6,9

Source: Policy Document on Water Management (3rd)

When it comes to other substances such as nitrogen, phosphate and heavy metals, much remains to be done. Large volumes of surface water have also been contaminated with pesticides, even though there has been a 40% reduction in their usage. The switch to phosphate-free washing powders and measures taken at sewage treatment plants, along with other factors, has achieved a 65% reduction in the discharge of phosphates. The results with nitrogen are less rosy. Open sewers have all but disappeared from the Netherlands, and nowadays only around 0,7% of the country has open sewerage.

Positive results can also be reported on the cleanup of industrial emissions, which has been helped by the level of the levies. Table 2 shows the picture for zinc and cadmium.

**Table 2. Clean-up of industrial emissions (tons/year)**

Year	1975	1985	1990	1995
Zinc	1250	160	100	60
Cadmium	30	15	6	3

Source: Brochure on integrated water management, Department of Water Management and Traffic

## 6 LICENSING AND ENFORCEMENT

The discharge license is an important instrument in the Pollution of Surface Waters Act. Who ought to hold a license?

- All companies (and households as well) that discharge their effluent directly into surface water.
- Many companies (notably the larger ones with harmful substances in their effluent) who are connected to a sewage treatment plant via the sewerage system.

The license is granted by the water quality boards (Water Control Board, Ministry of Transport, Public Works and Water Management).

Licenses for major dischargers stipulate which substances may be discharged and which not, the quantities permitted, the preliminary treatment for the effluent that is to be discharged, etc. Conditions may also be set in the license governing the effluent temperature.

In the case of small-scale dischargers, such as households, an instruction on the means to be used will usually suffice. If households have a septic tank with appliances, notification will usually suffice.

The time spent by the Water Control Board in granting a license has to be reimbursed by the company itself in the form of fees. The company also has to pay a levy if the license is used. The company pays for the amount of pollution that may be discharged under the license.

The licensing process is characterized by intensive consultation between the Water Control Board and the company. The entire production process is reviewed to ascertain which modifications can be made and at what times to reduce the quantity and harmfulness of the substances. In a number of cases, the Water Control Board does not allow any direct discharge of particular substances. The company then has to adapt its production process accordingly. In some cases, consultation with the local authority for connection to the sewerage is the solution. In other cases the company has to build its own treatment unit. The latter option may even be an attractive one, as the levy to be paid may fall significantly if less polluted sewage is discharged.

The Water Control Board is also responsible for enforcement. Licensing and enforcement are organizationally separate within the Water Control Board. There are three important areas in enforcement:

- There is ongoing monitoring as to whether companies have acquired a license in good time. Effective consultation with such bodies as local authorities ensures that companies working without a license are soon detected. The Police have an important part to play here in acting as the eyes and ears. Companies may not initiate or modify their activities without the required environmental licenses (Environmental Management Act, Pollution of Surface Waters Act).
- Companies with a license are periodically visited and checked to ensure that they are complying with the regulations in the proper manner. The Water Control Board assesses whether the measures agreed have been carried out. Effluent samples are also taken and examined in the Water Control Board's own laboratory. In some cases the license stipulates that the company itself must periodically analyze the effluent and submit the results to the Water Control Board. The Board then performs random checks on the results using its own samples. In a limited number of cases the Water Control Board positions sealed measuring equipment to continuously measure the quality of the effluent. The Board's preferred approach is to perform frequent checks with a view to preventing offenses. Major dischargers are generally visited several times a year.

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- If offenses are detected, appropriate sanctions will have to be applied. Measures under administrative law and/or penal law may be applied. The following graduated structure is usually adopted as a guide:

**Minor offenses:**

- Consultation with the company to end the infringement as quickly as possible. The situation is reviewed together with the company to ascertain what technical measures can be taken.

**More serious infringements:**

- The Water Control Board may then deploy sanctions under administrative law such as: total withdrawal of the license, a penalty (for example, a large fine for every day of infringement of the license) and/or administrative coercion (the Water Control Board obliges the company to cease the infringement with immediate effect or does so itself at the company's expense; in such emergencies, the consequences of the infringement can quickly be reversed).

**Severe and/or recurring offenses:**

- Apart from the sanctions under administrative law, a report is drawn up in consultation with the Public Prosecutor. The Public Prosecutor has the backing of penal law which allows him to act swiftly and at the appropriate level. In many cases, the Public Prosecutor will bring proceedings.

In recent years, there has been a great deal of interest in enforcement in practice. Additional enforcement officers have been appointed everywhere, enforcement programs have been drawn up, and cooperation between the various enforcement authorities has improved markedly. A great deal of consultation between enforcement officers at the Water Control Board and the Public Prosecutor has resulted in the scope available under administrative law and penal law being exploited to best effect and with mutual reinforcement.

## **7 SUCCESS FACTORS**

The success in enforcing the Pollution of Surface Waters Act of Surface Waters Act can be attributed to various factors:

- Organization is clear and simple. The Water Boards and the Department of Water Management and Traffic handle licensing and enforcement. The license sets forth the requirements for waste water in unambiguous terms. The measures that the company is able to take, or indeed must take, are discussed with the company. The licensing agent regularly checks whether the company is still complying with the requirements (the enforcement angle).
- The cleaner the waste water, the less the company itself has to pay. There is therefore a major financial incentive to take action at source. To put it another way: the measures to be taken can pay for themselves.

- The Water Board uses the revenues (from companies and households) to build and run sewage treatment plants. There is therefore a direct relationship between the funds obtained from contaminated waste water and efforts to tackle the problem.
- The organization of the Water Board ensures that the polluters (those paying) are involved in the general council of the Board.

## 8 ORGANIZATION OF THE WATER BOARDS

The Water Board should be seen as a government body which differs in three ways from provinces and local authorities:

- A Water Board has only one task: to look after the water system (water control, water quantity and water quality).
- The council of a Water Board is made up entirely of representatives of groups that have an interest in how it operates. The main groups are land owners (mainly farmers), owners of buildings and companies that make payments to the Board via the levy on contaminated waste water. In addition, households have an interest in the Board's work (for without them a large part of the country would be under water). They are also represented in the council.
- The Board is paid for in its entirety by all the interested players (owners of land and buildings, polluters, households). The greater your interest in the operations of the Board, the more you pay. And the more contaminated waste water you produce, the more you pay as well.

These three characteristics based on the 'interest-pay-say' principle make the Water Board a special, functional tier of administration, and one which is able to operate very effectively. The Board's work, which naturally has to be conducted within national and provincial frameworks, is very much focused on implementation. This form of organization could well prove its value in other parts of the world. The basis for setting up a Board is soon created if similar interests are pooled.

## 9 WATER DETERMINES THE QUALITY OF LIFE TO A LARGE DEGREE

Too much water is not a good thing. If we fail to provide sufficient protection against the threat of floods, we will regularly have to face disasters of varying scale, which often totally disrupt life in a particular area for quite some time. Everything built up with a great deal of effort over a period of years can be totally destroyed in a very short space of time.

Too little water is just as bad. Drought can make large areas uninhabitable. Famine, the population moving out, disease etc. are unfortunately still frequent occurrences nowadays. Such situations are not always avoidable. Not all climatological situations are amenable to human influence. Nevertheless, with our knowledge nowadays we are in a position to build hydraulic works which enable us to assume better control of water management. This means we can avoid situations of water excesses or shortages.

It is not just the amount of water but also the quality that has an important part to play. We in the Netherlands do not fully realize that the majority of the world does not have access to clean drinking water, let alone that it comes from a tap in unlimited supply in every home. In many places what little water exists is severely contaminated, posing an ever-present threat to public health and food production.



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It is therefore both the amount and the quality of water that to a significant degree determine the quality of life in its most elementary meaning. Many environmental problems in the West are often seen by developing countries as a problem of luxury. However, the 'water' environmental problem can come to be a major connecting link. The experiences gained in the Netherlands with Water Boards and with the Pollution of Surface Waters Act can also prove significance elsewhere.



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## THE ENFORCEMENT OF DRINKING WATER QUALITY IN THE NETHERLANDS

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### SUMMARY

Most people in the Netherlands take water for granted. Nevertheless this very water might quickly become one of the most important factors which inhibit the country's economic development, possibly causing a drop in the standard of living. A shortage of clean and safe (drinking) water causes illness, a loss of productivity, and poor public health - and it can lead to social and political turmoil. Conversely the demand for good drinking water will continue to increase as long as the population of the Netherlands also increases.

The authorities have developed a multitude of instruments with which they endeavour to guarantee the long term supplies of drinking water. This contribution discusses these in more detail.

## 1 THE NETHERLANDS

### 1.1 Geography

The Netherlands is a small country, with a surface area of some 41.000 km<sup>2</sup> and a population of about 15 million. It is located on the lower reaches of several big European rivers: the Rhine, the Maas and the Scheldt. These rivers all discharge their waters into the North Sea (Figure 1). Much of the Netherlands is below sea level and has to be protected from the sea by dunes and flood defenses, such as dikes. As so much of the Netherlands is below sea level the country has a highly ramified drainage system of channels, ditches, watercourses and discharge canals.

### 1.2 The authorities

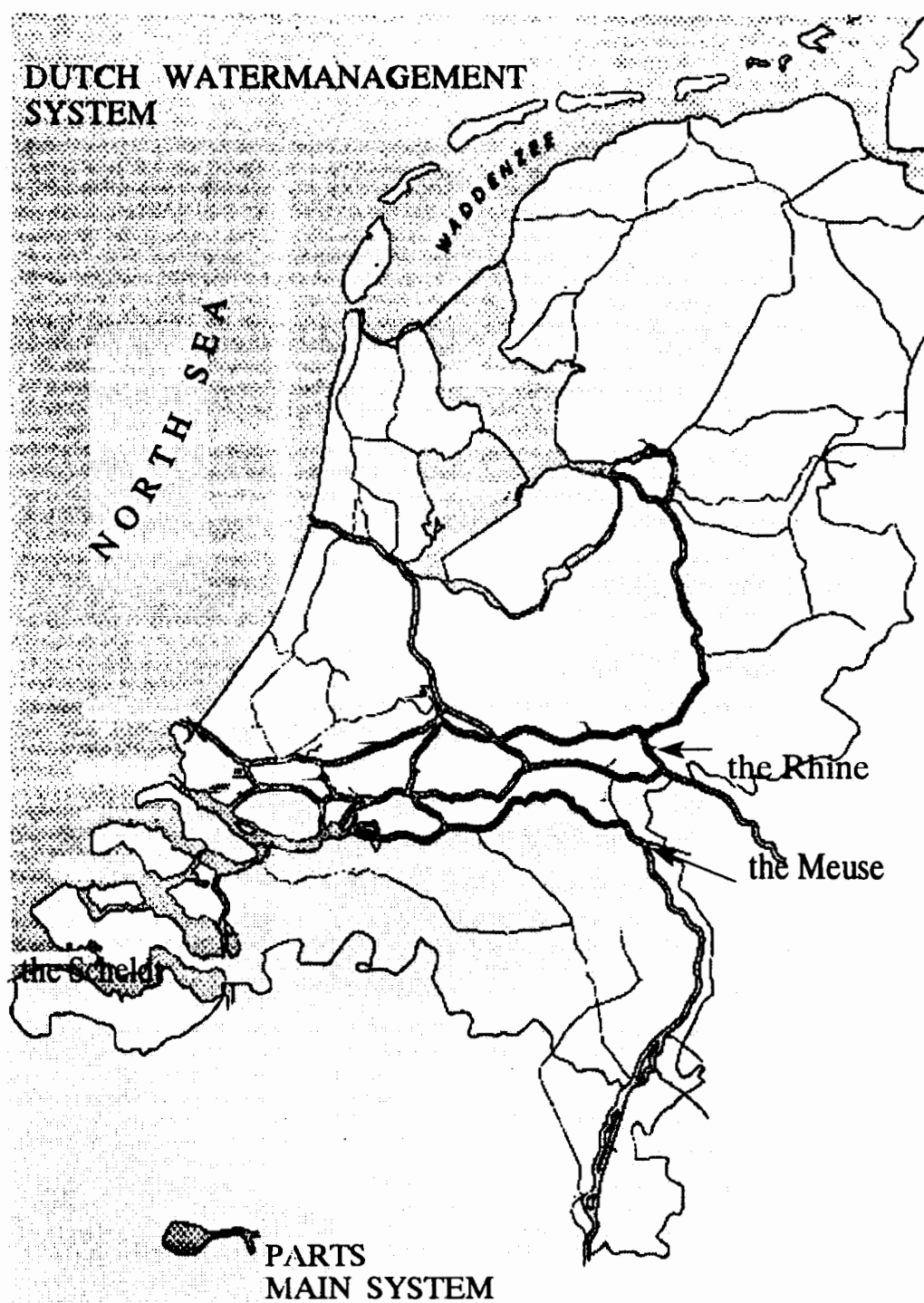
The Netherlands has three layers of government, which are at central, provincial, and local level. Each layer has a governmental or administrative body bearing political responsibility, and a civil service which is responsible for the preparation and execution of policy. Parliament operates at the central level, whilst at provincial level there are 12 Provincial Executives, and at local level 630 Municipal Executives.

### 1.3 Drinking water supply

In 1996 thirty water companies provide the public drinking water supplies in the Netherlands. All companies supply drinking water for human consumption ('quality A' water), and some also supply 'quality B' water, which is solely for industrial and agricultural purposes.

The water companies are united in the VEWIN, the Dutch Water Suppliers' Association. They jointly produce about 1300 million m<sup>3</sup> drinking water each year. Of this about 1100 million m<sup>3</sup> is produced of groundwater and infiltrated surface water.

**Figure 1. Dutch Water Management System**



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## **2 DIVISION OF RESPONSIBILITIES**

### **2.1 Central Government**

The civil service prepares legislation and policies and presents these to the authorities for approval (parliament). The policy plans contain the long term objectives.

The purpose of the policy as laid down in the Policy plan 'Drinking Water and Industrial Water Supplies' is to safeguard the future public water supplies for the benefit of the health, the welfare, and the prosperity of society in the Netherlands. The objective is to achieve an optimum guarantee of the continuity of the supply of good quality drinking water; the manner in which this is to be achieved also has to comply with the additional conditions that sustained development of society be feasible and that the costs be acceptable to the populace. The basic premise is that everyone in the Netherlands shall have access to sufficient drinking water which at least meets the requirements for the quality as specified in the pertinent legislation and regulations. Central government has the responsibility of supervising the execution of this responsibility.

The civil service is also responsible for the execution of some of the duties with regard to the surface water. These involve the monitoring of the quality and the discharge of the big rivers into the North Sea, the quality of the North Sea, and the granting of licenses for discharge of water into these waters.

### **2.2 The provinces**

At the provincial level the civil service interprets the government's position to the specific situation in the province. This interpretation is then presented to the provincial authorities for approval. A number of duties are also carried out at provincial level. The provincial authorities supervise the quality and the drainage of the drainage system and they grant licenses for the discharge of water into these surface waters. They also grant licenses for the pumping of groundwater. In most provinces they are also responsible for the purification of the domestic and industrial waste water. In furtherance of this responsibility the provincial authorities grant the local authorities and industry permission to offer their waste water to the waste-water purification plant and to the surface waters which subsequently receive the purified water. However the provincial authorities do not have any specific duties with regard to drinking water; this is the specific duty of central government.

### **2.3 The local authorities**

Within the municipal limits the local authorities can impose additional requirements over and above the policy as set down by the provincial authorities. This occurs only occasionally. In some instances the local authorities are responsible for the quality and the discharge of smaller (often inner urban) amounts of surface water. However their most important responsibility is the collection and transportation of domestic waste water to the waste-water purification plant. Another important task is to protect the soil (including the groundwater) of the groundwater catchment areas by spatial planning, environmental licenses and similar measures.

The local authorities can forbid the siting of industry in, or in the vicinity of, groundwater catchment areas. If industry is permitted in these areas then there may be extra conditions, such as the requirement that measures be taken to protect the soil.

## 2.4 The industrial sector

By law water companies are responsible for the public drinking water supplies. The management of the water company is obliged to ensure that the supply of sound drinking water to the users in the distribution area is guaranteed in such quantities and under such pressures as is required in the interests of public health. The companies carry out this obligation by drawing surface water from the big rivers and some regional waters, and by pumping up groundwater. This constitutes the raw water for the production of drinking water. After the water has been purified it is distributed to the users.

**Table 1. Division of the pumping stations according to the type of raw water (1994)**

TYPE OF RAW WATER	NUMBER OF PUMPING STATIONS
water table groundwater	131
water from the 2nd aquifer	87
bank-filtered river water	15
infiltrated surface water	9
surface water, direct or via reservoirs	7

## 3 PROBLEMS

### 3.1 Quality

The quality of water is detrimentally affected by the quality of water in the big rivers. The water in these rivers is polluted, either directly, for example by discharges upstream, disasters on the rivers, discharges from waste-water purification plants, illegal discharges, or indirectly by sources such as transboundary air pollution and shipping (including anti-fouling chemicals on hulls). As a consequence in the Netherlands the river beds and surface waters are heavily burdened with pollutants. The pollution also has an adverse effect on regional waters of all kinds. The regional surface waters are polluted in particular by diffuse sources such as water draining from the soil (such as polluted rainwater and polluted groundwater as a result of excessive use of fertilizers and protective agents used on crops). The groundwater is in particular polluted with nitrate and pesticides, again due to the use of excessive fertilizers and protective agents.

As the quality of the raw water is not ideal, maximum levels of various parameters have had to be specified; when these levels are not exceeded, then the surface water and groundwater may be used to prepare drinking water. The number of purification steps and techniques which are required to make drinking water of an acceptable quality from the raw water have increased in recent years.

**Table 2. Development of purification techniques**

Groundwater	Surface water (traditional)	Surface water (present day)
drawing from well	collection	collection
treatment with oxygen	prefiltration	prefiltration
filtration	coagulation	coagulation
clear-water reservoir	filtration	filtration
	chlorination	UV/ozone treatment
	clear-water reservoir	softening
		filtration
		clear-water reservoir

### 3.2 Quantity

The Netherlands is virtually completely dependent on other countries for the supply of fresh drinking water via the Rhine, Maas, and Scheldt. In the first instance it would seem that there is an abundance of water in the Netherlands; however this water is not always sufficiently pure to be suitable as raw water for the preparation of drinking water.

The amount of rainfall which is available to replenish the groundwater drawn from the soil is 680 m<sup>3</sup> per year per head of the population. This makes the country one of the driest in the world, with a rank equivalent to that of Kenya - whilst the demand for drinking water is still increasing each year, in spite of all the measures taken to conserve drinking water.

### 3.3 Guarantees

The water companies are faced with the difficult task of ensuring that they can supply sufficient good quality water at all times, whilst their influence on the quality of the raw water is limited. This makes it difficult for the companies to give guarantees to the supervisory authorities or to the users. They find themselves forced to build purification plants which increasingly resemble chemical plants.

## 4 SUPERVISION AND ENFORCEMENT

### 4.1 The supervision of the water companies

The water companies have to comply with their responsibilities as laid down in the Water Supply Act and the Water Supply Decree. The central government supervises compliance with these requirements for drinking water supplied to users, the operation of the purification

system and the quality of the raw water. This is affected by means of an annual inspection of the analytical data. The government used to carry out its own analyses, but has discontinued this practice. Consequently the supervision is now based on trust, complemented by inspection.

Values in excess of notification limits are reported at once by the water companies to the government and if possible and if necessary measures are immediately taken to rectify the situation. The specified limits are only occasionally exceeded "ex pumping station" or in the distribution network.

**Table 3. Summary of the number of times specified limits of some parameters are exceeded in drinking water "ex pumping station" (1994)**

Parameter	number of measurements	number of times exceeded	percentage
degree of turbidity	15.233	13	0,1
acidity	16.466	10	0,1
total hardness	3.252	495	15,2
nitrite	5.879	5	0,1
nitrate	1.734	2	0,1
manganese	8.416	51	0,6
bacteria, coliforms	15.439	15	0,0
thermoduric bact. coligr.	2.220	4	0,2
pesticides	10.599	22	0,2

The raw water is frequently of insufficient quality for use in the preparation of drinking water. As a consequence the collection of water is halted, or the use of a well is discontinued for a longer or shorter period of time.

To date enforcement by means of administrative measures and the (temporary) closure of the water company have been used by the government only in very exceptional circumstances. The water companies are careful to protect their reputation, by avoiding the adverse publicity such situations would create.

#### 4.2 Supervision of the raw water

Although the quality of the raw water (surface water and groundwater) is monitored by the water companies they can in fact only influence the quality to a limited extent. The quality of the groundwater is determined by the spatial and environmental policy of the provincial and local authorities. The provincial and local authorities designate areas within their jurisdiction as groundwater catchment areas. In such areas special regulations apply to the use of the soil,



including the groundwater. The location of industry within such areas is often not permitted, or is permitted only under stringent conditions. Activities which constitute a threat to the soil are not allowed in such areas. The provincial and local authorities are responsible for the supervision of these areas, and of the compliance with any special conditions which may have been made.

The quality of the surface water is determined by the spatial and environmental policy of central government and of the provincial authorities. These authorities designate surface waters for 'drinking water collection'. They take account of this when they grant licenses to discharge water into this surface water. This does not always lead to the desired result, as can be seen from Table 4 which is a summary of pesticides found in groundwater and surface water.

**Table 4. "Top Twelve" pesticides in raw water (1993)**

	groundwater	groundwater	surfacewater	surfacewater
substance	pumping stations <sup>1</sup>	measurements	pumping stations <sup>1</sup>	measurements
drins	170	343	15	215
hexachlorobenzene	170	333	15	254
lindane	166	315	13	202
atrazine	164	345	11	348
DDTs	153	302	15	207
heptane chloride	152	300	15	216
simazine	147	314	11	348
desmetryne	144	295	6	189
1,2 Dichloropropane	138	447	3	95
ethopofos	136	289	4	115
bentazone	24	271	6	88
DNOC	4	8	6	26

<sup>1</sup>number of pumping stations at which the substance was measured.

The influence of the central government and the provincial authorities on upstream discharges and diffuse sources such as transboundary air pollution is limited. However it should be noted that since the signing of the Rhine Action Program (RAP) and the International Conference on the Protection of the North Sea the quality of both these surface waters has improved considerably. "Special" pollution with *Giardia en Cryptosporidium* still occurs in surface water, as can be seen in Table 5.

**Table 5. Concentrations of *Cryptosporidium* and *Giardia* in surface water (1994)**

	number of samples	% positive	arithmetic mean	range (n/l)	corrected average (n/l)
<i>Cryptosporidium</i>					
Maas	39	90	0,040	0 - 0,38	1,4
Twenthe canal	13	100	0,42	0,13 - 1,59	1,6
<i>Giardia</i>					
Maas	39	85	0,048	0 - 0,58	1,5
Twenthe canal	13	100	0,67	0,24 - 1,29	2,9

## 5 INSPECTORATE FOR THE ENVIRONMENT MONITORS REMOTELY

While water treatment grows into a complex environmental business, the Inspectorate for the Environment can do little in response. Of the more than 300 officials working at the Inspectorate, only 4 concern themselves with drinking water, which is one of the areas where the Inspectorate exercises first-line monitoring. The traditional manner of monitoring, as practiced for example by a quality board for surface waters, is inadequate in this case.

If the Inspectorate had to concern itself with taking water samples, there would be little checking at all. The Inspectorate for the Environment therefore vests a large proportion of checking responsibility with the companies themselves. The industry itself is responsible for the essential responsibility of ensuring that there are adequate stocks of drinking water, and of the right purity level. There are therefore never any spectacular raids on water companies, with a camera team in trail. Any suspicious water analyses are notified by the water companies themselves, even before the official enforcement authorities are able to call them to account.

The report on water quality in 1993 was mainly based on measurements carried out by the water companies themselves. There are two weak spots here: the sampling and the systematic errors that creep into the analysis. Laboratories regularly exchange samples among

themselves to identify systematic measuring errors. Such group investigations are now being formalized into a routine control system. Staff who take samples are also exchanged. This avoids personal methods having an impact on the results.

The Inspectorate for the Environment can then confine itself to checking the independence and accuracy of the researchers in the company laboratory. Everything stands or falls by this. If the Inspectorate is deceived just once, all data becomes suspicious. In that event, they would have to measure everything themselves again. The Inspectorate itself only takes ad hoc water samples to guarantee that the parties involved have not made any systematic errors.

For the moment the Inspectorate for the Environment can continue to operate remotely. The Inspectorate looks primarily at the organization of the water supply companies and the laboratories in order to check the approach adopted by the former and the independence of the latter. For example, it scrutinizes the rules of conduct, disaster scripts and the division of responsibilities. The quality management system currently being introduced is an important tool here. The laboratories of the water companies are accredited as 'Sterlab', which means that operations have been recorded in formal rules. This is being extended to the company as a whole. The Dutch Water Suppliers' Association (VEWIN) agreed with the Ministry of Housing, Spatial Planning and the Environment in 1991 that the water companies will have introduced ISO 9001 procedures by the year 2000. The formal rule-based system along these lines infallibly shows up the weak spots in the organization. The Inspectorate for the Environment can then see whether the companies are effectively self-regulating.

## 6 CONCLUDING REMARKS

The question as to whether the legislation and regulations developed by the authorities in the Netherlands will be sufficient to guarantee the supply of drinking water in the future cannot yet be answered in the affirmative. In particular the steadily increasing demand for drinking water is a problem. It is clear that the present drinking water supplies are guaranteed to a sufficient extent. However, the continual enlargement and extension of the purification systems is a cause for concern.

## REFERENCES

1. Ministry of Housing, Spatial Planning and the Environment, Policy Plan Drinking Water and Industrial Water Supplies, 1982\*
2. Ministry of Transport, Public Works and Water Management, Evaluation Memorandum Water, 1992\*
3. Water Supply Act/Water Supply Decree, Koninklijke Vermande, 1994\*
4. Inspectorate for the Environment, report 'De kwaliteit van het drinkwater in Nederland in 1994' (The quality of drinking water in the Netherlands in 1994), December 1995
5. Erasmus University, Rotterdam, Levend Water en een wereldstad (The vital water of a metropolis), Prof. dr. H.L.F. Saeijs, September 1995
6. Inspectorate for the Environment, Zicht op Zorg in de Drinkwatervoorziening (Review of the protection of drinking water supplies), November 1995

\*Available in the English language.



## **POTASSIUM AND NITRATE POLLUTION OF SURFACE WATER IN THE CATCHMENT AREA OF THE "BLANKAERT" WATER PRODUCTION CENTRE IN FLANDERS (BELGIUM)**

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### **SUMMARY**

The Environment Inspection Section, West Flanders Local Service has jurisdiction over the "Blankaert" water production centre, which is completely fed by surface water from the IJzer river, the Blankaert pond and the Koevaardeken.

The quantity of drinking-water hourly distributed in the water supply system ranges from 300 to 2.800 m<sup>3</sup>. Increasing pollution and seasonal differences in quality and quantity render a reservoir (3.000.000 m<sup>3</sup> capacity) absolutely necessary.

The rising potassium and nitrate content of the reservoir water led the drinking-water collection company to request the Environment Inspection Section to conduct an exhaustive inquiry into the causes of this pollution.

The potassium pollution turned out to be completely caused by the waste water discharge of an important company. Stopping the potassium discharge turned out to be impossible on the short term but initiatives on the European level will eventually cause standards as to the potassium content of drinking-water to be adopted.

The causes of the nitrate pollution are diffuse and are fully due to agricultural activities, being the excessive manuring of lands and pastures, on the one hand and the manure discharges on the farms, on the other. Our Local Service intensively scanned the catchment area of the water production centre and consequently imposed various preventive measures. Offenses have been reported to the Public Prosecutor.

### **1 INTRODUCTION**

The water production centre (WPC) the "Blankaert" of the Flemish Water Supply Company (VMW) is located in the extreme West of Flanders (Belgium) (see Figure 1) and distributes 300 tot 2800 cubic meters of drinking water an hour based on surface water coming from the IJzer river, Blankaertpond and the Koevaardeken.

The hydrographic basin of the IJzer river covers the municipalities listed below: Alveringem, Poperingen, Vleteren, Lo-Reninge, Heuvelland, Ieper (Ypres), Zonnebeke, Langemark, Staden and Houthulst; the overall number of inhabitants amounts to 110,000 (see Figure 2).

The area has a surface of about 300 square kilometers and is largely agrarian: intensive farming and intensive cattle breeding. Overall livestock consists of more or less 100,000 bovine animals, 630,000 pigs and 1.7 million of poultry. Only in the Ypres area do we find a limited industrial activity.

**Figure 1**

# Hydrographic Basin of the IJzer river as situated in Flanders (Belgium)

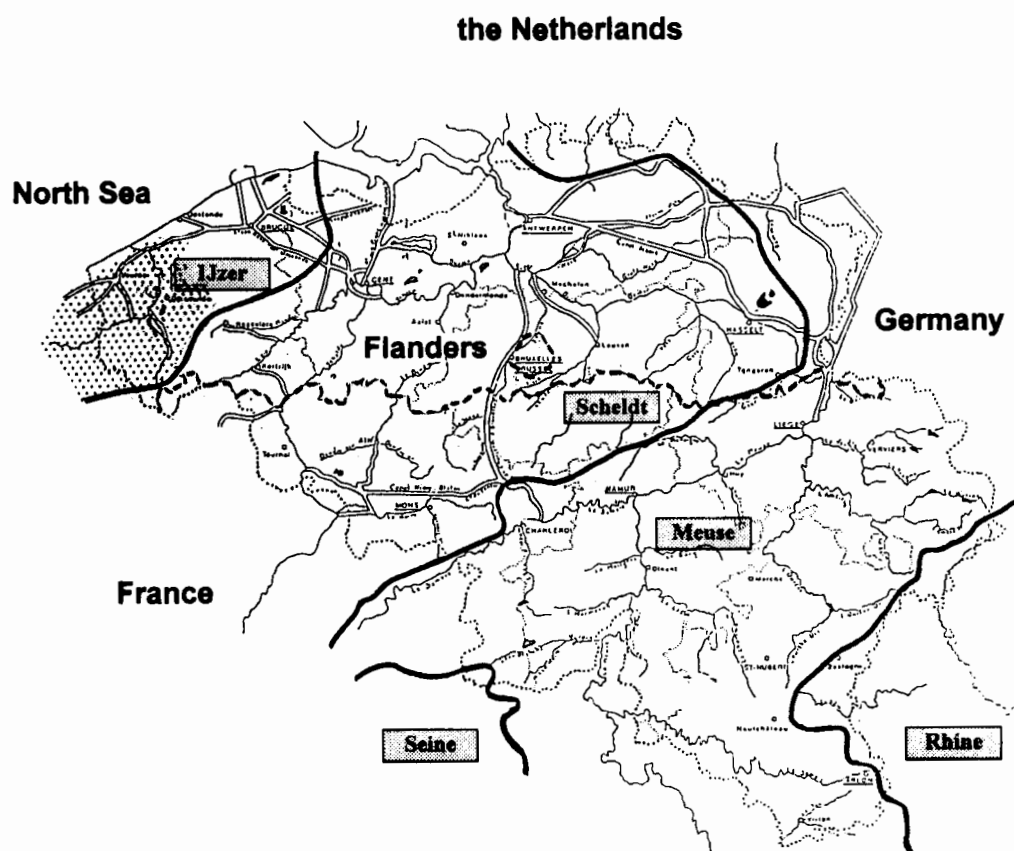
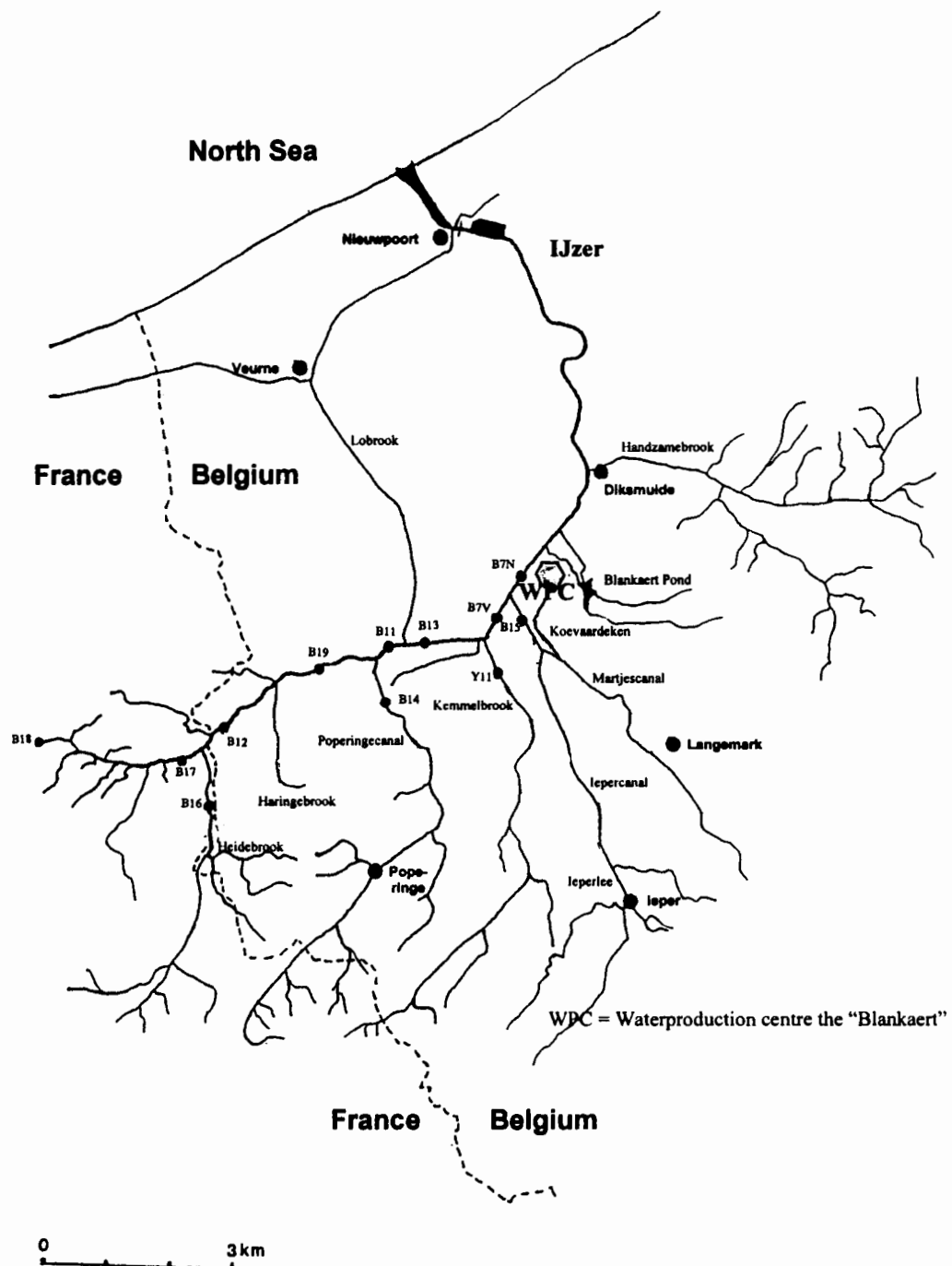


Figure 2

## Hydrographic Basin of the IJzer river



As quality and quantity of surface water in waterways largely dependent on the seasons, intermediate storing in a reservoir is absolutely necessary (contents: 3 million cubic meters). The storage of surface water takes place as a function of the quality and mainly in wet periods. Figure 3 shows the water production center (WPC), the "Blankaert" and the surrounding catchment area (see Figure 3).

Initial sedimentation and a biological self-purification take place in the reservoir. After the reservoir, the water is purified in two biological oxidation towers with lava rock. Next, the remaining organic material is decanted with ferrichloride. Finally, after breaking-point chlorination and activated carbon filtration, sodium hypochlorite disinfection is carried out. This water is subsequently pumped to the consumer as tap water.

Nevertheless, reservoir water quality is negatively affected by the following parameters: pesticides, potassium, boron, nitrate and sewage. As far as sewage is concerned, an extended program is currently in progress and includes constructing waste water collectors and waste water treatment plants in the above-mentioned municipalities.

## 2 THE POTASSIUM PROBLEM

On July 31, 1992, the Government of Flanders granted a deviation for the potassium parameter up to 30 mg/l for the VMW the "Blankaert" water production centre, whereas then drinking water standard for potassium amounts to 12 mg/l.

Conducting research into the cause of this high potassium concentration was made as a condition for granting that temporary deviation.

An initial study was carried out by the Flemish Water Company. As treatment at the water production centre itself did not influence the potassium levels, the latter completely depends on the quality of the surface water taken in.

That's why the hydrographic basin of the Ijzer river was examined. It revealed that the potassium levels already come close to the 12 mg/l standard value at the source in France and that it keeps on growing downstream up to the place where the water is collected for the reservoir. On the one hand, this rise is caused by draining farmland through topdressing and on the other hand by industrial discharges through the Iepercanal, by far making the largest contribution.

This way, one notices that the potassium levels in the Ijzer river rises from 19 to 43 mg/l due to the water supply from the Iepercanal (51 mg/l), in turn fed by the Ieperlee (192 mg/l).

Table 1 summarizes the potassium levels (in mg/l) in the surface waters of the collection area. The code refers to the sample location indicated in Figure 2.

Furthermore, it was revealed that the high potassium levels of the Ieperlee came from discharges of one of the industrial zones of Ypres town. The discharges of that particular industrial zone contained as much as 900 mg/l and this way the main potassium source was already found, more or less.

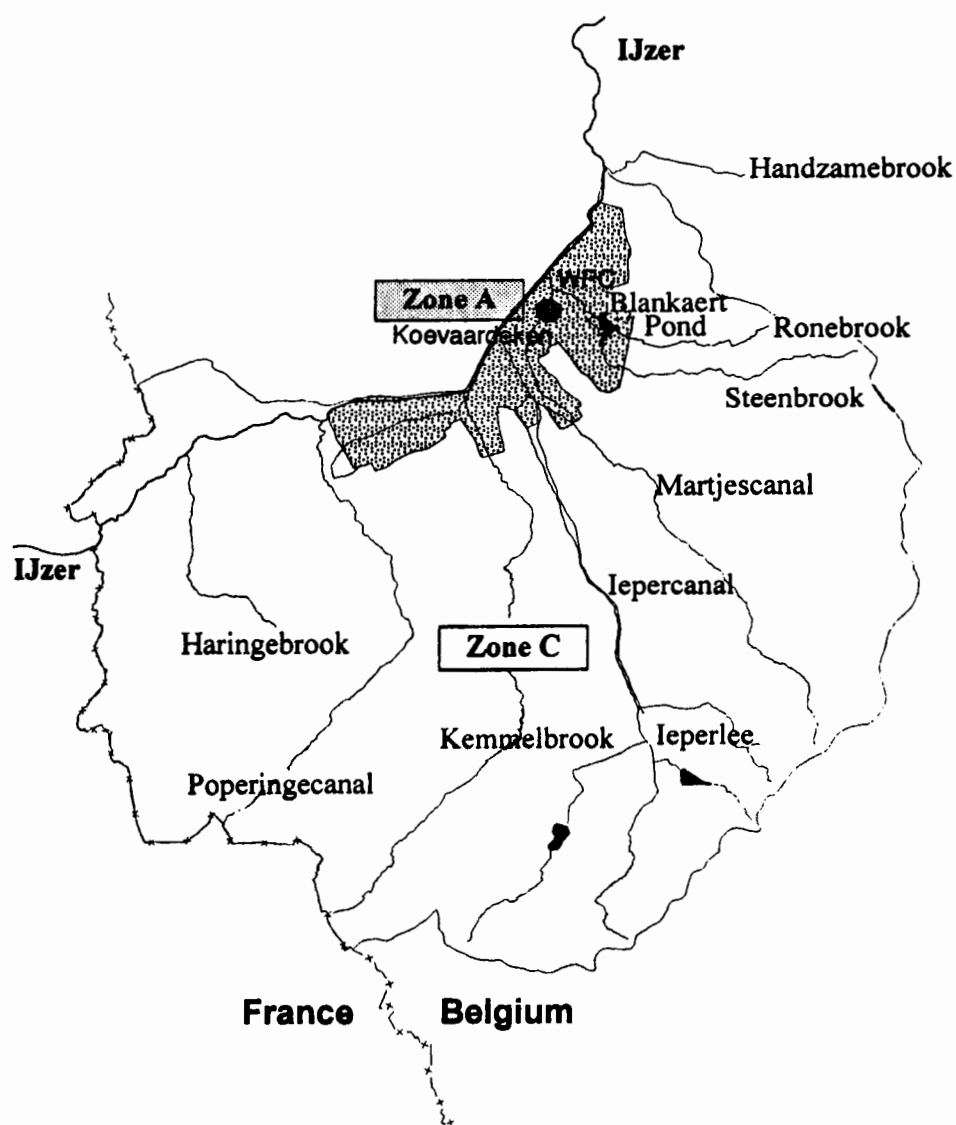
The Environment Inspection Section took waste water samples of all important companies located in the industrial zone concerned. The analysis results revealed that the potassium concentration in the waste water of a soya-processing company amounted to an average of 1.000 mg/l or a bulk of more or less 2.500 kilograms of potassium a day. The highest potassium concentration observed in the other examined companies amounted to 72 mg/l.

The discharge permit of the soya-processing firm did not include any potassium standard, but the Environment Inspection Section ordered the firm to submit an action proposal aiming at a dramatic decrease of the potassium level in the waste water.



**Figure 3**

## Catchment area of the Blankaert Water Production centre



Soon, however, one of the raw materials used (soya flakes) turned out to contain much potassium. Consequently, the potassium level in the waste water could not be lowered by changing the production process. Furthermore, it turned out that a period of at least two years would be required for a water purification extension with a facility based on the reverse osmosis principle to become operational. Moreover, this action would require the company to make a very considerable investment.

A literature study further revealed that laying down a potassium standard for drinking water quality is obsolete. The 1992 revision of the World Health Organization guidelines for drinking water quality (report of the final task group meeting; Geneva; Switzerland, September 21 to 25, 1992) eliminated the potassium parameter. In its document entitled "Updated comments on the Revision of the Drinking Water Quality Directive 80/778, 1993", the EUREAU organization stated the following regarding potassium: "...can be omitted without any effect on the water quality or protection of the consumer." and also: "...the parameter has no relevance to water quality to the consumer and can be removed from the directive." In fact, the potassium parameter will soon be omitted from the European directive.

For these reasons, it was decided to not impose any measure for the company involved lowering the potassium levels in the drained waste water.

**Table 1. Hydrographic basin of the Ijzer river: potassium-concentration (mg/l)**

SAMPLING POINT	CODE	MEAN	MINIMUM	MAXIMUM
Ijzer at Esquelbecq	B 18	11,3	6,6	20,6
Ijzer at Bambecq	B 17	12,8	7,2	24,5
Ijzer at Eybecque	B 16	18,9	9,4	42,5
Ijzer at Roesbrugge	B 12	16,5	4,6	31,7
Ijzer at Stavele	B 19	20,8	8,5	46,4
Poperingecanal	B 14	23,5	11,6	49,4
Ijzer at Elsendamme	B 11	20,7	8,5	49,2
Ijzer at Fintele	B 13	16,8	8,0	38,2
Kemmelbrook	Y 11	25,2	10,5	76,5
Ijzer before confluence with Iepercanal	B 7V	34,2	9,0	179,8
Ijzer after confluence with Iepercanal	B 7N	42,6	3,1	181,8
WPC the Blankaert		22,4	15,5	35,4

### 3 THE NITRATE PROBLEM

High nitrate concentrations in surface water cause problems for reaching the drinking water standards laid down. The March 15, 1989 Government of Flanders Decree lays down the standard to be no more than 50 mg/l. Table 2 offers a summary of the nitrate grades (in mg/l) in the surface waters of the catchment area. The code refers to the sample location indicated in Figure 2.

No doubt, direct liquid manure drainage combined with topdressing of farmland are the main nitrate pollution sources.

**Table 2. Hydrographic basin of the Ijzer river: nitrate-concentration (mg/l)**

SAMPLING POINT	CODE	MEAN	MINIMUM	MAXIMUM
Ijzer at Esquelbecq	B 18	60	41	87
Ijzer at Bambecq	B 17	60	39	85
Ijzer at Eybecque	B 16	55	1	86
Ijzer at Roesbrugge	B 12	44	0	85
Ijzer at Stavele	B 19	48	2	84
Poperingecanal	B 14	52	0	115
Ijzer at Elsendamme	B 11	48	3	97
Ijzer at Fintele	B 13	48	0	98
Kemmelbrook	Y 11	58	0	133
Iepercanal	B 15	50	0	119
Ijzer after confluence with Iepercanal	B 7N	42	1	108
WPC the Blankaert		32	5	50

In order to lower the impact of direct liquid manure drainage considerably, the Environment Inspection Section took a special action.

In 1993 and 1994, 1.228 inspections were carried out in 950 stock breeding firms, such as pig farms, cattle farms and poultry farms. Pig farms stood for 55% of the examined firms.

These stock breeding firm examinations concentrated on the license situation of the firm and possible illegal drainage, such as direct liquid manure drainage, cesspool overflows (draining cesspool fluids), draining rinsing water in stables, collecting or directly draining rainwater, dumping silo fluids, among other things.

Serious infringements- such as direct liquid manure drainage and/or running unlicensed stables - were observed in 12 companies. In each of those cases, a report was made and sent to the Public Prosecutor; moreover, orders were given in 5 of these cases. These orders involved ending illegal drainage at once or clearing illegal stables. In the case of one firm, for which several reports were made due to illegal draining, but that did not obey the orders, the authority that granted the license was requested to abolish the environmental permit. At least, the permit of this firm involved was suspended for one year.

In case of minor faults, such as cesspool overflows, a warning was given and reorganization measures were imposed in order to prevent draining waste water into surface waters or the soil. 201 warnings were given in all. After a few months, a next inspection was carried out in order to find out whether the warnings were observed. Except in a few cases, the imposed activities were carried out meticulously.

In case of a few larger pig farms (more than 2,000 pigs), the examination was carried out in cooperation with inspectors of the Flemish Land Company (VLM). The latter checked whether all documents regarding manure production were filled in correctly. When this was not the case or when the difference between the quantity of manure produced at the firm and the proven production was too large, this might indicate systematic direct liquid manure drainage. As a matter of fact, several inspections were held in such cases in the neighborhood of the firm and more particularly in ditches and brooks in the immediate surroundings.

Nevertheless, this action can be said to have had only a limited effect on the average nitrate grade in the hydrographic basin of the IJzer river. No doubt, topdressing of farmland now turns out to have a dominating influence on the nitrate problem.

As topdressing occurs all over Flanders, the Government of Flanders approved a "Manure Action Plan" (i.e. MAP) that came into effect on January 1, 1996.

This Manure Action Plan aims at a long-term equilibrium in the Flemish balance of nutrients (nitrogen and phosphor). Goals for the basic quality of soil, water (surface and ground water) and air to be reached and/or maintained were laid down.

In protected drinking water collection areas, such as the water production centre the "Blankaert" and the surrounding catchment area, more rigid fertilization standards apply.

Meanwhile, the Flemish Water Company decided to start constructing a nitrate elimination facility. This facility will treat a partial flow of 750 cubic meters an hour in a fluidized bed reactor using methanol as a carbon source.

#### 4 CONCLUSION

Two examples were given in which the Environment Inspection Section took action and specifically scanned companies in order to try and improve the surface water quality so that a larger quantity of water is rendered possible for the water production centre the "Blankaert."

The impact of diffuse drainages made it clear, however, that improvement of local sources will not do to reach a drastic surface water quality improvement.

All hopes must be set on a strict application of Manure Action Plan by the authorities granting permits and effective and efficient enforcement. We may wonder to which extent the authorities will balance the importance of this Plan and its environmental goals against the economic importance of the stock breeding firms sector, among other things.

This way, we will be able to assess the effectiveness of the present Manure Action Plan only in a few years.

#### REFERENCES

1. EUREAU, Updated comments bij Eureau on the Revision of the Drinking Water Directive 80/778/EEC, August 1993, p. 51.
2. Ministerie van de Vlaamse Gemeenschap, Department Leefmilieu en Infrastructuur, AMINAL, Bestuur Milieu-inspectie jaarverslag 1993, p. 101.
3. Vlaamse Maatschappij voor Watervoorziening, WPC De Blankaert - Onderzoek kaliumgehalte, Nota ingediend bij de aanvraag tot afwijking op het Besluit van de Vlaamse Executieve van 15/03/89 houdende vaststelling van een technische reglementering inzake drinkwater, p. 10, not published.
4. Vlaamse Maatschappij voor Watervoorziening, WPC De Blankaert - Onderzoek nitraatgehalte van de waterlopen in het captatiegebied, p. 27, not published.
5. Vlaamse Milieumaatschappij, ontwerp AWP - II IJzer - Blankaert en Handzame vaart, p. 155, 1994.

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## PROTECTING DRINKING WATER QUALITY THROUGH THE CLEAN WATER ACT AND THE SAFE DRINKING WATER ACT

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### SUMMARY

This paper provides an overview of the programs authorized under the United States water laws designed to protect drinking water supplies. Statistical information on the number of drinking water supplies and their compliance with drinking water regulations is also given.

### 1 INTRODUCTION

Threats to the quality of drinking water come from a variety of sources — bacteria, turbidity (caused by suspended matter in the water), overflowing storm sewers, defective storage tanks, pesticides, fertilizers, and other agricultural run-off, run-off from oil-slicked or salt-treated highways, and underground injection of wastes to name a few. Protecting the quality of drinking water sources from all these threats is a complex process which requires a variety of approaches from traditional permit and/or enforcement programs to those that rely more on education, outreach, and technical assistance. The United States has two primary laws designed to protect the quality of the nation's waters — the Clean Water Act and the Safe Drinking Water Act. The Clean Water Act deals for the most part with surface waters; the Safe Drinking Water Act deals with both surface and ground waters. While threats to and indicators of the quality of surface water are often easy to see, the same cannot be said for groundwater. Yet, protection of ground water is critical as 95% of all fresh water available on earth (excluding the polar ice caps) is groundwater and approximately 53% of the United States population relies to some extent on ground water as a source of drinking water.

This paper will briefly summarize several of the major programs designed to protect drinking water supplies — the Public Water System Supervision Program, the Underground Injection Control Program, and Source Protection Programs, including the wellhead protection program, comprehensive state groundwater protection programs, and watershed protection programs. This paper does not deal with the significant contributions made to the protection of drinking water supplies by the hazardous and solid waste law (the Resource Conservation and Recovery Act) or the hazardous waste site clean-up law (the Comprehensive Environmental Response, Compensation, and Liability Act, commonly known as Superfund). The majority of the programs designed specifically to protect drinking water supplies are authorized by the Safe Drinking Water Act; however, as the Clean Water Act programs play a major role in controlling and improving surface water quality, this paper will briefly summarize some of the requirements of that Act as well.

Before examining specific statutes and programs, however, it is important to touch on one of the key principles in environmental regulation and enforcement— that of shared responsibility between the national government, represented by the US EPA, and the State and local governments. Under both the Clean Water Act and the Safe Drinking Water Act, EPA

may delegate the primary responsibility for administering programs and enforcing requirements to the States once the States meet certain program requirements. Delegation often makes implementation and enforcement of regulatory requirements somewhat more complex; yet it allows States some flexibility to tailor the programs to specific situations within their boundaries. Given pressures to reduce the size of the federal government, the fact that many States have developed considerable expertise in environmental protection, and the fact that many environmental problems need local solutions (for example, land use planning), there is an increasing emphasis on partnerships with State and local entities. The full impact of this trend on environmental enforcement (particularly the role of the federal government) and environmental quality will not be known for some time.

## 2 CLEAN WATER ACT PROGRAMS

### 2.1 The National Pollutant Discharge Elimination System

The Clean Water Act, originally passed in 1972, has as its goal the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. The Clean Water Act programs protect the sources of drinking water — they do not regulate drinking water quality directly. While the Clean Water Act established many programs, arguably one of the most successful at controlling sources of water pollution has been the National Pollutant Discharge Elimination System (NPDES) program. Under the Act, all discrete wastewater conveyances (that is, point sources) that discharge wastewater to waters of the United States must have a permit in order to discharge that wastewater. Waters of the United States include any surface water, including intermittent streams, and those underground sources which have a direct hydrologic connection to a surface stream.

Point sources are generally either industrial, that is commercial and manufacturing facilities, or municipal, also known as publicly owned treatment works. Municipal facilities include domestic wastewater directly discharged to sewers and industrial waste which is indirectly discharges to sewers. Both industrial and municipal sources can be classified as "major" or "minor" depending on their size, location, type of discharge, and other factors.

There are nearly 100,000 point sources discharging wastewater in the United States; there may be an additional 100,000 discharging contaminated stormwater (note, however, that these stormwater sources are by and large not yet under the same type of controls as other point sources). The permits issued to the point sources require them to meet certain limits in the wastewater which is discharged. These limits are either technology-based or water quality based. Technology-based limits are established based on the best-available technology and do not take into consideration the condition of the waterbody into which the source discharges. In other words, the source must install the technology and achieve the limits that the technology will meet. Water quality based limits are set based on the quality of the water receiving the discharge.

In addition to effluent limits, permits include both standard and site-specific compliance monitoring and reporting requirements and other site-specific conditions that EPA or the State may deem necessary to control the discharge, for example, construction schedules, best management practices, or additional monitoring for pollutants of particular concern.

In order to obtain a permit to discharge (or to modify or renew an existing permit), the owner/operator of a point source submits an application to the permitting authority (that is, either EPA or the State) 180 days before a new discharge or before an existing permit expires. The permit writer reviews the submission and drafts a permit. This draft is sent to the applicant

and is published in order to notify the general public that there has been an application for a permit and to invite their comments. A public hearing on the permit may be held where there is sufficient public interest. The permit writer accepts all public comments, responds to them, and issues a final permit. The final permit may be challenged either through an administrative process or in the courts; however, any challenge must be made within the statutory or regulatory time frames or the permit becomes final. Permits are issued for a term of five years.

EPA may issue the permits itself or may delegate the responsibility to the States. States and/or EPA determine compliance with permit limits and other permit terms through the required reports and through periodic inspections. Where a facility is not acting in compliance with its permit or if a facility is discharging without a permit, an enforcement action is usually taken.

The Clean Water Act provided EPA many tools to create an effective enforcement program. Under Section 308, EPA may issue an order requiring a source to perform sampling and provide records and reports to EPA (The required sampling may be beyond what is required in a permit.) In addition, EPA has the authority enter and inspect any facility. Under Section 309, whenever EPA has information that any person is in violation, EPA may: (1) notify the State [if the State has an approved permit program] and provide the State 30 days to take an enforcement action. If after 30 days the State has not acted, EPA "shall" issue an order or bring a civil action; (2) issue an administrative compliance order; (3) issue an administrative penalty order (the maximum administrative penalty which can be sought is \$125,000); or (4) bring a civil action for appropriate injunctive relief and penalties up to a maximum of \$25,000 per day per violation. Moreover, EPA may seek criminal penalties for negligent violations, knowing violations, knowing endangerment, or making false statements (including falsifying monitoring devices).

The type of enforcement action expected given the type and duration of a violation is clearly spelled out in this program's Enforcement Management System.

The permitting system for point source dischargers and the accompanying compliance and enforcement program have been and continue to be a major force behind many of the water quality improvements seen in recent years. They have served as a model for other water programs.

## 2.2 Other provisions of the Clean Water Act

The Clean Water Act has several other major components which are critical in protecting and improving water quality, including: (1) the water quality standards program under which States adopt EPA-approved standards for their waters. These standards define the water quality goals for water bodies and consist of the designated uses of the water body, criteria to protect those uses, and antidegradation policies to protect the existing water quality; (2) Effluent guidelines program under which EPA develops nationally consistent guidelines limiting pollutants in discharges; these guidelines are used in setting the permit limits; and (3) The development of Total Maximum Daily loads or TMDLs. A TMDL calculates allowable pollutant loadings from the contributing point and nonpoint sources to a given water body and provides a quantitative basis for the pollution reduction necessary to meet water quality standards. States develop and implement TMDLs for high priority impaired or threatened water bodies.

Each of these programs is critical in protecting water quality and could be the subject of a separate paper. They are mentioned here only to demonstrate the many elements needed in a program to protect surface water.

The Clean Water Act programs have been very successful in controlling pollution of surface water by point sources, that is, by "discernable, confined, and discrete conveyances." The major sources of pollution of surface water (and therefore of drinking water sources) which are not yet under enforceable controls are those from so called nonpoint sources, for example, agricultural runoff. These present particular challenges as the Clean Water Act did not provide EPA the authority to deal with them in the same way as with point sources; that is through a permit program and clear enforcement authorities.

Given the statutory limitations on dealing with nonpoint sources and a growing consensus among many that water quality problems are best solved at a watershed level, EPA and many states have over the past several years been pursuing a "watershed approach" to water quality management. Specifically, this means that managers are encouraged to examine all factors contributing to water quality impairment and apply a coordinated, holistic approach to solving the problem. States and/or EPA Regions using this approach target watersheds where pollution poses the greatest risk to human health, ecological resources, or desirable uses of the water; involve all parties with a stake in the watershed in the analysis of problems and the implementation of solutions; and draw on a full range of available methods and tools (including compliance and enforcement activities) to solve the problem.

For example, Watershed A is targeted for attention by a State since it: (a) contains a river which is a source of drinking water, home to several species of fish, and serves as a place for recreation; (b) has two facilities with NPDES permits which discharge into the river; (c) has farms lining large segments of the river; and (d) currently does not fully meet the water quality standards set for the river or river segments. The State managers begin a comprehensive analysis of sources of pollution and their effects on water quality. They determine that, in fact, the permittees and the agricultural runoff are the primary sources of pollution. The managers review the compliance status of the permittees and determine that one is in violation of its permit limits and one is not. An enforcement action is taken against the violator. That action requires the violator to comply with permit limits and to perform a supplemental environmental project which further improves water quality in the area. Additional review and analysis of the other permit, however, indicates that the permit will be up for reissuance soon and that levels of particular pollutants being discharged need to be tightened. As the permit process occurs, more stringent limits for particular pollutants are proposed and are placed in the final permit. Finally, outreach and technical assistance activities are directed at the agricultural community in order to fully educate them about the effects of pesticide and other runoff and the management practices which can be implemented to control the runoff. All these actions, taken in a coordinated fashion, serve to improve the water quality in the watershed.

This watershed approach thus protects the drinking water by protecting the quality of the source water. Protection of the drinking water source may reduce the need for treatment by the drinking water system, for example, by reducing the level of pesticides which run off into the source water, the drinking water treatment needs are reduced. The approach requires both traditional permit programs as well as those which rely on education and outreach in order to be effective.

Given this very brief overview of the Clean Water Act programs and how they generally protect the surface waters which are sources of drinking water, we will now turn to a discussion of the Safe Drinking Water Act and those programs which have been specifically designed to protect drinking water supplies.



### 3 SAFE DRINKING WATER ACT (SDWA)

The Safe Drinking Water Act was originally passed in 1974. The statute established several programs to insure drinking water quality — the public water system supervision program, the underground injection control program, and other groundwater protection programs, including the wellhead protection program and comprehensive state groundwater protection programs.

#### 3.1 Public Water System Supervision (PWSS) Program

Under this program, EPA regulates public water systems — those systems which provide "piped water for human consumption" and regularly serve at least 25 individuals or have at least 15 service connections. EPA establishes national primary drinking water regulations with which all public water systems must comply. These regulations set the health standards for water which is delivered to the consumers. They also include the monitoring and reporting requirements and the methods which must be used in analyzing water samples. States which have been approved to administer the program must have regulations which are "no less stringent" than the federal requirements.

##### 3.1.1 Nature of the regulated community

In the United States, there are approximately 186,000 public water systems. In order to manage this vast number, the program divides water systems into three types: (a) community water systems — those that provide water to the same population year-round; (b) nontransient noncommunity water systems — those that serve at least 25 of the same people at least six months of the year, for example, schools and factories that have their own water supplies; and (c) transient noncommunity water systems — these provide water to transitory customers in nonresidential areas such as campgrounds and highway rest areas which have their own water systems. There are approximately 56,000 community water systems, 24,000 nontransient noncommunity water systems and 106,000 transient noncommunity water systems.

Public water systems can be either publicly or privately owned. A great number of the small community water systems and the nontransients are in fact privately owned.

A review of some information on the nature of the regulated community in the drinking water program as well compliance statistics will enable a better understanding of the program and some of the difficulties in implementation and enforcement. Because EPA and the States focus most of their attention on the community water systems, the following discussion will deal only with the community water systems and reflects the fiscal year 1994 compliance data.

EPA frequently classifies community water systems into five size categories for analysis (See Table 1).

**Table 1. Categories of Water Systems Based on Population Served**

System Size	Population Served
Very Small	25 - 500
Small	501 - 3,300
Medium	3,301 - 10,000
Large	10,001 - 100,000
Very Large	More than 100,000

The vast majority (87%) of the community water systems are systems which serve less than 3,300 persons, that is, the small and very small systems. However, although there are over 49,000 of these systems, they serve only 11% of the population served by community water systems. Conversely, the other 13% of the community water systems serve 89% of the population; in fact the 317 systems which serve more than 100,000 persons serve 44% of the population.

Many of the small and very small public water systems experience particular difficulties in complying with the drinking water regulations. Because they serve few people, they have a small rate base; therefore they have little or no money for system improvements which may be required due to the regulations or even for routine maintenance. Many do not have full time operators; and, in some cases, even where they have operators, the operators are not technical experts. Finally, the systems are often located in rural or isolated areas and therefore consolidation with another system (either physical or managerial) is not an option as a means of coming into compliance.

Lack of financial capability is not limited to the small and very small systems. Many of the medium, large, and very large systems, especially those owned and/or operated by municipalities, although they may have a large number of customers, have difficulties raising revenue needed for major improvements. The Safe Drinking Water Act, unlike the Clean Water Act with its Construction Grant and State Revolving Fund programs, did not authorize a federal grant or a loan mechanism which would make it possible for water systems to obtain funds for needed improvements. Several of the States have developed programs of financial assistance; however, the lack of funding has contributed to difficulties in achieving compliance with regulations.

Compliance with federal regulations, while high, has been declining in recent years. In fiscal year 1990, 73%, almost three-quarters of the community water systems reported no violations of federal regulations. In fiscal year 1994, only 66% reported no violations. There are numerous factors contributing to this trend. One of the major ones is the full implementation of many new regulations which were promulgated under the Safe Drinking Water Act Amendments of 1986, including the surface water treatment rule and the lead and copper rule. These complex rules have led to an increase in the number of systems with violations, especially monitoring and reporting violations. Another factor is that over this period there has been more complete reporting of violations from the States to EPA. This enables EPA and the States to have a better understanding of the nature of the noncompliance.

Some specific information on community water systems with violations in fiscal year 1994 may be useful. In fiscal year 1994, over 19,500 community water systems reported a total of over 88,000 violations. The majority of the systems in violation (90%) were the very small and small systems (i.e., those that serve less than 3,300 persons). However, this is not surprising since the vast majority of water systems in the United States are in that size category. The most common types of violations were monitoring and reporting violations of the total coliform rule (the basic rule of the program) and the lead and copper rule (a relatively new regulation which required all systems to monitor for lead and copper at a certain number of targeted sites). The next most common violation is the violation of the total coliform maximum contaminant level (an indicator of microbiological contamination).

The large number of systems in violation indicates that much work, using all the compliance and enforcement tools available to both federal, State, and local officials, remains to be done in the drinking water program.

### 3.1.2 Implementation and enforcement challenges

Implementation and enforcement of the Safe Drinking Water Act and the national primary drinking water regulations are complex due to the nature of the regulated community described in the previous section and due to statutory and regulatory constraints. As noted in the previous section, EPA sets the national regulations which cover approximately 186,000 public water systems. The Safe Drinking Water Act, unlike the Clean Water Act, did not set up a national permit program for public water systems; therefore, all of the requirements for all public water systems must be in the national regulations. There is generally no separate process or mechanism for specifying the limits and or the monitoring/ reporting requirements with which a system must comply.

Because the regulations are national regulations and because EPA has recognized that circumstances vary widely across the country, EPA has in writing the regulations, attempted to provide some flexibility to States to deal with the specific circumstances of water systems in their State. In addition, in these regulations EPA has tried to make some of the requirements less onerous for small systems and has given them more time to comply, for example, by making monitoring requirements effective later for the small systems. The need to make the national regulations cover all situations and yet provide flexibility has made the federal regulations very complex.

Moreover, because the regulations attempt to provide some flexibility, many parts of them are not self-implementing; that is, they require a decision or other action by the State or federal agency with responsibility for administering the program before the public water system is required to comply; for example, the State may need to set a monitoring schedule or determine if a monitoring waiver is allowable. This places an additional burden on EPA and State staffs to make those decisions and document them. In many cases, the procedural requirements for making these decisions are not clearly spelled out in the regulations. While the regulations require that States (or EPA regions where EPA is running the program) keep records of determinations made with respect to water systems, there is often not one place where one can easily go to determine precisely what a water system must do to comply — i.e., there is no permit. In many instances there is also not the opportunity for public comment and participation as on a discharge permit. This system does not compare well to the relatively straightforward system described earlier for discharge permits. The combination of all of these factors make the drinking water regulations difficult to implement and enforce.

There is, however, one area where the drinking water regulations may arguably be easier to implement than the wastewater permits — that is in the area of national standards. All drinking water systems must meet at least the same health standards. This insures a base level of health protection throughout the United States. In the wastewater permit program, however, different permittees may meet different effluent limits and these limits are set and can be debated in each permit.

The difficulties of enforcing the drinking water regulations are compounded by the fact that the enforcement authorities provided to EPA for the drinking water program are, unlike those provided under the Clean Water Act, quite limited. Prior to the 1986 amendments to the Safe Drinking Water Act, the only enforcement authority available to EPA was the civil judicial action. In the 1986 amendments, EPA was provided the authority to issue administrative orders to compel compliance with the national primary drinking water regulations. However, the statute requires a three step process to issue a compliance order — a notice of violation to the State and the violator, a proposed administrative order and the opportunity for a public hearing, and then a final administrative order. EPA may assess an administrative penalty only if the final

administrative order is violated and the penalty is limited to \$5,000. EPA may also initiate civil judicial actions for violations of the regulations. These actions may seek both injunctive relief and penalties of up to \$25,000 per day per violation.

EPA does have broad emergency authority under the Safe Drinking Water Act to deal with "imminent and substantial endangerments" to public health. Under these provisions, whenever EPA has information that a contaminant which is present in or is likely to enter a public water system or an underground source of drinking water may present an imminent and substantial endangerment to public health, and the State and local authorities have not acted sufficiently to protect public health, EPA may take such actions as deemed necessary to protect public health. These provisions have been interpreted very broadly and EPA has used the authority on numerous occasions to deal with contaminated or potentially contaminated drinking water.

Even with the substantial difficulties in enforcing the drinking water regulations, EPA has made drinking water enforcement a priority at both the State and the federal level. This has been a bit of a struggle given the background of the drinking water program. Drinking water programs were State programs until the 1974 Safe Drinking Water Act—there were no federal requirements. In the early years of the program, EPA did not really focus on enforcement as a tool for achieving compliance. State programs relied almost totally on technical assistance. Enforcement actions were reserved for the most recalcitrant violators. With the 1986 amendments and the additional enforcement authorities provided, EPA began to look more closely at the State and federal drinking water enforcement programs and attempted to balance the technical assistance and enforcement programs. Many State drinking water programs, however, still see enforcement as an indication of the failure of their technical assistance programs. The federal position has always been that the drinking water program needs a balance of technical assistance and enforcement; both are tools to be used to protect public health and should be used in appropriate circumstances.

EPA and the States have seen some successes in strengthening enforcement programs. The following tables display some of the statistics on State and federal formal enforcement actions.

#### STATE AND FEDERAL ENFORCEMENT ACTIONS (FISCAL YEARS 1990 - 1994)

**Table 2. State Enforcement Actions**

	BCAs*	Aos**	Civil Referrals	Criminal Filings	Total
1990	240	1,004	175	3	1,422
1991	427	1,358	156	7	1,948
1992	303	1,009	51	20	1,383
1993	375	968	182	7	1,532
1994	474	930	62	25	1,491

\*BCA: Bilateral Compliance Agreement — an agreement signed between a State and a public water system which provides the system a schedule for coming into compliance.

\*\*AO: State administrative order, either with or without a penalty.

**Table 3. Federal Enforcement Actions**

	NOVs	PAOs	1431 FAOs	Orders	CFPs	New Refs	Total
1990	453	312	149	**	14	11	939
1991	2,448	443	303	**	16	7	3,217
1992	1,485	539	352	9	32	6	2,423
1993	1,466	629	364	8	37	13	2,517
1994	2,831	838	309	8	44	6	4,036

NOVs: Notices of Violation

PAOs: Proposed Administrative Orders

FAOs: Final Administrative Order

(Note that EPA tracks all stages of the administrative action, since the Safe Drinking Water Act requires the agency to issue Notices and Proposed Orders before issuing a final order.)

1431 Order: An emergency order, issued under Section 1431 of the Safe Drinking Water Act

CFPs: Complaint for an administrative penalty for a violation of an administrative order

New Refs: New Civil Referrals to the Department of Justice

\*\* In 1990 and 1991, the program did not track 1431 orders separately from other final administrative orders; so any 1431 orders issued are counted in the final order column.

The statistics on State and federal enforcement show that there is a good deal of administrative enforcement in the program, but not a large number of judicial actions. Over the past few years, there have been several initiatives to deal with specific noncompliance issues (for example, lead and copper monitoring). States and EPA continue to focus their enforcement efforts on those regulations which provide the greatest protection for public health. In addition, State and federal programs have worked and continue to work to build the enforcement infrastructure needed for a successful program; for example, EPA has developed many basic enforcement policies and procedures and many States which did not have administrative enforcement authorities have worked to obtain them from their legislatures.

The drinking water program as can be seen from this brief overview, regulates the systems that supply drinking water and controls the quality of the water ultimately provided to consumers. The health standards do not apply to the source water — in fact they do not apply to those entities which may be responsible for contaminating source water. The presumption is that it is the responsibility of the public water system to provide water to consumers that meets the health standards. If the source water contains contaminants at levels above the health standards, then public water system must treat the water to insure that it meets those standards. Protection of source water is dealt with under the Clean Water Act programs as described above and under the ground water protection programs which will be described shortly. The challenge in creating an effective drinking water protection program is the integration of all these programs.

### 3.2 Ground Water Protection

#### 3.2.1 Underground Injection Control Program

The Underground Injection Control program is designed to protect underground sources of drinking water by regulating underground injection, which is defined by as the subsurface emplacement of fluids by well injection. Underground injection is a way of disposing of both hazardous and nonhazardous wastes. The Underground Injection Control (UIC) program regulates more than 400,000 injection wells which dispose of approximately 11% of the fluid waste generated in the United States.

Control of such disposal is critical to protecting the ground water. Injection wells may threaten the ground water if the fluids do not stay within the well and the intended injection zone. The Safe Drinking Water Act (SDWA) states that underground injection endangers drinking water sources "if such injection may result in the presence in underground water which supplies or can reasonably be expected to supply any public water system of any contaminant, and if the presence of such contaminant may result in such system's not complying with any national primary drinking water regulation or may otherwise adversely affect the health of persons."

Underground injection is authorized by permit issued by either EPA or the State (if the state has received the authority to administer an underground injection control program), and in some cases, by regulations. The overriding concern in developing regulations or issuing permits is to prevent injection from endangering a drinking water source. Rules and/or permits allowing injection include enforceable inspection, monitoring, record keeping, and reporting requirements. They also may include siting, construction, and operating requirements.

Enforcement of the underground injection control program requirements is done by both EPA and the States. Violations of these requirements are taken seriously given the potential effect on drinking water sources. In an enforcement action, EPA or the States compel compliance with the regulations and may require closure of the well. EPA enforcement authorities for this program are much like those under the Clean Water Act — EPA has the authority to issue administrative orders, administrative penalty orders (up to a maximum of \$125,000), bring civil actions, or criminal actions if a violation is willful. EPA may also use the authorities under Section 1431 of the Safe Drinking Water Act (as described earlier) to take steps to prevent contamination of the ground water; this could include immediate shut down of the well.

The underground injection control program is similar in many ways to the Clean Water Act program regulating discharges to surface waters from point sources; however, there are many other situations which result in contamination of groundwater, including leaking underground storage tanks, septic tanks, municipal landfills, agricultural activities and abandoned hazardous waste sites. While other statutes specifically set out requirements for some of these situations, the Safe Drinking Water Act provides holistic approaches for dealing with groundwater protection. Two particular examples of this are the Wellhead Protection Program and Comprehensive State Ground Water Protection Programs. These programs are similar in concept to the watershed approach for surface waters.

#### 3.2.2 Wellhead protection programs

The Safe Drinking Water Act requires that States adopt a program to protect wellhead areas from contaminants which may have an adverse effect on human health. The States were required to determine "wellhead protection areas" which are defined as the surface and subsurface areas surrounding a water well or well field supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or well

field. The extent of a wellhead protection area is influenced by factors such as the depth of draw down of the water table by the well or well field and the time or rate of travel of various contaminants in various hydrologic conditions. The States were also required to identify all potential sources of contamination in the wellhead protection area which may have an adverse effect on human health and then develop a program that contains, as appropriate, technical assistance, financial assistance, implementation of control measures, education, training and demonstration projects to protect the water supply within wellhead protection areas from such contaminants.

Wellhead protection programs as a whole are not federally enforceable — there is no “violation” at the federal level of violations of wellhead protection requirements. They were designed to be state or local programs. If the wellhead protection program includes, for example, underground injection control requirements and hazardous waste program requirements, then these requirements would be enforceable as other federal requirements.

### 3.2.3 Comprehensive State Ground Water Protection Programs

Comprehensive State Ground Water Protection Programs seek to integrate all the statutes and programs which play roles in protecting groundwater, including the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act, the Safe Drinking Water Act, the laws regulating pesticides and toxic substances, and the nonpoint source management programs under the Clean Water Act. The comprehensive program is voluntary. It is composed of strategic activities — establishing a prevention-oriented goal, establishing priorities based on the characterization of the groundwater and identification of sources of contamination, defining roles and responsibilities for the various stakeholders and coordinating their activities, implementing all necessary efforts to protect groundwater, measuring progress and reevaluating priorities as needed and improving public education and participation in ground water protection activities. Once a State develops and EPA endorses a comprehensive program, EPA will seek to provide more deference to state priorities in groundwater protection.

Comprehensive programs are being developed at State levels and EPA has endorsed several State programs. EPA continues to support the programs and to believe that they are important in protecting sources of drinking water.

## **4 CONCLUSION**

EPA and the States protect drinking water quality through a variety of mechanisms, from the traditional permits and compliance and enforcement to voluntary mechanisms and those tools which seek to deal in a comprehensive fashion with all the threats to the drinking water supply. This comprehensive evaluation of the quality of the water, the threats to it, and the plans for dealing with those threats, whether it is called the “watershed” approach for surface waters or the “wellhead approach” or “comprehensive state ground water protection programs” for groundwater sources, is clearly the direction in which programs are moving. Such a direction holds tremendous promise for further protecting and improving water quality. Whether such promises can be realized is a question of time, of maintaining and strengthening the traditional compliance and enforcement functions and then of going beyond the traditional programs where needed, and of fostering the understanding among all persons that their activities affect the quality of their water.





## SPECIAL TOPIC WORKSHOP M

### Transboundary Illegal Shipments of Hazardous Waste: Tricks of the Trade

Papers and Workshop M discussions address the following issues:

- How nations are ensuring they know of shipments with potential environmental hazards.
- Whether procedures and other requirements are understood.
- How illegal activities are identified.
- Responses taken and why, and how effective they have been.
- Types of international cooperation and whether they have been useful.
- Particular problem areas in enforcing these types of requirements and how can they be overcome.

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1. Summary of Transboundary Illegal Shipments of Hazardous Waste Workshop, Facilitators: F. Kesselaar, J. Rothman, Rapporteur: R. Sturges .....	659
2. A United States Perspective on Transboundary Investigations: Recent Cases and Essential Strategies for Interdiction of International Environmental Crime, E.E. Devaney, M.J. Penders .....	663
3. The International Control of Transboundary Illegal Shipments of Hazardous Wastes: A Survey on Recent Cases Happened in China, X. Wang .....	673
4. Regional Action Program and Guidelines to Prevent Illegal Traffic in Hazardous Wastes in the Asia-Pacific Region, A.S. Tolentino, Jr. ....	685
5. Illegal Transports of Waste: Tricks of the Trade, L.C. Blanker .....	697
6. Transboundary Illegal Shipments of Hazardous Wastes, Toxic Chemicals (Pesticides) Contraband Chlorofluorohydrocarbons: The Nigerian Experience, M.T. Odubela, O. Soyombo, F. Adegbite, K. Ogunbuyi .....	705
7. Cradle-to-Grave Compliance Tracking of U.S./Mexican Transboundary Hazardous Waste; The Haztracks Tracking System, S. Coleman, J.V. Schultes .....	711
8. One page synopsis of Technical Support Document: Transboundary Trade in Potentially Hazardous (Waste, Pesticide, Ozone depleting) Substances (see combined Volumes I and II) .....	733

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See related papers from other International Conference and Workshop Proceedings:

1. The Enforcement Project on Transboundary Movements of Hazardous Waste Within Europe, *R. de Krom, H. Kesselaar*, Volume I, Oaxaca, México
2. Enforcement in The Netherlands of the European Regulation on Transfrontier Shipment of Hazardous Waste, *W. Klein*, Volume I, Oaxaca, México
3. The United States' Enforcement Approach to the Export and Import of Hazardous Waste, *S.E. Bromm*, Volume I, Oaxaca, México
4. Summary of Workshop: Export/Import of Illegal Shipments of Hazardous Waste, Toxic Chemicals, or Contaminated Products, *Facilitator: W. Klein, Rapporteur: R. Sturges*, Volume II, Oaxaca, México
5. Polish Prohibition of Waste Import, *W. Radecki*, Volume I, Budapest, Hungary
6. Some Information on Enforcement Concerning Solid and Hazardous Wastes Disposal in Czechoslovakia, *K. Velek*, Volume I, Budapest, Hungary
7. Results of Three Years of Enforcement of Regulations on Transboundary Shipments of Hazardous Waste in The Netherlands, *M. Fokke-Baggen*, Volume I, Budapest, Hungary
8. Combatting Environmental Crime in an International context, *Y. van der Meer*, Volume II, Budapest, Hungary
9. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, *I. Rummel-Bulska*, Volume II, Budapest, Hungary
10. Transition and Implementation of Waste Management Policies in Central and Eastern Europe, *S. Wassersug*, Volume II, Budapest, Hungary
11. The Enforcement Experience in Catalunya on Industrial Waste, *F. Relea and C. Martin*, Volume II, Budapest, Hungary
12. Specific Details Regarding Hazardous Waste Transport and Disposal, *L. Mára*, Volume II, Budapest, Hungary
13. The Role of INTERPOL in Environmental Enforcement, *S. Klem*, Volume II, Budapest, Hungary
14. Summary of Theme Discussion: Applications to a Particular Environmental Problem—Solid and Hazardous Waste, *F. Uijting*, Volume II, Budapest, Hungary
15. The Import/Export of Hazardous Waste and Toxic Substances: The U.S. Enforcement Experience, *P. Thomson*, Volume I, Utrecht, The Netherlands
16. The Netherlands Case Study in Enforcement of Hazardous Waste Import/Export, *J. Gerardu and R. Bouma*, Volume I, Utrecht, The Netherlands
17. Waste Movement: European Community and Outside, *C. de Villeneuve*, Volume I, Utrecht, The Netherlands
18. Pesticide Export and Import Enforcement Programs in the United States, *C. Musgrove and A. Hofmann*, Volume I, Utrecht, The Netherlands
19. The Basel Convention and Its Enforcement, *I. Rummel-Bulska*, Volume I, Utrecht, The Netherlands

20. The Example of the Chemicals Weapons Convention, *B. ter Haar*, Volume I, Utrecht, The Netherlands
21. Third World Perspective on Hazardous Waste, *B. Kante*, Volume II, Utrecht, The Netherlands



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## TRANSBOUNDARY SHIPMENTS OF HAZARDOUS WASTE

Facilitators: Huub Kesselaar, John Rothman  
Rapporteur: Rick Sturges

### GOALS

The session addressed the following issues:

- How nations are ensuring they know of shipments with potential environmental hazards.
- Whether procedures and other requirements are understood.
- How illegal activities are identified.
- Responses taken and why, and how effective they have been.
- Types of international cooperation and whether they have been useful.
- Particular problem areas in enforcing these types of requirements and how they can be overcome.

## 1 INTRODUCTION

Fifteen participants from twelve countries discussed environmental compliance and enforcement issues related to transboundary trade in hazardous substances. The participants used the recommendations from a similar special topic workshop held at the Third International Conference on Environmental Compliance and Enforcement in Oaxaca, Mexico as a starting point and, following a general discussion of the issues, developed a list of desired actions to be undertaken as a result of this conference.

## 2 PAPERS

Five papers and a Technical Support Document were prepared for the conference on issues related to transboundary trade in hazardous waste. The papers address lessons learned in investigating, detecting, and enforcing laws related to illegal shipments and tracking legal transboundary shipments of waste. They include experience from North America (papers by E.E. Devaney and M. Penders, and S. Coleman and J.V. Schultes), Asia (papers by X. Wang, and A.S. Tolentino), Africa (paper by M.T. Odubela, O. Soyombo, F. Adegbite, and K. Ogungbuyi), and Europe (paper by L.C. Blanker). The Technical Support document provides an overview of technical issues, policies, and programs related to legal and illegal trade in hazardous wastes, pesticides and ozone depleting substances.

### **3 DISCUSSION ISSUES**

#### **3.1 Review of Oaxaca Recommendations**

Participants reviewed and discussed the recommendations made by participants at the special topic workshop on transboundary trade at the Third International Conference on Environmental Compliance and Enforcement in Oaxaca, Mexico. This workshop, summarized in the Oaxaca Conference Proceedings, Vol. 2, included a series of recommendations related to training, planning, policy formulation, information sharing, international cooperation, and response to violators. Participants agreed with the great majority of these recommendations and discussed ways in which progress had been made since the last conference.

#### **3.2 Progress Since Oaxaca**

Participants discussed a number of areas where progress has been made including:

- Development of information systems, such as the U.S./Mexico Haztracks system, that have proven effective in providing up to date information to customs and environmental officials on environmental shipments.
- Training programs, such as that in Canada, that have increased the capabilities of customs officials to detect hazardous shipments.
- Programs in a number of countries that have encouraged closer cooperation between customs agencies and environmental enforcement officials.
- Progress in policy and program development, such as the OECD Red, Amber, Green system for classifying wastes and guiding response to shipments.
- Continued international dialogue and progress on the Basel Convention and other international agreements related to the international waste trade.

Nevertheless, participants stressed that most of the recommendations discussed at Oaxaca remain valid, with those related to training and international cooperation viewed as especially critical. While definitional and multi-national policy issues are far from resolved, and conflicts remain, many participants stated that significant progress in reducing illegal trade can be made simply by focusing on improving training and increasing access to information in all countries.

#### **3.3 Action Items**

As a result of this discussion, the group identified three action items that they, through informal communication, will endeavor to complete prior to the Fifth International Conference on Environmental Compliance and Enforcement. The groups three actions items are:

Create an informal network of contacts (persons and agencies) for the quick transfer of information regarding illegal shipments of hazardous substances with participants from Canada and the Netherlands taking the lead. Members of this informal network will endeavor to share expertise and experiences and, upon request, to seek to provide technical assistance and training.

Create a library and inventory of training and other technical materials for use in developing effective cooperative coordination between environmental enforcement and other relevant enforcement agencies (e.g. customs and police) with participants from the U.S. taking the lead.

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Develop a handbook to guide personnel involved in the enforcement of hazardous waste control legislation. It will include (i) creation of generator, shipper/transporter, receiver, disguised material, and disposer profiles; (ii) assembly of relevant case histories and jurisprudence; and (iii) assembly of photographic and other material to aid recognition of non-compliance with participants from Canada taking the lead.

#### **4 CONCLUSIONS**

While participants recognized the challenges in obtaining resources for these efforts, as well as the need to organize these activities so they will not conflict with the Basel convention or other international agreements, many felt that it was important for the group to take action, however modest and informal, to further improve enforcement efforts related to trade in hazardous substances.





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## **A UNITED STATES PERSPECTIVE ON TRANSBOUNDARY INVESTIGATIONS: RECENT CASES AND ESSENTIAL STRATEGIES FOR INTERDICTION OF INTERNATIONAL ENVIRONMENTAL CRIME**

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### **SUMMARY**

This paper describes several recent investigations of suspected transboundary environmental crime conducted by the United States Environmental Protection Agency's (EPA) Office of Criminal Enforcement, Forensics, and Training in cooperation with other federal, state, local, and international law enforcement authorities. These case studies highlight investigative approaches which are critical to confronting the technical and logistical challenges of an international investigation that will satisfy the complex legal requirements of proving an environmental crime. The EPA's experience has demonstrated the utility of multidimensional, interagency enforcement teams which focus on particular border crossings or specialize in interdicting particular high priority pollutants and illustrates the need to enhance cooperative enforcement mechanisms on a regional, binational, and multilateral basis.

### **1 INTRODUCTION**

#### **1.1 The current context for the EPA's commitment to transboundary enforcement**

The United States has long supported a strong national enforcement effort to deter illegal transboundary shipments of hazardous waste and other dangerous substances. In recent years, the EPA's enforcement and compliance assurance efforts have become more focused on the national borders and toward improving the capacity to track transboundary waste, to detect violations of U.S. or international law, and to identify and pursue violators who export waste in order to avoid the cost of disposing or reusing it in an environmentally sound manner.

In large part, this emphasis on border enforcement can be attributed to specific commitments under international agreements such as the North American Free Trade Agreement (NAFTA), and its Agreement on Environmental Cooperation or the mandate of recently enacted laws, such as the United States Clean Air Act amendments implementing the Montreal Protocol restricting the transboundary movement of ozone-depleting substances, and the practical requirements of enforcing them. Yet, while the rhetoric of environmental enforcement has gained unprecedented prominence in the conduct of international affairs, the technical capacity and resources necessary to investigate potential violations of complex environmental laws at distant border check points have barely coalesced. Still, governments and the public alike expect vigorous enforcement of environmental laws at the border.

Indeed, over the last decade, the American and international public have reached a consensus that significant violations of environmental laws are so serious that they are properly viewed and prosecuted as crimes. Increasingly, this affirmation has been expressed in national law and codified in international agreements such as the Basel Convention, which established

that illegal traffic in hazardous waste is criminal.<sup>(1)</sup> Only very recently, however, have nations developed the administrative measures and begun to deploy trained personnel in such a way as to facilitate any real enforcement of transboundary environmental crime.

The EPA has had some notable successes in convicting illegal exporters of hazardous waste and other dangerous substances, but only by virtue of extraordinary cooperation between specialized police agencies within the United States and with other nations' police forces abroad. The task ahead for the United States and other nations is to make successful international investigations of environmental crime *less* extraordinary. The international effort to implement laws designed to prevent the illegal transboundary movement of hazardous waste and confront pollution problems which pose a threat to human health and the environment is at a critical juncture. It is clear that the emerging legal framework will mean little unless the capacity to conduct international investigations of environmental crime improves dramatically.

## 1.2 Improving the infrastructure of international environmental enforcement

The EPA's Office of Criminal Enforcement, Forensics, and Training is committed to improving the EPA's capacity to conduct transboundary investigations on a number of different fronts. First, EPA's Criminal Investigation Division now deploys more of its Special Agents in port cities which are significant import/export centers than ever before. This fact alone has enabled a new level of cooperation with other law enforcement agencies at the border. Second, more of these trained environmental criminal investigators participate in task forces with other law enforcement agencies' specialized agents in order to collectively investigate violations in a specific border area or to coordinate joint investigations into criminal activity related to the import or export of specific high priority pollutants, such as ozone-depleting substances.

EPA is dedicated to improving cooperative enforcement networks on a binational, regional, and international basis. These efforts include working with INTERPOL's Working Group on Environmental Crime to improve the exchange of operational information between nations on both ends of a transboundary environmental crime, sponsoring joint training of Customs and EPA inspectors on both sides of a border, and entering into Memoranda of Understanding with the U.S. Customs Service and other law enforcement agencies in order to enhance cooperative working relationships and define the roles and responsibilities of each agency with respect to transboundary investigations.

These practical measures are designed to establish the relationships and cooperative mechanisms necessary to conduct the type of international investigation necessary to satisfy the complex legal requirements of proving an environmental crime. The EPA's contributions to these efforts are informed by its experience in confronting regulatory complexities and recurring criminal schemes in the investigation of transboundary environmental crime. The cases which follow illustrate the need for strengthening these basic enforcement tools.

## 2 CASE STUDIES AND INVESTIGATIVE STRATEGIES

### 2.1 The EXODUS investigation

In 1993, the EPA's criminal investigators in Texas launched an investigation of a potentially illegal export of hazardous waste from the United States to Mexico that would prove truly international in scope and ultimately led to a Mexican enforcement action in 1995. This case began with a strategically planned surprise inspection of all railway cars destined for Mexico from the port City of Laredo, Texas organized by the Texas Environmental Task Force.

## 2.2 The Task Force

The Texas Environmental Task Force is composed of designated personnel from seven distinct state agencies in Texas which share responsibility for enforcement of environmental laws and who meet once a month with EPA criminal investigators, federal prosecutors and other federal law enforcement agencies in Texas in order to coordinate the environmental enforcement activities of all involved, to share information, and to cooperate in the investigation and prosecution of violations of state and federal environmental laws. On December 11, 1991 the Governor of the State of Texas issued a formal proclamation establishing the task force and signed an executive order setting forth its goals and by laws. (See Figure 1).

Such task forces have proven to be such an effective mechanism for integrating state and federal enforcement capacity, that EPA has sponsored and supported formation of them across the country. Task forces can be organized geographically either by state, region, ecosystem, or organized around the functional and jurisdictional requirements of investigating particular types of environmental crime such as hazardous waste or ozone depleting chemicals.

EPA criminal investigators now participate in 60 task forces nationally and consider them an essential component of EPA's effort to build state and local capacity and maximize the return of scarce public resources devoted to environmental enforcement through pooling information, equipment and personnel. Task forces build teams which can prioritize cases, select the most egregious violations, implement investigate strategies, and prosecute highly complex cases which are beyond the capability of any one agency. They can also efficiently decide the most appropriate state, local, or federal jurisdiction in which to bring a case.

## 2.3 The Exodus Project

In 1992, the Texas task force developed a plan to conduct periodic spot checks at border crossings into Mexico. This cooperative endeavor, named the Exodus Project, made use of each agency's personnel, expertise, and jurisdictional authorities in a concerted approach to inspecting all border traffic fitting the profile of illegal hazardous waste traffickers at the border. On June 29, 1993, the task force, including agents from the Texas Natural Resource Conservation Commission, U.S. Customs Service, Federal Railroad Administration, U.S. Department of Transportation, U.S. Border Patrol, the Texas Water Commission, and the City of Laredo Fire, Environmental, and Bridge departments, set up border check points at both of the City of Laredo International Bridges as well as at the Union Pacific Railroad storage area. An organizational meeting was held the day before to delineate the roles and responsibilities of each unit and to coordinate with Mexican Customs officials.

As a matter of investigative strategy, this Exodus Project team had expanded the scope of its operations to target all modes of transportation, including rail cargo inspections for the first time. Previously, Exodus Projects had focused exclusively on inspecting trucks on the main highways to Mexico. A problem with that approach, however, was that truckers illegally transporting hazardous waste could easily elude the check point inspections once they had commenced due to radio communication between truck drivers and their trucks' inherent mobility; train shipments, on the other hand, could not avoid inspection.

## 2.4 The investigation

It was on the railway that investigators discovered two truckloads, which were loaded on top of freight cars in "piggyback" fashion, containing one hundred and twenty-seven 55 gallon drums of apparent hazardous waste destined for Mexico. They were not identified as hazardous waste on the manifests, nor were there notification and acknowledgment of consent

**Figure 1**

<p style="text-align: center;"><b>EXECUTIVE ORDER</b>  <b>BY THE</b>  <b>Governor of the State of Texas</b></p> <p style="text-align: center;">THE STATE OF TEXAS  EXECUTIVE DEPARTMENT  OFFICE OF THE GOVERNOR  AUSTIN, TEXAS</p> <p style="text-align: center;">AWR 91-18</p> <p style="text-align: center;">CREATING THE TEXAS ENVIRONMENTAL ENFORCEMENT TASK  FORCE</p> <p>WHEREAS, Texas leads the nation in generation of toxic substances and also faces serious and diverse environmental problems that include polluted air in the state's major urban areas, contaminated surface and drinking water, degradation of coastal areas and critical wildlife habitats, and solid waste disposal needs; and</p> <p>WHEREAS, Texas would be better served by more cohesive and consistent enforcement of state and federal environmental laws and regulations; and</p> <p>WHEREAS, numerous state agencies have responsibilities for enforcement of Texas' environmental protection laws and regulations; and</p> <p>WHEREAS, state agencies also share responsibility for environmental enforcement with several federal agencies; and</p> <p>WHEREAS, specific environmental problems and potential violations may fall within the jurisdiction of more than one state or federal agency; and</p> <p>WHEREAS, other environmental problems and potential violations may fall outside the direct authority of any one state or federal agency; and</p> <p>WHEREAS, this fragmentation of responsibility has contributed to the state's failure to protect public health and the environment, to address citizen concerns, to respond to local government needs, and to distinguish environmental violators from those responsible businesses that comply with environmental standards; and</p> <p>WHEREAS, legislation enacted by the 72nd Legislature creates additional administrative, civil, and criminal penalties for violations of the state's environmental laws and regulations; and</p> <p>WHEREAS, no mechanism exists for coordinating the environmental enforcement activities of different state agencies or ensuring that complex environmental enforcement problems that fall under the jurisdiction of more than one state agency are addressed quickly and effectively; and</p> <p>WHEREAS, no mechanism exists for coordinating the environmental enforcement activities of Texas state agencies and federal authorities,</p>
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**Figure 1 (continued)**

NOW, THEREFORE, I, Ann W. Richards, Governor of Texas, under the authority vested in me, do hereby create the Texas Environmental Enforcement Task Force. The Task Force is composed of designated staff from the following state agencies: Texas Water Commission, Texas Air Control Board, Texas Department of Health, Texas Parks and Wildlife Department, Texas Attorney General's Office, General Land Office, Texas Railroad Commission, and the Governor's Office. The Task Force may be expanded to include additional agencies as appropriate.

The Task Force shall meet monthly or at the call of the Chair.

The goal of the Task Force is to increase federal and state cooperation in prosecuting criminal violations of state and federal environmental laws.

Designated staff of the participating state agencies will cooperate with the U.S. Attorney's Office, the U.S. Environmental Protection Agency, and the Federal Bureau of Investigation in conducting inspections, taking and analyzing samples, and performing other functions necessary to support criminal investigations and prosecutions. The state agencies will also cooperate with the federal agencies in identifying and initiating criminal investigations.

The designated staff within the governor's office will coordinate the efforts of the Task Force and serve as the primary contact person with the federal agencies. The Texas Water Commission will provide a staff person to chair the Task Force.

The participating agencies shall absorb the costs of the Task Force activities within their respective agencies.

as required by U.S. hazardous waste laws. The first question for investigators was whether these drums in fact contained a "waste" and whether the waste was "hazardous" as defined by law.

This can be a difficult question to answer definitively under United States law, even when there is knowledge of the source of the waste as well as the industrial process which produced the waste. When the waste is generated by a foreign nation by an unknown industrial process, however, and it has passed through the hands of waste brokers further obscuring its identity, this first question can thrust the investigation into a technical and legal quagmire. The greatest difficulty arises with regard to materials that are not clearly either wastes or recyclables, but is something in between.

This was the situation the Exodus investigation found itself in. Subsequent investigation revealed that a waste broker involved in exporting these drums claimed that they were legally exempt from the notification and consent requirements under U.S. hazardous waste laws because the drums contained "by-product" which was destined for tin "recycling" at a Mexican facility. Further investigation, including the scientific testing of the contents of 44 of the drums by the EPA's National Enforcement Investigations Center, determined that while it was technically possible to reclaim some tin from the sludge found in many of the drums, it was not practical or economically feasible to do so. Some drums, moreover, which were interspersed with the others contained a very different substance which was extremely toxic and whose constituents could not possibly be recycled. The laboratory determined that most all of the 44 drums contained hazardous waste under United States law.

In order to determine whether the recycling defense was viable, EPA's attention turned to the "recycling" facility in Mexico that was listed as the destination. Due to a close working relationship with Mexican environmental enforcers, which had been forged in the course of bilateral cooperative enforcement initiatives, EPA investigators learned that the facility in question was not operational. In fact, it had been shut down for four months because of environmental violations, and could not have recycled the materials in accordance with Mexican or United States law.

This is the type of information that international investigations must have access to. In a case like this, timely information about the receiving facility can make or break the investigation. Accordingly, EPA has taken steps toward making this type of information available to investigators on a regular basis by fostering better contacts between nations' environmental law enforcers and developing data on facilities which purport to recycle or reclaim products from waste.

Other critical questions in the investigation remained to be answered, including where the waste was generated and what its regulatory status was at its point of origin. The EPA investigation determined that much of this waste had been imported into the United States from Europe, and was only passing through U.S. borders in transit to Mexico. Because it had passed through the hands of various waste brokers on its way into the U.S., investigators could not readily identify the point of origination and thereby determine the precise nature of the waste. Subsequently, investigators were able to trace parts of the shipment through the ports of Belgium and into Germany. Without a network of knowledgeable law enforcement contacts to answer such questions, many investigations of environmental crime will fail.

The Exodus investigation determined that the waste made entry into the U.S. in an east coast state whose competent authority had rendered an interpretation that the waste in question was not hazardous waste under U.S. law because it was destined for recycling in Mexico. Although EPA ultimately disagreed with this determination, such a judgment by a competent state regulatory agency, absent evidence of fraud, made criminal prosecution

untenable. If the state authority had been aware that legitimate recycling was impossible at the Mexican facility or knew the actual composition of the waste, they should have classified the waste differently or denied entry altogether.

Because appropriate treatment of waste products at an importing facility can determine how or if a substance is regulated as a hazardous waste, commentators have suggested that hazardous waste export laws, such as those implementing the Basel Convention, be fashioned in a way which makes the regulatory regime more enforceable.<sup>(2)</sup> Those laws may require additional standardized information about generators and the contents of shipments on manifests, and enforceable certification that the generators and/or exporters have current knowledge that the importing facility is capable of reusing or reclaiming the material in an environmentally sound manner.

In 1995, the Mexican enforcement officials who were initially alerted to the attempted export from Laredo, Texas reported that the Mexican Government had obtained a substantial civil judgement against the receiving facility for illegally dumping some 20,000 tons of tin smelting waste. The Mexican Government has referred this case for additional law enforcement action.

## 2.5 United States versus Gaston Copper Recycling, Stoller Chemical, Southwire et. al.

Another recent illegal export investigation resulted in the conviction of three individuals and two corporations in the United States for illegally attempting to export hazardous waste to Bangladesh and Australia after it was mixed with fertilizer. This case, commonly known as United States vs. Stoller Chemical Company again demonstrates the need to carefully scrutinize operations which purport to engage in recycling or reclamation processes which are exempt from hazardous waste regulation, but may in fact be processing regulated hazardous waste.

The Stoller Company had been lawfully authorized to use a certain category of waste product from copper processing plants as a feed stock in making fertilizer principally due to the waste's high zinc content. Because this reclamation process is recognized by law, the waste is exempt from hazardous waste regulations that otherwise would require reporting and environmentally sound disposal of such waste.

An investigation into Stoller's environmental management practices revealed a shortage of the lawful waste material during the period of time when Stoller was mixing a 3000-ton shipment of fertilizer for use in Bangladesh and Australia. At about the same time, a waste broker who regularly supplied Stoller with this waste had an excess of a similar waste product that also had the high zinc content desired for fertilizer supplementation. This waste, however, also contained high amounts of lead and cadmium, above the toxicity limits that render it a regulated hazardous waste, and which preclude its use as a fertilizer supplement.

The investigation established that it was this hazardous waste product that was mixed with the fertilizer and was being shipped abroad. When confronted with this finding, the suspect broker claimed that the waste had undergone treatment to remove the lead and cadmium. In fact, no such treatment existed. The lot of fertilizer which was used for the export shipments was tested and it was found to contain lead and cadmium above the legal limits. There was also evidence of \$50,000 in "commissions" from this waste broker to the general manager of Stoller who had authorized the purchase of the hazardous waste.

By the time the EPA criminal investigators had determined these facts, however, the shipment of contaminated fertilizer was already en route. There had been no notice of hazardous waste exportation to the receiving countries, nor acknowledgment of consent by those countries,

as required by United States law, since the product was being shipped as fertilizer. It was only by virtue of emergent diplomatic communications that the EPA was able to alert the receiving countries and prevent the hazardous waste from being applied to crops.

Two corporations now stand convicted in connection with this case and were sentenced to more than one million dollars in fines, some of which was used to repatriate the waste which had been illegally shipped to Bangladesh. Three individuals have also been convicted, including the waste broker and company manager who authorized his "commission." Two were sentenced to significant terms of imprisonment and fines as well.

Were it not for a random inspection of the Stoller facility by state and local authorities, these crimes would not have been detected. No one can say how many similar schemes are taking place throughout the world. Under United States law, many waste products, including waste which many consider hazardous, avoid regulation with an assertion by an exporter that the waste is exempt because it is destined for recycling or reclamation or is otherwise not a waste. It is the exporter's decision how to classify the waste and thereby incur great transaction costs or to characterize the waste in a way that exempts it from notification and consent law.

Of necessity, investigators must focus attention on those facilities which import transboundary waste and which purport to be recycling, reclaiming products, or engaged in environmentally sound disposal practices. EPA criminal investigators are working with various environmental and criminal enforcement networks to make relevant information about such facilities more readily available to international investigations.

## 2.6 The new black market: illegal importation of chlorofluorocarbons (CFCs)

The most dramatic recent development in the United States transboundary enforcement effort has resulted in 16 EPA criminal investigations in the last 18 months into the smuggling of illegal ozone-depleting chemicals containing chlorofluorocarbons (CFCs). Importation into the United States is now strictly regulated as a result of U.S. Clean Air Act Amendments which implemented the Montreal Protocol. The importation of the most harmful CFCs, with some exceptions, is now banned, but the sale or use of stockpiles existing in the U.S. remain legal. The federal government has also imposed prohibitively high taxes on the production of new CFCs in the U.S. The tightening controls have created a huge market in illegal imports, since smuggled CFCs cost much less than the lawful alternatives. Illegal CFCs are now considered the most lucrative contraband in the U.S. after illicit drugs.

### 2.6.1 The investigative strategy and common schemes

To combat the flow of illegal imports, a joint task force was formed in October 1994 consisting of the EPA's Special Agents, the U.S. Customs Service, and agents of the Internal Revenue Service. Illegal importation of CFCs often involves violations of statutes related to smuggling and avoiding taxes and the data from all three agencies is analyzed and compared to identify discrepancies. Working from informants tips and business records the task force began to build cases in a process similar to tracking drug smugglers.

There are several common schemes that criminals have used to illegally import CFCs from production facilities in eastern Europe and Asia through ports in England and Belgium into the United States. Since it is generally legal to export CFCs from most nations, but becomes a violation of U.S. law only when someone imports it into the U.S. without an allowance approved by the EPA, illicit shipments have frequently been marked with fictitious destinations in Mexico or Caribbean nations, with Miami or New York as stop over transit points en route. Once in



those transit ports, or in bonded warehouses, the traffickers simply remove the tanks of CFC and replace them with empty canisters or used tires, reseal the containers, and send the useless cargo on its way.

Other times, illegal shipments are misrepresented as lawful imports such as propane or CFCs destined for destruction or recycling, or as a different type of CFC which does not require an import allowance. Investigators have developed simple tests to distinguish illegal CFCs from closely related substances by using pressure gauges and other common devices. Investigators have begun to systematically integrate the Customs Import Data Base with the EPA Allowance Data Base to identify potential illegal shipments. Investigators can now compare, for example, the quantity and nature of CFC that an exporter has an allowance for with the actual quantity that is processed by Customs inspectors at the border.

Beginning in February of 1996, sophisticated machines developed in the last year which detect and analyze CFCs were deployed at Customs centers where considerable traffic in CFCs is suspected. These machines were developed by the chemical manufacturers in the U.S. who produce the lawful alternatives to CFCs and who suffer financial losses due to illegal imports. These companies donated this equipment to government investigators. The task forces have begun to work with Canadian and Mexican officials to interdict shipment that enter North America in those countries and then is illegally diverted to the United States.

This concerted interdiction effort has resulted in eleven indictments and nine convictions so far. The task force which was based in Miami has now spawned similar efforts in New York, Boston, and on the west coast. EPA has established a national coordinator for CFC smuggling to serve as a focal point among all criminal investigator area offices and to coordinate with Customs and the IRS. The following are the results of some recent investigations.

#### 2.6.2 Case results and fact patterns: United States v. Adi Dara Dubash and Homi Patel

Following the nation's first prosecution under the Clean Air Act for illegal importation of CFCs, Adi Dara Dubash was sentenced on July 24, 1995 to 22 months in prison for smuggling 8,400 cylinders of CFC- 12 into the United States. He and his co-conspirators caused seven cargo containers of the CFCs to be shipped into New York-New Jersey area in bonded status. They further arranged for five of the seven to be forwarded to Miami, purportedly for reshipment out of the United States. The defendants submitted documents to the Customs Service to make it appear that the containers would be loaded on a vessel in Miami and shipped to Mexico. Instead, they offered bribes to the operator of a Customs licensed holding facility to assist in illegally diverting the CFCs into commerce in the Miami area.

#### 2.6.3 Case results and fact patterns: United States v. Irma Henneberg

Irma Henneberg, manager of Caicos Caribbean Lines, Inc., was convicted by a federal jury on August 30, 1995 on 34 counts of making false statements on customs documents used to illegally smuggle CFCs into the United States. She had made false statements on shipping manifests to give the impression that 209 cargo containers of CFC were being shipped out of Miami. In fact, the contents of the containers had been diverted into commerce in the United States. Inspection of the outbound vessels revealed that cargo containers claimed to be on board were not there.

The falsely manifested CFCs had a retail value of approximately 52 million dollars and avoided federal excise tax in the amount of 32 million dollars. On November 8, 1995, the defendant was sentenced to 57 months imprisonment.

#### 2.6.4 Case results and fact patterns: United States v. Casey Raja et. al.

On January 23, 1996, Casey Raja pled guilty to violations of the Clean Air Act for illegal importation of chlorofluorocarbons (CFC). Raja admitted to conspiring with his codefendant Bruce R. Burrell and others in a scheme in which 288 tons of CFCs were illegally imported into the United States through various ports. The CFCs were consigned to fictitious corporations, and the defendants sold the CFC as if it had been properly imported pursuant to the EPA's allowance and that the excise tax had been paid. Proceeds of the sales were then laundered through bank accounts in South Florida which had been established under the names of the fictitious corporations.

One of the interesting aspects of this case is that Bruce Burrell's arrest was effected through the cooperative efforts of INTERPOL in the United States and Costa Rica and facilitated by EPA's representative at INTERPOL. Burrell is being held in Costa Rica pending an extradition hearing. This arrest marks the first international extradition effort by EPA and INTERPOL for a fugitive charged with an environmental crime.

#### 2.6.5 Case results and fact patterns: first INTERPOL assisted extradition of environmental criminal

On December 15, 1995, Bruce Burrell was arrested in Costa Rica for the Clean Air Act violations described in the above case. Burrell's arrest was effected through the cooperative efforts of INTERPOL in the United States and in Costa Rica, and facilitated by EPA's representative at INTERPOL. Burrell is being held in Costa Rica pending an extradition hearing. This arrest marks the first international extradition effort by the EPA and INTERPOL for a fugitive charged with an environmental crime.

### 3 CONCLUSION

Thus, EPA is investigating more transboundary cases than ever before. In part this is due to our enhanced capacity to deploy personnel to work with Customs Agents and other enforcement agencies near the border. It also reflects the priority assigned to border enforcement in recent years and the increased sophistication that the EPA criminal enforcement program can bring to analyze environmental and customs data and target environmental criminals who engage in illegal transboundary trafficking. By continuing EPA's effort to improve enforcement coordination on both sides of our borders, and by strengthening multilateral mechanisms for international environmental investigations, it is hoped that the United States can maintain a credible deterrent to those who would profit from illegally exporting or importing hazardous waste and other dangerous substances.

### ENDNOTES

1. 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal. Article 4, Section 3, states: "The parties consider that illegal traffic in hazardous wastes or other wastes is criminal."
2. See e.g. Wang, Xi, "The International Control of Transboundary Illegal Shipments of Hazardous Wastes: A Survey of Recent Cases That Happened in China", appearing in these same Proceedings.

## **THE INTERNATIONAL CONTROL OF TRANSBOUNDARY ILLEGAL SHIPMENT OF HAZARDOUS WASTES: A SURVEY OF RECENT CASES THAT HAPPENED IN CHINA**

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### **SUMMARY**

Based upon a brief review of the international and the Chinese regulation on the control of transboundary movements of hazardous wastes and a survey on a number of cases taken place in China, the effectiveness of the international and the relevant domestic regulation are evaluated. Loopholes and weak points of the regimes are identified. Suggestions for improving the regimes are provided.

### **1 THE INTERNATIONAL AND THE CHINESE DOMESTIC REGULATIONS ON TRANSBOUNDARY MOVEMENTS OF HAZARDOUS WASTES**

#### **1.1 The international regulation established by Basel Convention**

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (1989)<sup>1</sup> established the international regime for the control of transboundary movements of hazardous wastes and other wastes. The cornerstone of the regime is the procedural provisions on the transboundary movement of hazardous wastes<sup>2</sup>. The heart of the procedure is the requirements on prior notification and informed consent.

The Basel Convention defines the following transboundary movement of hazardous wastes and other wastes as illegal traffic:

- without notification pursuant to the provisions of the convention to all states concerned;<sup>3</sup>
- without the consent pursuant to the provisions of the convention of a state concerned;<sup>4</sup>
- with consent obtained from states concerned through falsification, misrepresentation or fraud;<sup>5</sup>
- that does not conform in a material way with the documents;<sup>6</sup> and
- that results in deliberate disposal (e.g., dumping) of hazardous wastes or other wastes in contravention of the convention and of general principles of international law.<sup>7</sup>

exporter or the generator or, if necessary, by itself into the state of export or, if impracticable, are otherwise disposed of in accordance with the provisions of the convention within 30 days from the time the state of export has been informed about the illegal traffic or such other period of time as states concerned may agree.<sup>8</sup> If the illegal traffic is deemed to be the result of conduct on the part of the importer or disposer, the state of import shall ensure that the wastes are disposed of in an environmentally sound manner by the importer or disposer or, if necessary, by itself within 30 days from the time the illegal traffic has come to the attention of the state of import or such other period of time as the states concerned may agree.<sup>9</sup> If the illegal traffic cannot be assigned either to the exporter or generator or the importer or disposer, the parties concerned or other parties shall ensure, through cooperation, that the wastes are disposed of as soon as possible in an environmentally sound manner either in the state of export or the state of import or elsewhere as appropriate.<sup>10</sup>

## 1.2 Comments on the regulation established by Basel Convention

### 1.2.1 The requirements of prior notification and informed consent

One of the most important provisions of Basel Convention is the procedure of prior notification and informed consent. It is a key means to regulate the transboundary movement of hazardous wastes and other wastes. Under the convention, no party can export hazardous wastes to other states or areas beyond its jurisdiction without a prior written notification to and a written consent from the import states or areas. To the party which export hazardous wastes or other wastes, the prior notification to the states concerned is its international legal obligation. To the states and areas which import hazardous wastes or other wastes, or the proposed hazardous wastes movement may transit through, the prior notification and informed consent procedure is a critical legal safeguard to the environment within their jurisdictions.

There are two things which are crucial to the success of the procedure of prior notification and informed consent. They are the political will and the legislative, institutional and technical capacity of the state concerned to monitor, supervise and regulate the activities of the generator, exporter, importer, disposer and carrier of hazardous wastes and other wastes.

Sometimes, local economic interests and local environmental concerns undermine the political will of a domestic authority to strictly monitor, supervise and regulate the transboundary movement of hazardous wastes and other wastes. Shipping the wastes to other countries, especially the developing countries, and storing and disposing the wastes there would save both money and environment of the exporting countries. With a weak political will to regulate the transboundary movement of hazardous wastes and other wastes, it is impossible for a state to fulfill its obligation under Basel Convention.

Sometimes, a state does not put under control activities of transboundary movement of hazardous wastes or other wastes, not because the state has no strong political will to do so, but because it lacks the necessary legislative, institutional, and technical means to regulate. With an inadequate legislative, institutional and technical capacity to control the transboundary movement of hazardous wastes and other wastes, it is also impossible for a state to meet the requirements of prior notification and informed consent.

### 1.2.2 Domestic implementation and enforcement

Just the same as other environmental treaties, domestic implementation and enforcement is crucial to the success of Basel Convention. Without effective and vigorous domestic implementation and enforcement, the convention will simply be a piece of paper only. In addition to the general obligation of taking appropriate legal, administrative and other

measures to implement and enforce the provisions of the convention, the convention specifically requires the parties to introduce appropriate national/domestic legislation to prevent and punish illegal traffic.<sup>11</sup>

There is a lot of work to be done in implementation and enforcement of the regulation established by Basel Convention. As much illegal traffic exists in the world, it is hard to say that the parties have made substantial progress to implement the Convention. For industrialized countries, how to strengthen their control on the illegal export of hazardous wastes and other wastes remains a serious problem. It is frequently reported that companies of industrialized countries ship hazardous wastes or other wastes to developing countries. For developing countries, how to stop the domestic companies involved in the illegal traffic is also a serious problem. Because of the seductive high profit of the illegal traffic, there are always some companies in the developing countries willing to accept the hazardous wastes or other wastes in spite of their inadequate capacity to handle the wastes in an environmentally sound way and the disastrous environmental impacts on their home land and environment. Both the industrialized and developing countries need to strengthen their domestic legislation and regulations and administrative control on the transboundary movement of hazardous wastes and other wastes.

It should be pointed out that the governments of industrialized countries play a critical role in the control of transboundary movement of hazardous wastes and other wastes. That is because almost all hazardous wastes and other wastes under illegal traffic were generated and moved out from industrialized countries. It is also because the industrialized countries have the necessary financial, scientific and technological resources to dispose the wastes in an environmentally sound way. The governments of the industrialized countries have an obligation under Basel Convention to minimize the hazardous wastes and other wastes and to strictly ban the illegal traffic from the sources. If the industrialized countries tighten their law and enforcement against the illegal traffic and greatly reduce the wastes generated there, the quantity of the hazardous wastes and other wastes which may enter into the illegal traffic will be greatly reduced.

### 1.2.3 International cooperation

International cooperation is very important for the successful control of transboundary movement of hazardous wastes and other wastes. The priorities for the cooperation are, according to Basel Convention; 1) cooperation in making and enforcing laws and regulations for eliminating illegal traffic of hazardous wastes and other wastes; and 2) cooperation in developing technology for the treatment and disposal of hazardous wastes and other wastes in environmentally sound way.

Parties to Basel convention should make their domestic legislation and regulations meet the basic requirements of the convention, so as to eliminate the loopholes for the illegal traffic. The laws and regulations should be in detail and strict enough to enable the administrations to closely supervise the conducts of entities involving with the generation and movement of the wastes and closely follow the movement of the wastes.

Just like the importance of information exchange in the combat against international drug smuggling, constant and prompt information exchange, to a large extent, decides the effectiveness of the regulation on illegal traffic of hazardous wastes and other wastes. The parties and other states should increase the information exchange on the illegal traffic. To achieve a better information exchange, the states should have a strong political will to do so and should tighten the domestic control on hazardous wastes and other wastes so as to have sufficient information for exchange.

Basel Convention specifically requires the parties to cooperate in information exchange, monitoring, technology development, technology and management system transfer, and technical guideline and code of practice.<sup>12</sup> The laws and regulations on eliminating the illegal traffic must be backed by environmentally sound and economically feasible technology for treating and disposing hazardous wastes and other wastes. When a company cannot find such a technology to treat or dispose its wastes, it often chooses to sell its wastes to other countries, so long as there is a buyer there.

#### 1.2.4 Liability and compensation

Basel Convention requires the parties to adopt, as soon as practicable, a protocol setting out appropriate rules and procedures in the field of liability and compensation for damage resulting from the transboundary movement and disposal of hazardous wastes and other wastes.<sup>13</sup> This is a very important but complicated work area. The entities and individuals who engaged in the illegal traffic take every chance to escape from their legal liabilities. The setting out of the rules and procedures would be a great help to the victim countries or regions to get relief and compensation. It would be also a strong deterrent to the one engaging in the illegal traffic.

### 1.3 The national law and regulations of the People's Republic of China on the control of transboundary movements of hazardous waste and other wastes

The regulation on transboundary movements of hazardous wastes and other wastes in the People's Republic of China is based on the following administrative ordinances and law.

#### 1.3.1 The Notice on Strict Control of Hazardous Wastes Abroad Moving into China (jointly issued by the National Environmental Protection Agency and the Customs Administration of P.R.C. in March 7, 1991, hereinafter referred as "1991 Notice")<sup>14</sup>

The 1991 Notice is the first administrative ordinance dealing with transboundary movement of hazardous wastes. The Notice listed 23 categories of hazardous wastes and other wastes that under strict control for their import. The list is attached to the ordinance as the Annex I. The Notice prohibits the dumping and disposing the Annex I wastes in China. For those needed as raw materials and energy or for re-utilization, the importer and user shall apply to the environmental protection administrations for their import. The importer and user shall prepare environmental risk assessment for the proposed import and use. A procedure for the application and review is established by the Notice. The application shall be reviewed preliminarily by the local environmental protection bureau and then submitted to the provincial environmental protection administration for review. The National Environmental Agency is the only agency that has the power to approve or refuse the application. When the proposed imported waste arrives, the importer and user shall apply to the relevant Environmental Protection Bureau for inspection. Only when the Environmental Protection Bureau verifies the waste, can the customs administration allow the waste to be imported. For those wastes that are prohibited to be imported into China, the importer is responsible for returning the wastes to abroad.

1.3.2 The Urgent Notice on Firm Control of Hazardous Wastes Abroad Moving into China (issued by the Office of the State Council in Nov. 7, 1995, hereinafter referred as 1995 Notice)<sup>15</sup>

Because the growth of illegal traffic of hazardous wastes and other wastes between Chinese and foreign entities in the recent years, the State Council calls for strengthening the regulation on wastes import. The 1995 Notice prohibits any entity and individual to engage in the import of prohibited wastes. For the wastes that can be imported as raw materials, the 1995 Notice reemphasizes the review and approval procedure set forth by the 1991 Notice. The 1995 Notice requires the Commodity Inspection Administration to conduct compulsory inspection to the wastes imported as raw materials. The Notice requires the competent administrations to punish those who committed illegal traffic. To those who committed the illegal traffic and violate the criminal law provisions, the administrations shall file prosecution. The Notice requires National Environmental Protection Agency, Foreign Trade Ministry, and Customs Administration to formulate the lists of wastes for categorized management of import. The Notice requires to return the wastes under illegal traffic to the exporting countries or regions.

1.3.3 The Law on the Prevention and Control of Environmental Pollution Caused by Solid Wastes (passed by the Standing Committee of the National People's Congress in Oct. 30, 1995; will inter into force in April 4, 1996, hereinafter referred as "Solid Wastes Law")<sup>16</sup>

The Solid Wastes Law is a specialized and comprehensive law dealing with the pollution caused by solid wastes, including hazardous wastes. The law prohibits dumping, storing and disposing foreign solid wastes in China.<sup>17</sup> The solid wastes which cannot be used as raw material are prohibited to be imported.<sup>18</sup> The solid wastes that can be used as raw material are allowed to be imported under strict conditions.<sup>19</sup> The law requires the National Environmental Protection Agency and the Foreign Trade Ministry to formulate, adjust and publish a list of solid wastes which are allowed to be imported as raw materials.<sup>20</sup> The solid wastes not listed in the list are prohibited to be imported. The law authorizes the National Environmental Protection Agency, cooperating with the Foreign Trade Ministry, as the authority to review and approve the application for import of the listed solid wastes.<sup>21</sup> The law requires the National Environmental Protection Agency, cooperating with other relevant governmental agencies, to make the list of hazardous wastes, standards for identifying hazardous wastes, methods of identification and hazardous waste labels.<sup>22</sup> The law requires all entities engaging in business of hazardous waste collection, storage and disposal must apply for license from the government.<sup>23</sup> The law has detailed requirements for activities of collecting, storing, transporting, and disposing hazardous wastes. Hazardous wastes is prohibited to transit through China.<sup>24</sup> The law imposes sever fines on the entities which violate the provisions of the law on transboundary movement of solid wastes.<sup>25</sup> The illegal importer must return the wastes to abroad.<sup>26</sup> The wastes in transit must be returned also.<sup>27</sup>

1.4 Comments on the legal framework of China on control of transboundary movements of hazardous wastes and other wastes

The promulgation of the Solid Wastes Law indicates that a legal framework on control of solid wastes has taken shape in China. The law covers all the basic areas for the prevention and control of pollution caused by solid wastes. The law provides a firm foundation for the future development of law and regulations in this field.

One of the important things to do for China to complete and improve the legal framework is to promulgate all the implementing regulations and other provisions as the law has indicated as soon as possible. In the area of controlling transboundary movements of hazardous wastes and other wastes, the most needed legal documents for implementation of the law include:

- list of solid wastes allowed for import as raw material;
- list of hazardous wastes;
- uniform standards for hazardous wastes identification;
- uniform methods for hazardous wastes identification; and
- marks of hazardous wastes. As the 1995 Notice has indicated, it would not take too long for the enactment of these documents.

Another important thing for China to do is to firmly implement the law and other legal provisions in this field. The governments at various levels should take measures to closely supervise and monitor the generation, movement and disposal of hazardous wastes and other wastes. They should also take measures to strengthen the regulation and enforcement against illegal traffic.

## **2 THE CASES OF TRANSBOUNDARY MOVEMENTS OF HAZARDOUS WASTES TAKEN PLACE IN CHINA AND THEIR MEANING TO THE IMPROVEMENT OF THE INTERNATIONAL AND DOMESTIC REGULATION**

### **2.1 Cases of transboundary movements of hazardous wastes and other wastes taken place in China in the recent years**

#### **2.1.1 The Nanjin Korean chemical wastes case<sup>28</sup>**

A total of 6,440 barrels, 1,288 tons of chemical wastes under the name of "other fuel oil" were discovered in Nanjin Port by the Xinshengyu Customs Administration, Nanjin, in Sept. 29, 1993. The inspection report of the Commodity Inspection Administration found the materials in the barrels were not fuel oil but chemical wastes. Most of the barrels contained unidentified mixture of muddy materials with strong acid or alkali, high corrosiveness, high pressure and strong offensive smell. The rest of the barrels contained waste water. The barrels were detained by the Customs Administration in Oct. 8, 1993. They were shipped to Nanjin by a cargo ship chartered by a Korean company called Hanchang Industrial Company in September 25, 1993. The shipment of the wastes was according to a contract between a Chinese company in Beijing called Beijing Zhongmaofa Import and Export Company, which is a subsidiary of the China Foreign Trade and Development Corporation and was entrusted as a agent to import the "cargo" by a Chinese company in Shanghai called Shanghai Huafu Business Company, and a Macao company called Xinjingang International, Ltd. Under the contract, the Xinjingang International shall export from Korea to the Shanghai Huafu Business Company a total of 200,000 tons of "other fuel oil." The "oil" was divided into A and B classes. The price for A class was US\$27.00/ton, the price for B class was US\$8.00/ton. The detained 1,288 tons of wastes was the first delivery under the contract. Six months later, after the Foreign Ministry and the National Environmental Protection Agency of China notified the Korean Government and reported the case to the Secretariat of Basel Convention, the wastes were finally taken back to Korea by Korean side.



All the companies involved in this case denied their liability to the illegal traffic. The Xinjiang International said that it was a mistake of the ship loading company in Macao. The representative of the Korean side said that he can provide evidence to prove that the Chinese companies demanded the Korea chemical wastes. The China Foreign Trade and Development Corporation and Beijing Zhongmaofa Import and Export Company claimed that the contract was altered, the Hanchang Industrial Company was not in the original contract, the bill of landing was not in accordance with the contract, and it was possible that someone falsely used their import contract permit. The Beijing Zhongmaofa Company discharged its agency relationship with Shanghai Huafu Business Company soon after the wastes were discovered. It claimed that its reputation was harmed and would look into the legal liability of the parties concerned. It claimed that the Korean side intentionally replaced the "other fuel oil" with the wastes. The Shanghai Huafu Business Company claimed that it was the innocent victim and that only when the inspection report of the Commodity Inspection Administration in Nanjin released, did it know the cargo was not "other fuel oil" but chemical wastes. In addition, it was reported that those wastes came from seven Korean chemical plants. Six of them declared bankruptcy after the wastes were discovered in Nanjin in order to escape from their liability.

The only reasonable conclusion about this case would be that it was a case of illegal traffic. The excuse of the Macao company that the loading company misloaded the cargo is not acceptable. The barrels contained the hazardous wastes were the only cargo on board. There was no chance and possibility to mix the 6,440 barrels with other cargo. The arguments of the Chinese companies that they were the victim of a fraud and that they did not know the wastes are also untenable. The import permit in this case is a permit for end product oil, not for "other fuel oil." It is hard to believe the price for end product oil could be so low as the price in the case. As to the Korean companies, they cannot clear themselves from the wrongdoing of exporting the wastes to China.

#### 2.1.2 Rian Hualong Plastic Chemical, Ltd. case<sup>29</sup>

Rian Hualong Plastic Chemical, Ltd. is a Sino-Foreign Joint Venture in Wenzhou City, Zhejiang Province. The company applied to the Environmental Protection Bureau of Wenzhou City for importing 183 containers of "waste plastics", which had arrived at the Wenzhou port, in May, 1994. During reviewing the application, the Bureau discovered that the company had imported another 50 containers, over 1,000 tons of wastes plastics without applying permit from the Bureau. Forty five containers of the wastes had been discharged to a ground for separation and picking up process. The specialists of the Environmental Protection Bureau found that the wastes were mostly plastic packaging materials collected from households and supermarkets. They were wastes under strict control for import by China. It was reported that the wastes came from Rotterdam via Hong Kong. The Environmental Protection Bureau detained all of the containers and fined Rian Hualong Plastic Chemical, Ltd. 50,000 yuan.

#### 2.1.3 Fushun Plastic Products, Ltd. case<sup>30</sup>

Fushun Plastic Products, Ltd. is a new Indonesian invested company engaging wastes re-utilization in Longhai City, Fujian Province. The company imported 1,874.1 tons of waste plastic from Europe as the raw material for the first operation of the plant. The waste plastic come from Rotterdam via Hong Kong. Under the contract, the waste plastic should be leftover bits and pieces of industrial materials. As the sample of the cargo, the first shipment of one container did contain the materials as the contract specified. But the latter shipment of 100 containers contained mainly hazardous plastic materials including wasted hospital plastic materials, such as plastic injectors and infusion tubes. The price of the cargo was US\$20.00/ton. It was reported that the European Community Environmental Protection Bureau subsidized

the freight. The company was shocked by the latter shipment and telegraphed the European exporter to stop the shipment of another 150 containers. Ironically, the first container shipped to the exporter after the telegram contained the leftover bits and pieces of industrial plastic materials again.

In this case, the Fushun Plastic Products, Ltd. did not obey the procedural requirements of the 1991 Notice for import of wastes as raw materials. The Provincial Environmental Protection Bureau only inspected the first shipment, but neglected to inspect the latter shipments. There was no one in Chinese side claimed for damages or requested the exporter to take the wastes back. How to dispose the imported hazardous wastes remained a problem.

## 2.2 The loopholes and weakness of the international and domestic regulation revealed by the cases and the relevant suggestions on improvement

### 2.2.1 Prior notification and informed consent

As mentioned in 1.2.1, the notice and consent procedure is the cornerstone of Basel Convention. Any violation of this procedure will undermine the effectiveness of the regulation on the transboundary movements of hazardous wastes and other wastes established by Basel Convention.

As the three cases mentioned above indicated, one frequently applied fraud for bypassing the notice and consent procedure is to cover the illegal traffic under a name of legal trade. For example, in Nanjin Korean chemical case, the chemical wastes were shipped to Nanjin under the name of "fuel oil." In Fushun Plastic Products, Ltd. case, the hazardous plastic wastes were shipped to China under the name of leftover bits and pieces of industrialized materials.

Basel Convention has no further specific suggestion on how to stop this kind of fraud except the suggestion of returning the wastes and calling for the party states to adopt domestic law and regulations to prevent and punish the illegal traffic. There is neither deterrent to the exporters and importers nor binding requirements to party states to strictly meet the procedure of prior notification and informed consent in the convention. This is a critical weak point of the Convention because it exists in one of its critical requirement.

The procedure of notice and consent should be re-enforced by some operational requirements. In the convention, there should be a legal mechanism or requirement to prevent companies to get a consent from states concerned through falsification, misrepresentation or fraud and punish those who committed these wrongdoing. It should be recognized as an international obligation of the parties to the convention to discipline the companies under their jurisdiction to faithfully meet the procedure of notice and consent. The party states should take further measures to ensure that the permits issued for exporting or importing legal commodities will not be used for illegal traffic of hazardous wastes or other wastes. A party state to Basel Convention should be accountable for the violation of the notice and consent procedure by entities under their jurisdictions.

A possible way to re-enforce the notice and consent procedure would be to include in Basel Convention two new requirements. The one is a requirement on the responsibility of the parties to ensure both the permits for exporting and importing commodity meeting the requirements of the convention. The other is a requirement on the responsible inspection of the cargo for export and import so as to prevent and suppress the illegal traffic.

### 2.2.2 Domestic implementation and enforcement

It seems that in all the three cases, some of the local governmental administrations responsible for the management of export and import did not strictly supervise the activities of the companies involved in the wastes trade. In Nanjin Korean chemical case, the Korean local administration responsible for control of wastes export did not stop the shipment of 6,440 barrels of chemical wastes. In the Rian Hualong Plastic Chemical case, the Chinese local environmental protection bureau did not know the first shipment of 50 containers of wastes, which the bureau should know in advance. In Fushun Plastic Products, Ltd. case, it was said that the European Community Environmental Protection Bureau subsidized the freight for the shipments of the wastes. It is not clear whether the bureau knew or not the change of the contents of the containers. As a regulator in control of transboundary movements of hazardous wastes and other wastes, the bureau is accountable for the shipments of the hazardous wastes.

It is the obligation of the party states of Basel Convention to ensure the companies and individuals under their jurisdiction obey the requirements of the convention. To prevent the fraud of the companies or other entities engaged in wastes trade, there should be a procedure of double check by the competent administration. The governmental authority issuing the permit for export or import must conduct, at least, an effective inspection to the cargo permitted to be exported or imported after the permit was issued.

In addition, institutional arrangements should be made to enable the competent environmental protection administration to effectively participate in the supervising process. The work of Foreign Trade Ministry, Environmental Protection Agency, Customs Administration and Commodity Inspection Administration must be coordinated in order to eliminate the loopholes that could be used for illegal traffic. An effective and prompt information exchange mechanism should be established among the relevant administrations so as to ensure a prompt exchange of information.

### 2.2.3 International cooperation

The importance of international cooperation in combating the illegal traffic of hazardous wastes and other wastes are clearly shown by the three cases. In Nanjin Korean chemical case, the return of the wastes was delayed five months because each company involved wanted to shift the responsibility onto others. It was the active intervention of the governments of the two countries, especially the press of the Chinese government, that finally made the return of the wastes into reality. In Rian Hualong Plastic Chemical, Ltd. case and Fushun Plastic Products, Ltd. case, how to deal with the wastes illegally shipped to China and the pollution caused by the wastes are problems that needs cooperation between the relevant governments.

How states prevent the illegal traffic is another important area for international cooperation. The three cases show how inadequate the cooperation among the relevant states was. As mentioned before, the political will of the industrial countries to prevent illegal traffic of hazardous wastes and other wastes is a decisive factor to the effectiveness of the regime established by the Basel Convention. That is because most of the wastes were generated in industrialized countries. Without the good faith of the industrialized countries in preventing the illegal traffic, there would be no effective international cooperation in combating the illegal traffic.

The three cases indicate that states, especially the party states of Basel Convention, should strengthen their cooperation in setting up a legal mechanism to deal with the wastes that had been illegally shipped to import countries and in preventing illegal traffic. It is suggested

that the Secretariat of Basel Convention organize some legal experts to investigate and study the major cases of the illegal traffic around the world and submit a proposal on how to strengthen the international cooperation in the two areas.

#### 2.2.4 Liability and compensation

The Basel Convention requires the parties to adopt a protocol setting out appropriate rules and procedures in the field of liability and compensation for damage resulting from the transboundary movement and disposal of hazardous wastes and other wastes.<sup>31</sup> The three recent cases indicate that the process of setting out rules and procedures for liability and compensation should be accelerated. As developing countries are usually the victims of the illegal traffic and the trend of moving hazardous wastes and other wastes into developing countries has not been stopped, there should be more legal experts from developing countries to participate into the process of the rule and procedure setting.

### 3 CONCLUSIONS

A legal framework for international control of transboundary movements of hazardous wastes and other wastes has been established by Basel Convention. But the implementation of the convention does not make people feel satisfactory. There are some loopholes and weakness points in the implementation of the Convention. The political wills of the party states to control the illegal traffic seems not as strong as it should, especially in the local government level.

As the trend of moving hazardous wastes and other wastes from industrialized countries to developing countries is still going on at a considerable large scale, the parties of Basel Convention and other states should take firm measures to vigorously implement the convention. These efforts should concentrate on (1) improving the procedure of prior notification and informed consent and its implementation; (2) strengthening domestic implementation and enforcement; (3) strengthening international cooperation, and (4) accelerating the process of adopting rules and procedures for liability and compensation.

### REFERENCES AND NOTES

1. International Legal Materials, 1989, pp.657-686.
2. Id., pp. 664-665, Article 6.
3. Id., pp. 666, Article 9. 1. (a).
4. Id., Article 9. 1. (b).
5. Id., Article 9. 1. (c).
6. Id., Article 9. 1. (d).
7. Id., Article 9. 1. (e).
8. Id., pp. 666-667, Article 9. 2. (a), (b).

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9. Id., article 9. 3.
  10. Id., Article 9. 4.
  11. Id., Article 9. 5.
  12. Id., pp.667-668, Article 10.
  13. Id., pp. 668, Article 12.
  14. For the Chinese text of the notice, see National Environmental Protection Agency, The Compilation of Environmental Protection Laws and Regulations, Second Volume, China Environmental Science Press, 1993, pp. 177-183.
  15. For the Chinese text of the notice, see China Environmental News, Nov. 23, 1995, p. 1.
  16. The law was promulgated by the President of the People's Republic of China, Mr. Jiang Zemin, in the same day as the law passed. For the Chinese text of the law, see Legal Daily, Nov. 3, 1995, p.3.
  17. Article 24.
  18. Article 25.
  19. Id.
  20. Id.
  21. Id.
  22. Article 43.
  23. Article 49.
  24. Article 58
  25. Article 66-69.
  26. Article 66.
  27. Article 67.
  28. Xie Zhenghua, edit., Synopsis of Enforcement and Typical Environmental Cases of China, China Environmental Science Press, Beijing, 1994, pp. 314-318; Huang Xuchu, Muddy flow sneaked into China, China Environmental News, Sept. 4. 1994, p. 1; Wang Guoyu, The return of over one thousand ton of Korean chemical wastes begin, China Environmental News, March 5, 1994, p. 1; Zhou Ninsheng, The case of compensation for the damage caused by the imported Korean chemical wastes has a result, China Environmental News, Feb. 25, 1995.
  29. Huang Yukan, Wenzhou discovered an illegal import of hazardous wastes, China Environmental News, June 9, 1994; Wen Gao, Hualong Company was punished because of illegal import of wastes, China Environmental News, Oct. 29, 1994.
  30. Li Liang, etc., Foreign wastes burst into China again, China Environmental News, Feb. 12, 1995, p. 1.
  31. Article 12 of Basel Convention.



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## **REGIONAL ACTION PROGRAM AND GUIDELINES TO PREVENT ILLEGAL TRAFFIC IN HAZARDOUS WASTES IN THE ASIA-PACIFIC REGION**

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### **SUMMARY**

In accordance with United Nations General Assembly resolution 44/226 (1989), the author undertook an assessment of the present state of illegal traffic in hazardous wastes in the Asia-Pacific region. The assessment report was the main document at the 1994 Economic And Social Commission For Asia And The Pacific/United Nations Environment Program Expert-level Workshop on the Prevention of Illegal Traffic in Hazardous Wastes held in Tokyo which produced a regional program and guidelines to prevent illegal traffic in hazardous wastes. The paper discusses the action program, the main objective of which is to promote implementation of the Basel Convention and guidelines for use in capacity-building through national-level workshop or other training programs for strengthening institutional and legislative frameworks for hazardous waste management.

### **1 INTRODUCTION**

The style of living to which many people throughout the world have become accustomed depends on the free movement of a wide range of goods or commodities from production to consumption sites. These goods vary from the absolutely harmless to the highly dangerous and include the whole range of chemical substances and mixtures. Recently, interest in safety and in protection from chemicals has developed from worker protection in factories and plants to the transport and handling operations and user sites and now, to the external environment, in particular as regards the disposal of hazardous wastes which has resulted to illegal traffic as a way of disposing of the same.

Indeed, technological progress brought immense benefits to mankind - increased food production, improved health care, eradication of deadly diseases and bestowal of longer life expectancy and a better standards of living. However, it also brought enormous number of pollutants to the environment. Among these pollutants are wastes from food processing, detergents, agricultural run-offs, heavy metals, radioactive wastes, inorganic chemicals and heated water. The pollution threat attendant to their transport, handling, and disposal from one place to another is an ever present danger too because of their general characteristics which may include ignitability, explosiveness, corrosiveness, toxicity and radioactivity.

Due to its very nature, therefore, hazardous waste control has to be taken care of from the "womb to the tomb." This means identification of hazardous waste generators, monitoring of the transport of shipping of waste for treatment/storage/disposal, assurance that treatment/storage/disposal sites meet the minimum standards and constant and competent surveillance of their operation, and lastly, when a site is filled up or to be phased out, its closure should be

in accordance with the required procedure. After a site's closure, there is the continuing need for routine monitoring and maintenance to ensure safety against personal injury and damage to property for at least 20 to 30 years.

Legislation represents an essential element for hazardous waste control. The general trend is for legislation to emphasize the protection of human health and well-being as the prime consideration. The following is a brief account of the significant features in legislation and management strategies for hazardous waste illegal traffic control.

## **2 UNITED NATIONS ENVIRONMENT PROGRAM/ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC PROJECT ON PRELIMINARY ASSESSMENT OF ILLEGAL TRAFFIC IN TOXIC AND DANGEROUS PRODUCTS AND WASTES ON THE ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC REGION**

While industrialization is essential to enhance the quality of life of the people, the toxic products and waste generated in the process pose great risks to human health and the environment. Many countries do not have the capacity for handling and disposal of toxic wastes. This situation is further aggravated by the illegal traffic in these products and wastes.

Considering the gravity of the situation, the UN General Assembly in its resolution 44/226 (1989) requested each regional commission to contribute to the prevention of the illegal traffic in toxic and dangerous products and wastes by monitoring and making regional assessments of this illegal traffic and its environmental and health implications. To follow up on this resolution, a project on preliminary assessment of illegal traffic in toxic and dangerous products and wastes in the region was implemented by the Economic and Social Commission for Asia and the Pacific with funding provided by the United Nations Environment Program. The preliminary assessment conducted by Economic And Social Commission For Asia And The Pacific is in line with paragraph 20.45 of Agenda 21, the program of action for sustainable development agreed upon by the countries at the United Nations Conference on Environment and Development. Agenda 21 stipulates that "the regional commissions, in cooperation with and relying upon expert support and advice from United Nations Environment Program and other relevant bodies of the United Nations system, taking full account of the Basel Convention, shall continue to monitor and assess the illegal traffic in hazardous wastes, including its environmental and health implications on a continuing basis, drawing upon the results and experience gained in the joint United Nations Environment Program/Economic And Social Commission For Asia And The Pacific preliminary assessment of illegal traffic."

The Economic And Social Commission For Asia And The Pacific assessment report was completed in 1993 based on fact-finding visits to five countries: Fiji, Pakistan, Singapore, Sri Lanka and Thailand. It also tried to give an overview of the situation in the Pacific based on information obtained from the South Pacific Regional Environment Program. Something which is illegal is very difficult to assess. Economic And Social Commission For Asia And The Pacific in 1990 circulated a questionnaire for this purpose. The effort did not yield any significant information. Therefore, instead of reporting the quantities of waste involved in this traffic, the assessment was made on the legislative weaknesses, institutional arrangements and control system, manpower capability, to lay the foundation of the regional strategy to control the illegal traffic in hazardous wastes.



In order to have a good cross-sectorial view of the status with respect to hazardous wastes, the participating countries for the assessment project were selected to represent various economic categories, geographic location and the capacity to deal with this problem. The main objective in this effort is to promote regional cooperation to strengthen the capacity of the region to deal with the problem.

The assessment report revealed that scant information was available on the extent of illegal traffic in hazardous products and wastes in the Asian and Pacific region. However, there was open supposition that illegal traffic was ongoing owing to the laxity in the implementation and enforcement of relevant legislations and regulations and in the absence of the necessary laws and rules to prevent such traffic. There were deficiencies in the capabilities of the countries to control imports and to detect and stop the entry or exit unwanted chemical products and wastes. Basic to the deficiencies was the uncertainty as to the most appropriate infrastructure for chemical/waste management within a country. Among the major problems, issues and limitations encountered were: (a) the absence or inadequacy of national control system; (b) legislative constraints; and (c) ineffective institutional arrangements. Other impediments to toxic and dangerous products and wastes management included inappropriate dissemination and use of international documentation related to toxic and dangerous products and wastes, such as those on risk/hazard assessment; the absence of a systematic data system covering information on quantities of hazardous products/wastes imported, produced or exported as well as the regulated parties, for example, importers, exporters, generators, collectors, transporters; the lack of coordination, liaison and sharing of resources and results among existing laboratories; the lack of personnel trained in the various aspects of chemical management, for example, the implementation of regulations, inspections, prior informed consent procedure, identification, testing and analyses of chemicals/wastes and weak public understanding and support to effective chemical management.

### **3 REGIONAL ACTION PROGRAM TO PREVENT ILLEGAL TRAFFIC IN HAZARDOUS WASTES**

In early 1994, an Economic And Social Commission For Asia And The Pacific/United Nations Environment Program Expert-Level Workshop on the Prevention of Illegal Traffic in Hazardous Wastes was held in Tokyo which found the assessment report an excellent background material with which to formulate an action program to promote regional cooperation to strengthen the capacity of the countries to deal with the problem posed by illegal traffic in toxic and dangerous products and wastes.

The regional action program as recommended by the said workshop attended by representatives from Economic And Social Commission For Asia And The Pacific countries consists of the following:

#### **3.1 National controls**

- It should be ensured that hazardous wastes, as defined by the Basel Convention, are clearly identified as such by the Harmonized Commodity Description and Coding System administered by the Customs Cooperation Council. In the meantime, national inventories for regulatory control of transboundary movements of hazardous wastes should be set up.

- While the definitions of hazardous wastes should follow the Basel Convention, work should be done towards achieving a uniform interpretation of those definitions in accordance with existing international standards and codes, such as those contained in the relevant United Nations publications, the International Convention for the Prevention of Pollution from Ships, 1973.
- Gaps should be closed and duplication avoided in efforts to combat illegal traffic, collaboration and cooperation among national programs should be encouraged, working through the secretariat of the Basel Convention.

While many countries of the region have some form of control system for the import/export of toxic wastes, there are still a number of others which have yet to begin with their respective regulatory scheme on the same. The latter includes countries which have not embarked on, among others, an inventory of all hazardous wastes generated, imposition of licensing or permitting requirements for importers/exporters as well as registration procedures for dangerous products and wastes, review and revision of import/export regulations, acquisition of laboratory testing facilities to monitor traded chemicals/wastes, creation of an interagency coordinating committee to oversee and resolve chemical/waste related issues, all of which could lead to appropriate controls to prevent illegal traffic. In some countries where control systems are in place, efforts should be exerted to make the system more efficient.

### 3.2 Institutional capabilities

- There should be effective interagency cooperation between government institutions such as ports and customs authorities and the judiciary so that all concerned officers are kept up-to-date and well-informed on regulatory control measures.
- There should be effective communication between regulatory agencies and the business and trade communities on the scope and application of the regulatory measures.
- Assistance should be provided for training of ports and customs and other officials including members of the judiciary, in the implementation of regulatory measures at an international level.

Practically all reports, studies and appraisals on waste management recognize that institutional constraints are among the greatest obstacle to effective development of regulatory control for toxic wastes. Inadequate infrastructure and absence of coordinating mechanisms among chemical management-related agencies, characterize the state of institutional arrangements on the subject. Consequently, ways must be found to create or improve not only the institutional arrangements but the national structure, procedure and information system on hazardous wastes as well and to adopt the regulatory control on import/export of the same to the full development of a chemical management system.

### 3.3 Non-governmental organizations

- The role of Nongovernmental Organizations was recognized as complementary to that of Governments. Action should be taken to extend facilities, information and cooperation to them, and to identify the assistance required to ensure that the contribution of Nongovernmental Organizations is effective.

Nongovernmental Organizations have assumed important roles in many aspects of environmental protection during the last decade. They have grown rapidly to meet real needs in certain identified environmental sectors but with very few exceptions, their efforts in regard to hazardous waste management had been often without a supporting legal framework.

Toxic wastes policies and laws have not yet been extensively formulated to allow the mobilization of all private efforts in a much more effective way. Ways should, therefore, be sought to improve the management and support of Nongovernmental Organizations if they are to play a more positive role in hazardous management.

### 3.4 Establishment/strengthening of analytical laboratories

- National laboratories should be established or the infrastructure for appropriate analytical laboratories should be strengthened.
- Appropriate uniform national and regional standards should be adopted.

The present system of analytical laboratories in the countries of the region comprise a number of laboratories operating under several different government ministries or departments, e.g., agriculture, health, industry, environment, etc., as well as hospital and university laboratories. Different services are offered by them but not one could be said to have the complete analytical or administrative facilities to conduct work related to hazardous waste identification, testing, analysis as well as other related specialized analytical services. Indeed, it is difficult to see how the analytical functions of a structured chemical management system could be effectively accommodated within the present laboratory system in the countries of the region particularly as it relates to prevention of illegal traffic.

### 3.5 Promotion of education

- Public awareness and information systems on hazardous waste management should be promoted.
- Relevant academic research institutions should be identified to carry out training on the management of hazardous wastes.
- The media should be encourage to play a role in promoting public education. Simple courses on waste management should be introduced in school and college syllabi.

The types of behavior which constitute illegal traffic as well as the long term adverse effects of toxic chemicals and hazardous wastes to public health and the environment are not known to the great majority of the population in developing countries. Harmonized hazard assessment and hazard communications, e.g., classification, packaging and labeling schemes, are useful for the transport sector but do not usually benefit the actual users of chemicals or

disposers of wastes or of the resultant products. Access to international chemical/waste information systems is not sufficient because of the lack of computer and software facilities to reach such systems.

Moreover, the export to developing countries of chemicals which have been banned or severely restricted in producing countries or of the latter's hazardous wastes have been the subject of concern because many importing countries do not have the capability to assure safe use of those chemicals or disposal of those wastes. For this reason, the prior informed consent procedure was introduced to enhance sound management of chemicals and wastes through the exchange of scientific, technical, economic and legal information thereby preventing illegal traffic in the same. Be that as it may, increased cooperation at the national, subregional and regional levels is still necessary to effectively implement the procedures laid down by international instruments.

### 3.6 Promotion of regional cooperation

- Regional cooperation should be promoted to minimize transboundary movements of hazardous wastes, particularly from outside the region, and to prevent illegal traffic. To that end, States in the region should accede to and ratify the Basel Convention and, where appropriate, should enter into regional agreements to supplement international efforts.
- Support should be given in the region to national emergencies arising from the storage, transport, treatment and disposal or accidental release of hazardous wastes.
- Legislation and enforcement mechanisms should be strengthened to Prevent illegal traffic of hazardous wastes.

Country reports in the region show serious deficiencies in the capabilities of many developing countries to detect and stop the clandestine entry of unwanted toxic and dangerous products/wastes. Despite wide implementation of import/ export procedures, many changes ought to be done to reduce or prevent the environmentally unacceptable traffic. Although normally, the model approach for developing countries is not advisable on account of diversity of legal, political, economic and social systems, perhaps the area of toxic and dangerous products and wastes i.e., one about which harmonization of procedures including classification, packaging and labeling to prevent illegal entry and exit could be done considering the fact that the same dangerous products and wastes come from producers or exporters which are commonly from developed countries.

## 4 GUIDELINES TO PREVENT ILLEGAL TRAFFIC IN HAZARDOUS PRODUCTS/WASTES

Economic And Social Commission For Asia And The Pacific in 1994 came out with a publication entitled "guidelines for the Development of a Legal and Institutional Framework to Prevent Illegal Traffic in Toxic and Dangerous Products and Wastes." By way of introduction, the import and export of chemicals/wastes in the developing countries of Asia and the Pacific are regulated by customs laws or import/export control laws and for some chemicals e.g., drugs, poisons, pesticides by the applicable chemical product/waste control law. Among other documentation, reliance is on a permit or license to import or export the chemical/waste before

allowing entry or exit of shipments. Studies revealed, however, that Customs and even Ports authorities are not yet in a position to properly control import and export of chemical/waste not only because of lack of personnel and facilities but more because of lack of sufficient information on chemical regulatory control with which to cope with the problem. Another hindrance to a control system is the loosening of import requirements to hasten economic development in many countries.

Nevertheless, chemical product/waste control legislation should have guidelines on how to incorporate import and export controls in order to enable the authorities to have a basis to enforce national regulatory actions. Apart from import/export permits or licenses, Customs and Ports authorities should be provided with a list and profiles of toxic and dangerous products and wastes. A special unit to take charge of dangerous chemicals and wastes should be set up at the Customs and Port authorities and given access to competent laboratories. Furthermore, countries with or without official bans on hazardous waste importation/exportation should lay down special controls to properly manage and monitor their movements.

What would perhaps be appropriate for the developing countries of Asia and the Pacific is a chemical waste management system under one law and one agency. However, in as much as a number of countries already have laws covering particular kinds of chemicals and their wastes administered by various government agencies, a comprehensive national chemical product/waste legislation is suggested which harmonizes existing laws on the subject and coordinates the operations of all chemical/waste regulatory/control agencies especially as it relates to prevention of illegal traffic. More detailed regulations should then be administratively issued which can be amended or updated as and when necessary without the need to amend the main legislation.

The value of guidelines to help implement the intent and objective of legislation and regulations should not be lost sight of. This is particularly true in chemical product/waste control which is scientific/technical in nature and, therefore, requires appropriate guidelines for its effective implementation and enforcement.

Briefly, the basic structure of a comprehensive chemical product/waste control legislation consists of: 1) organizational infrastructure; 2) information system; 3) regulatory system; and 4) enforcement scheme.

#### 4.1 Organizational infrastructure

The chemical product/waste control legislation may commence with general provisions which encompass the statement of policy, objectives, scope of the legislation, definitions and the institutional arrangements for the implementation of the law.

- 4.1.1 Statement of Policy — The statement of policy gives a general overview of the country's management strategy with respect to toxic and hazardous products and wastes.
- 4.1.2 Objective — The objective sets out the purposes of the law which, among others, should include the protection of human health and the environment against the detrimental effects of chemical products/wastes; and the establishment of appropriate mechanisms to control or regulate their movements so as to prevent/combat illegal traffic in the same.

- 4.1.3 Scope — This provision describes what the law will cover such as identification of the chemical products/wastes and the activities which are subject to regulation.
- 4.1.4 Definition — The definition explains the meaning of certain terms as used in the law like chemical, hazardous waste, import and export, etc.
- 4.1.5 Establishment of an Authority — This provision identifies the government agency that will carry out the law. Lately, pollution-oriented chemical legislation as well as industrial chemical laws are placed under the jurisdiction of the Environment Ministry/ Agency particularly in regard to new and unregulated chemicals.
- 4.1.6 Inter-Agency Coordination — Chemical legislation have traditionally been implemented by government agencies with responsibility for a particular kind of chemical, e.g., Ministry of Agriculture (pesticides), Ministry of Trade and Industry (industrial chemicals) Ministry of Health (consumer chemicals). This situation calls for an interagency committee for better coordination of efforts in chemical management with one agency designated as lead agency. The main objectives of an interagency committee are to make policy recommendations for control measures and to assist the national authority in implementing the law. It may also work on scientific or technical matters such as assessment of hazards of chemicals/wastes, formulation of regulations to implement the legislation, updating of the listing or inventory or chemicals, etc. Commonly, the members of the coordinative committee are agencies with expertise or interest in handling chemicals such as those on Agriculture, Health, Environment, Industry, Trade, Labor, Science, Customs, Ports, Police and Justice. In addition, representatives of nongovernmental organizations may also be appointed to coordinative committees.

#### 4.2 Information system

In order to prevent illegal traffic in toxic substances and hazardous wastes, it is necessary to identify the chemicals/wastes being imported into the country as well as those being exported to other countries. This is done through an inventory, or register or a list of chemicals/wastes which is attached to the chemical legislation.

**National Register of Chemicals/Wastes.** An inventory of chemicals/ wastes identifies the existing chemicals/wastes in the country and identifies also new chemicals/wastes which have not been imported or exported before the establishment of the inventory. It is the first step to identify possible problems and the necessary measures to solve problems which can be caused by chemicals/wastes as they affect human health and the environment.

The inventory which becomes the national register of chemicals/ wastes includes a designation of identity of chemicals/wastes, the category in which it is classified (e.g., explosive, oxidizing, flammable, toxic, harmful, etc.), description of the effects they may have on man and the environment and data relative to the ways of rendering them harmless.

#### 4.3 Regulatory system

Regulatory measures on chemical products/wastes include any action to control chemicals/wastes and usually focus on preventing or reducing the harm they may cause to human health and the environment. Among regulatory measures in use are: classification, prioritization; registration schemes, new chemical notification programs and permitting or licensing procedures. While many options exist to regulate/control toxic chemicals and hazardous wastes, a country should select only those which are appropriate and capable of being implemented given the availability of resources to enforce within the country. This lack of resources have led many countries to persuade the industry to regulate itself as much as possible and work with the government in effecting control.

**Import and Export Requirements** — A very useful measure for controlling activities involving toxic chemicals and hazardous wastes is the permitting or licensing procedure. A permit or license issued by the competent national authority gives the holder the right to import/export hazardous chemicals or import/export toxic wastes subject to withdrawal if the holder violates any provision of the chemical legislation or any regulation issued pursuant thereto.

Chemicals/wastes for export should comply with the packaging and labeling requirements which are domestically required as well as with the specific requirements of the importing country. Labeling should be in an official language understandable to the importing country.

Decisions made to prohibit the export of certain chemicals/wastes should apply generally to all sources of import as well as any domestic manufacture, formulation or production for local use.

**Import/Export of Hazardous Chemical Substances** — Import of chemicals for the first time should be subject to notification which means provision of detailed information about the new chemical to the competent national authority by the importer. A new chemical for the purpose of notification is one which is not included in the existing national inventory of chemicals. The information to be provided should include data relative to testing results as well as assessment of chemicals including possible effects on human health and the environment. In this connection, reference should be made to IRPTC and the prior informed consent procedure being implemented by United Nations Environment Program and FAO.

**Import/Export of Hazardous Wastes** — The importation of hazardous wastes would only be upon authorization/license duly issued by the national competent authority and the exporter should have the prior informed consent of the competent national authority of the State of import. Be it noted that export of hazardous wastes should take place only in the absence of local technical capacity and facilities to dispose of the wastes in an environmentally sound manner. Furthermore, the export of hazardous wastes shall not be permitted in the following instances: (i) if there is reason to believe that their environmentally sound management and disposal could not be guaranteed in the prospective State of import; (ii) if the State of import has officially banned the import of hazardous wastes. As noted above, reference should be made to information available at the Secretariat of the Basel Convention.

#### 4.4 Enforcement scheme

A chemical product/waste control legislation will not meet its objectives if there is inadequate enforcement. The main elements of an enforcement scheme are: monitoring of compliance (e.g., recordkeeping and reporting, surveillance and inspections; compelling of compliance (e.g., warnings, investigations, prosecution, imposition of penalties); and promotion of compliance (e.g., training and education, economic incentives, voluntary agreements, environmental auditing). It is usually carried out by government officers in the competent national

authority in-charge of the law's implementation who may be assisted by officers of other government agencies, notably the Customs authority. In particular, legislation should provide the Customs office with power to intercept, inspect and prevent imports or exports which do not comply with the requirements laid down by the Competent National Authority. Appropriate personnel and other resources should be provided to the Customs office to enable it to pursue enforcement actions.

**Enforcement Power** — A competent national authority in the government's machinery is assigned and empowered to ensure compliance with the law and its regulations as well as conditions issued pursuant to the law. It may also issue injunctions and prohibitions under penalty of a fine.

**Inspection** — A vital component of a chemical product/waste control legislation is the power of the competent national authority to make inspection. Said inspection is carried out in the premises of manufacturers, importers, exporters and users in order to go over documents and other relevant materials including inquiry on individuals and collect samples to find out if the chemical products/wastes are legal and not objects of illegal traffic in the same.

**Prohibited Act** — Among specific offenses which may be enumerated in the law are: import and export of banned chemicals/wastes; import and export of chemicals/wastes which have not been properly packaged or labeled; import and export without the required license; export of banned or severely restricted chemicals without the consent of the importing country or use of false statements; and misrepresentation or fraud to obtain the necessary consent or license.

## 5 CONCLUSION

It is indeed surprising that toxic waste control, i.e., prevention of illegal traffic, is neglected in many jurisdictions particularly in the developing countries of Asia and the Pacific. This attitude should be changed soon considering the increased toxicity of many wastes caused by wider use of chemical and advent of modern transportation and communication. The problem is further aggravated by increased urban population concentrations and less space for landfill as the easiest and most available method of disposal.

Be that as it may, a hazardous waste control system should begin with a political commitment. The creation of a specific governmental infrastructure is also necessary for an effective control system considering the clear and present danger posed by hazardous wastes to the environment. Likewise, trained personnel in hazardous waste management is a requirement of a control system not only for the industry but also for the government. Both regulator and regulated should be well equipped with the wherewithal to achieve the desired control. Well-informed and trained staff are needed both in the technical aspect of hazardous waste management and in the legal and policy areas to assist in the formulation and implementation of laws and regulations particularly those which would prevent illegal traffic.

Training of personnel, however, need not always flow from developed to developing countries. Country experiences showed that sharing of experiences among similarly situated countries such as those in Asia and the Pacific proved more valuable on account of identified similarities in problems, issues and applicable solutions. But there is no substitute for on-the-job training to acquire the necessary expertise in regard to hazardous waste management/control.

Above all, a system of control can only be as effective as its means of enforcement. The more critical need today is the effective implementation and enforcement of hazardous substances control legislations/regulations. This demands the creation of awareness of the



importance of environmental control and compliance with the requirements to develop the facilities (laboratories and equipment) and the expertise (qualified technical staff and other supporting manpower) to sustain a sophisticated environmental regulatory management framework. Lastly, and perhaps the most important of all, citizen participation should be stressed as a solution to the problem posed by toxic wastes. The best legal framework will go awry, even the machines and modern technology will prove ineffective without the active involvement of the citizenry in the prevention of illegal hazardous waste traffic.

## REFERENCES

1. Basel Convention on the Control of Transboundary Movement of Hazardous Waste and their Disposal. 1989 United Nations Environment Program.
2. Draft Model National Law on the Control of Transboundary Movements of Hazardous Wastes and Other Wastes and their Disposal. 1993 United Nations Environment Program.
3. Guidance on Chemical Management Legislation: Information on the Prior Informed Consent Procedure. 1992 United Nations Environment Program.
4. Guidance on Chemical Management Legislation: Overview. 1992 United Nations Environment Program.
5. Guidelines for the Development of a Legal and Institutional Framework to Prevent Illegal Traffic in Toxic and Dangerous Products and Wastes. 1994 (Economic And Social Commission For Asia And The Pacific).
6. International Code of Conduct on the Distribution and Use of Pesticides. 1985 amended 1989 (FAO).
7. London Guidelines for the Exchange of Information on Chemicals in International Trade. 1987 amended 1989 United Nations Environment Program.
8. Assessment Report on the Status of Some Countries Covering Institutional, Legal and Manpower Capabilities in the Monitoring and Management of Toxic and Dangerous Products and Wastes. 1993 (Economic And Social Commission For Asia And The Pacific).
9. Toxic Substances and Hazardous and Nuclear Wastes Control Act. 1990 (Philippines).
10. Toxic Substances Control Act. 1976 amended 1981, 1983, 1984, 1986, 1987 (United States of America).



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## ILLEGAL TRANSPORTS OF WASTE: TRICKS OF THE TRADE

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### SUMMARY

This article has three aims:

- to provide some understanding of the illegal practices that may occur during shipments of waste;
- to describe the administrative and physical checks conducted to counter these practices; and
- to illustrate the use made of the national and international enforcement network.

## 1 THE WASTE ROUTE

### 1.1 Regulation

Western Europe is a highly industrialized area. Apart from the good things that the industrial revolution brought in its wake, it became clear in the mid-60s that there was also a down side: waste.

This was a different type of waste from the domestic waste and small amounts of industrial waste that had been accustomed to hitherto. However, it was not really treated any differently. Chemical and other industrial waste was dumped in landfills which had not been specifically set up for that purpose.

A number of scandals, such as having to demolish new residential areas built on contaminated land and the poisoning of nature reserves caused the population at large and those with political responsibility to start thinking of counter-action.

Things became worse when it became known that a number of companies had decided to ship their chemical waste - so difficult to process - to countries that are often referred to as third-world countries. At that time they were unable to understand the impact of accepting such dangerous wastes. Dealers seeking a quick turn severely abused the often poor economic situation of these countries.

In the years that followed, stringent national and international regulations came into force in the Netherlands and other countries or nations.

The regulations were designed to make the producer responsible for processing his waste in a responsible manner in terms of environmental protection.

Policy was designed to enable this waste to be processed as far as possible in the country of production and to limit exports of waste as far as possible. International regulations are set forth in a EC regulation of the European Community which directly affects all member states. Where transfrontier waste shipments do still occur, for example because the processing capacity in the country of production is inadequate, the producer has to abide by strict rules.

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A number of pieces of environmental legislation dedicated to individual sectors such as the Nuisance Act, the Waste Substances Act, the Air Pollution Act, the Noise Abatement Act and the Chemical Waste Act were replaced in 1993 by the integrated Environmental Management Act. Hitherto, it was not possible to deal adequately with certain matters as a result of a lack of coherence in the legislation, but the new integrated approach has significantly enhanced the effectiveness of environmental legislation. In the European context, a previous 1994 Directive was replaced by Regulation 259/93 from the Council concerning the supervision and control of shipment of wastes within, into and out of the European Community. The advantage of this Regulation is that legislation in the countries of Europe on transfrontier waste shipments is now harmonized. The concept of "wastes" was also made somewhat clearer as a result of European Community Regulation 75/442, but differences in interpretation in the various countries of the European Community remain possible.

A producer of wastes has to notify the proposed shipments to the exporting and recipient countries and in many cases explicit consent from the relevant governments is required. Transit countries also have to be informed about the proposed transfrontier shipment.

It is prohibited to ship waste to countries with an inadequate processing capacity, or none at all, or where it is not desirable that they should receive the wastes.

As proof of consent, licenses are granted and certain forms have to be carried with the vehicle during shipment.

The success of any regulation can be measured by compliance behavior. Checks are necessary to measure this. If the check shows that compliance is insufficient, the Government will have to act to take corrective and/or penal measures. This process of control followed by corrective action is termed "enforcement."

## 1.2 The actors

A number of players are involved in the route covered by waste. Some of these are as follows:

### 1.2.1 The producer

The producer is the individual whose activities produce the waste. A producer who surrenders waste is responsible for its disposal. For a variety of reasons, producers will in some cases (lack of awareness of the regulations, efficiency, lack of market awareness etc.) will opt not to dispose of the waste themselves but to leave it to:

### 1.2.2 The agent/dealer

The agent/dealer is an intermediary who performs certain services and/or actions against payment. The activities that he carries out may be quite diverse. Often he has the commercial contacts with the handlers or processors and cannot be avoided. In some cases he is contracted in because the producer does not grasp the regulations and applies for the necessary license on the client's behalf. He may also assumed responsibility for the producer's waste and handle the entire route from producer to re-user or to the party that finally disposes of it. Once it has been decided what is to be done with the waste, contact is established with:

### 1.2.3 The hauler

In many cases direct contact is not established with the hauler, but with a forwarding agent. The forwarding agent is a sort of agent in shipments and is often called in if several types of transport are required for the shipment (from car to train to ocean-going vessel etc.). He is fully familiar with the world of transport and is often able to negotiate favorable rates. In cases of shipments where only one means of transport is used, for example a lorry, there will be direct contact with the hauler. In cases of shipments involving ocean-going vessels, other intermediaries may enter the scene such as the loading agent or the ship broker and the agent or representative of the shipping company involved. In some cases haulers act as waste agents or make their premises available for temporary storage or simple processing of wastes. The hauler then carries the wastes to:

### 1.2.4 The processor

In many cases wastes are not surrendered directly by the producer to the final processor, and interim processing steps occur. These may comprise mixing up certain substances to comply with a certain specification, or to separate their components (e.g. stripping of used electricity cables) or sorting by type (old metals) or particle size. These actions may be bona fide, but illegal waste operations do occur in this part of the disposal chain. After processing, a hauler is usually contracted to ship the waste to:

### 1.2.5 The re-user

The re-user may use the wastes to render them useful again. Examples are the re-smelting of metals, the crushing of construction and demolition waste and distillation to return certain chemicals to a particular specification. In many cases, only a proportion of the wastes submitted can actually be used. What remains is then only suitable for:

### 1.2.6 Final disposal

Final disposal is defined as landfills where wastes are introduced onto or into the soil or subject to certain types of incineration, under the right conditions or otherwise. It is on this latter form of final disposal that there is still divergence between the various countries.

## 2 **METHOD OF TRANSPORT**

Wastes may be shipped in various ways. First of all, depending upon their nature and composition, the wastes will be packaged or carried as bulk freight.

### 2.1 **Packaged transport**

The following packagings are commonly used to carry wastes:

- steel drums (closed or with a removable head);
- plastic containers (closed or with a removable head);
- board or fibre containers;
- bags (textiles or plastic);
- jerry cans (steel or plastic);
- composite packagings (e.g. glass bottles packed in boxes or crates); and

- IBCs (intermediate bulk containers) such as 'big bags' or octabins.

In many cases the packagings used to carry wastes already have a life behind them. This means that the quality often ranges from moderate to poor. Strangely enough, the Dutch and European regulations do not impose any requirements regarding the quality and type of packaging. The packaging only has to comply with United Nations requirements if the particular waste is also a hazardous substance within the meaning of the transport of Dangerous Substances Act (which incorporates the international IMDG code, ADR, ADN and IATA Restricted Articles Provisions).

The packagings are then stored in sea containers in most cases (certainly in the case of international shipment). The sea containers (closed or open-top) are then shipped multi-modally (lorry, train, inland vessel, ocean-going vessel). Waste is not yet often transported by airplane.

## 2.2 Bulk transport

For economic reasons, larger volumes of waste will be transported as bulk consignments. Bulk transport obviates the costs of packaging and a proportion of the handling costs.

A distinction can be made in bulk transport between very large consignments which are loaded directly as loose cargo in an ocean-going or inland vessel, and consignments which are stored as bulk cargo in an sea container or lorry. Waste chemicals are transported as bulk cargo in tankers and tank containers. There are also cases of transport by rail tankers for greater distances over land.

## 3 THE "TRICKS"

### 3.1 General

One widely used 'trick' is to artificially upgrade the financial value of a consignment of waste. If a waste consignment has no value or even a negative value, it may be claimed that the material has a positive value of \$200 per ton for example. No one will then think that final disposal is the ultimate objective, reuse is the more obvious thought. In this manner, the expense of a disposal method in a western country can be saved and the waste can be disposed of more cheaply in a different country. This is highly lucrative, particularly with very large consignments of a few thousand tons in weight.

A consignment of zinc waste was once found in the Netherlands in this manner, allegedly having a value of 350 German Marks per ton and allegedly to be reused in the Ukraine. After checking and analysis (the materials were found to contain only 11% zinc) the final conclusion was that the consignment was not recyclable and had a negative value of around 800 German Marks per ton.

### 3.2 Administration

If a producer of waste applies for consent/license from the relevant competent authority, he must provide a number of details. For example, the authority will be interested in such aspects as the nature and composition (physical and chemical) of the particular waste. One frequently used 'trick', particularly by collectors and those who bulk waste up, is to describe the

waste in terms as wide and nonspecific as possible. They will then be in a position to categorize a large number of wastes under a particular heading and thus bypass the relevant regulations in a legal manner.

As previously indicated, hazardous waste must in principle be processed in the home country. It is therefore important for a country to have sufficient processing capacity. This can only be achieved if there is adequate supply for the processors at a price that covers the cost. One must then avoid waste being shipped abroad where much lower processing prices often apply. The 'trick' that waste producers can use is to declare to the licensing authority that a consignment for processing is much larger than the capacity of the processor in the home country. It is also possible to declare certain parameters in the waste to be higher than they are in reality. The emission requirements that apply to the home-country processor would thus be exceeded, making it apparently legitimate to allow export (and thus have lower processing costs).

It is often cause for surprise to learn that in many countries, including the Netherlands, it is possible to apply for a license to ship wastes, nationally as well as internationally, without some independent body checking the nature and composition of the wastes.

The licensing authorities do ask to see an average analysis of the consignment, but no comment is made if such an analysis is provided on some unclear type of notepaper. It is also acceptable if the commercial players involved supply the analysis information on their own writing paper.

If one were to switch to requiring an analysis by an accredited and independent checking agency when license applications are submitted, there would still be adequate opportunity for fraud. At present (and how easy it is) faxes are used. It is then a simple matter to incorporate the required analysis results under the letterhead of an accredited agency.

It is also surprising to learn that an average analysis is only required once for a consignment of waste of several thousand tons which is then allowed to be shipped over a period of one year using several hundred lorries or dozens of vessels.

It is also worrying to discover that the accompanying transport documents, which by law must accompany the shipment of waste, often consist simply of a copy and thus a copied approval stamp; and this with the consent of the competent authority. Partly because it is simply thought to be too much work to stamp all the copies of the accompanying documents as original.

### 3.3 Physical tricks

The waste hauler with spurious intentions will make every effort to avoid being caught. He will ensure that the licenses required appear to be in order. More so than in the past, attention is paid to avoiding words that have some affinity with waste transport on transport documents. Examples are such words as 'waste'; 'dechets'; 'Sondermüll'; 'Rückstände'; 'Abfälle'. These words are replaced by synonyms that have a greater affinity with raw materials.

In the past, you could often see from the outside that a particular lorry was being used to transport wastes, but nowadays every effort is made not to stand out.

Increasing consideration should therefore be given, outside the targeted physical checks on the long-established target group, to switching to a nonselective check with every transport unit being subjected to a physical check. In terms of its logistic possibilities, a closed sea container is a wonderful means of transport. But for the enforcement officer, checking it often leads to problems.

One common trick is to bulk load the container by first using a lifting crane and positioning some support, diagonally or vertically. The container is then bulk loaded via the doors, after which the doors are closed and the container is placed on the vehicle in its normal horizontal position. The doors cannot be opened during checking as the load would then fall out of the container onto the road or the quay.

In many cases, the accompanying documents will show the contents to be metal waste. The inspector will then be disinclined to make much effort to subject the load to any check. But appearances can be deceptive.

Where checking is required, the best approach is to track such containers to the point of loading or transshipment where there is sufficient handling equipment to perform a check.

If a container is used for standard (208 litre) steel drums, one common trick is to load the first two or three rows behind the container doors with a waste load which is covered by the accompanying documents, with the illegal, environmentally harmful load further back. It is therefore advisable to check such waste shipments regularly (at a suitable site and using forklift trucks to empty the container).

To transport old metals and contaminated soil, what are termed 'open-top containers' are often used. Such containers are simple to load via the open top. Such containers will not create any additional problems for checking purposes. One drawback is that they are often closed during transport by a covering tarpaulin and thus are not easily accessible for inspection.

It regularly occurs on open lorries as well as open-top containers that wastes such as packaged waste chemicals and old batteries are 'concealed' under a load of car wrecks which have been rolled flat. A quick visual check often fails to reveal these illegal loads.

One interesting target group comprises haulers who traditionally came back from abroad without a return load. On the Dutch market these are haulers who transport cut flowers and plants. In many cases an enforcement officer will not think of them as the lorries are often expensive, thermally insulated or refrigerated. Refrigerated containers have already been found containing hazardous wastes.

## 4 ENFORCEMENT

### 4.1 Nationally

In the Netherlands, it is the provincial authorities that are responsible for licensing and checking domestic waste shipments that pass provincial boundaries. Central Government (the Ministry of Housing, Spatial Planning and the Environment) (VROM) is the competent authority for transfrontier shipments.

#### 4.1.1 Company checks

The staff of the Inspectorate for the Environment at the Ministry perform regular, non-institution-specific checks on producers and processors of wastes. Checks are based on the bookkeeping, the invoices, probably weigh-bills shipment orders, internal company records and notifications to the competent authority.

These are checks to ascertain whether the data held at the Ministry's International Waste Notification Bureau tally with the actual data or received shipments of waste. The International Waste Notification Bureau is an office operating as a database for transport data,



and where applications are checked as to content. There are also regular checks on whether no wastes other than those known to the Government originate from a particular corporate process. If this is the case, the producer must indicate where the waste remains.

#### 4.1.2 Shipment checks

In order to achieve an effective density in the checking network, and thus to increase the chances of catching fraudsters, a large number of enforcement officers are required.

The Ministry of Housing, Spatial Planning and the Environment has elected to assign responsibility for this work to a small team of specialist enforcement officers within the Inspectorate for the Environment, and to involve the regular enforcement network in the checks. This network comprises the Police, Customs and the National Transport Inspectorate.

A strategy has been developed whereby a number of enforcement officers from this network are trained by the Inspectorate for the Environment to become a reference point. These enforcement officers undergo a program comprising an eight-day course followed by an eight-day program of in-service training. They also act as instructors for the base-line staff in their department. They have to be able to identify relatively simple matters and deal with and process them themselves, and to recognize relatively difficult matters and pass them on to the Inspectorate for the Environment.

Seminars are regularly organized, at which the environmental inspectors and enforcement officers from the network compare notes on the tricks.

#### 4.2 Internationally

A European enforcement network has been active in Europe for a few years now in the form of IMPEL. IMPEL stands for the European Union network for the Implementation and Enforcement of Environmental Law. In particular Working Group IV and Ad Hoc Working Group IIIa have proved to be active in setting up a development network. Ad Hoc Working Group 3 has two what are termed 'TFS' projects. TFS stands for Transfrontier Shipment of Hazardous Waste. Within these projects, enforcement officers from various European countries have collaborated to study and compare the various methods of enforcement.

On the basis of administrative and physical checks on a number of pre-selected waste flows, the projects also examined whether shipments between these companies were known and whether the load matched the given description.

The countries involved in these international forms of cooperation are enthusiastic about the results to date. In future, efforts will be made to create a more permanent form of cooperation.

#### \* Acronyms

IMDG-code	= The International Maritime Dangerous Goods Code
ADR	= European Agreement Concerning Transport of Hazardous Substances by Road
ADNR	= European Agreement Concerning Transport of Hazardous Substances by Inland Waterways
IATA	= International Air Transport Association



## **TRANSBOUNDARY ILLEGAL SHIPMENTS OF HAZARDOUS WASTE, TOXIC CHEMICALS (PESTICIDES) CONTRABAND CHLOROFLUOROHYDROCARBONS: THE NIGERIAN EXPERIENCE**

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### **SUMMARY**

Nigeria, like other developing countries, is facing continuous threats of illegal traffic and trade of hazardous wastes, toxic chemicals [Pesticides], and Contraband chlorofluorohydrocarbons, in spite of the stringent laws enacted after Nigeria's first experience of hazardous wastes dumping in 1988. This paper describes the country's new experience, the enforcement strategy put in place, and the constraints.

### **1 INTRODUCTION**

Nigeria's dominant feature is her size and diversity. It has a population of about 88 million people evenly spread over a total land area of 910,770 square kilometers. Out of the 45 countries of sub Sahara Africa, Nigeria constitutes over 20 percent of the total population.

Nigeria is faced with many environmental problems. These problems include deforestation, desertification, soil erosion, oil pollution, water pollution, biodiversity losses, coastal erosion, floods, urban decay and industrial pollution, and recently the surge and threat of illegal shipment of hazardous and toxic waste, toxic chemicals [pesticides] and contraband chlorofluorohydrocarbons into the country.

With the strong and active environmental awareness and pressure groups in industrialized countries, the hazardous waste from industrial processes in these countries were awaiting disposal elsewhere. The toxic chemicals [pesticides] and contraband chlorofluorohydrocarbons which have been banned in these countries are finding their way illegally into developing countries, Nigeria included. The reasons induced for this trend in Nigeria are:

- the down turn in the economy, which is compelling industrialists to seek for cheap secondary raw materials and goods;
- poor awareness of existing enforcement agencies and bottle necks in the enforcement of the regulations; and
- porous borders.

## 2 THE NIGERIAN EXPERIENCE

The dumping of 4,000 tons of toxic wastes from Italy in Koko Port, Nigeria in 1988 promoted the government to promulgate the Harmful Waste [Special Criminal Provision etc.] Decree 42. This decree made it a criminal act, punishable by life imprisonment, to carry, deposit, transport, import, sell, buy or negotiate in trade of harmful waste within Nigeria territory. Nigeria was the first country in Africa to sign and ratify the Basel Convention. Nigeria considerably influenced the text of the Convention.

### 2.1 Alerts

Since the first experience of the illegal dumping of hazardous wastes in Nigeria in 1988, there have been many attempts by Nigerian businessmen and foreign waste merchants in industrialized countries to ship waste, toxic chemicals, and contraband chlorofluorohydrocarbons into the country. Various methods were employed to commit such acts. In 1992 and 1993 fifty alerts were received by the Nation's Dump Watch Network. Notably amongst these were:

- an offer to "dispose radioactive waste" by one Chief Kalu Ezemballa of Gopitech Waste Disposal Limited;
- a business proposal emanating from one Prince M. M. Ajasin to import waste through Germany;
- importation of 71.41 metric tons of waste to Nigeria from the United Kingdom in 1993;
- a business proposal on Toxic Waste disposal in Nigeria by one Alhaji Mohammed Suleiman of Plos-Chem Limited from Germany;
- a request for "transportation of dangerous good" gases, poisonous substances and infectious corrosive substances and miscellaneous dangerous goods by one Anumanu O. Anumanu from Germany;
- Nodek Limited plan to import milk suspected to be radioactive from Baltic region;
- alerts from the Canadian High Commission of persistent efforts by Messrs A.C. Okasi & Associates to import hazardous wastes from Canada through letters and several phone calls; also a company called Alfa Estate solicited for hazardous wastes from Canada;
- alerts from one Dr. Chinendu Okafor requesting toxic waste from Canada to Nigeria;
- an alert on increase in the dumping of toxic wastes in Indonesia from Germany, Singapore, South Korea, USA and Netherlands;
- an alert from Basel Convention Secretary on an attempt to dispose of toxic waste into Nigeria by one John M. Eke;
- attempts to reexport twenty-two rail cars loaded with toxic waste [oil waste, chemical alkaline, used batteries] from Czech Republic by five German firms to unnamed third world countries; and
- alert on Australia's intention to ship toxic waste overseas.

In 1994 and 1995, about 15 toxic chemicals and waste alerts were received from Dump Watch Network. Out of these, twelve were purported requests by alleged Nigerian businessmen, while three were deliberate efforts by foreign companies to dump toxic wastes in the country. The latest method employed by this group of purported importers was to disguise toxic chemicals and wastes as raw materials under various false labeling. Polychlorinated Biphenyls were being labeled as vegetable oil and Poly Vinyl Chloride as artificial raisins. The most outrageous and dangerous alert was on the proposed importation of radioactive milk products from the Baltic region into Nigeria.

In March, 1993, a consignment of ten bags of expired chemicals labeled "ACTELLIC 25 EC", brought in by Sud Air Transport, a chartered aircraft from Conakry, Guinea, was left unclaimed at the Murtala Mohammed International Airport. These chemicals were packed in cement bags with instructions written in French. Because of the offensive odor emanating from the consignment, officers of the Department of Customs and Excise called the attention of Federal Environmental Protection Agency inspectors. On investigation, it was discovered that the chemicals [pesticides] were expired. The summary of the investigations were as follows:

- the labeling of the Conakry consignments violated the United Nations Program, World Health Organization and Food and Agriculture Organization code of conduct on the safe use and handling of pesticides, because the instructions on the consignments were not written in the language of the users;
- the consignment contained no radioactive element, neither did they emit radiation of any type;
- the chemical, however, exhibited all the characteristics of expired ACTELLIC 25;
- the chemicals were unsuitable for their recognized and intended use; and
- the chemicals contained a serious environmental health hazard if allowed in the environment.

Consequently, the Federal Environmental Protection Agency expressed grave concern over the following:

- the latest increase in international chemical merchandising especially by illiterates, market traders and other people not competent to handle chemicals safely;
- the continuous dumping of deteriorated and inappropriately labeled agrochemicals in the country;
- the recent switch to airfreighting of pesticides to sidetrack the effective checks and inspections of Federal Environmental Protection Agency staff at the sea ports; and
- the poor handling of chemicals including the use of cement sacks as substitute for safe packages.

The Federal Environmental Protection Agency then made an appeal to airlines to maintain strict compliance of International Aviation regulations and other International Conventions when asked to carry pesticides and other hazardous chemicals and substances.

In the case of contraband chlorofluorohydrocarbons, the trend in Nigeria now is the importation, at cheap prices, of second hand refrigerators, air conditioners, compressors, deep freezers and cars which contained chlorofluorohydrocarbons that are being phased out

in the industrialized countries. About 25,000 units are being imported into the country annually according to Custom Department unofficial sources. These goods which have outlived their usefulness are being dumped under the pretense of being fairly used.

### 3 ENFORCEMENT STRATEGY

The watchdog on environmental issues in Nigeria is the Federal Environmental Protection Agency which is vested with all the legal instruments to tackle illegal shipment of toxic wastes, chemicals [pesticides], and contraband chlorofluorohydrocarbons.

- Federal Environmental Protection Agency is the United Nations designated authority for industrial chemical and pesticides with authority to fulfill the London Guidelines and the Prior Informed Consent procedure.
- Federal Environmental Protection Agency is the focal point for the implementation of the Basel Convention on the Control of Transboundary Movement of Hazardous Waste and their Disposal.
- Federal Environmental Protection Agency maintains a combined list of one thousand and forty five [1,045] hazardous chemicals under schedules 11 and 13 of the Hazardous Waste Regulations S.I. 15 of 1991.
- Federal Environmental Protection Agency operates the Harmful Waste [Criminal Provisions] decree 42 of 1988. Section 1.1 of this decree overrides the Customs and Excise Traffic etc. Consolidating decree and it bans the importation, transit, transportation, deposit and storage of harmful waste.
- Decree 36 of 1989 vested the power for clearance or confiscation of imported contaminated foods jointly in the Minister of Health and the Chief Executive of Federal Environmental Protection Agency.
- Under the London Guidelines and Prior Informed Consent Procedure, all exporting countries should obtain the consent of the designated nation and the authority of the importing country, before the shipment of any hazardous chemicals and "green" waste. Where the Prior Informed Consent was obeyed, Federal Environmental Protection Agency gave consent, and should have notice of arrival date and port of berth of vessels carrying wastes.

The Federal Environmental Protection Agency's enforcement strategy to tackle the illegal shipment of hazardous chemicals and waste is the Hazardous Chemical Program, which was established in 1992. This program monitors the exportation and importation of chemicals which did not obey Prior Informed Consent. Federal Environmental Protection Agency is supported by other enforcement agencies like Customs and Excise Department, Nigerian Navy, and State Security Services. The Federal Environmental Protection Agency also enjoys the support of Nigerian Ports PLC, Ministry of Foreign Affairs, Nigerian Missions abroad, Foreign Embassies within the country, the Manufacturers Association of Nigeria and nongovernmental organizations like Green Peace International.

### 3.1 The administrative procedures of the Program are as follows:

- The owners of a chemical consignment must write to the Federal Environmental Protection Agency attaching all import documents.
- When the consignment gets to the Custom examination stage, the chemicals are randomly sampled by Federal Environmental Protection Agency inspectors.
- The samples are taken to a Federal Environmental Protection Agency accredited laboratory consultant for analysis. The owner of the consignment pays the cost of the analysis.
- If the result proves positive, the clearance certificate signed by the Head of the Inspectorate and Compliance Monitoring Department of the Federal Environmental Protection Agency is issued to enable the clearing of chemicals.
- The handling, storage, usage, and disposal of the chemicals are monitored by Federal Environmental Protection Agency at the factory facility to ensure sustainable use and proper management.

When an alert is received on an intention to import toxic waste into the country, the Federal Environmental Protection Agency immediately puts its chemical tracking inspectors on alert at the ports. The information is also immediately disseminated to all border posts throughout the Federation thereby putting all government agencies such as the State Security Services [SSS], Customs, Nigerian Ports Plc., etc., on the alert. Many other follow-up investigations are carried out based on all available information.

**Table 1**

<b>Importing Industry Category</b>	<b>Volume [metric tons]</b>
Plastic	16,296,969
Steel	689
Petroleum	1,852,825
Paint	844,480
Agro-chemical	1,834,144
Foam	3,501,732
Textile	2,057,557
Building	1,734,200
Miscellaneous & Unclassified	4,410,000
COMPLIANCE	32,532,596
NON COMPLIANCE/CAMOUFLAGED	97,676

The Federal Environmental Protection Agency's strategy of tracking chemicals and recycled waste consignment, which do not fulfill the Prior Informed Consent procedure, succeeded in preventing the importation of banned chemicals into the country. Usually, such hazardous chemicals were camouflaged as industrial raw materials and products. In 1994, the Federal Environmental Protection Agency was able to intercept 97,676 metric tons of hazardous wastes. In all the cases, the consignments were returned to the countries of origin. It was, however, unfortunate that permits for these consignments were obtained from another governmental agency.

### 3.2 Constraints

Some of the constraints that hindered the effectiveness of the tracking program are:

- administrative rivalry among relevant government agencies;
- lack of awareness and environmental obligation of importers and their agents. They view the tracking program as another bureaucratic bottle neck; and
- lack of technical know-how of Customs, Police and Security officers. They were not adequately trained to identify hazardous toxic wastes and pesticides.

## 4 CONCLUSIONS

Despite all enforcement strategies to forestall illegal shipment of hazardous wastes, toxic chemicals [pesticides] and contraband chlorofluorohydrocarbons, Nigeria is still faced with threats of this illegal trade and traffic. The situation calls for total commitments by all countries globally. It calls also for cooperation and collaboration of all relevant agencies within Nigeria and abroad. There should be technology transfer and capacity building to effectively execute all of the enforcement strategies.

## REFERENCES

1. Federal Environmental Protection Agency, Press Statement on toxic chemicals importation, 1993.
2. Federal Environmental Protection Agency, 1994 Annual Press Briefing, 1994.



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## **CRADLE-TO-GRAVE COMPLIANCE TRACKING OF U.S./MEXICO TRANSBOUNDARY HAZARDOUS WASTE: THE HAZTRAKS TRACKING SYSTEM**

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### **SUMMARY**

This hazardous waste tracking system (Haztraks) presents a unique cooperative effort between neighboring governmental entities through the development of a common automated mechanism to support independent inspection, enforcement and compliance monitoring of mutual transboundary hazardous waste shipments. Computer assisted procedures are speeding the process for identifying non-compliant trends and regulatory deviations. Based on information captured by Haztraks, enforcement actions have brought over 1500 tons/year of transboundary hazardous waste shipments into compliance. Since employing Haztraks, there has been a 20% annual increase in shipment compliance with Mexico's requirement to return maquiladora waste to the country of origin of the raw materials for proper disposal by the Mexican maquiladora industry and their U.S. parent companies.

## **1 ENVIRONMENTAL COMPLIANCE, ENFORCEMENT AND WASTE TRACKING**

### **1.1 Sizing the problem**

Over the past 25 years, the environmental picture in the U.S. has changed dramatically. We are at or near maintenance levels of compliance in many programs. We are moving from an "end of pipe" orientation to one of pollution prevention. Beyond compliance, environmental protection becomes a partnership between state, local, and federal regulators and the regulated community. Accessible, accurate, and current information is the heart of such a partnership.

Under most of the U.S. environmental statutes, the Environmental Protection Agency established and implemented a national compliance program as a standard to be achieved by individual U.S. states. Once achieved, the lead passed to the appropriate state agency through program delegation. Today, much of the national environmental compliance program is administered by state agencies. However, the Environmental Protection Agency continues to orchestrate the coordinated, national compliance program, particularly in the area of transboundary waste shipments. In Mexico, there is also a federal system with delegations to the State level authorized to carry out and maintain compliance with environmental program mandates.

Information sharing has been particularly important to international environmental cooperation. Among the highlights of U.S. cooperative efforts is the data system the U.S. and Mexico uses to track the transboundary movement of hazardous waste, Haztraks.

Haztraks reflects the Environmental Protection Agency direction in designing and using information sharing systems. It has particular relevance to Basel and Organization for Economic Cooperation and Development parties for information sharing and reporting.

## 1.2 Uses of automation

Effective use of computers in compliance assurance today is an evolving art, not a science. The formula that worked for you or your agency yesterday might not be so effective today — and could be dead wrong by tomorrow. As we move forward into the next century, and the regulatory process becomes more knowledge based, we firmly believe that computing strategies will become a competitive issue.

In this paper we will show computing technology can work for enforcement and compliance strategies. Information technology has acquired a role so central in evaluating compliance that it has become practically irreplaceable for monitoring transboundary waste shipments along the U.S./Mexican border. Haztraks users can take advantage of information technology to reengineer the compliance assurance process employing "wizard" programs to help perform common tasks, such as creating forms, formatting reports, and setting up queries, and exchanging data with the regulated community by means of electronic data interchange.

## 2 NEEDS FOR INFORMATION EXCHANGE

Haztraks stems from a critical need by the U.S. and Mexico to track thousands of tons of hazardous waste that crosses the Mexico-U.S. border annually. Mexico is the U.S. third largest trading partner in chemicals behind Japan and Canada. Six percent of U.S. export and 3 percent of U.S. import chemical trade are with Mexico. Since 1965, some 2000 industrial maquiladora facilities have been established in Northern Mexico. Maquiladora facilities are Mexican manufacturing and assembly plants which are owned by foreign parent companies. Under Mexico's maquiladora program, foreign parent companies (most are U.S.) export raw materials and partially assembled components to their maquiladora plants for final assembly. Under the current system, the finished goods produced at the Mexican facility can then be exported with tariffs charged only on the value added to the material during the processing steps which occurred in Mexico. Mexican law requires that hazardous wastes generated in the maquiladora plants be exported to the country of origin for management or to be nationalized. Nationalization, whereby the waste could remain in Mexico, has been a seldom used option. Therefore, most hazardous waste produced by maquiladora plants comes back to the U.S. These include acids, bases, liquids containing heavy metals, metal plating wastes, organic solvents, and cyanide wastes.

Transboundary movement of hazardous waste between Mexico and the United States poses unique challenges. A primary concern has been the loss of waste identity at the border until the implementation of Haztraks. Additionally, further complicating the waste identification process, the definitions of hazardous waste varied between Mexico and the U.S. Neither the United States nor Mexico had systematic access to information on the number of authorized hazardous waste transporters or the amounts and types of hazardous wastes transported from Mexico to the U.S. The problem was exacerbated by the complexities of cross-border truck transportation and the difficulties involved in coordinating the activities of the numerous U.S. and Mexican agencies responsible for hazardous waste regulation.

## 2.1 Waste tracking in Mexico

Waste tracking in Mexico relies on the Guia Ecologica (Ecological Guides), which include a manifest and transport and acceptance of hazardous residues forms, as well as semiannual shipment reports. These must be forwarded to the Mexican Secretary of Environment, Natural Resources and Fisheries/National Institute of Ecology, which is the Environmental Protection Agency's counterpart in Mexico responsible for environmental affairs. Mexican law requires consent by the receiving country for exports of hazardous waste. In practice, however, the requirement is not applied to hazardous waste exports from maquiladora plants thereby posing a shortfall of monitoring information.

## 2.2 Waste tracking in the United States

Among the many challenges facing environmental managers are the millions of tons of hazardous waste produced each year that must be managed to protect human health and the environment. Quality information about off-site hazardous waste shipment to the site or facility where it is ultimately disposed or treated is crucial to carrying out this task. The hazardous waste manifest is an integral part of the U.S. cradle-to-grave hazardous waste transport tracking system.

Required pursuant to the Resource Conservation and Recovery Act, the manifest is a multi-part shipping document that must accompany any hazardous waste shipment, regardless of the mode of transport. Generators of the hazardous waste are responsible for initiating a manifest for each shipment and for ensuring a transporter delivers the waste to the management facility that will dispose of the waste.

Current U.S. tracking of waste received from a foreign source also consists of advance one-time notification by the treatment, storage, and disposal facility. This notification gives the Environmental Protection Agency, the state environmental agency and U.S. Customs advance notice for each waste type, foreign source shipping the waste and the U.S. parties involved. However, this information is often incomplete.

Also, U.S. waste exporters are required to file an annual notice of the projected amount of waste that they will ship. The Environmental Protection Agency uses this information to request consent from the Secretary of Environment, Natural Resources and Fisheries/National Institute of Ecology for the shipment to take place.

## 2.3 Background of international waste tracking

On November 27, 1990, President Salinas of Mexico and President Bush of the United States agreed to coordinate border area environmental activities resulting in the Integrated Border Environmental Plan which provides for the creation of a hazardous waste tracking system. The U.S. and Mexico focused early efforts on developing a joint capability to monitor transboundary waste shipments in accordance with their bilateral commitment with the exchange of shipment documentation. These efforts culminated with the first phase development of this database system. The tracking system became operational as of October 1992. As a first effort of its kind, Haztraks developed a correlation between Mexican export authorizations and U.S. transport manifests to establish "cradle-to-grave" linkage.

## 2.4 Country-to-Country waste tracking coordination

Under the 1983 Agreement between the United States and Mexico on Cooperation for the Protection and Improvement of the Environment in the Border Area, a Work Group co-chaired by representatives of the Environmental Protection Agency and its Mexican counterpart

was established to resolve country-to-country hazardous waste issues. The primary focus of the Hazardous Waste Work Group centered on the maquiladora industry in Mexico. Nearly half of the 2000 maquiladora plants generate hazardous waste. Since Mexican law requires all of it to return to the country of origin, the vast majority of it, 30,000 tons per year (under Mexican hazardous waste definition), which includes 11,000 tons per year (under U.S. hazardous waste definition), returns to the U.S. Philosophically, Mexico has expected the U.S. to assume some responsibility for U.S. affiliated maquiladora waste management in Mexico. Instances of hazardous waste shipments and mismanagement were frequently agenda items at the Hazardous Waste Work Group meetings. However, fruitful dialog was often impossible because documentation as to waste origin, type, volume, etc. was anecdotal. The Work Group, agreed to study the management of hazardous waste along the border by conducting joint visits to maquiladora operations in Mexico and their U.S. counter parts (sister plants). While these were valuable for training purposes, they produced little information. The Work Group also looked at the viability of correlating hazardous waste shipment documentation to produce a picture of waste movement.

In September 1990, the Environmental Protection Agency and SEDUE representatives met in Mexico City to identify such documentation. Although there were several documents that were required for transboundary shipments, not all of them were available to the Environmental Protection Agency or SEDUE. It was important too, that there exist some correlatable data among the U.S. and Mexican documents. The Mexican Guia Ecologica and the U.S. hazardous waste manifest were available and contained correlatable data. The Guia is shipment specific, describes waste type and quantity as well as destination for prospective hazardous waste shipments. Similarly the U.S. Hazardous Waste Manifest is shipment specific, contains waste type, quantity, and destination. Pilot data exchange in 1991 revealed reconcilable differences in units and waste types. The pilot demonstrated the feasibility to construct a useful data exchange and compliance monitoring tool. Accordingly, using funds designated for enforcement and compliance monitoring purposes, the Haztraks data system was built in 1991 to serve these functions. It was also at this time that the NAFTA debate highlighted U.S./Mexico border environmental problems, among them, illegal hazardous waste management. This helped fuel the rapid development and expansion of Haztraks into a proven reliable compliance monitoring tool.

## 2.5 Information was centrally unavailable prior to Haztraks

As stated earlier, hazardous waste shipments lost identity at the border and little data was available to determine the magnitude and character of imported hazardous waste prior to 1992. The Environmental Protection Agency did not have accurate information on the quantity, type, origin, method of handling, and U.S. receivers of foreign waste streams. In the U.S., receiving facilities are required to provide the delegated authority with a one-time notification of intent to receive individual waste streams from a foreign source. Delegated state agencies did not maintain databases capturing these notifications nor import manifest information. It was difficult or impossible to maintain compliance with the one-time notification requirement. Traditionally, an on site inspection of the receiving facility and manual correlation of notification with the import manifest was the only means of verifying compliance. This effort was time consuming and not efficient for monitoring large numbers of facilities managing foreign source waste streams.

The primary hazardous waste tracking document is the manifest. The Environmental Protection Agency import regulations require the foreign generator of the waste to be identified on the manifest. This document is not required to be reported to the Environmental Protection Agency. For the Environmental Protection Agency or any delegated authority to establish a

compliance monitoring program, the manifest is the critical document for beginning any review. And it became quickly apparent that any appreciable success for waste tracking would be dependent on the development of system access to manifests and other information sources.

## 2.6 Opening information sources

Gathering information on foreign source waste required close cooperation with a variety of agencies including the foreign environmental authority, foreign commerce department, customs authorities of each country, and the delegated U.S. border state authorities. It was found that inconsistency of information handling was the general rule.

In Mexico, transport manifests are required to accompany hazardous waste shipments but were not collected by any governmental agency at that time. However, strict compliance was required for a 90-day authorization (Guia Ecologica) issued by the competent environmental authority to accompany each imported or exported hazardous waste or hazardous material shipment. Since this authorization was prospective, with overestimated quantities, it contained information useful for tracking waste shipments when compared with the U.S. transport manifest. The Mexican authority agreed to establish a compatible database and enter all applicable information beginning with the initial authorization issued in accordance with the Mexican General Environmental Law of 1987 and share the database with the Environmental Protection Agency.

U.S. Customs port policy along the U.S./Mexican border, while varying from port to port, required the U.S. importer to furnish a manifest prior to the transport of hazardous waste through the Customs facility. Customs officials were concerned with illegal contraband accompanying unauthorized hazardous waste shipments. The Environmental Protection Agency assisted Customs Port agents with training courses on environmental import/export regulations, provided joint inspections of shipments and furnished contact numbers for emergency assistance. In turn, the Customs Port Directors informally agreed to forward this initial manifest to the Environmental Protection Agency Region VI office on a monthly basis for inclusion into Haztraks.

Additionally, there is a biannual reporting mechanism requiring the reporting of imported hazardous waste shipments to the Environmental Protection Agency. This information is neither timely, nor accurate, and generally not reported by industry. Efforts to collect imported waste shipment information was then directed to the shipment manifest as the only reliable tracking document.

Therefore, the Environmental Protection Agency Region VI and I offices established support agreements with each of their U.S./Mexico border states to collect completed import manifests, as well as receiving facility notifications, and forward them to the Region VI.

The information collected from the Mexican Guia authorization, transport manifests from U.S. Customs and the delegated border states, and the receiving facility one-time notifications from the states became the cornerstone for the hazardous waste tracking system's data base.

## 2.7 Hazardous waste tracking system development

Haztraks was designed, with the support of a commercially available off-the-shelf database management system, to track volumes and types of waste shipped between the U.S. and Mexico. The basis of this mechanism is a series of informational and relational databases, programmed in a menu driven format, known as the U.S./Mexico Hazardous Waste Tracking System (Haztraks). The tracking system utilizes information received from Environmental Protection Agency Regions VI and IX and the States in both regions, U.S. Customs, and the Secretary of Environment, Natural Resources and Fisheries. The U.S. database component is based on information received from Uniform Hazardous Waste Manifests required to import or export hazardous waste. In Mexico, the Secretary of Environment, Natural Resources and Fisheries must authorize an import or export of hazardous waste by

issuing an Ecological Guide (Guia Ecologica). The Secretary of Environment, Natural Resources and Fisheries/National Institute of Ecology enters the Guia data into Haztraks reporting all of the Guias issued by the National Institute of Ecology in each of the Mexican border states.

As stated earlier, completed copies of manifests are collected by the U.S. border States; and through Environmental Protection Agency grant agreements or through voluntary submissions, the border States provide the manifests to Environmental Protection Agency Region VI, (Arkansas, Louisiana, New Mexico, Oklahoma, and Texas) to enter into Haztraks. Treatment Storage Disposal facilities file a notification with the States import notifications on a one-time basis for each stream of waste expected from a foreign source. These Treatment Storage Disposal import notifications are also collected by the U.S. border States, forwarded to Environmental Protection Agency Region IX, (Nevada, California, Arizona, and U.S. Territories), and entered into Haztraks.

## 2.8 Tracking system technical support

Environmental Protection Agency Region VI in Dallas, Texas supports the tracking system through its enforcement support contract program. The contract provides software programming, data transcription, document filing, user training programs, report development, company profile research and data quality control. Initial funding of \$30,000 was required for needs assessment, requirements definition and prototype database development. Present funding levels have been considerably less than comparable systems (\$150,000, annually) while providing support for various Federal, State and local agencies involved in compliance monitoring along the U.S./Mexico border.

## 3 HOW THE ENVIRONMENTAL PROTECTION AGENCY USES HAZTRAKS

Haztraks enables the Environmental Protection Agency to perform a variety of compliance verification and targeting functions as well as generating ad hoc query reports and hazardous waste tracking from generation to disposal. Manifests and notice/consent information can be cross-checked to identify shipments which fail to conform to export notification or consent terms (e.g., different type of waste or greater volume than represented in export notice or consented to). Manifests from export country and import country are cross-checked to identify manifest discrepancy violations (e.g., inaccurate or missing waste handler information). Transporter facilities are identified for storing waste shipments beyond authorized time limits for which they do not hold appropriate permits. Haztraks provides information for use by enforcement authorities in targeting inspection/investigatory activities (e.g., information on regions and border crossings with the most waste traffic, profile of industries which export high risk hazardous wastes, or exporter/importer/broker compliance history data). Haztraks aids the foreign country notice review process, a waste code translator is integrated into the report menu to quickly correlate and identify International Waste Identification Codes with domestic waste codes.

## 4 THE WASTE TRACKING PAPER TRAIL PROCESS

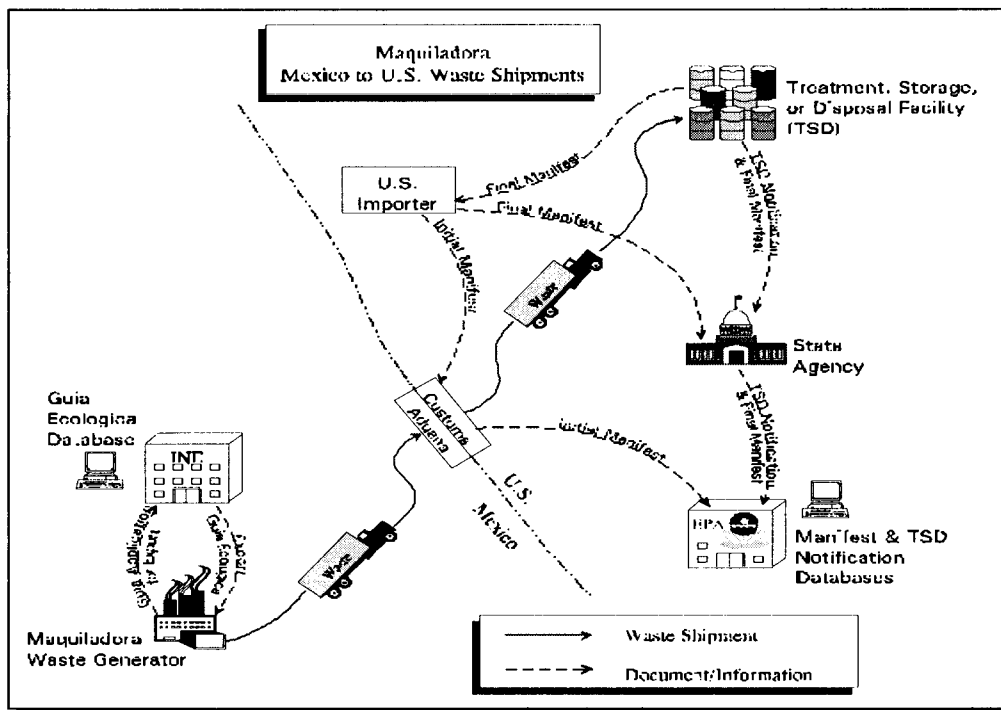
Waste tracking along the U.S./Mexico border can be shown by the following paper trail processes:

- tracking maquiladora waste shipments from Mexico to the U.S.;
- tracking non-maquiladora waste shipments from Mexico to the U.S.;

- tracking hazardous waste shipments from the U.S. to Mexico; and
- tracking raw material shipments from the U.S. to Mexico.

Each process has been described diagrammatically followed by a process narrative.

#### 4.1 Tracking Maquiladora Waste Shipments from Mexico to U.S.



#### Export Guia Ecologica

1. Through a guia ecologica application (Manifiesto para la Importacion o Exportacion de Materiales o Residuos Peligrosos), the maquiladora notifies the National Institute of Ecology of its intention to ship hazardous waste to the U.S.
2. The National Institute of Ecology issues an export guia ecologica approving this shipment.
3. The National Institute of Ecology enters information from the export guia ecologica into Haztraks. Mexico sends its updated guia ecologica database to the U.S. on a quarterly basis.

**Treatment Storage Disposal Notification**

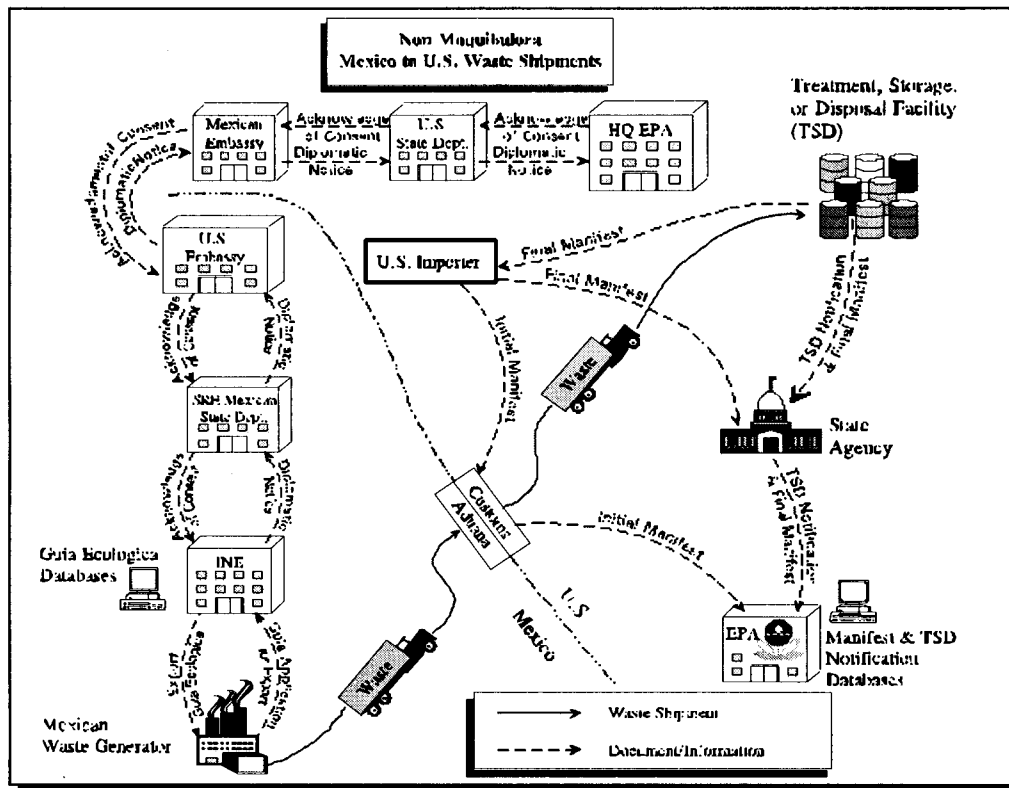
1. A maquiladora notifies a Treatment Storage Disposal facility of its intent to ship hazardous waste.
2. The Treatment Storage Disposal facility notifies its state agency of its intent to receive waste from a foreign source.
3. The Treatment Storage Disposal facility forwards this notification to the Environmental Protection Agency.
4. The Environmental Protection Agency enters information from the Treatment Storage Disposal notification into Haztraks.

**U.S. Hazardous Waste Manifest**

1. The U.S. importer (referred to on the manifest as U.S. generator) prepares a prefilling copy of the manifest and sends it to U.S. Customs.
2. The waste is transported from the maquiladora to the border.
3. The waste is checked through U.S. Customs, which sends a preliminary copy of the manifest to the Environmental Protection Agency.
4. The Environmental Protection Agency enters information from the manifest into Haztraks.
5. Transporter 1 signs the manifest and takes the waste at the border. The waste is shipped either directly to the Treatment Storage Disposal facility or to a staging company. In the latter case, Transporter 2 signs the manifest and takes the waste to the Treatment Storage Disposal facility.
6. The Treatment Storage Disposal facility receives the waste and signs the manifest.
7. The Treatment Storage Disposal facility submits the completed manifest to the appropriate state agency.
8. The state agency submits completed manifests to the Environmental Protection Agency.
9. The Environmental Protection Agency enters information not found on the preliminary manifest into Haztraks.



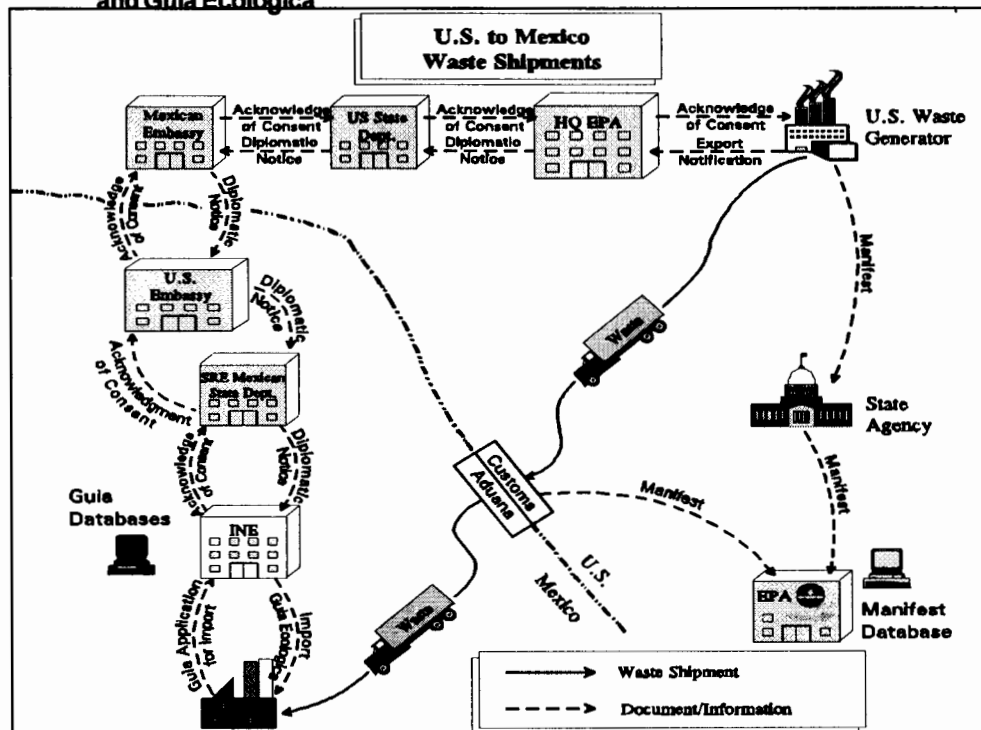
## COLEMAN, SAMUEL AND SCHULTES, JOSEPH V. 719



## Diplomatic Notice

1. A non-maquiladora generator informs the National Institute of Ecology of its intent to ship hazardous waste to the U.S.
2. The National Institute of Ecology submits a diplomatic notice to the Environmental Protection Agency.
3. Once the Environmental Protection Agency receives the diplomatic notice, it responds with an Acknowledgment of Consent.
4. When the National Institute of Ecology receives the Acknowledgment of Consent, the generator is given an export guia ecologica approving the shipment.

### U.S. Hazardous Waste Manifest, Treatment Storage Disposal Notification, and Guia Ecologica



These documents follow the same paper flow as discussed in the previous section "Tracking Hazardous Waste Shipments from Maquiladoras to the U.S."

#### 4.3 Tracking Hazardous Waste Shipments from the U.S. to Mexico

##### Notification of Intent to Export

1. The U.S. waste generator submits a Notification of Intent to Export (NOI) to the Environmental Protection Agency.
2. The Environmental Protection Agency responds to the NOI by issuing an AOC to the U.S. importer permitting the waste shipment. NOIs and AOCs are not tracked by Haztraks.

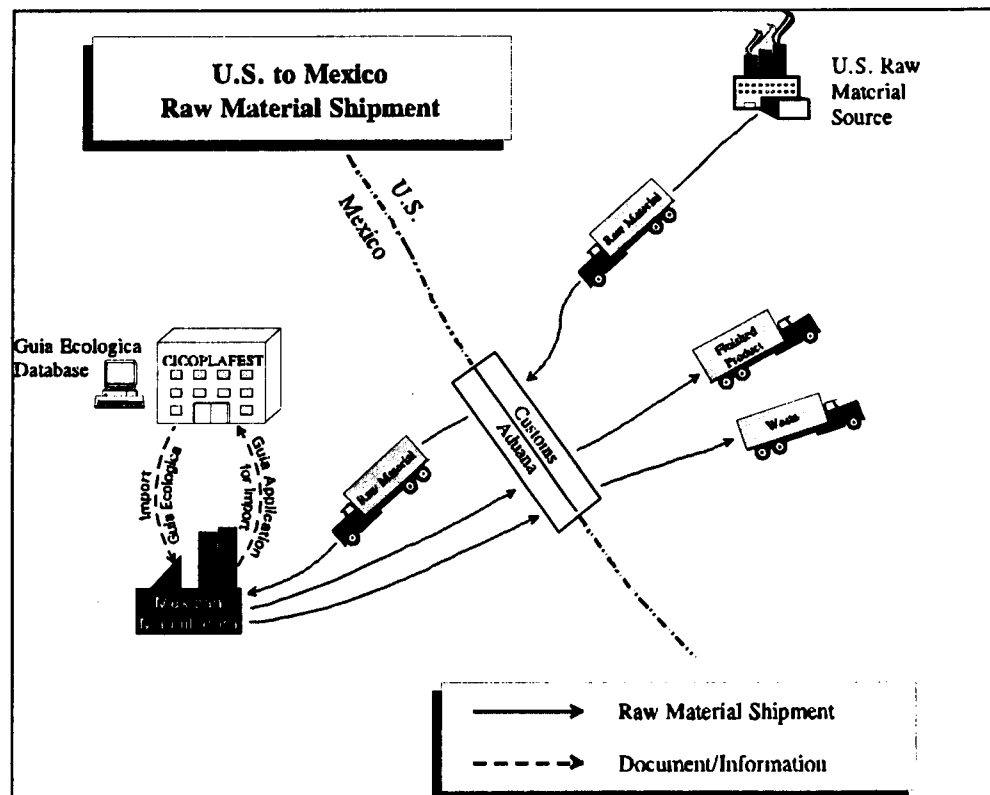
##### U.S. Hazardous Waste Manifest

1. The U.S. importer completes the manifest and ships the waste to Mexico.
2. The waste shipment clears U.S. Customs. U.S. Customs sends a copy of the manifest to the Environmental Protection Agency.

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3. The U.S. waste generator sends the manifest to the appropriate state agency, which then submits the manifest to the Environmental Protection Agency.
  4. The Environmental Protection Agency enters information from the manifest into Haztraks.
  5. The Mexican receiver acknowledges receipt of the waste to the U.S. importer. Recyclers are currently the only companies in Mexico that receive waste from the U.S.

#### **Import Guía Ecológica**

1. Through a guía ecológica application (Manifiesto para la Importación o Exportación de Materiales o Residuos Peligrosos), the Mexican receiver notifies the National Institute of Ecology of its intention to receive waste from the U.S.
2. The National Institute of Ecology issues an import guía ecológica approving the receipt of this shipment.
3. The National Institute of Ecology enters information from the import guía ecológica into Haztraks. Mexico sends its updated guía ecológica database to the U.S. on a quarterly basis.



Many raw materials with hazardous characteristics are imported into Mexico for use within the maquiladora industry. These hazardous raw materials require the maquiladora to obtain an import permit (guia ecologica). The Mexican Intersectorial Commission for the Control of Processing and Use of Pesticides, Fertilizers and Toxic Substances (CICOPLAFEST) is a multi agency commission responsible for the import control of a wide variety of hazardous materials.

1. The maquiladora notifies CICOPLAFEST of its intention to receive hazardous materials from the U.S. by submitting a guia ecologica application.
2. CICOPLAFEST issues an import guia ecologica approving the receipt of this shipment.
3. CICOPLAFEST through the National Institute of Ecology enters information from the import guia ecologica into Haztraks. Mexico sends its updated guia ecologica database to the U.S. on a quarterly basis.

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## 5 SYSTEM DESIGN ATTRIBUTES

### 5.1 Haztraks electronic platform

Haztraks is a PC-based, multi-user database application developed using Microsoft FoxPro version 2.6 for Windows and DOS. It may be installed on a network server and has the capability of handling many users. Haztraks is a multi-platform application which may be executed as a DOS or a Windows program. Future enhancements of Haztraks are being researched and may include support for Windows 95 as well as client-server capability.

### 5.2 Information security

The database files are protected with a tiered access password protocol to discourage unauthorized access and changes. The Environmental Protection Agency and the Secretary of Environment, Natural Resources and Fisheries/National Institute of Ecology system administrators assign data entry users "read/write" or "read only" access. Changes to data entries may only be made by the system administrator after data has been quality checked.

The U.S./Mexican bilateral agreement permits either country to protect its information from public release. The Mexican guia database is presently handled as "business confidential" and is not releasable by the Environmental Protection Agency. All U.S. data information is available upon request.

### 5.3 Haztraks accessibility

Haztraks' system programs and User Manual are available to another country's environmental agency upon written request to the U.S. Environmental Protection Agency.

### 5.4 U.S./Mexico Haztraks telecommunications

Environmental Protection Agency Region VI has successfully completed the implementation of two electronic file transfer platforms (FTPs) to provide quick and up-to-date access to Haztraks. The Environmental Protection Agency's public access Internet server, known as "Earth 1", now provides State environmental offices access to domestic Haztraks programs and databases to facilitate reporting, tracking and enforcement of transboundary hazardous waste shipments. The specific FTP address is EARTH1.EPA.GOV. To obtain access via the Internet, a user account must first be obtained from Joseph Schultes, Haztraks Project Manager, in the Environmental Protection Agency Region VI office. Requests for a user account must include user's name, organization, user's Internet IP address, and phone number. Send requests via E-mail or Internet to Schultes.Joseph@EPAMAIL.EPA.GOV.US.

The Environmental Protection Agency's internal FTP, known as "Lotus Notes", now provides EPA Headquarters, Regional and border offices, U.S. Embassy in Mexico City, and Secretary of Environment, Natural Resources and Fisheries/National Institute of Ecology access to domestic and Mexican Haztraks programs and databases.

### 5.5 Haztraks database contents

Haztraks contains data pertaining to the import and export of hazardous wastes, mainly between the U.S. and Mexico, although some data also reflect exports and imports from Canada and other countries. Haztraks also contains databases of international companies involved with the handling of hazardous waste and other information such as international waste code listings. The databases contained in Haztraks are briefly described in Annex A.

## **6 COMPLIANCE MONITORING ACHIEVEMENTS**

As a result of Haztraks, the Environmental Protection Agency and the Secretary of Environment, Natural Resources and Fisheries/National Institute of Ecology can track the volumes and types of waste imported and exported through Environmental Protection Agency Region VI and Region IX. The tracking system enables environmental enforcement officials from both countries to monitor and confirm the movement of hazardous waste and thus detect violations of import/export regulations of their respective countries.

Through use of this tracking system, the Environmental Protection Agency has filed several enforcement actions against unregistered hazardous waste handlers and handlers which have improperly shipped tons of hazardous waste potentially impeding safe transit of their shipments through the border communities. The Environmental Protection Agency enforcement actions have generally dealt with violations of manifest requirements in the transportation of hazardous waste, such as failure to list the foreign generator, failure to obtain Environmental Protection Agency identification numbers, and use of transporters without valid Environmental Protection Agency identification numbers and DOT registrations. Use of Haztraks as a compliance monitoring tool will grow as agencies become familiar with its pragmatic user friendly programs. The Environmental Protection Agency and the Secretary of Environment, Natural Resources and Fisheries's Attorney General for the Protection of the Environment (PROFEPA) now have comprehensive data available concerning the compliance history of their mutual transboundary hazardous waste shipments. Compliance strategies can now be developed to best resolve the patterns of violations identified.

The Environmental Protection Agency/Secretary of Environment, Natural Resources and Fisheries effort to develop the Haztraks represents an innovative cooperative approach to improve both countries' compliance monitoring capacity. However, Haztraks must be continually upgraded to take advantage of technology, to meet user demands, and to handle the increased volume of transboundary shipments of the hazardous waste. As the methods to collect information regarding the movement of hazardous waste improve, Haztraks' capacity to capture greater number of transboundary shipments will also improve. This increased capacity is crucial since there has been a substantial increase in the importation of hazardous waste from Mexico. For example, from 1991 to 1993, the number of manifests and tonnage of waste imported from Mexico more than doubled. Although these figures are not conclusive as to the exact amount of waste crossing the border, they do provide support for the Secretary of Environment, Natural Resources and Fisheries' finding of increased compliance by maquiladoras with Mexico's requirement to return hazardous waste to the country of origin. Moreover, there has been a significant increase in the number of Treatment Storage Disposal import notifications for the prospective receipt of foreign wastes by the U.S. from Mexico, which reflects increased compliance by U.S. industry with Environmental Protection Agency regulations.

## **7 FUTURE DIRECTIONS**

As the tracking system develops, the U.S. and Mexico are exploring the development of computer interfaces to allow direct electronic transmission of compliance data by the regulated community and "real-time" sharing of data between the two countries. Direct Electronic Data Interchange (EDI) transmission of data would greatly increase the quality and timeliness of information entered into the system, thereby advancing the continued binational success of Haztraks.

### 7.1 Electronic reporting of transboundary documentation

The submission of compliance reports is a labor intensive process, requiring both industry submitter and government recipient to transpose information between electronic databases and paper forms. To streamline the compliance reporting process, the Environmental Protection Agency sponsored a project to explore the use of electronic data interchange (EDI) to submit this information electronically. The Environmental Protection Agency's approach was to adapt the existing industry standards for electronic data interchange developed by the American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12 to the special environmental compliance reporting requirements of hazardous waste imported from Mexico. The goals of this project were to demonstrate the electronic streamlining of transboundary documentation and to reduce the compliance reporting time of manifests and notifications to the State, the Environmental Protection Agency and the Secretary of Environment, Natural Resources and Fisheries/National Institute of Ecology.

The pilot project, known as the Transborder Hazardous Waste Data EDI Pilot Project, examined all related documentation required to ship waste between U.S. and Mexico. Project participants involved in the transborder shipment process consisted of many stakeholders: industry, U.S. Customs, customs brokers, importers, generators, the State, the Environmental Protection Agency region, Environmental Protection Agency headquarters, other U.S. government agencies, Mexican Customs (Aduana), and the Secretary of Environment, Natural Resources and Fisheries/National Institute of Ecology. A brief discussion of this pilot project is provided in Annex B. Pilot test transmission demonstrations of hazardous waste manifests, Treatment Storage Disposal Notifications and TNRCC Foreign Shipment Summary reports were completed September 1995. This project successfully demonstrated the "real time" reporting, accuracy and paperless efficiency of electronic telecommunications for documentation of imported hazardous waste shipments from Mexican maquiladora companies bound for U.S. Treatment Storage Disposal receiving facilities. Full EDI implementation can reduce paperwork, speed up transboundary hazardous waste transactions, and provide real-time data for ongoing border compliance monitoring efforts.

### 7.2 Future directions for electronic reporting

The subsequent phases of the project will seek to expand the project participants. Communications have already been established with Canada, Environmental Protection Agency Region IX, Secretary of Environment, Natural Resources and Fisheries/National Institute of Ecology, U.S. Customs, and customs brokers. Some may decide to participate in one or more projects during the next fiscal year. The tracking system has continued to undergo development with the exploration of state-of-the-art innovative electronic solutions.

## 8 CONCLUSION

The Wall Street Journal (July 30, 1993) reported this hazardous waste tracking system as "a marked improvement from the days when environmental regulators relied on informants' tips, citizens' complaints and blind luck to nab illegal dumpers. 'It's a deterrent factor', 'says Dick Kamp, director of the Border Ecology Project, an Arizona environmental group active in free-trade issues. 'It's a necessary thing to do, and it's long overdue.'" In the meantime, this tracking system has made substantial advances for international environmental compliance and enforcement. The Haztraks system concept for tracking transboundary movements of hazardous waste and for monitoring compliance with a country-to-country linkage for real-time transfer of hazardous waste information sharing and reporting has significant potential for use

by Basel Agreement and Organization for Economic Cooperation and Development parties. It provides the technical architecture for enhancing international and interagency cooperation in compliance monitoring and enforcement of transboundary hazardous waste laws.

In a unique cooperative effort between neighboring governmental entities, a common automated mechanism successfully supports independent inspection, enforcement and compliance monitoring of mutual transboundary hazardous waste shipments. The Haztraks system assimilates appropriate information to support governmental and community environmental concerns regarding the generation, transportation, and disposal of hazardous materials and hazardous waste.

Increased transboundary activity underscores the importance of having a comprehensive and efficient tracking system. The Secretary of Environment, Natural Resources and Fisheries/National Institute of Ecology General Director recently emphasized that hazardous waste issues in Mexico are considered most important. The National Institute of Ecology desires continued close coordination with the Environmental Protection Agency to continue development of the transborder hazardous waste tracking mechanisms, Haztraks. Both countries continue to work to provide accurate information to Haztraks to improve the quality of the tracking system as a tool for detecting potential transboundary shipment violations.

Effective domestic environmental compliance and enforcement programs are an important factor in global efforts to reduce international trade barriers and enhance economic development in a manner consistent with each country's laws and regulations so as not to create unfair competition or pressure diminishing environmental quality and stewardship over the health and safety of the border area community. Tools, such as Haztraks, combined with effective cooperative enforcement can provide an element of fairness to the regulatory process, instill credibility to governmental institutions, and prevent short-term economic counterproductive gains between regional areas and between facilities that might undermine longer-term economic and environmental goals for a sustainable future.

Since 1992, considerable effort has been underway to improve the tracking of hazardous waste across the U.S./Mexican border. Its utility for enforcement targeting has been established with the filing of enforcement in the U.S. for violations of import/export regulations which has brought companies shipping 1500 tons of hazardous waste per year into compliance. Additionally, there has been a 20% annual increase in shipment compliance with Mexico's requirement to return maquiladora waste to the country of origin of the raw materials for proper disposal by the Mexican maquiladora industry and their U.S. parent companies.

Haztraks has demonstrated the capability to fulfill the tracking requirements necessary to ensure compliance programs of other mutual international parties. Efforts are presently underway to build upon the existing work between U.S. and Mexico by initiating electronic hazardous waste tracking capabilities for shipments between the U.S. and Canada and between Mexico and Canada. Both Mexico and Canada are Basel Agreement countries and the tracking system will include methodology to incorporate international waste code correlation with country specific codes. The tracking system is expected to continue development with the exploration of state-of-the-art innovative electronic solutions, since it is readily apparent that its full potential has not been achieved as yet.



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## ANNEX A HAZTRAKS DATABASES

### U.S. Documents

- **Hazardous Waste Manifest** - A manifest is required for international hazardous waste shipments between the U.S. and Mexico, Canada, and other countries.
- **Treatment Storage Disposal Notification** - A Treatment Storage Disposal facility must notify the state of its intent to receive hazardous waste from a foreign source.

### Mexican Documents

- **Guia Ecologica** - A Mexican generator must apply for a guia ecologica before it can ship waste. This is the National Institute of Ecology's authorization for the waste shipment. These documents are prospective — meaning that the actual volume or type of waste may vary somewhat.
- **Semestral Report** - Mexican generators, transporters, and Treatment Storage Disposal facilities must submit a report of their waste activities to the National Institute of Ecology twice a year.
- **Diplomatic Notice** - Mexico to U.S. waste shipments for non-maquiladora companies require notification by the National Institute of Ecology to the Environmental Protection Agency. The Environmental Protection Agency then responds to the National Institute of Ecology with an acknowledgment of consent for authorized shipments.

### Company Databases

- **Generators** - This database contains facility information for generators located in the U.S., Mexico, and other countries.
- **Importers** - This database contains facility and Resource Conservation Resource Information System (RCRIS) information for U.S. importers of hazardous waste.
- **Treatment Storage Disposal Facilities** - This database contains facility information for Treatment Storage Disposal facilities located in the U.S., Mexico, and other countries. RCRIS information is listed for U.S. Treatment Storage Disposal facilities.
- **Transporters** - This database contains facility and RCRIS information for U.S. transporters.

### Waste Code Listings

- Environmental Protection Agency waste codes
- SIC codes
- Handling codes

- Organization for Economic Cooperation and Development waste codes
- United Nations codes
- Canadian International Waste Identification codes
- Mexican waste codes

#### Management Databases

- Data Receipt Database - The data receipt database tracks the number and type of documents the Environmental Protection Agency receives from each agency for entry into Haztraks.
- Enforcement Database - The enforcement database (enforcement confidential) enables the Environmental Protection Agency import/export coordinator to track investigations of companies prior to enforcement action.

## **ANNEX B ELECTRONIC DATA INTERCHANGE BACKGROUND**

Environmental programs rely heavily on enormous quantities of regulatory compliance data passed from the regulated community to Federal, State, and local environmental agencies. In nearly all cases, paper is the medium, despite the fact that the effect of this transfer is generally to take data from one database and put it in another. Doing this via paper incurs enormous data processing costs while at the same time seriously compromising the timeliness and quality of the data being transferred. At least in theory, then, the elimination of paper through "electronic reporting," that is, direct, computer-to-computer electronic transmission of data promises dramatic improvements in the cost/benefit ratio of compliance reporting, lessening the burden on industries and government. Furthermore, the robust nature of the EDI standards enable the automation of other business needs, thereby permitting the re-engineering of the internal processes of an organization.

The Mexican Maquiladora industry, which produces goods for exportation using imported raw materials, is an extreme case of an industry subject to myriad environmental reporting requirements. This is due to the transborder nature of their business--they are subject to environmental compliance reporting requirements of two separate countries (U.S. and Mexico) and the additional requirements of their respective customs and other agencies (U.S. States, etc.). For this industry, the automation of compliance reporting may provide unique opportunities to streamline environmental compliance reporting requirements by collapsing the paper requirements of multiple agencies into a single electronic format. Transmitting the data electronically can lead to dramatic reductions in data entry costs by both the industry submitter and the government recipients. Furthermore, electronic submissions provide opportunities for automated edit checks and audits, leading to a vast improvement in data quality and the timeliness of the data submitted.

### **Electronic Reporting at the U.S. Environmental Protection Agency**

A few years ago, the U.S. Environmental Protection Agency's Office of Policy, Planning, and Evaluation (OPPE) initiated a project to introduce electronic reporting of compliance data for Agency and State hazardous waste management programs, such as the Uniform Hazardous Waste Manifest and Hazardous Waste Biennial Report. To institute electronic reporting, OPPE is taking an approach known as "electronic data interchange" (EDI), a standards-based method that permits open exchange of data among participants that may be operating on vastly different hardware/software platforms. The pilot projects conducted by the U.S. Environmental Protection Agency, States, and corporate participants over the past two years suggest that EDI may be the best available way to institute electronic exchange of data between government agencies and their regulated communities.

### **Electronic Reporting Standards**

The standards used by the U.S. Environmental Protection Agency are those developed and maintained by an accredited standards committee (ASC) of the American National Standards Institute (ANSI), specifically ANSI ASC X12. For more than a decade ASC X12 has sponsored the development of standard electronic/magnetic file formats for standard business transactions (or "transaction sets"), as well as standard protocols for their transmission. There are currently several hundred such transaction sets covering such transactions as invoices, ship notices, purchase requests, and more specialized reports of technical specifications and

test results. Electronic exchanges of information that conforms to these standards have come to be known as electronic data interchange. In the United States EDI is generally taken to be synonymous with electronic commerce under the ASC X12 standards.

### The Benefits of Electronic Reporting

EDI solves the problem of multiple electronic reporting systems by providing a common "language" into which data being communicated between any two databases can be translated. So long as a data set maps to a standard EDI transaction set, EDI translation will move it between any two databases with fields for the data elements--no matter how divergent the two database structures, and no matter how divergent the two software/ hardware platforms. In terms of system architecture, EDI is supported by "translator" packages, available "off the shelf" from a wide array of software vendors, in versions for virtually all kinds of hardware and operating systems. Any translator will incorporate all the current ASC X12 standards, and, with appropriate configurations, will: 1) translate an outgoing flat file generated by the host database into a standard ASC X12 transaction set recognizable to any other EDI translator, and 2) translate any incoming X12 transaction set into a flat file that will automatically load to the host.

The exchange of data via EDI usually involves one more piece of architecture, a "value-added" network (VAN). A VAN is a specialized electronic mailbox service, tailored to the transmission of X12-formatted data files. The "value-added" that VANs provide--over and above the basic service of managing the connection among EDI participants--include such things as format-checking, transmission logging, and automated acknowledgments and error messages. Typically an EDI participant will subscribe to a VAN service in just the same way he or she would subscribe to a phone service. Those to whom he or she sent EDI messages would subscribe to their own VAN services--with the VANs handling an interconnect just as different telephone companies do.

### Transborder Hazardous Waste (TransHaz) Electronic Reporting Project

In the fall of 1993, the Transboundary Hazardous Waste EDI workgroup was formed by the Environmental Protection Agency to establish a pilot project using EDI to automate the hazardous waste compliance reporting requirements of government and industry parties involved in U.S./Mexico transboundary hazardous waste shipments. The workgroup is a cooperative effort by the U.S. Environmental Protection Agency, the Secretary of Environment, Natural Resources and Fisheries/National Institute of Ecology, Texas Natural Resource Conservation Commission (TNRCC), other State and Federal Agencies, and includes participation by industry. The objective was to streamline the flow of hazardous waste import compliance reporting requirements through the use of EDI for transborder shipments.

The purpose of the project was to explore the value and economies of using electronic data interchange as a means of transmitting environmental compliance data. *The long range goal* was to achieve cost savings, and improve data quality and timeliness of data submissions through the use of EDI over traditional paper reporting methods. *The short term goal* was to establish a demonstration project to determine exactly what may be required in terms of resources, technologies and expertise for the electronic transmission of hazardous waste documentation to be successful. A well-defined data flow has been developed. This flow indicates that about two dozen forms are involved in 60 paper transactions with at least 12 different agencies or private entities for the legal transport of hazardous waste to occur. In comparing the forms, and the data elements on these forms, we were able to reduce overlaps of data and identify their potential relationships.

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Despite the enormous complexity of the process, there appears to be no technical or legal obstacles that would prevent the attainment of our short term goal of a demonstration project. The workgroup generally agreed that the project will have to be conducted in phases beginning with test transmissions of the manifest and notification reports to the TNRCC. Follow-on phases will include the Guia application test transmission to the Secretary of Environment, Natural Resources and Fisheries/National Institute of Ecology.

For the purposes of the pilot project, the workgroup developed an EDI convention that will permit the pilot transmission of three, possibly four, environmental compliance reports: U.S. Hazardous Waste Manifest; Treatment Storage Disposal Notification; TNRCC Monthly Summary Report; and the Mexican Environmental Guide (Guia Ecologica) Request form. The "trading partners" for the first phase of the project included Environmental Protection Agency Region VI, TNRCC, four Maquiladora facilities and a treatment, storage and disposal Treatment Storage Disposal receiving facility. A three month demonstration project was successfully conducted during June through September of 1995. A project report and Implementation Guide will be available later in 1996.



## **SYNOPSIS OF TRANSBOUNDARY TRADE IN POTENTIALLY HAZARDOUS SUBSTANCES**

Capacity Building Support Document for Environmental Compliance and Enforcement Programs

### **PURPOSE**

Consistent with the goals of the Fourth International Conference on Environmental Compliance and Enforcement, its international sponsors, and the Executive Planning Committee, this document provides an overview of environmental issues related to transboundary trade in hazardous waste, pesticides, and ozone depleting substances. It provides a general introduction to environmental problems, policy issues, and potential solutions associated with legal and illegal trade in these substances. Information in this document will help environmental decision makers understand these issues and allow for more informed development of environmental policies and programs for effective management and enforcement of trade in potentially hazardous substances.

### **SCOPE**

For each of three types of substances—hazardous waste, pesticides, and ozone depleting substances—the document provides background information and definitions of terms, discusses potential negative impacts of uncontrolled trade, planning and monitoring compliance promotion and enforcement programs to address potential problems, and an annotated bibliography for additional information.

### **SUBJECT AREAS**

The document describes production and use of each of these substances in developed and developing countries as well as potential impacts of each substance on human health and the environment. The scope and nature of illegal transboundary trade also is reviewed where evidence exists with which to document it. Major issues framing current national and international discussions about use and trade in these substances are then analyzed. Finally, the document provides examples of national and international approaches to control the environmental impacts of these trade flows.

Although issues surrounding production, use, and trade, differ for each of the three categories of substances, general environmental management approaches, such as the use of multi-lateral treaties and agreements governing trade, the development of import and export control systems (information collection, monitoring, and inspection), and international policing methods, are quite similar, regardless of the substance being traded.





## SPECIAL TOPIC WORKSHOP N

### Montreal Protocol: Enforcement of CFC and Related Requirements

Papers and Workshop N discussions address the following issues:

- The goals of chlorofluorohydrocarbon (CFC) reduction and what particular challenges controls and reduction of CFCs in the marketplace pose to domestic programs given the nature of the market and regulated community.
- Types of programs countries have adopted to control CFCs in the marketplace.
- How effective these programs have been in achieving compliance. What successes and problems have resulted.
- Lessons learned for design of requirements to ensure enforceability, promotion of compliance, compliance monitoring and inspection activities, enforcement response, and levels of government involvement.

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1. Summary of Montreal Protocol Workshop, <i>Facilitators: F. Kesselaar, I. Moreno, Rapporteur: R. Sturges</i> .....	737
2. Regulations to Implement Montreal Protocol: Guatemala Country Program, <i>J. M. Del Valle, H. Figueroa</i> .....	741
3. Evaluation of Three Years Enforcement of the Chlorofluorocarbons (CFC) Regulations in the Netherlands, <i>G.A.H. Tjink and J.P. Cornet</i> .....	747

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See Related papers from other International Workshop and Conference Proceedings:

1. Enforcement of the CFC Regulations in The Netherlands, *G.A.H. Tjink, F.H. Kesselaar*, Volume I, Oaxaca, México
2. Stratospheric Ozone Protection in the United States Compliance and Enforcement Issues of Title VI of the Clean Air Act, *J.B. Rasnic, C.R. Haas*, Volume I, Oaxaca, México
3. Summary of Workshop: CFC Control Program Enforcement, *Facilitator: H. Kesselaar, Rapporteur: M. Mayo*, Volume II, Oaxaca, México
4. The Enforcement of the State Policy of the CSFR on the Field of the Montreal Protocol, *M. Kotaska and V. Rehacek*, Volume I, Budapest, Hungary
5. Challenge of Enforcing the Montreal Protocol on Protection of Stratospheric Ozone, *J. Seitz and S. Mitoff*, Volume I, Utrecht, The Netherlands



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## **MONTREAL PROTOCOL: ENFORCEMENT OF CHLOROFLUOROCARBONS (CFC) AND RELATED REQUIREMENTS**

Facilitators: Huub Kesselaar, Ignacia Moreno  
Rapporteur: Rick Sturges

### **GOALS**

The session addressed the following issues:

- The goals of chlorofluorocarbon (CFC) reduction and the challenges controls and reduction of these in the marketplace pose the domestic programs given the nature of the market and the regulated community.
- Types of programs countries have adopted to control chlorofluorocarbons in the marketplace.
- The effectiveness of these programs in achieving compliance - successes and problems.
- Lessons learned for design of requirements to ensure enforceability, promotion of compliance, compliance monitoring, and inspection activities, enforcement response, and levels of government involvement.

### **1 INTRODUCTION**

Conference participants from ten countries as well as the United Nations Environment Program (UNEP) discussed major issues related to chlorofluorocarbon production, trade, and enforcement of the Montreal Protocol. While all countries are taking action to phase out their use, encourage compliance, and establish and implement enforcement programs, country programs are at differing levels of development and implementation and many challenges still remain. In many cases, developing countries that are subject to exemptions under Article 5 of the protocol are ahead of scheduled targets for production and use phase-out. Due to financial constraints, imports of old chlorofluorocarbon-using products from developed nations, and compliance promotion among small-scale users remain substantial problems for developing countries, successes such as those in Thailand for phase-out among large manufactures are encouraging and can serve as models to other nations. Participants from Canada, the U.S., and the Netherlands also shared experiences with successful efforts for encouraging compliance through public involvement and in establishing multi-agency and multilateral enforcement efforts for the detection of illegal shipments.

### **2 PAPERS**

In the paper of Tijink and Cornet, the results are reported on enforcement of the CFC Regulations in The Netherlands over a 3 year period. All target groups show an improved degree of compliance. The objectives have not been reached in the areas of refrigerating installations and trade of CFS's; these target groups will be the focus of attention next. This paper provides an example of how the Montreal Protocol to protect the ozone layer can be

enforced. In the paper of Del Valle and Figueroa, a description is given of how legal norms are applied in Guatemala related to the implementation of the Montreal Protocol on ozone depleting substances. The system is still weak, but enforcement of these regulations can be an opportunity for a country with a poor legal tradition.

### **3 DISCUSSION ISSUES**

#### **3.1 Major issues related to Montreal Protocol compliance programs and enforcement efforts**

While participants began the session by discussing the considerable progress that has been made in both developed and developing countries in implementing production and use requirements of the Montreal Protocol, other noted that many challenges remain. Major Issues raised by special topic participants include:

- While many countries have made progress in phasing-out chlorofluorocarbon use for large volume users (often ahead of Montreal Protocol and Article 5 targets), less progress has been made with small volume users. In particular, reduction in the use of ozone-depleting car air conditioners and refrigerators is difficult in many countries where these capital goods are used for many years and represent a sizable investment for many consumers.
- Illegal shipments of chlorofluorocarbons to countries where their use is banned or regulated through high tariffs and taxes is viewed as a serious and growing problem. A U.S. participant noted that smuggling of chlorofluorocarbons was viewed as the second most lucrative criminal smuggling operation after illegal drugs.
- Some developing country participants noted that, while the chlorofluorocarbon issue is usually framed as one where illegal transboundary trade typically flows from developing to developed nations. Used cars, refrigerators, and other equipment that uses ozone depleting substances are entering developing countries, adding to challenges for eliminating the use of such equipment.
- Financing for programs remains a problem. Participants noted that many found the procedure for applying to the Montreal Protocol fund to be tedious and fund amounts to be inadequate, especially for programs aimed at small volume users.
- Phase-out of some use categories combined with continued production in developing countries (Article 5 Nations) has led to price declines due to over supply. This decline in prices has complicated efforts to phase-out use in remaining sectors.

#### **3.2 Program successes**

Participants highlighted successful efforts at encouraging voluntary compliance as well as detecting violations. These included:

- Thailand has been extremely successful using a sector by sector approach to encouraging chlorofluorocarbon use phase-out. They have completed efforts in the solvent sector and a largely complete phase out in the air conditioning sector. Their program, aimed principally at multinational corporations, has relied on close cooperation with U.S. EPA and the Japanese governments, as well as corporate parents to encourage Thai subsidiaries of multinationals to adopt "mother country" phase-out schedules.
- China has a national plan in place, primarily focused on the industrial sector, and has established a group of industrial users and government representatives that will be responsible for phase-out. Plans are in place for a permitting and labeling system.
- Canada has developed a strong education program for customs officials aimed at improving their ability to detect illegal shipments. In addition, Environment Canada has been successful in educating the public about ozone depleting substances and in publicizing violations, resulting in strong public support for enforcement actions.
- The United States EPA has developed and delivered chlorofluorocarbon interdiction training to hundreds of Customs inspectors, agents and other law enforcement personnel at border locations across the country and at regional, bilateral and multilateral conferences on environmental enforcement.
- The United States has successfully launched *Operation Cool Breeze*, an enforcement program aimed at detecting illegal shipments of ozone depleting substances. A number of high profile arrests have resulted from this effort and information-sharing between government agencies has improved greatly.
- The Netherlands has had a successful voluntary program followed by more stringent enforcement through legal instruments. They have also implemented a certified installer program for the refrigerator sector.

#### **4 CONCLUSIONS**

- While a number of programs have been a success, and the Montreal Protocol agenda is on target or ahead of schedule in some areas, participants noted that a number of challenges remain.
- Financial and technological assistance were cited as the major need in most countries.
- Development of legal instruments also was viewed as critical for many nations. Information-sharing among importing, exporting, and transshipping nations is still inadequate for efficient identification of illegal shipments. These information gaps also make it difficult for countries to track imports of used equipment that employ ozone depleting substances.
- Participants noted that funding for information systems and training programs is required, although many stated that there was a substantial amount that could be accomplished through informal information-sharing networks.



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## **REGULATIONS TO IMPLEMENT MONTREAL PROTOCOL: GUATEMALA COUNTRY PROGRAM**

DEL VALLE, JORGE MARIO AND FIGUEROA, HUGO

Planning Unit, National Environment Commission, Ozone Project. UNEP/CONAMA  
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### **SUMMARY**

This paper contains a brief description of how, in general, legal norms are applied in Guatemala. Some concepts and values that prevent law enforcement are mentioned. This situation is characterized by a weak legal system and certain conditions that affect legal procedures. In this context specific environmental regulations are being promulgated. Supportive measures need to be enacted to guarantee enforcement.

### **1 BACKGROUND**

The political and institutional framework of Guatemala for the last 40 years has weakened the legal system. Military-authoritarian regimes have ruled the country with no respect for law abiding and civil rights. Repression, kidnapping, crime, human rights violations and corruption increased. In the last 10 years (since 1985) democratically- elected governments have been appointed to govern the country. Some efforts have been made to restore the legal system and strengthen human rights institutions and the function of the attorney general.

In this period public opinion and human rights organizations have been active, legal causes were prepared, and public offenders were brought to court. Nevertheless, law effectiveness was very poor. Impunity was the main cause for having a strong case. Causes have also prescribed for lack of evidence.

### **2 REGULATIONS AND THE MONTREAL PROTOCOL**

To implement the Montreal Protocol, it has become necessary to establish a set of regulations to diminish consumption of ozone depleting substances (ODS) and other measures to regulate the selling, distribution, and use of such chemical products. According to the legal framework, it is clear that supplementary measures are needed in order to accomplish environmental compliance and enforcement.

Such supplementary measures include:

- Frequent reminders to the government by international agencies to complete ozone depleting substance reports.
- Description of specific cases of applied regulations and compliance.
- Exposure and training for public officers in public compliance and law enforcement.
- Information to the consumer.

- Certify trained technicians.
- Qualify inspectors in monitoring procedures and application of the laws.

These are considered key elements to enforce environment laws and regulations.

### **3 LEGAL FRAMEWORK**

In Guatemala, as in many other countries, a wide body of legislation and regulations already exist. It is worthwhile to consider the legal structure that operates within the country. There are constitutional laws, congressional acts, sectorial agreements and municipal regulations. For example, the Ministry of Health (at the national level) is responsible for analyzing every environmental health hazard case, taking this responsibility away from municipal competence.

Laws and regulations have been prepared one-by-one as needed, over time, there has been a duplication and over-lapping of responsibilities and a failure to apply the law.

Civil servants have little knowledge of existing laws and procedures and there is no compliance by end users. It is wide-spread practice to favor vested interests and serve special privileges, impunity being a common result. Several press articles have proven this situation.

Sanctions are not relevant and they are not proportional in relation to offenses. Legal procedures to build a case and enforce the law are slow and complex. Cases are prepared on a documented basis by the attorney general after administrative sanctions or procedures have been exhausted. This lengthy procedure is time consuming (2-3 years) and in most cases, files and documents are overdue, evidence becomes blurred, and the whole case is dismissed.

The attorney general conducts these investigations to collect evidence and prepare the cause. Procedures are slow and weak due to the shortage of specialized personnel, financial support and poor technical procedures. Due to these factors, law enforcement becomes extremely ineffective.

### **4 ENVIRONMENTAL INSTITUTIONS AND REGULATIONS**

In its particular role, the National Environmental Commission (CONAMA) lacks the appropriate resources and law compliance orientation to monitor and apply public sanctions.

Regulations related to the environment are wide-spread within different organisms and entities. Article 197 of the political constitution states that social-economic development should go hand in hand with environmental protection. The protection, recovery and rational use of natural resources and ecological systems is mandated in a specific law promulgated by Congress (Public Decree 68-86). The health code contains standards for drinking water, waste management, contaminants, food management and toxic waste disposal.

The main responsibility for applying regulations and environmental protection is based on Government Decree 58-88 which entitles municipalities to apply sanctions. Other specific regulations refer to fluid discharge - maximum and minimum levels. (Decree 60-89). Congressional Law Number 252-89 regulates the use of chlorofluorocarbons (CFCs) for the aerosol industry.



## **5 SOCIAL, POLITICAL AND ECONOMIC BACKGROUND.**

### **5.1 Social economic profile**

Guatemala's population numbers 10.3 million inhabitants. Sixty percent live in rural areas and 26% are concentrated in the metropolitan area. Adult literacy accounts for 37% and total illiteracy is found in 51 % of the total population. The active economic population numbers 2.5 million and the average annual income is U.S. \$600.00 .

### **5.2 Political profile**

In the last fifty years the country has been ruled by military-authoritarian regimes. War, poverty and unemployment have been dominant factors in this period thus weakening Democratic and legal institutions as a result. Ten years ago (1985) civil-democratically elected governments started a new phase. Legal institutions were created such as the Constitutional Higher Court, The Human Rights Ombudsman, also the Public Ministry was restructured.

In 1986 the National Environmental Commission (CONAMA) was created as a coordinating entity adjoined to the Presidential office. It has neither executive force nor mandatory law enforcement. The Commission was established due to present causes by the attorney general and the Justice Court, but can not apply the sanctions included in its own bylaw.

In the last three years there has been a strong emphasis to present environmental impact studies. This improvement is the consequence of a specific regulation that stated sanctions to public officials that might approve development projects that have not prepared their own environmental impact studies. The next step should be the reinforcement of monitoring procedures to assess proposed environmental corrective measures stated in the environmental impact studies.

### **5.3 The economy**

During the last 150 years there has been a strong mercantile tradition - few regulations and low taxes with an extensive agricultural activity. In recent years, the economy has been oriented toward a free market mode. The gross national product has substantially increased due to an increase in banking and finance, construction, non-traditional exports and tourism

## **6 THE MONTREAL PROTOCOL: GOALS AND REGULATIONS.**

The Vienna Convention for the Protection of the Ozone Layer was approved in March 1985 by the Conference of the parties; it was ratified by the Congress of the Republic of Guatemala in July 1987 authorizing the government to comply with this international agreement.

This agreement is a regulatory instrument by which the parties agreed to take the appropriate measures to help to restore the ozone layer depletion. To establish specific goals, The Montreal Protocol was signed so that each country within its country program would take specific measures to comply with the "phase out" and elimination of in the stated periods.

Basic ozone depleting substances data registered in Guatemala established that 286.3 of chlorofluorocarbons were utilized in 1991. The principal substances utilized are refrigerants, solvents, foams and pesticides. Chlorofluorocarbons are not manufactured in the country.

In 1995, four industry assessments were performed: an overall assessment to verify 1991 data; another two for the refrigerating sector (small shops and servicing companies); and methyl bromide was analyzed in the fourth study. These studies included data for imported quantities, final users, prices, and volumes used in each branch of commercial activity. The interviewed persons were aware of The Montreal Protocol, its regulations, the "phase out" period, and the new products.

In 1989, a Government Decree was published to regulate the use of chlorofluorocarbons (R-11 and R-12) in the production of sprays and aerosols. Imports were prohibited for this specific use. A one year delay was granted to clear out inventories. Some medical supplies were excluded from this regulation. These norms served as a regulatory frame. Businessmen considered the benefits of establishing a large liquefied petroleum gas plant to serve the aerosol and cosmetics industry. At present, the plant draw-back for these industries is Central America, the Caribbean and the northern part of South America. In that case the regulation and the use of a substitute technology created the incentives for an alternative solution.

Some small aerosol producers utilize chlorofluorocarbons (R-11, R-12). These cases have been denounced and sanctions have been applied in order to avoid the smuggling of finished products.

## 7 THE CONTEXT OF LAW COMPLIANCE.

Taking into account the different factors that condition the applicability of the law and compliance, it is worthwhile to mention some of the particular statements and claims of interest groups (importers, end users, distributors) regarding regulations that are necessary to eliminate the use of ozone depleting substances (quoting):

- Imports of chlorofluorocarbons will continue (R-11, R-12, R-502).
- Prices of chlorofluorocarbons are lower in Guatemala than in Mexico and the USA (1 LB = U.S.\$ 1.39 in Guatemala and U.S.\$ 6.70 in the USA.)
- Laws and regulations negatively affect the productive activity.
- Some believe that laws and norms should not be issued because nobody will obey the law.
- It is believed that chlorofluorocarbons will continue to be used as long as prices are lower than alternatives, R-134
- Large agroexporters (banana, water melon, berries, orchards) comply to U.S. regulations by using R-134 in refrigerated containers that are shipped to the U.S. Transportation within Guatemala still uses R-12 because there are no government regulations.
- R-134a is more expensive than R-12. In addition an over-tax has been added to make it less competitive.
- Importers agree that import limitations will cause smuggling. At present there are no regulations limiting imports; and smuggling of chlorofluorocarbons from Mexico is a common practice.

Due to the previous considerations and the nonobservance of compliance, it is expected that ozone depleting substances regulations will be difficult to put into practice. Regulations, incentives and sanctions must be very clear and strong. Monitoring and law

enforcement must be set in place. The promulgation of such regulations has to be a positive experience and enhance institutional capacity for environmental compliance and enforcement in Guatemala.

## **8 PROMULGATED REGULATIONS**

To attain stated objectives the following regulations were promulgated:

### **8.1 Government Decree to institute the Ozone Coordinating Committee.**

This decree grants the committee legal authority to address and manage Country Program implementing actions, to promote and follow up stated phase-out objectives.

### **8.2 Obligatory register.**

By Government Decree an official ozone depleting substance registrar was established at the Ministry of Trade and Industry. Its main objective is to keep actualized records of such imports, substitutes, importing Companies, distributors and end users. A basic form is used as a monthly record. It is a Public Declaration in good faith.

### **8.3 Restrictions to ozone depleting substances imports.**

To comply with ozone depleting substance phase out in accordance with the Montreal Protocol calendar, this disposition regulates imports of R-11 and R-12 at levels equal to those of 1991. It promotes the use of alternative substances by avoiding over-pricing, taxes and sanctions and also promotes industrial changes, training and certification.

### **8.4 OZONE Seal.**

The OZONE Seal provides industry a certification that recognizes those products that are free of chlorofluorocarbons in their elaboration. The seal is consumer oriented. Quarterly sampling is performed to guarantee compliance by sending products to the chromatography laboratory.

## **9 COMPLEMENTARY AND SUPPORT MEASURES.**

Taking into account that law abiding is a weak concept and law is violated without any consequences (due to low and insignificant penalties) it is useful to include external factors that facilitate the application and compliance of such regulations. Some of these actions could be:

- Official Notes by Montreal Protocol Secretariat, reminding the Government of Guatemala to report and to meet deadlines and agreements signed by the government and possible sanctions and obligations.
- Progress reports and statistical data presented regularly with a standard format for comparison purposes.

- Reports on legal instruments and sanctions related to the monitoring and follow up to make effective the elimination of ozone depleting substances and progress in the use of alternative substances.

To complement these actions it would be helpful to have specific support to train public officials and law officials in law compliance and law enforcement in subjects such as:

- How to apply sanctions in specific circumstances, selling, distribution and final use of restricted chlorofluorocarbons, if legal regulations are not observed.
- Exposure to applied regulations in other countries, such as the United States, the EEC (seminars, case studies).
- Ample distribution and information regarding ozone depleting substance regulations, public awareness and consumer protection.
- Using the established registrar and controls to monitor compliance for distributors, technicians, end users and importers regarding ozone depleting substances and alternative substances.
- Monitoring and supervising to build causes, collect evidence and prepare public causes and to train environmental inspectors in monitoring, compliance and law enforcement.

## **10 CONCLUSION**

Montreal Protocol regulations to implement the phase out of ozone depleting substances is an opportunity for environmental compliance and law enforcement in a country with a poor legal tradition.

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## EVALUATION OF THREE YEARS ENFORCEMENT OF THE CHLOROFLUOROCARBONS (CFC) REGULATIONS IN THE NETHERLANDS

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### SUMMARY

An evaluation has been made of three years' enforcement of the chlorofluorocarbon (CFC) regulations in the Netherlands between 1993 to 1995. The results are compared with the original objectives in order to establish the follow up for the coming years. All target groups show an improved degree of compliance, in some cases to an extent which is even better than was expected. The objectives have not been reached in the areas of refrigeration installations and trade in chlorofluorocarbons. These target groups will receive the focus of attention in the coming years.

## 1 INTRODUCTION

### 1.1 Background

A number of countries decided to reduce or terminate the production and use of substances which cause depletion of the ozone layer, in view of the effect of these substances on the ozone layer and the associated consequences for man and for the environment. This is laid down in the Montreal Protocol (December 16, 1987) on the protection of the ozone layer.

The international regulations dealing with substances which cause depletion of the ozone layer resulted in the inclusion of action point A.1 in the 1989 National Environmental Policy Plan (NEPP):

*".... At home the Netherlands is striving after terminating the use and emissions of fully halogenated chlorofluorocarbons in 1995 or as rapidly as possibly thereafter, assuming that replacement substances are available."*

To carry out this part of the environmental policy plan a chlorofluorocarbon action program was drawn up in the form of a collaborative project between government and industry. The action program was published on June 21, 1990, and contains voluntary agreements concerning the termination of the use of substances which cause depletion of the ozone layer. The action program also stipulated that legislation would be drawn up in order to provide support to these agreements. This legislation appeared in the form of the "Ozone Depleting Substances Decree" (Chlorofluorocarbon (CFC) Decree) which came into effect on the first of January 1993.

## 1.2 Organization of the enforcement

In 1991 the Inspectorate for the Environment decided that in order to achieve the objectives of the national policy plan the enforcement of the Decree should be carried out on a project basis. The preparations for this project were started in 1991 with an inventory of the total target group.

In 1991 and 1992 agreements were made with Customs, the provinces, the municipalities, the Shipping Inspectorate and the State Supervision of Mines that these authorities would include matters pertaining to the chlorofluorocarbon regulations in their regular company inspections. Table 1 shows the number of companies for each target group, and the division of responsibilities between the various enforcement authorities involved.

**TABLE 1. TARGET GROUPS AND ENFORCEMENT AUTHORITIES**

Target group	Number of companies <sup>1</sup>	Division of responsibilities between the enforcement
Production and trade in CFC's and halons	200	Inspectorate for the Environment, Customs
Installers of refrigerating installations	1500	Inspectorate for the Environment
Users of refrigerating installations	200.000	Provinces and municipalities, Shipping Inspectorate, State Supervision of Mines
Users of solvents and cleaners	600	Inspectorate for the Environment, provinces and municipalities
Users of halon fire extinguishing systems	270.000	Inspectorate for the Environment, provinces and municipalities, Shipping Inspectorate, State Supervision of Mines
Traders/users of insulation material	75 <sup>2</sup>	Inspectorate for the Environment

<sup>1</sup> The figures are based on information from the Chambers of Commerce.

<sup>2</sup> This does not include the number of end-users of insulation material containing CFCs.

The enforcement program was published in July 1992. This program set down the broad outlines of the required form of the organization, as well as the necessary training and facilities, the working arrangements with the other authorities, the information to be directed towards the various branches of industry, and the approach with regard to prosecution.

A chlorofluorocarbon (CFC) team was then formed. This team was responsible for the enforcement of the Regulations from February 1993 until the end of 1995. 1993 was a "test" year, during which information and warnings were given to companies in the target groups. At the end of 1993 an interim evaluation was made. This evaluation resulted in the following:

- For each target group a clear objective was established, which was expressed as the required degree of compliance.
- It was decided to adopt a procedure whereby a series of campaigns would be carried out, each directed at one of the target groups.

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- It was decided to make more official reports when offences were discovered.

A comprehensive description of the design of the project is given in Tijink and Kesselaar.<sup>1</sup> The project was completed with a final evaluation. A summary of the way in which the final evaluation of the activities of the team was conducted is shown below, together with the results of the evaluation.

## **2 OBJECTIVE OF THE EVALUATION**

The objective of the evaluation is to examine the effect of the enforcement activities of the team on the degree of compliance of the various target groups.

## **3 CALCULATION OF THE DEGREE OF COMPLIANCE**

The degree of compliance of a target group is calculated as the number of companies visited where no violations were found, divided by the total number of companies visited. It is expressed as a percentage.

It should be realized that this calculation is only valid under the following conditions:

- The companies visited must constitute a representative sample of the entire target group.
- The degree of compliance is only applicable to those regulations which were the subject of the inspection.
- The quality of the inspections must be such that when a company is in violation of the regulations then it is also recognized as being in violation.

Trends in the degree of compliance were examined by comparing measured degrees of compliance from different years. This is only possible when:

- The same aspects of the regulations have been the subject of inspections in the different measurements.
- The regulations have not been changed during the period being reviewed.

**TABLE 2. RESULTS OF ENFORCEMENT IN THE YEARS 1993, 1994 AND 1995**

Target group	1993			1994			1995			Totals		
	CV	WW	OR	CV	WW	OR	CV	WW	OR	CV	WW	OR
Production and trade in CFCs and halons	250	17	2	220	6	3	57	10	7	527	33	12
Installers of refrigerating installations	235	80	0	285	48	49	189	36	18	709	164	67
Users of refrigerating installations	245	205	0	203	111	46	517	116	100	965	432	146
Users of solvents and cleaners	590	238	0	221	80	8	110	18	5	921	336	13
Users of halon fire extinguishing systems	67	5	0	8	6	0	0	0	0	75	11	0
Traders/users of insulation material	73	11	1	44	4	0	18	0	0	135	15	1
<b>Totals</b>	<b>1460</b>	<b>556</b>	<b>3</b>	<b>981</b>	<b>255</b>	<b>106</b>	<b>891</b>	<b>180</b>	<b>130</b>	<b>3332</b>	<b>991</b>	<b>239</b>

**Key:**

- CV = Company visits (including repeated inspections)
- WW = Warnings in writing
- OR = Official reports

**4 RESULTS OF THE CHLOROFLUOROCARBON (CFC) ENFORCEMENT TEAM****4.1 Summary of enforcement activities and results**

Table 2 shows a summary of the number of warnings in writing, official reports, and total company visits for each of the target groups made in the years 1993, 1994 and 1995.

Fewer companies were visited in 1994 and 1995 than in 1993. The reason is that more time was needed to prepare the visits and to make the official reports. The figures in the table are totals for the activities for each target group. Usually more than one campaign has been carried out for each target group. An assessment can be made of the degree of compliance for each campaign, but the figures shown in table 2 can be used for such an assessment in only a number of cases.

**5 DEGREE OF COMPLIANCE AND FOLLOW UP FOR EACH TARGET GROUP**

The required degree of compliance for each target group was established following the interim evaluation made in 1993. The practical feasibility was an important factor when assessing the required degree of compliance. For this reason the required degree of compliance for larger target groups such as the users of refrigeration installations was set at 80%. The necessary follow up can be established by a comparison of the required degree of compliance with the actual degree of compliance as measured during the various campaigns.



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#### 5.1 Production and trade in chlorofluorocarbons and halons

As a result of the change in the regulations during the course of the project it is not possible to make an assessment of the degree of compliance of this target group. In view of the position of the production and trade in the chlorofluorocarbon chain the required degree of compliance has been set at 100%; consequently the Inspectorate for the Environment will continue their activities towards this target group.

#### 5.2 Installers of refrigeration installations

The required degree of compliance for installers has been set at >90%. During the 1995 campaign "recognized installers of refrigerating installations" it was found that 90% of the installers complied with the regulations. The compliance of the target group of installers of refrigerating installations (maintenance level) will be supervised in the coming years by means of random checks.

#### 5.3 Users of refrigerating installations

Compliance with the regulations by users of stationary refrigerating installations is poor. In 1993 the degree of compliance was 17%, and in 1995 it was 30%. It should be noted that in 1993 the inspections were restricted to administrative requirements. In 1995 much more extensive inspections were made. For the administrative requirements the degree of compliance was found to be 98%; this was the only area of the regulations in which a considerable improvement was observed. The degree of compliance with the administrative requirements for *mobile* refrigerating installations improved from 15% in 1994 to 66% in 1995. In view of the present degree of compliance it has been decided that priority will be given to the target group of the users of refrigerating installations until the required degree of compliance (>80%) has been reached.

#### 5.4 Users of solvents and cleansers

The degree of compliance of this group has risen from 60% in 1993 to 80% in 1995. In the coming year this group will not receive priority, as the required degree of compliance (>80%) has now been achieved. From 1997 onwards the enforcement activities will increase as a result of changes in the regulations, which will then become more stringent.

#### 5.5 Users of halon fire extinguishing systems

No campaigns have been carried out towards this target group during the project. It is therefore not possible to make any assessment of the degree of compliance. Information from another source<sup>2</sup> indicates that halon is no longer available in the Netherlands. For this reason no enforcement activities are planned for this target group.

#### 5.6 Trade in, and users of, insulation material

A number of random inspections at building sites have shown that insulation material containing chlorofluorocarbons is no longer in use in the Netherlands. The required degree of compliance has therefore been achieved, and for the time being enforcement activities are not necessary.

## 6 CONCLUSIONS

- The enforcement project can be considered to be a success in view of the improvements in the degree of compliance by industry, and the level of collaboration between the enforcement authorities.
- The Inspectorate of the Environment and the collaborating enforcement authorities will continue enforcement of the Chlorofluorocarbon (CFC) Decree until the required degree of compliance is achieved.
- In the future the same general procedure will be used, i.e.
- Brief campaigns will be conducted per target group.
- Warnings will no longer be given, and instead immediate action will be taken.
- Where possible there will be collaboration with other enforcement authorities.

## REFERENCES

1. Tijink, G.A.H. and Kesselaar, Dr F.H., Enforcement of the CFC Regulations in the Netherlands, Proceedings of the Third International Conference on Environmental Enforcement, Oaxaca, 1994, Vol. I, p. 492
2. CFC Action program, annual report 1994; CFC Committee, 29 May 1995, p. 40-41.

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- Whether the agreements provide clear language as to what would constitute compliance.
- Whether the agreements provide mechanisms and information necessary to monitor compliance.
- What assistance is available to translate agreements into enforceable requirements.
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8. See also papers under Theme 6, Workshop N, Montreal Protocol: Enforcement of CFC and Related Requirements

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## ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT: A CASE OF NEPAL

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### SUMMARY

This paper deals with the present status of environmental compliance and enforcement in Nepal. It presents the current environmental situation and reviews the international legal instruments of which Nepal is a party for environmental conservation.

It also demonstrates Nepal's compliances with various international treaties and their adoption in domestic law. Institutional aspects for environmental compliance in Nepal are discussed and some of the institutional problems are identified. National legal instruments for environmental compliance and enforcement are analyzed. Factors for successful compliance with national and international instruments for environmental management, effective enforcement is a prerequisite. This article provides some of the background necessary to understand the international and national legal instruments to be complied with and enforced by His Majesty's Government of Nepal from mid 50s to early 1990s.

### 1 BACKGROUND

One of the least developed landlocked countries in the world, Nepal is situated between the two Asian giants, China in the North and India in the south, east and west. It has an estimated per-capita income of US \$170 with gross domestic product (GDP) growing at the rate of 3%. The population growth is estimated to be 2.5%. While considering this population growth and GDP of 3%, the country's economy has been stagnant leading to several hardships and social and environmental problems.

The official estimated poverty incidence rate is about 50% and this is increasing. Poverty rate and major socio-economic indicators have concluded that Nepal will face formidable challenges for attaining higher growth and improved standards of living for its 20 million inhabitants.<sup>1</sup>

Nepal is characterized by widespread poverty, high population growth, poor infrastructure development in the hills and mountains and unskilled labor force. This has exacerbated its desire to be transferred from a subsistence - agrarian economy to a modern commercialized one. With poor economic base and institutional capacity, the development challenges are indeed formidable.

Despite challenges, there are some positive indications that Nepal could make rapid strides for development, provided there is a strong will and commitment to do so. This demands international, national and local level compliance, implementation and enforcement of desirable actions for the respective areas. Compliance is also needed in order to assist Nepal fulfil its global commitments to the environment from the developed countries.

Nepal is famous for its Himalayas, biodiversity and cultural sites. The country has a total surface area of 147, 181 sq. km. about 0.1 percent of the total world's land surface and comprises over 2 percent of the world's flowering plants. The existing land use is shown in Table 1. There are an estimated 5400 vascular plants including more than 700 medicinal plants.<sup>2</sup>

The country is unique for its climatic and physiographic condition. It has tropical climate to tundra towards the Himalayas. Because of its wide climatic and altitudinal variation from lower than 70 m to the highest peak on earth, it has the largest natural sanctuary in Asia and perhaps in the rest of the world. There are an estimated 200 species of mammals, 858 species of fish and 614 species of butterflies.<sup>3</sup> The total species may be more than what has been recorded because many plants and animals have yet to be identified. In order to conserve and protect

**Table 1. Land Use in Nepal**

	Sq. Km.	%
Forest land	55,180	37.4
Shrubland and degraded forest	7,060	4.8
Grassland	17,450	11.8
Farm land	30,520	20.7
Snow and ice cover	22,460	15.2
Water body	4,000	2.7
Uncultivated inclusion	9,980	6.8
Others	830	0.6
<b>Total</b>	<b>147,480</b>	<b>100.0</b>

Source: Land Resource Mapping Project (1985/86), HMG, Nepal.

this biological diversity, an estimated 14% of the total land mass of the country has been declared as protected area and National Parks. There are an estimated 2150 heritage sites within Nepal.

Nepal is rich in water resources. An estimated 18% of the total annual precipitation is turned into snow. It has abundant water resources in 22,500 sq km of snow and ice cover which provides perennial source of water for the major river system. There are 80 glaciers, 17 glacial and 40 Oxbow lakes, 11 hot springs.<sup>4</sup> Presently, 6000 big and small rivers carry an estimated 174 billion cubic seconds of water run-off into the Indian plains from Nepal.<sup>5</sup>

While there still is a wide ecological system operating independently in Nepal, the increased human pressure is a serious threat for its conservation. Therefore, environmental compliances and enforcement is needed. The government's policies are also geared towards reducing widespread poverty, combating threats to the environment and promoting social equality, democracy and human rights.

## 2 INTRODUCTION

Nepal is in the midst of a number of fundamental changes. As stated earlier more people are added each year than ever before. Similarly human activity has been increased greatly which has had a greater impact on environment. The vegetation and other species are going extinct at an unprecedented rate.

After the establishment of multiparty democracy in 1990, there is a political sensitization within the people. This sensitization process is increasing. As a result, people are becoming more conscious about the environment. It is now widely accepted that the important wealth of the country is contained in biological diversity, living natural forests, the

Himalayas and the plains. Mountains, wetlands, habitats and natural services to the agricultural system such as nutrient recycling and other environmental factors are regulating through the ecological process and are contributing towards maintaining the production system.

Many of the biological resources found in Nepal have a high market value. Their sustainable use could help the rural people as well as the country. Effective management system can ensure that biological resources not only benefit us, but in fact increase while they are being used. This provides the foundation for sustainable development and secures national economics.

In this direction, the world charter for nature emphasizes the right of species to survive. Because the diversity of life is important for the functioning of ecosystem and provides the genetic foundation for adaptation to the future changes, it is important to protect them.

Presently, countries are tied up closely by the economics and trade. They are however divided by inequity. Sustainability of any country depends on the stabilization of its population growth at which it is balanced with its resources. But this is not easy to achieve in a country like Nepal. Therefore environmental compliances and their enforcement seems very crucial.

In the following section of this paper an attempt is made to investigate and discuss the measures taken by Nepal towards environmental compliance and their enforcement in the environmental management. A case study of Phewa Lake in Pokhara Valley of Nepal on lack of compliance and poor enforcement of legal instruments is presented.

### **3 MEASURES TAKEN TOWARDS ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT**

For the past decade, we have been subjected to a wealth of information regarding environmental degradation in Nepal. The degradation was largely due to deforestation which is often seen to be the terminal problem unless some drastic action is taken.<sup>6</sup> The World Bank in 1980 calculated that if the present rate of deforestation continues, all accessible forest in the hills of Nepal will disappear in 15 years, i.e. by 1995 and in Terai within 25 years, i.e. by 2005 (cited by Gilmore 1992, from Manandhar 1980). We are now completing 1995 and only 10 years are left to reach 2005. New trends of forest rejuvenation process are emerging unlike the prediction made by The World Bank. The commonly perceived view is often misrepresented and there are certain local level mechanisms for the sustainable use of natural resources which has kept the forest and the entire ecosystem intact.

Over the past decade, the response to environmental management in Nepal has been positive. Although it is based on solving crises, the trend is to establish compliance according to what the local needs are and the national and international community have taken initiatives in environmental conservation. This compliance, however, does not necessarily involve the formulation and promulgation of legal measures for environmental conservation, but a voluntary commitment toward environmental protection and conservation. This is accelerated through the governments' commitment and its responsibility towards conservation.

While the government's trend is directed towards environmental management, several commercial industries were also established. Most of them are environmentally unfriendly and are seldom prepared to comply with the legal instruments despite legal requirements and practically adopt them due to their cost implications. Therefore there remains a considerable skepticism in order to comply with the legal instruments applicable to such group of environmentally unfriendly activities.

The industries are established in the urban centers where the majority of the people live. Pollution levels have been significantly increased. The government has recently developed strategy to move the industries away from the urban centres. This strategy is quite attractive and complies with the environmental policies, however, due to practical implementation problems such as the rise in transportation cost and government's inability to make subsidies for transforming industries to the specified area, some of the policies are not complied with in reality.

The environmental compliance is a "win-win" approach and in the rural areas it is highly appreciated. Nepal has undertaken various measures both for environmental compliance and enforcement. The treaties, agreements, memoranda of understanding signed at various international conventions, the legal commitments at the national level are all geared for environmental compliance. The command and control regulations with respect to the environmental conservations have been in practice for many years in Nepal. Particular to forest conservation, the government has established legal provisions and been enforcing them through its own mechanisms and prosecuting in the court for serious breaches. Despite this, there are enforcement cases. Traditionally a comfortable accommodation between the regulators and the regulated is reached, with low penalty and rare "enforcement."<sup>7</sup> Government is under-resourced and incapable of prosecuting except in extreme circumstances. Compliance is thus "negotiated." Therefore environmental compliance and enforcement in Nepal has to experience many ups and downs from policy formulation to the enforcement level.

### 3.1 National policies

The increasing rate of development has resulted in previously unseen threats to the environment. Population growth, resource consumption and technological changes are responsible for these unseen threats. The problems are not confined within the political boundary. The deterioration of environmental quality pervading through wider areas is threatening the regenerative ecosystems. The fundamental link between environmental protection and economic development and threatened ecosystem was first officially recognized at the 1972 declaration of the United Nations Conference on Environment and Development (UNCED, 1972). This declaration assisted in the establishment of United Nations Environmental Program (UNEP).

Since the Stockholm Declaration, various strategies for the environmental management were developed. As a result the World Conservation Strategy (WCS) was endorsed and guided the formation of the National Conservation Strategy (NCS). Nepal complied with the preparation of the Strategy and finally in the year 1988 it was endorsed by His Majesty's government (HMG) of Nepal.

Since then, His Majesty's Government of Nepal's policy on the environment has been broadly stated in a number of documents. The environmental concern has also been augmented in the constitution of the kingdom of Nepal. Consequently the Eighth five year plan of Nepal (1992 - 1997) accentuated direct participation of the people in the management of natural resources and in the implementation of environmental programs.<sup>8</sup> It also appealed to the incorporation of preventive and mitigatory measures in the planning stage of development projects, and for the integration of a comprehensive legal frame work for environmental concerns into development process. For the development of appropriate pollution standards and guidelines, a series of studies is proposed. The conservation and promotion of Nepal's Natural and Cultural Heritage is emphasized.



At the time when the eighth five year plan was being implemented, His Majesty's Government of Nepal took another policy initiative for environmental management. Nepal Environmental Policy and Action Plan (NEPAP) was prepared and endorsed by Environmental Protection Council of Nepal.<sup>9</sup>

Thus there seems to be a growing awareness among policy makers and the people on the injurious effects of environmental degradation. The implementation of a series of National, Sectorial and Subsectorial plans and programs and creation of number of conservation related institutions clearly indicates Nepal's commitment towards environmental conservation.

The Agenda 21 adopted by the United Nations Conference on Environment and Development held in Rio-de Janeiro in 1992, outlines the strategies to halt and reverse the effect of environmental degradation "in the context of increased national and international efforts to promote sustainable and environmentally sound development in all countries." It recommends a wide range of policy strategies and actions encompassing major environment-related issues that member countries need to address from the National and International perspective. As far as practicable, Nepal has addressed the issues raised in Agenda 21 that are of particular relevance to Nepal.

### 3.2 Legal system

The adoption of international policies in domestic environmental management is a step toward environmental compliance. As the policies are adopted, the national legal systems are also forged accordingly. International environmental law and the domestic law are interwoven to the extent it is desired. This happens due to the increased interrelationship between countries in their trade industrialization and concerns of international communities towards unimpaired environment. The international legal instrument provide norms, standards which can be adopted by states as a guide to national law and policy making.

The constitution of the kingdom of Nepal 1990 conforms with the aforementioned policies. Article 26 clause (4) reads that "the state shall give priority to the protection of environment and also to the prevention of its further damage due to physical development activities by increasing the awareness of the general public about arrangement for the special protection of the rare wildlife, the forest and the vegetation." Thus the state has committed to environmental management. Prior to this constitution, there were sectorial laws and bylaws covering wider areas of environmental conservation, though they were not part of a single environmental act.

Legal instruments for environmental management with binding obligations commonly have originated from international level as treaties, local customs and needs. The treaties were signed and ratified. The most desperate and practical ones needed for the country are adopted after ratification.

In 1958, Nepal participated for the first time in the multilateral negotiation of the law of sea held in Geneva. It ratified only one, "the Geneva Convention on the High Seas" in 1963 and signed all 4 Conventions by reason of the fact that ratified treaties are only legally applicable in the domestic law. Since the inception of environmental management policy and treaties, Nepal has complied with and enforced them at the domestic level. However, there are a number of legal measures for the ratification and implementation of the treaties through the national legal system in Nepal.

The procedures are related to constitutional provision and statutory implementation measures. Under the constitution of the kingdom of Nepal Article (126) the treaty that requires ratification, accession to, acceptance of or approval of a majority of two-thirds of the members of lower and upper house in the joint sitting of the parliament. It is also necessary to get approval

for any treaties including natural resources, their distribution and their uses according to article 126 clause (2), subclause (d) of the constitution. Any treaties of ordinary nature which do not affect the nation extensively, seriously or in the long term, the ratification of, accession to, acceptance of or approval of such treaty or agreement may be carried out at a meeting of the house of representatives by a simple majority of the members present. The examples of such issues are that the biodiversity and climate change conventions which are passed by a simple majority. This explains that the legal system is evolved in Nepal in conformance with international legal instruments in environmental conservations. The ratified treaties are implemented through national legal instruments.

After the treaties have been approved or acceded to through the parliamentary process, the next step for the state is to incorporate and internalize the treaty obligation into the domestic laws. The Nepal Treaty Act of 1991 determines the inclusion of the treaties in which His Majesty's Government of the Kingdom of Nepal is a party in the domestic law to the level where the treaties are inconsistent to the Domestic Act Section 9 (1) of Treaty Act 1991. The Act provides primacy of international treaties over the National laws. The Act also stipulates the procedures in section 9, subsection 2, in treaties which are not ratified, approved or acceded to by the parliament, creates any additional obligations, His Majesty's Government of Nepal should initiate the proceedings toward enacting law soonest. Upon approval from the parliament, the government is required to compulsorily publish those treaties which are ratified, acceded to, approved or accepted. It is also required to publish these treaties in Nepal gazette within 60 days of ratification, accession, acceptance or approval.

Although Nepal has no uniform approach to the adoption of treaties into the municipal law, there are some methods which are followed here. For example, statutory incorporation of the whole text with or without reference to the international treaty, partial incorporation or adjustment of treaty provisions in a statute without giving reference to the treaty and incorporation of a treaty provision in delegated legislation without giving reference to the treaty may be followed.

There are a number of cases in which treaties have been incorporated through statutory merger. For example, The Vienna Convention on Diplomatic Relations entered into force. The provisions of this treaty were incorporated into the Foreign State and Diplomatic Representative Facility and Immunity Act 1970. Similarly, for the establishment of the International Center for Integrated Mountain Development (ICIMOD) in Nepal, it included its agreement under the Act of 1983. This Act was promulgated with reference to the agreement reached between His Majesty's Government of Nepal and UNESCO on September 30, 1981 in Paris on the establishment of the International Centre for Integrated Mountain Development.

From the above, it seems that International Treaties, and agreements relating to Environment and other matters are transferred to the municipal law in Nepal through statutory construction and through the constitutional provisions stated in section 126 of the Constitution of the Kingdom of Nepal. It is, however, important to note that Nepal is not yet matured to fulfil the obligations arising from the treaties. It has committed to implement major areas which have compliance and enforcement provisions.

With respect to the status of treaty provisions in the National Courts, the unincorporated treaties in the domestic law have no formal standing before the court.

### 3.3 Nepal's adoption of international treaties and conventions related to environmental management

Nepal is a member country of the United Nations. Nepal has membership in regional organizations such as South Asian Association for Regional Cooperation (SAARC), South Asian Cooperation Environmental Program (SACEP) and International Center for Integrated Mountain Development. These affiliations and domestic initiatives have made Nepal a party to a number of international environmental instruments.

Nepal has become a signatory to a number of treaties relating to Environmental Conservation (the protection of biodiversity, habitats and national heritage). There are four major treaties of which Nepal has strong commitments. They include:

- Convention on Wetlands of International Importance especially as waterfowl habitat (Ramsar Convention, 1975).<sup>10</sup>
- UNESCO Convention Conferring the Protection of the World Cultural and Natural Heritage (World Heritage Convention, 1972).
- Convention on the International Trade in Endangered Species of wild fauna and flora (CITES), 1973.<sup>11</sup>
- U.N. Convention on Biological Diversity (1992).<sup>12</sup>

With respect to compliance with the above international environmental conventions, Nepal has acceded to The World Heritage Convention on 1973, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) on 1975, Ramsar Convention on 1988<sup>13</sup>, and Convention on Biological Diversity on 1993. Besides these Nepal has ratified Vienna Convention, Montreal Protocol and Climate Change Convention in 1994. From the above it is apparent that Nepal has compliance on Environmental Management at the International Forum.

However, although Nepal has acceded to a number of treaties, conventions and protocols, with respect to national law, His Majesty's Government of Nepal has not yet satisfactorily recognized the optimal fulfillment of their obligations. Legal instruments adopted to date to meet the above are briefly explained below.

### 3.4 National legal instruments for environmental compliance

#### 3.4.1 Wetlands conservation

The Ramsar Convention is an intergovernmental treaty providing a framework for international cooperation for the conservation of wetland habitat. The broad objective of this convention is to reduce the loss of wetlands and to ensure their conservation. It entered into force in 1975 with seven parties. At the end of 1992, there were 71 contracting parties. In Nepal, the notion of conservation of wetland habitat was entered into force after the promulgation of Aquatic Animal Protection Act 1961. This Act has recognized the value of wetlands and aquatic animals. With increasing human population, the fragile hills, mountain and watershed areas began to degrade leading to floods, siltation, heavy soil erosion, water logging and salinity in the irrigated areas. To nationally tackle this problem and for proper management of Watershed, Soil and Watershed Conservation Act was enacted in 1982.

This Act empowered His Majesty's Government of Nepal to declare any area which needs immediate conservation as protected watershed area limiting the hostile activities within the area. The Act also discharged responsibility to the conservation officer *inter alia* in protecting vegetation in landslide prone areas and revegetation, regulation of environmentally friendly

agricultural systems and where needed construction of checkdams, embankments, retaining wall and terrace improvement in the hills. After the enforcement of the Act, several watershed projects were implemented with varied degree of success.

In addition to the above, the corollary to the Ramsar Convention, National Parks and Wildlife Conservation Act 1973, Water Resources Act 1992, Electricity Act 1992 were promulgated and enforced. The National Parks and Wildlife Conservation Act 1993, has defined wildlife and ascertained the list of protected wildlife. The fourteen national parks and protected areas of Nepal are complementing for the protection and conservation of waterfowls and their habitats. Punitive measures have been arranged through the Act for the illegal acts performed within the area.

The Water Resource Act 1992 provides the ownership of water resources within the Kingdom of Nepal. For the use of water bodies the act strives to minimize environmental damage to wetlands, lakes and rivers through environmental impact assessment studies. The act also empowers His Majesty's Government of Nepal to fix necessary quality standards of water resources for various uses and preventing pollution in water bodies. Similarly, the Electricity Act 1992 forbids negative impact on the environment while generating electricity.

These legal measures are promulgated and enforced with a view to conserving wetlands and allowing their further augmentation. After the convention, "Koshi Tuppu" in the eastern plains of Nepal was designated as a wetland site. Although a single site is insufficient while many wetland areas of the countries are considered, this site, however, was a start. These legal initiatives have contributed to the protection of wetland fauna and floras. They are, however, by far insufficient and there is a considerable scope for further expanding the wetland conservation legal instruments.

#### 3.4.2 Heritage conservation

The World Heritage Convention entered into force from 1973. The concerning parties to the Convention recognized that "deterioration or disappearance of any item of cultural or natural heritage constitutes a harmful impoverishment of the heritage of all the nations of the world and, furthermore, asserts that parts of the cultural or natural heritage are of outstanding interest and, therefore, need to be preserved as part of the world heritage of mankind as a whole"<sup>14</sup>.

The convention is an inducement to the nations to take long term perspective in protecting the environment.<sup>15</sup> After the approval of the Treaty on Heritage Conservation in Nepal, Seven Cultural and Natural Heritage Sites have been inscribed in the world heritage list.

For the conservation of natural and cultural heritages, Nepal has been successfully fulfilling its obligation through the promulgation and enforcement of Ancient Monument Act 1956, National Parks and Wildlife Conservation Act 1972, King Mahendra Trust for Nature Conservation Act 1982 and Forest Act 1993. Nepal's Natural Heritage is protected under National Parks; the Royal Chitwan National Park and Sagarmatha National park are world heritage sites where natural heritages are protected. In addition, there are 5 cultural heritage sites listed in world heritage sites lists. The Ancient Monument Act 1956 contains regulatory mechanism to ensure the protection and conservation of cultural heritage and to restrict the National or International trade of Archeological and Antique objects. This Act remained long before the heritage convention. The Act has empowered His Majesty's Government of Nepal to confiscate ancient monuments located in private property. Similarly, for other natural heritages conservation, King Mahendra Trust for Nature Conservation Act 1982 and Forest Act 1993

has empowered community and His Majesty's Government of Nepal. The promulgation and enforcement of these Acts is significant in complying legal obligation under the Heritage Convention.

#### 3.4.3 Convention on the International Trade In Endangered Species (CITES)

Nepal became a contracting party in this convention in 1975. This convention provided for the international coordination of trade and control of wild fauna and flora whose conservation status is unfavorable through the acceptance of obligations under international law. The objective of the treaty is to arrest, reduce or eliminate the international trade in those species whose numbers or conditions suggests further removal of individuals from its natural habitat and the activities that would be detrimental to the species survival.<sup>16</sup>

Prior to the convention, on the control of trade of wild fauna and flora, National Parks and Wild Life Conservation Act 1973 was enforced in Nepal. This provided a regulatory mechanism to conserve endangered species and their habitats indirectly restraining the trade of such species. Hunting of such animals are circumscribed. The Forest Act 1993 further emphasized the control and management mechanism of forest species and endangered fauna and flora.

#### 3.4.4 The convention on biological diversity

The objectives of the biodiversity convention was to conserve the flora and fauna useful to human being and for the Sustainability of ecosystem. It is also important for the maintenance of life supporting systems of the biosphere. The Nepalese parliament ratified the convention on 1993 and has taken policy and legal measures for the conservation of biodiversity in compliance with the convention. As has been explained earlier, the National Conservation Strategy Implementation Project run jointly by IUCN, The World Conservation Union and the National Planning Commission of Nepal and Department of National Parks and Wildlife Conservation are the leading agencies toward developing policies relating to the biodiversity conservations. As regards the legal instruments, Aquatic Animals Protection Act 1961, National Parks and Wildlife Conservation Act 1973, Water Resources Act 1992 and Forest Act 1993 are promulgated and enforced. There is sufficient legal ground for the conservation of aquatic and other forms of biological diversity both in *ex-situ* and *in-situ*.

The Aquatic Animals Protection Act of 1961, provides legislative insulation for the habitats of aquatic life and provides punitive actions to the culprit involved in the poisoning of aquatic life, by using explosives into the water source of aquatic life origin. Similarly, the National Parks and Wildlife Conservation Act 1973 prohibits *inter alia* hunting, building houses and any structure, cultivation, grazing, watering domesticated animals and birds, mining and firing any site or sites within the protected area. The Forest Act 1993, has empowered department of forest and Department of National Parks, a lead agency for the conservation of biodiversity.

The compliance for the enhancement of the environment by His Majesty's Government of Nepal in devising legal instruments is appreciable. The legal provisions to a large extent are enumerated from the needs. They are also evolved to attract funds for the conservation of resources.

Several provisions under the conventions are, however, inequitable for the poor countries. When it comes to the equitable benefits, as a result of the compliance of treaties and conventions for environmental management, the developed countries are mostly benefited. Countries like Nepal have no basic infrastructure to work with the genetic resources. It has an indigent research facility, access to technology and limited scientific coordination. There is potential benefit to be gained as a result of environmental compliances. Presently, however, these gains are confined.

Efforts to conserve biodiversity include the establishment of National Parks and Protected Areas. The system of National Parks and Protected Areas helps to conserve biodiversity *in-situ*. Presently, there is an estimated area of 29, 273 km<sup>2</sup> under National Parks and Protected Areas. However, outside the protected area, efforts to conserve endangered species are very low, with the exception of one Zoo for *ex-situ* conservation even the National Park System are not well harnessed. Despite environmental compliance at the international and national level, there has been limited action to properly monitor biodiversity programme in Nepal.

#### 3.4.5 Other treaties and conventions

Nepal is a party in other agreements and treaties. The Geneva Convention on High Seas had took place in 1958, in which Nepal became a party in 1965. Treaty on Banning Nuclear Weapons Tests occurred in 1963 and Nepal became a party in 1964. Treaty on Principles Governing the Activities of States in Exploration and Use of Outer Space Including the Moon and Other Celestial Bodies was made in 1966, in which Nepal became a party in 1967. Treaty on the Nonproliferation of Nuclear Weapons was made in 1968, Nepal became a member, in addition to the above treaty, on prohibition of the emplacement of nuclear weapons and other weapons of mass destruction of the seabed and ocean floor and the subsoil thereof was signed in 1971 and Nepal became a party in 1972. Similarly, the Agreement on International Tropical Timber, the Bangkok Agreement on the Network of Aquaculture Centre in Asia and the Pacific was reached in which Nepal became party in 1990. A Majority of these treaties listed above are applicable to the countries situated near ocean, or having nuclear facilities, and having highly advanced form of technology. For example, Nepal has not ratified them as yet. They may be ratified when deemed necessary. As many of the above treaties are applicable in the activities of states involved in exploration and use of sea, space and nuclear weapons and those also are afraid of other human beings, it does not seem necessary for Nepal to develop a National Act incorporating these principles as yet.

The rapidly expanding international and national legal instruments are certainly a positive move towards greater environmental conservation. The incorporation of the various provisions within the national legal system has shown Nepal's sincere commitment to safeguarding the deteriorating environment.

For example, in trying to foster the international treaties, one of the most important character, is the ratification of international treaties within national systems. In order to control the spread of the plant disease through the seeds, root stock and any other forms of stem countries within the South Asia and Pacific Region an agreement was reached in 1956 and Nepal became a party in 1965. Consequently, to comply with the treaty Nepal promulgated Plant Protection Act 1972.

## 4 INSTITUTIONAL ASPECTS

Parallel to the growth of environmental management and regulatory provisions, decision-making structures are also needed. This demands efficient institutional systems for formulating policies, strategies, plans and programs. At the same time, constitutional arrangements are also required for the development of institutions. The constitution of the Kingdom of Nepal 1990 has established a Natural Resources and Environment Committee in the House of Representatives. This is one of the highest institutions established by the Constitution of Nepal to oversee and legislate environmental matters.

The National Planning Commission is the apex body for finalizing environmental and development planning in Nepal. Within the Commission there is an Environmental Protection Division functioning as a division and serving as a secretariat for the Environment Protection Council (EPC). It was established as a subsidiary organ of the National Planning Commission. It was established in 1992 under the Chairmanship of the Prime Minister with representation from 12 Ministries of Government; the Natural Resource and Environment Committee of the House of Representatives, the National Planning Commission, nongovernmental organizations, and the Federation of Nepalese Chamber of Commerce, and industry.

Many national institutions play important roles in lawmaking, policy-making, research, monitoring and supervision. The major institution created to specifically address environmental issues is the Environmental Protection Council (EPC) and Ministry for Population and Environment. The latter has not yet been given its clear-cut mandate because this is a newly created institution.

With respect to environmental compliance and enforcement, the council has initiated important activities over the past 3 years. Through its initiatives His Majesty's Government has ratified the UN Convention on Biological Diversity and Convention on Climate Change, Vienna Convention on the Protection of Ozone Layer. In addition, with the same initiation vehicular emission standards have been determined and an attempt was made for its enforcement.

In addition to the apex institutions, there are line ministries which are also responsible for planning, implementation and enforcement of environmental instruments. As has been explained earlier, the Ministry for Agriculture, Ministry for Forest, Ministry for Industry, Ministry of Water Resources and Ministry for Transport, Ministry for Local Development and Ministry for Population and Environment are major institutions for the implementation of legal instrument for environmental conservation in Nepal. Although directly or indirectly all the above Ministries are involved, Ministry of Forest and Soil Conservation, Ministry of Industry and Ministry of Housing and Physical Planning have set up environment planning units to oversee environment related policies and programs. These line agencies have their respective linkages at the regional, district and village level for planning and implementation.

With the exception of the council and the Population and Environment Ministry, the mandate of other institutions is to carry out development related works. The mandate of the Population and Environment Ministry is not yet clear. All the institutions have been usually underfunded in relation to their scope and mandate, despite efforts being made to improve the situation. A concept for raising funds to address environmental problems has been proposed. As a result, an environmental fund has been established within the EPC but the operations mechanism has not yet been decided.

Besides, underfunding the institution also suffers from isolation. There is lack of interinstitutional coordination. Much more acute, however, has been the lack of institutions' commitments to the pursuit and enforcement of Acts and bylaws. For example, a series of seminars and workshops are arranged and policy documents for environmental conservation are prepared but the implementation and enforcement cannot be considered satisfactory. This is basically due to inadequate foresight and understanding of the long-term benefits of environmental protection by the concerned institutions.

Proposals for the establishment of new institutions to deal with the environment have frequently been mooted. The National Commission for the Conservation of Natural Resources (NCCNR) was established pursuant to the soil and watershed conservation Act of 1982, which has been floated and refloated. Another recent proposal includes the creation of Environmental Planning and Monitoring Cells within each institution. There are also *ad-hoc* inter ministerial commissions and independent expert review missions. Despite these, the tortuous process of improving environmental policy and enforcement, little progress has been made, re-enforcing

doubts on the addition of new institutions. In the existing institutions paring of bureaucracies and funding remains problematic. This means low cost approaches are favored. These elements are evident in the reluctance of practical enforcement by the institutions.

## 5 ENFORCEMENT

Enforcement is one of the major problems of effective regulation. In a situation where the laws, bylaws and regulatory mechanism are not observed, these are ineffective. Why these are ineffective has been seldom reviewed and necessary amendments made. The national laws pertaining to the international conventions, treaties and agreement are available within Nepal. For example, Aquatic Animal Protection Act 1961, mandates conservation of aquatic life. The Act prohibits illegal killing and trapping of aquatic life. In practice there are cases in which fresh water fish are harvested using poison, electrical devices and trapping. So far, since 1961, not a single case of poisoning fresh water aquatic life has been filed. Similarly, Ancient Monument Act 1956, National Parks and Wildlife Conservation Act 1973, Forest Act 1993, are all enforced by the government. These acts are enforced through injunction and culprits are prosecuted. Despite a few odd cases, legal violation is usually unnoticed. The government or the enforcing agency prosecutes in the courts only for the serious breaches.

With respect to enforcement of municipal law, traditionally a harmonious relation between the enforcing agency (regulator) and the regulated has existed in the management of environmental resources with bribes and taking low punitive actions in Nepal. Compliance has been "negotiated" and government, departments or enforcing agencies are under-equipped. This traditional practices have led to lawlessness and violation in environmental protection spheres.

The present agenda of Nepal is economic development and creating employment opportunity for the people. This has forced environmental concerns into a back side. In recent years the trend, however, has changed and the environment is becoming a public concern. As a result, certain legitimate complaints are beginning to be made by the people in response to the violation of law at the local level.

The difficulty in enforcement is that it remains in the hands of government. It makes standards and enforces them through the organization mentioned earlier. The governments regulatory agencies are funded through the government, and such regulators are "free riders". They are the ones who know the legal repercussion and therefore, best know how to violate. That is why this group of people along with the politicians are harvesting the environmental resources free of cost and are exerting power over the people. One who violates the law cannot enforce it correctly. The legitimate concerns of the people are deprived in major cases. Almost everything is politicized and there is little that an individual can do for the enforcement.

With respect to enforcement of different acts related to cultural and natural environmental protection, conservation parties, the "regulators" and "regulated", have mutually accepted the level of destruction above which it becomes transparent to all the people. Up to that level, whatever distracting activities occur, legal measures are violated. The government inspecting bodies seldom operate there.

The obligation to enact measures to prevent the above is a vital part of an enforcement system. Domestic legislation is providing greater details such as reaching to resource user groups level and even specifying the rare and endangered species and subordinate legislation covering what to harvest, when to harvest, the quality to be harvested and under what conditions.



Enforcement, however, remains a weakness. A case study of Phewa Lake pollution in the mid-western region of Nepal is shown in the Annex which explains good environmental compliance informing laws, bylaw and a complete unwillingness of their enforcement.

Control of trade in endangered species under an international permit system is a technique employed in the Convention on International Trade in Endangered Species, and municipal laws are enacted. Similarly, important cultural heritages are not allowed to trade outside the country of origin. However, due to high economic incentives in such articles by the citizen of wealthy nations, legal measures are violated and enforcement remains weak.

At the international and national level, enforcement broadly seems to be weak. This shows that the laws are only enforced on poor and weak sectors of the world community. Enforcement can be seen at the local level, where traditionally the laws are self enforcing. It is the individuals who take the measures required by regulations under such situations. All they need is to be convinced that the measures are right and necessary in their own interest, their country's interest and the wider interest of international community<sup>17</sup>. This is especially important in resource conservation areas.

## 6 CONCLUSIONS

After 1950, Nepalese Constitution and legal system has undergone many changes. During this period, Nepal has signed on many international and regional treaties, protocols and agreements. In Particular to environmental conservation and management, Nepal has clear commitments to the treaties which are ratified and has incorporated into the national legal system. These initiatives has resulted in Nepal becoming a part and parcel of implementing international obligations.

In order to monitor and follow-up to the legal instruments applied to environmental conservation, a strong institutional base is very urgently needed. Most of the institutions are of recent origin. Therefore, in many cases when enforcement is thwarted, it is due to: a) poor institutional infrastructure; b) lack of institutional decentralization; and/or c) shifting responsibilities from one institution to the other which does not fulfil the obligations in reality.

Since the establishment of treaties and the promulgation of national legal measures to comply with the treaties, the list of rare and endangered species has been prepared. The difficulty however, is that whether the aforementioned species are still endangered or rare is never scientifically monitored. Thus surveillance of the legal instruments both internationally and nationally are lacking.

Similarly, during the signing of international treaties, few sites are included for example, Ramsar Site Koshi Tappu in Nepal and became the international site, despite many more important sites that need to be included in the list. The parameters for a site to be an international site needs to be carefully examined and where needed more than one needs to be included.

For the conservation of cultural and natural heritage, each party is required in so far as possible *inter alia* to incorporate requirements into comprehensive planning. This in many situations is lacking. For example, there are several world heritage sites in the Kathmandu Valley which need to be placed in the list of world heritage in danger.

The national institutions for implementing legal instruments such as The Natural Resources and Environment Committee in House of Representatives, the Environmental Protection Council (EPC) and line ministries have existed in Nepal. Some establishments are older than the others. These institutions suffer from lack of training, initiatives and other resources and, therefore, have remained defunct.

Despite Nepal's obligations under Convention on International Trade of Endangered Species (CITES), the poaching and trade of rare wildlife specimens continues unabated. There is ample evidence that rhinos and tigers are killed, and bears are illegally hunted for their hides and bile, which are smuggled to Hong Kong and, ultimately, Taiwan. Similarly, there is no reported case of the prosecution for the breach of violating Aquatic Animals Protection Act 1961.

From the analysis, it is apparent that compliance with international commitments is highly ineffective in Nepal. Enforcement at the local level is considered so poor that the enforcement problem makes compliance low. There is no single legal instrument for protecting degrading environmental situation. This shows poor enforcement and surveillance both at national and international level of the legal instruments.

Finally, it is important to note that Nepal has commitment to environmental conservation. An analysis of the monitoring procedures for the implementation of national legal instrument suggests that the existing regime is not efficient enough for the enforcement of the treaties signed at the international level and measures taken in the municipal law. Strong surveillance and enforcement is required to comply with the environmental conservation if the legal instruments are to be made meaningful.

## REFERENCES

1. National Planning Commission, His Majesty's Government of Nepal and Ministry of Foreign Affairs, Government of Finland (1995). Identification for an Environmental Sector Program under cooperation between Nepal and Finland. Draft Report., Singha Durbar, Kathmandu, Nepal.
2. Shresta, T.B. and Shakya, P.R. (1993). Human Impacts on Biodiversity in Nepal Himalaya. Paper presented at XV International Botanical Congress. Yokohama, Japan.
3. Shresta, A.P. (1991). Water Resources and Energy. In: Hydropower in Nepal: Issues and Concepts of Development Resources, Kathmandu, Nepal.
4. Sharma, C.K. (1992). River Systems of Nepal. Nepal Heritage Conservation Society, Kathmandu, Nepal.
5. Dhungel, S.K. (1995). Aspects of Wild Life Conservation in Nepal, Past and Present. In: Green Energy, Summer Issue 1 (I). 5-8 pp.
6. Gilmore, D.A. (1992). Not seeing the trees of the forest. A reappraisal of the deforestation crises in two hill District of Nepal. In: Reading in Social Forestry and Natural Resources Management in Nepal. Messerschmidt, D.A. and Navin K. Rai (ed). Research Support Series No. 10. His Majesty's Government, Ministry of Agriculture - Winrock International. Policy Analysis in Agriculture and related Research Management. Institute of Forestry Project, Institute of Forestry, Pokhara, Nepal.
7. Gunningham, Neil (1994). Beyond Compliance Management of Environmental Risk. In: Environmental Outlook Law and Policy. Ben Boer, Robert Fowler & Neil Gunningham (ed). The Federation Press, Australian Center for Environmental Law, 254-278 pp.
8. National Planning Commission (1992). The Eight Plan. His Majesty's Government of Nepal, Singha Durbar, Kathmandu, Nepal, 85-99 pp.

9. EPC (1993). Nepal Environmental Policy and Action Plan. Integrating Environment and Development. His Majesty's Government of Nepal, Singh Durbar, Kathmandu, Nepal, 1-80 pp.
10. U.N. (1975). Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar). Enforced 21 December 21,1975. Amended by protocol of 1982, enforced (1986); 1987 amendments, not enforced.
11. U.N. (1973). Convention on the International Trade in Endangered Species of Wild Fauna and Flora.
12. U.N. (1992). Convention on Biological Diversity. Enforced December 1994.
13. Veit Koester (1989). The Ramsar Convention on the Conservation of Wetlands. A legal analysis of the adoption and implementation of the convention in Denmark. Ramsar Convention Bureau, IUCN and Switzerland.
14. UNESCO, 1973. Convention concerning the protection of the World Cultural and Natural Heritage Sites. Preamble.
15. Suter, K.D., 1991. The World Heritage Convention. *Jer. of Environment Plans and Law* Vol. 8 (4).
16. Favre, D.S., 1989. International Trade in Endangered Species. A guide to CITES, IntroductionXVII.
17. Birnie, P., 1992. International Environmental Law: Its adequacy for present and future needs in the international policies of the environment. Andrew Hurrell and Benedict Kingsbury (ed). Clarendon Press - Oxford. 51-85 pp.

## ANNEX 1

### CASE STUDY

#### The Environmental Problems of Phewa Lake in Nepal

##### 1 BACKGROUND

Pokhara is one of the most rapidly growing cities and also the second most visited tourist place in Nepal. Because of its natural beauty with spectacular views of Annapurna Himalaya range and with Machhapuchhre peak standing very close by (only 28 km), it is a popular tourist destination. Apart from the views of mountain from Pokhara, it is also famous for its Phewa Lake.

###### 1.1 Location and size

Phewa lake watershed is located in south western corner of the broad Pokhara Valley (28° 7' N to 28° 12' N latitude and 84° 5' E to 84° 10' E longitude) which falls on a relative subsidenczone in between the Greater Himalaya and the Mahabharat Range. Administratively, this watershed area is spread over, partially or fully, the jurisdiction of six Village Development Committees (Sarangkot, Kaskikot, Dhikurpokhari, Bhadaure Tamagi, Chapakot and Pumdi Bhumdi) and the south western part of Pokhara Municipality under Kaski district (Watershed Area). The watershed area forms an unique geographical entity and represents the typical characteristics of the mountain environment. It covers an area of approximately 123 km<sup>2</sup> and the length and width of this east west oriented watershed is about 17 and 7 km, respectively. Out of this total area, 4.43 sq km surface is under Phewa lake water. The average recorded depth of the lake is 8.6 m with its maximum depth of 19 m.

The Lake is a northwest-southeast running valley. It lies about one kilometer southwest of Pokhara Town at an altitude of 793 metre although the lake level varies seasonally depending on the withdrawal of water for power generation 1,000 Kilo Watt (KW) and irrigation purpose and water inflows. It extends about 4 km northwest to southeast and it is about 2 km at its widest and only a 100 metre at its narrowest. The surface area of the lake is about 443 hectares. The reservoir storage capacity is 46 million cubic meters.

###### 1.2 Landform

The landform of the Phewa watershed is formed by complex and rugged ridges and spurs and valley bottoms. The hill terrain and valley bottoms stand out as distinct features in the landscape. The hill system is criss-crossed by a number of irregular ridges and spurs.

The south facing slopes of watershed are comparatively gentler (around 30 to 50 percent) than the north facing slopes (above 50 percent). Panchase is the highest site (2,508 m) of the watershed. The lake was obviously formed by the damming up of the tributary system by the overflow of superficial gravels along the main Seti Valley. Phewa lake has been enlarged by damming for irrigation and power generation. Harpan Khola draining Phewa Lake makes a sharp southeastern turn on meeting the western edge of the plain and now joins with another stream called Phurse Khola, the tributary of Seti.

### 1.3 Climate

The Phewa watershed area falls in humid subtropical monsoon region. It is characterized by moderate temperature (mean temperature peak in July-August 25.5 °C and falls to minimum in January 13.2 °C, heavy monsoon rainfall (the mean total annual rainfall is 3,710 mm) and distinct seasonal variations.

### 1.4 Wild and aquatic life

There are 17 different types of native fish and 4 different exotic fish, 6 species of amphibians, 14 reptiles species, 104 species of birds and 34 species of mammals in the Phewa lake watershed area. Out of 104 bird species, 14 are migratory and others are residents.

### 1.5 Land use

Pressure has greatly increased along the lake bank east of the dam of the lake. Rough roads and poorly constructed small houses have been built, except on land acquired by the government. Similarly, the area along Phirke Khola has been extensively used for building construction. Government buildings, such as the Municipal Guest House and the Armed Police Office and Quarters, as well as squatter settlements, are located near the Phirke Khola area.

In spite of the standards fixed for urban growth in the area of the lake, uncontrolled construction has increased since the 1989 Movement for Democracy. Urbanisation is increasing throughout the Pokhara Municipality and Phewa lake area and has negatively impacted on facilities such as drinking water, roads and the drainage system. Growing urbanisation has also adversely affected the urban area amenities and tourism around Phewa lake by causing noise pollution, narrowing of the pathways, water pollution and uncontrolled sewage. Unsightliness has also increased due to man-induced process.

Local people claim that the increase in hotel construction and other development activities in the southwestern part of the lake (except Raniban), in Anadu and the area to Simle and beyond, has contributed to the lake pollution and caused wildlife habitats to deteriorate. In addition, the pressure of development has had a negative effect on land use in areas near Phewa Lake and has begun to adversely affect tourism.

Settlements are irregularly and unevenly distributed. The site locational patterns of the settlements are mainly determined by topography and such factors as water availability for drinking purpose than other climatic and cultural factors.

### 1.6 Socio-economy

The watershed area is one of the densely populated areas in the hills. The total population of the watershed was 31,578 (excluding town population) in 1991. The town population is estimated to be more than 3 times of the watershed area. In this total, the percentile share of male and female is 49.7 and 51.3 per cent, respectively. The average family size is six as shown by the socioeconomic base-line survey of Phewa watershed. The population density accounted for 258 persons per km<sup>2</sup>. This density further accounted for agriculture and forest land that is 912 and 586 persons per km<sup>2</sup>, respectively. The average population growth rate is about 3.84 percent. This rate of growth is relatively higher compared to other hill areas of Nepal. It is particularly due to the score of highest growth rate by Pokhara Municipality among the various Municipalities of the country. In fact, it is due to the highest influx of people into Pokhara from hill districts of the region.

Variety of caste group of people settle there. Brahman is the dominant caste group (about 48%), followed by occupational castes (27% Damai, Kami and Sarki), Gurung (14%), and others (11%). About 50 % of people in the watershed are literate, with the male literacy rate approximately double to females. The level of literacy is low among the socioeconomically backward groups.

The predominant occupation is agriculture (about 85%) followed by service (mostly outside the country), small business activities and both agricultural and construction labor. Agriculture includes both crop farming and animal husbandry. Business activities are mostly confined to the lake-side and along the trekking routes. In recent years, tourism has become a major industry, supplementing about 16% of the economy.

## **2 ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT**

Lake shoreline or the area occupied by Phewa Lake has not been defined and officially demarcated. The alluvial plain created through sedimentation process of Harpan Khola at the entrance which provides the main inflow of water into the lake once had been submerged. Aerial photographs taken in 1971 by Airmap (Italy) clearly shows that the area covered by the Phewa Lake was much larger than what it is today. Attempts to define the lake area were made in the past, but collapse of Phewa dam in 1974 which drained off much of the lake reservoir reduced it into much smaller in area. The receding lake's shoreline which was exposed in land was registered by adjacent landowners in their name by providing bribe and political pressure to the government officials. This problem was further cropped up during the cadastral survey carried out in 1975 which registered even land submerged previously under water, thus converting previous lake area from public to private ownership.

There are claims and counter claims for ownership of land, which is now submerged. Once the present dam was completed in 1978 and water restored in the lake reservoir, many people have made claims for the compensation of land submerged under lake water, it is learned from the Irrigation Department office in Pokhara. Although legally the ownership is with the ministry of water resources, the land ownership dispute of the lake created by the cadastral survey in 1974 remains to be solved. This problem was created due to malfunctioning, political distrust and corrupt behavior of both people and civil servants responsible for carrying out the land survey and issuing land certificates. This has also happened due to government departments overlapping and inconsistent legal provision, resulting the deteriorating conditions of the lake.

With respect to the inconsistent legal provision, the Municipality Act of 1991 empowers Pokhara Municipality to take necessary measures to manage garbage collection and disposal, and pollution control from the lake shore. The Act also makes provisions for enforcing building norms, rules, regulations and the ability to take punitive action against defaulters. Town Development Act 1988 allows the town development committee to enforce land use and building regulations, and implement physical development plans and programs. The Town Development Committee also has the authority to take punitive action against those who ignore the regulations, and violate the norms and standards set by the committee. Since six Village Development Committees (VDCs) apart from the Pokhara Municipality touches the boundary of the lake, Phewa lake is subjected to the Committees authority derived from Act of 1991. Since the District Development Committee (DDC) is the main coordinating agency for all Village Committees in the district, Kaski the District Committee also has authority over Phewa Lake deriving from the Act of 1991. Phewa Watershed is subjected to the Forest Act, Soil and

Water Conservation Act, Water Resources Act, and both the District and Village Committee Acts, Municipality Act, Town Development Act, Aquatic Life Act, 1961, thus each agency operating under their own legal mandate and caring little for others. This situation is continuous and is one of the major causes for environmental noncompliance and poor legal enforcement in the watershed. This resulted in the development of uncontrolled urbanisation and inconsistent land use.

For the regulated growth of Pokhara, in 1973 Physical Development Plan was prepared. This was adopted by His Majesty's Government of Nepal. Consequently, Pokhara Town Development Committee was established under Town Plan Implementation Act 1972 for implementing the plan.

Political upheaval of 1979/80, and political change of 1989 completely destroyed the remnant of respect for land use, and building rules and regulations regarding the lakeside area. Random and haphazard construction activities have taken place in these areas and along the lake side, now culminating into a rapidly deteriorating environmental condition of the lake and its environment. The same people who were against the spirit of 1973 plan regarding the lake side conservation concept, have now come up with the support for that concept. From 1973 to 1995, much water has flown through Phewa lake and land use in the lakeside area and the Pokhara valley has undergone many changes, but so far no serious effort to review and implement the 1973 plan has been undertaken. It was completely encapsulated and ignored. This clearly shows the government's unwillingness to comply with the environmental problems and enforcement.

With respect to the lake water pollution and poor solid waste disposal system, over the past few years, Phewa Lake and its adjoining catchment areas have experienced few marked changes in terms of environmental quality. In these areas tourism facilities have been established. But serious environmental issues such as lake water pollution and solid waste disposal problems have emerged. Although systematic monitoring of lake water quality is lacking, a recent study indicates that water quality in Phewa Lake is deteriorating due to increase in biological contamination.

The density of fecal coliform bacteria ranged from 39-123 organisms per 100 ml of water, indicating fecal contamination. The major sources of pollution are sewerage, disposal of solid wastes, clothes washing, runoff from the farm land (nutrients) and sediments. The lake water is contaminated mainly from the direct discharge of sewerage (domestic, urban & hotel/restaurant) via the drains, and storm water sewers.

Domestic waste water including overflow from septic tanks, is found to be directly discharged into the lake, especially from the hotels and restaurant. Phewa Lake is also polluted due to wallowing of pigs and buffaloes, cloth washing by hotels, restaurants and local households. It is estimated that more than 100 kg of soaps and detergents are daily used for washing into the lake. In addition to the lake water pollution, the drinking water, from natural springs and wells in the nearby areas are also found to exceed the World Health Organization (WHO) standards and unfit for human consumption.

The improper management and haphazard disposal of solid waste is a serious concern especially in the urban areas and around the Phewa Lake. There is a lack of statistics on the total waste generation. However, it is estimated that approximately 125 metric tons of solid waste is generated per day in the Pokhara municipality. There is no effective solid waste disposal and management system. The local communities usually dispose solid wastes into water bodies. The overland flow may carry the toxic chemicals to the water bodies, thereby it is likely to enter the human food supply, thus presenting a potential hazard for human health.

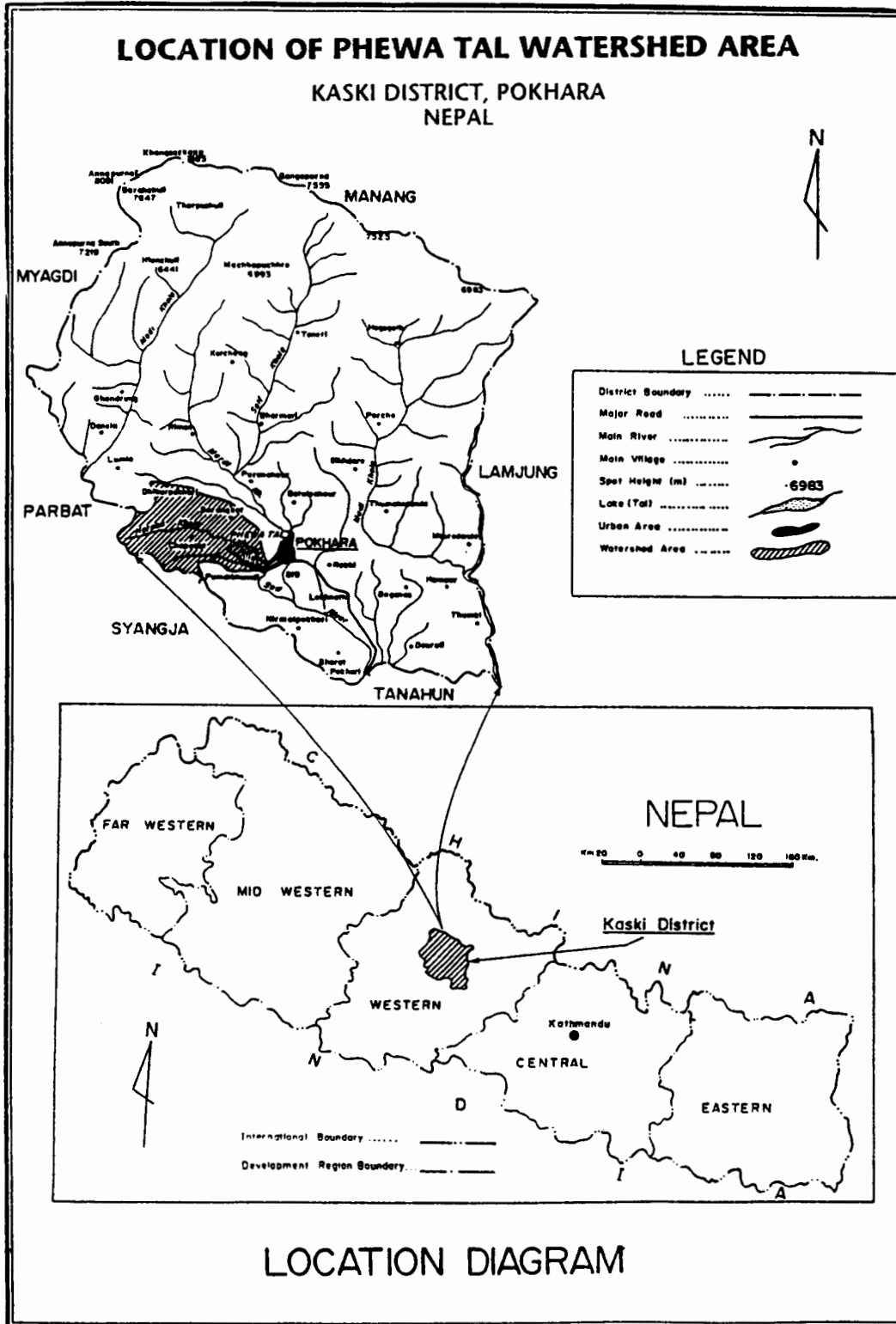
Despite legal mandates to various agencies for regulating the lake environment, the lack of a single institution responsible for managing the lake has been the major problem. No efforts have been made at any level, central or local, to address the issue of lake water pollution and solid waste management problem, despite concerns that have been expressed time and again by people and authorities at local and central level for the deteriorating condition of lake and its environment. This clearly indicates lack of compliance and enforcement of legal instruments for environmental conservation at the local level.

In addition to the poor attention paid for lake's pollution control the biodiversity conservation around the lake has received little attention. Phewa lake is recognized as an important habitat of a wide variety of aquatic life. There are 6 floating, 7 submerged, 3 emergent rooted aquatic plant species, and 22 different native fish species. Wild geese used to be abundant in the western part of the lake. Migratory birds arriving annually used to enhance the biodiversity of lake and its surrounding areas. Presently, however, modern development activities have alarmingly disturbed the ecology of the area which threatened the aquatic life due to lake pollution. The human induced activities are becoming incompatible for the existence and survival of aquatic life, birds and other gifts of nature in the lake and its vicinity.

Similarly, areas around Phewa Lake especially the Rani Ban and forests of Pumdi Bhumdi are undoubtedly heavenly gifts. These areas are important for bird watching and study of flora and fauna. These areas have wide range of vegetation species. In addition, as mentioned in the earlier section, Panchase provides unique opportunity to conserve wildlife and rare plant species of mid-mountain region in Nepal. If the environmental situation of Phewa Lake is to be improved, attention to the conservation of biodiversity within immediate hinterlands should be the first priority and that there should be environment compliance and enforcement of legal instruments existing within the country.



MAP 1





## **SPECIAL TOPIC WORKSHOP P**

### **Collaborative International Targeting of Enforcement**

The purpose of targeting enforcement resources, such as inspection and enforcement response, is to ensure that scarce resources are employed for the greatest impact on short-term compliance, as well as longer-term compliance, through deterrence and environmental results. This special topic addresses the potential opportunities for international targeting schemes.

Issues addressed within this context include:

- The potential purpose(s) of targeting enforcement internationally on particular economic sectors, pollutants, geographic areas, or types of violations.
- The advantages and disadvantages of international targeting schemes.
- For what types of activities and violations such schemes might be useful and what is the expected impact.
- How such targeting schemes might be developed:
  - who should be involved;
  - what information would be needed;
  - how decisions should be made, whether by consensus, by presentation of analysis, etc; and
  - how targeting should be communicated.
- What follow-up activities should result from targeting and whether they should be tracked and communicated in some fashion.
- If this is a good idea, what forum should be used or developed to pilot the concept.

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Currently no papers are available on this subject because experience is still too limited. For this reason also, no workshop was held.

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## SPECIAL TOPIC WORKSHOP Q

### Organizing and Financing Programs (Opportunity for Further Discussion from UNEP Workshops)

Discussions built on information about organizing and financing programs from the UNEP training manual, two new capacity-building technical support documents that were prepared for the Fourth International Conference (which compare and present approaches from many different countries), and the Proceedings from the International Conferences describing country programs.

The workshop provided an additional opportunity for discussion of the design issues touched on during Day Three workshops as well as an opportunity for discussion of country-specific problems. Examples of the types of issues that were discussed include:

- How to make enforcement work if responsibilities for environmental compliance and enforcement are split among several ministries with potentially conflicting goals.
- Whether to separate permitting and compliance monitoring responsibilities.
- How to structure permit and inspection fees to ensure affordability, improved environmental compliance, and sufficient funds to run a program.

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1. Summary of Organizing and Financing Workshop, *Facilitators: R. Glaser, L. Paddock, Rapporteur: K. Rubin* ..... 781
  2. See also Synopsis of Capacity Building Support Document: Organizing Environmental Permit, Compliance, and Enforcement Programs, Theme 5 ..... 285
  3. See also Synopsis of Capacity Building Support Document: Financing Environmental Permit, Compliance, and Enforcement Programs, Theme 5 ..... 286
- 

1. Norway's Experience in Building an Inspector Corps: Education and Financing, *G. Rødland, A. Miller*, Volume I, Oaxaca, México
2. A Decentralized Approach to Inspection and Enforcement Done by Counties and Municipalities in Denmark, *O. Kaae*, Volume I, Oaxaca, México
3. The Relationship between Central Government and Provincial/Municipal Authorities with Regard to Enforcement, *J.A. Peters*, Volume I, Oaxaca, México
4. Alternative Organizational Structures for a Compliance and Enforcement Program, *W. Eichbaum*, Volume I, Budapest, Hungary

5. Small Business Compliance, the Role of Local Communities, *H. Schaap*, Volume I, Utrecht, The Netherlands
6. Defining and Implementing Effective Federal/State Local Relationships: the U.S. Experience, *L. DeHihns*, Volume I, Utrecht, The Netherlands
7. State Perspective in U.S. Enforcement Relationship, *K. Alkema*, Volume I, Utrecht, The Netherlands
8. European Community's Prospects for Enforcement of Directives, *R. Wägenbour*, Volume I, Utrecht, The Netherlands
9. State Environmental Prosecutor's Role, *S. Madonna*, Volume II, Utrecht, The Netherlands
10. Intergovernmental Relationships in the Netherlands, *P. Dordregter*, Volume II, Utrecht, The Netherlands
11. Environmental Law and their Execution in the Federal Republic of Germany, *D. Übing and L. Kropp*, Volume II, Utrecht, The Netherlands
12. Compliance and Environmental Enforcement System in Poland, *L.S. Jarzebski*, Volume II, Utrecht, The Netherlands
13. Legal and Technical Cooperation for Effective Environmental Enforcement, *D. Bryson, D. Ullrich*, Volume II, Utrecht, The Netherlands
14. Principles of Environmental Enforcement, *C. Wasserman*, Volume I, Budapest, Hungary

## **ORGANIZING AND FINANCING ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT PROGRAMS**

Facilitators: Rob Glaser, Lee Paddock

Rapporteur: Ken Rubin

### **GOALS**

- How to make enforcement work if responsibilities for environmental compliance and enforcement are split among several ministries with potentially conflicting goals.
- Whether to separate permitting and compliance monitoring responsibilities.
- How to structure permit and inspection fees to ensure affordability, improved environmental compliance, and sufficient funds to run a program.

### **1 INTRODUCTION**

The session of roughly 12 participants opened with a discussion of three generalized phases of environmental compliance and enforcement organizations. Early in the development of an institution, typically a country forms a council on the environment that has no regulatory power, but can advise other ministers on environmental policy issues. The second stage is an agency that reports to a cabinet member, prepares laws, executes limited programs, and prepares guidelines. In the final stage, the environment agency becomes a cabinet ministry with four functions: policy making, program execution, inspection, and feedback. Often, a scientific advisory council is attached to the Ministry in this final stage.

### **2 DISCUSSION ISSUES**

This session addressed the following issues:

- Organizing compliance and enforcement programs efficiently.
- Blending general revenues with polluter payments of one kind or another.
- Models for budgeting and obligating funds.
- Funding of nongovernmental organizations.
- How to leverage limited public funds through partnerships with nongovernmental organizations, members of the regulated community and others.
- Dedication of funds to environmental programs or deposits in the general fund.

## 2.1 Financing mechanisms

Typically in the U.S., states use a wide variety of financing mechanisms to support their programs. The state of Minnesota provides one example:

- General revenues.
- Federal government grants.
- Permit fees.
- Waste generation taxes.
- Penalties.
- Dedicated sales taxes.
- Fees for service.
- Loans/grants from state to local government.
- Deposit refund systems.
- Special disposal fees (used tires for example).
- Technical assistance programs using students to advise industry (offsetting government expenditures for the same task).
- Public-private programs for energy conservation whereby private interests loan money to state with repayments coming over 10 years on utility bill.
- ISO 14000 used as a way to leverage enforcement.

In all, about 70 percent of all revenues raised for enforcement programs is derived from polluter payments. About the same figure is common in the Netherlands.

Typically, developing nations rely on very limited general revenues and donor aid. Another problem in some nations new to market economies is the guarantee that revenues once collected will be spent on environmental needs. Too often, funds are diverted to other uses. Another problem in some countries is convincing upper management of the merits of the polluter pays principle as a way raise funds replacing general revenues.

In most countries, once budgets are settled, responsibility for obligating funds in incurring expenditures rests with the implementing agency. In an alternative model (Jordan), an auditor from a separate outside auditing agency must approve all expenditures even after budgets are approved by the Parliament.

Some countries have saved the costs of administering revenue-raising programs by including their fees on existing consumer bills, such as electricity bills.

Innovative funding arrangements include: (1) dedicated funds from state-owned land sales to finance contaminated sites upon transfer from public to private ownership; (2) intergovernmental and donor aid to capitalize revolving funds that loan local governments investment capital for environmental facilities; and (3) a variety of commodity taxes dedicated to environmental programs.

## 2.2 Nongovernmental Organizations (NGOs)

A wide variety of mechanisms are used to fund nongovernmental organizations. In the US, for example, they are privately funded by individual members and private foundations. In the Netherlands, the government provides seed grants. Many other countries rely on donor agency funding, such as UNEP's grant program. Some countries' nongovernmental organizations lack information on accessing donor agency funds and/or lack the resources or



knowledge to comply with applicable financial reporting requirements. Typically, donors must have host countries approve nongovernmental grants before they are provided. Some multilateral banks will provide funds only to governments and will not fund nongovernmental activity.

### **3 CONCLUSIONS**

No organizational design is necessarily better than another. Instead, organizations must be customized to country circumstances. Many variations exist across countries.

Training in financing techniques must involve budgeting, outside accounting, systems of accountability for revenue raising and expenditures, and annual financial reporting. This will ensure that funds collected for environmental purposes will actually be so used.

Nongovernmental organizations will require training on fund accounting and access to donor agency funds so that they can be more effective in attracting these sources.

There may be little sense in central governments providing local governments grants if they lack infrastructure to manage those funds.

Funds derived from polluter payments can be used to finance programs and send messages to reduce environmentally harmful behaviour. Yet, they may be less certain in the long run than general revenues. Hence a mix may be appropriate.



## **SPECIAL TOPIC WORKSHOP R**

### **Enforcement Policy and Authorities (Opportunity for Further Discussion from UNEP Workshops)**

Workshop R provided an additional opportunity for discussion of the design issues touched on during Day Three workshops as well as an opportunity for discussion of country-specific problems. The following were discussion issues that addressed how to establish authorities and develop legal enforcement action in response to violations of environmental requirements:

- The range of legal enforcement tools.
- Advantages and disadvantages (criminal versus civil and administrative versus judicial, etc., penalties versus other sanctions) of various tools in specific circumstances.
- How they are used in different settings and cultures (just a few examples to note the range of options used).
- How to develop and coordinate expertise and authorities across different organizations that might have jurisdiction over an environmental problem.
- How to develop sound enforcement cases.
- How enforcement procedures might be structured to ensure a proper balance between fairness and efficiency (in particular the use of enforcement response policies and penalty policies) and how simplified procedures are used along with more complex procedures for different types of violations and circumstances.

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1.	Summary of Enforcement Policies and Authorities Workshop, <i>Facilitators and Rapporteurs: M. Gade, J. Peters</i> .....	789
2.	Compliance Program Innovations in Polish Environmental Law, <i>Z. Kamieński</i> .....	793
3.	Compliance Agreements for Environmental Risk Management in the Czech Republic, <i>H. Clžková</i> .....	809
4.	See also Voluntary Compliance Incentives through Enforcement Policies: U.S. EPA's Environmental Auditing and Environmental Management Initiatives, <i>E. Schaeffer</i> .....	451

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See related papers from other International Workshop and Conference Proceedings:

*Developing Authorities and Legal Enforcement Capabilities to Respond to Violations*

1. Developing Authorities and Legal Enforcement Capabilities, V. O'Meara, Volume I, Budapest, Hungary
2. The Public Prosecutor Office of Hungary and its Development, S. Fülöp, Volume I, Budapest, Hungary
3. Developing Effective Enforcement Programs at the State Level, L. Paddock, Volume I, Budapest, Hungary
4. System to Supervise Environmental Duties and to Pursuit Infringements Taking Clean Air Management as Example, M. Putz, Volume I, Budapest, Hungary
5. Environmental Enforcement by Municipalities in the Netherlands, P. Dordregter, Volume I, Budapest, Hungary
6. Choosing Among Criminal, Civil Judicial, and Administrative Enforcement Options, D. van Zeben, M. Mulkey, Volume I, Budapest, Hungary
7. The Environmental Prosecutor: The Experience of a "Central Command" Theory of Environmental Enforcement, S. Madonna, Volume I, Budapest, Hungary
8. The Application of Criminal Law Instrument in the Environmental Law Enforcement, A. Hamzah, R. Sucrachman, Volume I, Budapest, Hungary
9. Combatting Environmental Crime in an International Context, Y. van der Meer, Volume II, Budapest, Hungary
10. The Development of the Police's Enforcement Position in the Field of Environment, M. Horstman, Volume II, Budapest, Hungary
11. Environmental Enforcement by Municipalities in The Netherlands, P. Dordregter, Volume II, Budapest, Hungary
12. Summary of Theme Discussion: Developing Authorities and Legal Enforcement Capabilities to Respond to Violations, A. DeLong, Volume II, Budapest, Hungary

*Domestic Enforcement Program Strategies, Tools, and Management Systems*

13. A Survey of U.S. Environmental Enforcement Authorities, Tools and Remedies, E. Reich and Q. Shea, Volume I, Utrecht, The Netherlands
14. Practical Applications of an Enforcement Management System, D. Bryson, Utrecht, The Netherlands

*Enforcement at Government-Owned or Government-Operated Facilities*

15. Enforcement of Environmental Laws at Government-Owned Facilities: Some Theoretical and Practical Considerations, E.F. Lowry, Volume I, Oaxaca, México
16. Summary of Workshop: Enforcement at Government-Owned or -Operated Facilities, Facilitator: M. Stahl, Rapporteur: A DeLong, Volume II, Oaxaca, México

- 
17. Enforcement of Canadian Laws of Environmental Protection as Applied to Federal Facilities, *P. Cuillerier*, Volume I, Budapest, Hungary
  18. Enforcing the Law at Government Owned or Operated Facilities, *A. Homonnay*, Volume I, Budapest, Hungary

*Environmental Enforcement Challenges*

19. Process of Upgrading the Polish Environmental Enforcement Procedures, *Z. Kamienski*, Volume I, Oaxaca, México

*Field Citations*

20. Civil Field Citations, *L. Paddock*, Volume I, Oaxaca, México
21. Field Citations: A Tool for Enforcing UST Regulations in New Mexico, *S.A. Sutton-Mendoza*, Volume I, Oaxaca, México
22. United States' Clean Air Act Field Citation Program: New Enforcement Authority to Address Minor Violations, *J.B. Rasnic, J.M. Engert*, Volume I, Oaxaca, México
23. Summary of Workshop: Field Citations as an Approach to Enforcement, *Facilitator: M. Alushin, Rapporteur: K. Rubin*, Volume II, Oaxaca, México

See also Criminal Enforcement Papers, Workshop I



## ENFORCEMENT POLICY AND AUTHORITIES

Co-facilitators and Rapporteurs: Mary Gade, Jan Peters

### GOALS

The goals of this workshop were to allow participants to exchange views and experiences, to capture areas of consensus, common concerns or challenges or differences among countries and regions on the following issues:

The range of legal enforcement tools

- Advantages and disadvantages of various tools in specific circumstances
- How tools are used in different settings and cultures
- How to develop and coordinate expertise and authorities across different organizations
- How to develop sound enforcement cases
- How enforcement procedures might be structured to ensure proper balance between fairness and efficiency

### 1 INTRODUCTION

More than 28 participants from 24 countries discussed in two separate workshops, challenges and approaches in creating and implementing effective environmental enforcement programs. Almost every country represented in the workshops is currently in the process of establishing new environmental policies and statutes or revising older ones. Every participant wanted to learn from others how to get things done in the right way during a period of such dramatic change. Among the themes repeatedly raised were questions of the appropriate roles of the authorities in various levels of government and administration, possible mechanisms for educating the public and industry about environmental laws, and the range of enforcement tools available to secure compliance.

### 2 PAPERS

Mr. Kamienski and Ms. Cizkova have contributed a paper to this special topic workshop. According to Mr. Kamienski the new authority which is being developed in Poland to negotiate "compliance programs" will constitute an important instrument encouraging enterprises to undertake pro-environmental activities for both compliance and pollution prevention. This new authority seeks to carefully balance the need to hold polluting sources responsible for timely compliance with requirements, while at the same time recognizing that a multi-media risk-based approach in selected cases might require adjustments to the order and approach to compliance for maximum impact on the environment, rationalizing resource expenditures and achieving gains in preventing pollution beyond mere compliance in the process. Ms. Cizkova recommends that each problem should be approached individually, with sensitivity with respect to local economy, social and political conditions. Mr. Eric Schaeffer's

paper describes new enforcement policies in the U.S. which preserve dollar penalties for violators which recovery economic benefit but which offer reductions in that portion of a penalty which is based upon the gravity of the harm of the particular violation when a violator has voluntarily detected, promptly corrected and disclosed a violation through self-auditing or similar means.

### 3 DISCUSSION SUMMARY

As a framework for the discussion, the participants agreed that it made no sense to talk about structure of a particular government or specific legislation. The differences between countries are too large to do so. A way to handle the problem was to talk about shared values on protecting the environment. If countries manage in identifying the shared values, make them clear to all stakeholders, get citizens involved in serving them, then we could develop an approach to do the right things in the right way. This approach asks for the institution of facilitation and inspection on the several levels. Within this approach a critical factor of success is the awareness of citizens about the importance of environmental protection.

#### 3.1 How can governments educate their citizens and industries about specific environmental laws and the importance of environmental protection?

With so many changes taking place in legislation, many of the countries were concerned about how to educate their citizens and the regulated community. Participants highlighted the need for adequate resources to implement programs but equally important the need to raise the awareness of citizens and industry about why environmental protection is necessary. Numerous innovative approaches were contributed by the participants. For example, Latvia is using its inspectors to review its draft statutes both to assure the adequacy of the provisions and also to educate the inspectors. Nepal is utilizing various networks of citizens and industry to promote and enforce its laws.

Various approaches were highlighted including:

- Business Performance Ratings that are publicized.
- Voluntary Compliance Programs like Cleaner Production.
- Community Guardian Programs to mobilize citizens to identify violations and participate in negotiations.
- Environmental Journalist Programs to educate the media.
- Warning Letters or Notices of Violation to inform violating industries of their responsibilities without imposing penalties.
- Public/private partnerships with NGOs and communities.

#### 3.2. What enforcement tools are available to ensure compliance?

A wide range of mechanisms are available to promote compliance with environmental laws. The participants discussed both traditional and innovative approaches to enforcement. Several countries are relying on public pressure to force companies to act responsibly. For example, the United Kingdom is finalizing a procedure for rating a company's environmental



performance while conducting inspections. Poland is relying on publication of a "List of Eighty" of their worst polluting companies. By contrast, Ecuador not only requires remediation of any contamination but also closes the factory during the course of the cleanup.

### 3.3 Has tailor-made enforcement a future?

Regarding the papers and listening to the discussions, this question was put to the group. The participants agreed that the statement had inspiring values. Nevertheless they put in several qualifying remarks and questions. Tailor made for whom? a sector? a region? Level of enforcement or what tool? There was also concern that in allowing for individual compliance through a tailored compliance schedule, overall environmental standards would be compromised. Participants concluded that there was neither room for the tailor in complying with the law nor in the authority that has the power to impose penalties. But there must be room for the tailor 1) in looking for the most effective way to reach the goals and to meet the standards, 2) in making the legislation system flexible and effective; and 3) to inspire the enforcement complex to bring industry into compliance at an optimal level.

## 4 CONCLUSION

There are many developments in a lot of territories that seem to interfere with enforcement. Nevertheless, the participants in our workshop were optimistic and enthusiastic about handling these problems. It seems that we must not try to force enforcement. We must not try to be strong. We must try to be smart. We must try to let the processes work for us. How? The answer is: Innovation and Mobilization.



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## COMPLIANCE PROGRAM INNOVATIONS IN POLISH ENVIRONMENTAL LAW

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### SUMMARY

The following paper reviews the institution of "compliance programs" toward the end of 1995 in the State Inspectorate for Environmental Protection. According to the author of this article, the authority to negotiate "compliance programs" will constitute an important instrument encouraging enterprises to undertake pro-environmental activities for both compliance and pollution prevention. It will enable enterprises to adjust to requirements for environmental protection through the case-by-case, selective application of integrated and expanded environmental program requirements with flexible implementation schedules under schemes which preserve the integrity of the underlying environmental laws. At the moment, a new Statute on Environmental Protection is being prepared in Poland. The above-mentioned Statute called a "general statute" complies with the requirements of the European Union. It is anticipated that one of the elements of the statute will be constituted by the institution of compliance programs.

### 1 PRESENT ENVIRONMENTAL COMPLIANCE CONDITIONS

It is widely known that there are many organizational units (enterprises) which do not fully comply with legal requirements defining permissible level and types of impacts on the environment. With a little bit of exaggeration one could point out three ways of dealing with this problem, i.e.:

- to "wink an eye" and leave the situation unchanged;
- to stop the activity that causes the adverse impact on the environment, i.e., "closure of enterprises" that do not meet the requirements in force at that particular moment; and
- to introduce mechanisms that will allow or facilitate meeting environmental standards but which both discipline and encourage operating enterprises, which for some objective reasons are not able to meet the requirement immediately, but which show real chances for gradually succeeding in this, and thus reach the compliance with environmental protection standards within a certain period of time.

The first of the above solutions is still used to some extent even now, but can no longer be accepted - first of all for the constitutional principle of the "state of law", according to which binding legal standards have to be complied with by their addressees. The role of the State is to ensure that this really happens. It is also not acceptable because of its environmental consequences as well as the high level of social environmental awareness and weight of international opinion.

The second solution is unrealistic because of the existence of a large number of such enterprises and their economic and social importance. A large proportion of enterprises in question have been undertaking relevant measures, however, mainly for economic reasons, they are not able to implement them sufficiently fast. Some legal requirements are not sufficiently flexible enough for individual situations, making this process even more difficult. This does not mean resignation from such measures, which would be taken up in relation to specific enterprises.

In this situation it seems well justified to consider the third option and to analyze the mechanisms that could be applied in order to achieve environmental standards by the currently most difficult enterprises.

## 2 PROBLEMS AND UNCERTAINTIES

The need to introduce exceptions from the general rules, obviously can be questioned. Exceptions (only temporary) from the general principles of fulfillment of obligations to comply with environmental requirements and not to cause negative environmental effects could not mean an easing or release from this obligation, but would only be a way of finding its temporary form, with the assumption that a program will eventually achieve compliance with generally defined obligations within an acceptable period of time.

Obligations for an individual enterprise have both the general and individual (tailored) aspects. It results from general regulations, contained in normative acts as well as individual acts (most often "administrative decisions"), which normally narrow general requirements to a specific enterprise. Thus the potential exemptions could relate to the general aspect as well as to the individual one.

The justifications for introducing an ability to adjust include some well known environmental concerns. Achieving compliance with environmental protection standards, especially in the areas of environmental crisis, with large numbers of difficult plants, is not possible in the short-term perspective, exclusively relying on existing legal instruments. This has been proved by experience. Social concerns are also important, e.g. actual impossibility of liquidation of many enterprises (particularly because of unemployment), and related difficulties of economically weak enterprises if one immediately adopts strictly executed environmental requirements.

Legal requirements are yet another important factor - principles of certainty and confidence in Law do not allow for introduction of regulations, and assumption that they will not be conformed to, right from the start. This relates also to the existing regulations that have similar characteristics. Environmental concerns should not be forgotten here, too. Even very "spectacular" legal solutions but not actually adhered to, from this point of view, are not better than the lack of regulations at all.

A real problem is, however, the necessity to ensure that the institution of "compliance programs" is not going to become yet another prolongation of deadlines for meeting the requirements, after which the general situation of either a single enterprise or a whole group of enterprises would remain unchanged. Therefore, this institution must include rigorous and effective measures for execution of obligations. An enterprise undergoing such "drastic" (in comparison with commonly functioning) legal instruments would practically have its environmental protection requirements not mitigated but defined in an alternative way (in return for a temporary mitigation it will undergo a stricter regime of environmental obligations execution).

The main counterweight for the above consideration seems to be the requirement to provide all economic entities with equal conditions for operation (dictated by the rules of competitiveness). This is an important postulate, but it must not take an unconditional precedence, and it should rather be taken into account while precisely defining of rules of use of such type of mechanisms. Their introduction would be justified by exceptional circumstances, strictly defined by legal standards, that would decide about a special status of a given enterprise (or a group of enterprises).

Having thus accepted the need for consideration of the possibility of introduction and scope of such mechanisms, we now have to answer a number of major reservations:

- Should the mechanisms be introduced on a general basis (for certain categories of businesses) or an individual basis (for a specific enterprise)?
- What legal formula should be adopted for their introduction (related to decisive powers of administrative authorities, and including such possibilities as: normative acts, administrative acts, non-decisive influence, civil law forms)?
- What nature and scope should be assigned to the legal instruments used within the framework of the program in order to ensure required direction of activity of a given enterprise (measures of administrative force, economic incentives, measures based on an agreement between both parties)?
- How should the content of such a "compliance program" be decided upon (generally — through formulation of commonly binding regulations, or individually — for a specific enterprise, and then should this be done in a mandatory or an arbitrary way or through negotiations)?

### 3 WAYS TO INTRODUCE COMPLIANCE MECHANISMS

Two solutions seem to be possible here. The mechanism can be introduced generally (through a normative act covering certain categories of enterprises, e.g. industry sectors) or by individual acts (based on administrative law or civil law).

It seems that introduction of the program in a universal way is less beneficial, because we are going to encounter difficulties with specifying criteria for its introduction (resulting from the need to extend the mechanism over very diverse situations, while assuming exceptions from general rules would hamper the possibility of formulation of universal criteria). Such general approach in relation to certain categories of enterprises would require a construction of the compliance program in relation to the enterprise whose situation can be regarded as the worst in the group, which obviously would not be beneficial from environmental point of view.

On the other hand, an individual act gives the possibility to consider the situation of a specific enterprise, operating in a given place. This enables adjustment of the program content to specific environmental conditions and requirements. Such acts could obviously be applied to other enterprises operating in the same area. It should be, however, stressed that the generally binding law (a normative act, having a status of an Act) should give precise criteria allowing for issuing such an individual act.

Individual programs could play a role of complementary solutions to potential programs focused on specific sectors or areas.

#### 4 LEGAL CHARACTER OF THE PROGRAM

The program (defined through an individual act) may be implemented with the use of methods typical for various legal systems - i.e. administrative methods (one-way) or civil law methods (characterized by equal status of parties). In both cases, methods based on the use of economic incentives (and as such introducing an objective factor into the undertaken actions) would have a significant, though supplementary importance.

The choice of method should be based on its effectiveness. Civil law based methods give the businesses involved better chances of involvement in program formulation. On the other hand they decrease possibilities of representation of environmental interests (i.e. involvement of representative of environmental concerns in the program formulation process) and make it practically more difficult to execute the agreed obligations (which is practically only possible through a legal suit). Therefore, administrative methods should probably be used in the first place, supplemented by some economic incentives (as a form of pressure in case the agreements are not completely fulfilled) as well as possibility of using some civil law based methods, e.g. negotiations of the program content.

An additional argument in favor of such solution is that the role of a representative of public interests vested in the use of environment is played by the state administration. The administration in its normal practice uses mostly the tools based on administrative law. Although this must not be an obstacle for the use of civil law based forms for the problems of certain types, administrative forms will still for some time remain dominating and typical for administration units.

Exclusive use of economic measures, applied on the basis of general regulations should also be considered from the point of view of the defined objectives. Such solution would, however, require substantial extension of relevant regulations and would probably make the entire problem more formalized and less flexible. Moreover, the economic measures sometimes lack effectiveness (e.g. in the monopolistic situation or an exceptional profitability of a given type of business). Thus, economic measures should function in conjunction with administrative measures.

#### 5 SPECIFYING THE "ESSENCE" OF THE "COMPLIANCE PROGRAMS"

"Compliance programs" is a term we are using to describe legal instruments, aimed at ensuring gradual achievement of generally binding environmental standards by enterprises.

Clear and precise definitions of individually agreed obligations should be a prime characteristic of the mechanism. The obligations should be defined as a program for achieving by a given enterprise the generally binding requirements. An enterprise which is not financially able to meet the requirement immediately, will now have the chance to do it gradually in a precisely defined time framework and using solutions, the formulation of which it can influence to some extent. Ensuring such influence of the enterprise being the subject of the program, should have significant importance for optimization of decisions and rate of achieving the required environmental standards.

Definition of commitments should be matched by the precise description of sanctions that the enterprise would accept in return for the temporary alleviation of required standards. The catalogue of circumstances when those sanctions could be applied should be extended further than the one used normally. This, for example, means that the list of circumstances justifying the temporary or permanent shut down of the enterprise's operation would be longer, and the level of administrative fines higher than generally applied rates.

Those mechanism should not have a universal character, but their application would only be possible in the case of certain enterprises, for which there are particular reasons of environmental, social, economic, technical or organizational nature. This would require a precise definition of priorities that will guide the decisions concerning the use of such special model. The programs would also be limited only to the existing businesses, and could not be used as a gate to introduce new enterprises that do not conform to the standards, right from the start.

Possible territorial limitations of the program's application, though questionable, should also be considered. For instance, the programs might only be used in the areas where the environment is particularly degraded, areas of high values, areas with high unemployment rate, etc. or a mixture of different criteria.

"Compliance programs" assume an individual approach to a situation of a single enterprise. This must not, however, mean an arbitrary description of such situation. On the contrary, principles for defining the time-span and content of compliance programs have to be precisely defined and commonly known. This is necessary in order to ensure equal chances for all interested businesses.

## 6 LEGAL FORMULA OF THE MECHANISM TO BE INTRODUCED

The choice of legal formula will depend on the answers to the reservations presented above. Accepting the above-described assumptions, the most beneficial solution seems to be an administrative act giving permission for the use of environmental resources (environmental permit). It should be a modification of the acts currently in force.

The act would have the form of an administrative decision introducing the program of adjustment of the given enterprise to generally binding environmental requirements. The program should be given as a complex of tasks to be implemented within given deadlines. As mentioned above, it would be highly desirable to ensure an active influence of the enterprise in question on the content of such a decision. (Such solution proved to be successful in the countries using similar mechanisms.)

Effective measures for execution of undertaken commitments as well as measures for control of their implementation should also be ensured. The proposed decision should contain as an integral part, guarantees of compliance with obligations undertaken.

### 6.1 Functional equivalent of integrated environmental permits

The most important, however, feature of such an act should be its complexity- the act should ensure compliance of the enterprise involved with the requirements of protection of all environmental components affected by its activity. Therefore, the act should have the character of an integrated environmental permits, different in this respect from the currently issued licenses for the use of particular components of the environment.

The proposed permit, integrating through a compliance program, the policy of protection of all environmental components in individual terms related to a specific enterprise, would be a breakthrough in current practices. At the same time, this solution would be in line with latest tendencies in environmental protection activities implemented in the European Union. Those tendencies are reflected in the draft of the Directive on Integrated Pollution Prevention and Control (IPPC Directive, proposal No. COM/93/0423).

The proposal for an integrated permit is justified mostly by environmental concerns - the environment is an entity, a complex of interrelated components influenced by each other; it is a complex that reacts always as an entity even if the impacts seem to relate only to one of

components. This is why the protective activities always have to be extended over the whole environment and must not be restricted to the elements directly threatened by a given impact. Such restricted approach leads to the situation when the protection is often in fact not a prevention or liquidation of damages, but merely their transfer to another component. This aspect was highly stressed in relation to the above-mentioned directive.

## 6.2 Alternatives

Some alternative to the proposed solution could be "group agreements", e.g. sectorial, but also based on the principle for preparation of a program of compliance with general requirements. It seems, however, that such solution would be less effective as it would essentially average both the requirements and implementation time-schedules, probably even at the lowest possible level. It would also prevent consideration of individual circumstances resulting from e.g. economic condition or a location of a particular enterprise. Another problem to arise here would be the right level of administration to be given competencies to agree upon the content of such group programs - the task would probably fall on the central administration level. Legal uncertainties would have to be clarified as the formula of an administrative act would not be obvious any longer. Finding a good, from the point of view of the public, justification for preferences given to a particular sector would also be difficult. Such justification is much easier to find in the case of individual acts.

## 7 CONTENT OF THE "COMPLIANCE PROGRAMS"

### 7.1 Action programs

As stated above, the "compliance programs" would be a formula of introduction of legal instruments ensuring gradual achievement by certain enterprises of generally binding standards, as well as putting in place effective sanctions that would enable constant execution of obligations undertaken by enterprises involved in the program. Having this in mind it is clear that such a program must consist of two basic components:

- Preparation of a time schedule of individual activities, enabling gradual achievement of all environmental requirements, including emission standards.
- Definition of sanctions, that will be automatically applied if the planned activities are not implemented according to the agreed schedule.

### 7.2 Environmental goals: beyond compliance

For further formulation of the program content it is necessary to define the objectives to be achieved by this institution. The programs should be a kind of tool for achieving certain objectives and not just an aim in itself. The objectives have already been mentioned but they will be listed and systematized below. This should be useful for further definition of requirements related to the program content. The major objectives include:

- To ensure that the enterprise achieves as fast as possible, such state of its impact on the environment that conforms to the existing legal standards, especially emission standards.



- To accelerate achievement of such state of the environment that will meet the requirements defined in legal standards, especially those setting ambient standards. What is at stake is a quick and complex solution of environmental problems, that has proved difficult to achieve under the present conditions (which can be seen in practice).
- To improve the efficiency of enforcement of environmental standards through:
  - incorporation of the interested enterprise (and granting an equal voice to it) into the process of formulation of the content of its obligations (the goal is to rise the environmental awareness which will result in implementation of the accepted obligations without the need of using force); and
  - acceleration of the use of enforcement tools (through making their use automatic with the prior content of the interested party).
- To take into account the opinion of local community (especially represented by local government) during the process of formulation of the content of environmental commitments of the enterprises that affect the environment of a given area (the objective is to increase public participation in the decision making process which complies with the EC Directive No 93/313 of June 7, 1990 on the right for free access to environmental information).

The list of tasks to be implemented by the enterprise has to be based on the regulations in force, and as such should enable compliance with all environmental requirements binding for the particular enterprise. Environmental requirements are understood here as a set of legally defined obligations and restrictions related to the use of environmental resources. Legal definition covers regulations and standards included both in general acts and in, issued on their basis, individual acts. Thus in this respect, the program does not introduce any easements or release - the obligation to protect the environment and undertake necessary protective measures will still have a universal and complex nature.

The idea and novelty of the program will be:

- Breaking down the implementation of commitments in time, still, however, maintaining their exceptional nature - as mentioned above the programs will not be commonly applied. The essence of the program is in this respect the time-schedule of implementation of the protective measures, guaranteed by mentioned sanctions. The basic assumption is to facilitate implementation of those obligations which are impossible to be fulfilled immediately (at the same time). Without breaking them down into stages their fulfillment would actually be impossible, unless through a closure of the business (which in this case is non-acceptable for social reasons, though desirable for environmental reasons). The activity schedule should be constructed in such a way that it will utilize all technical, organizational and economic capacities of the enterprise towards the fastest possible fulfillment of obligations. Taking into account the above, the program content should individually (with regard to a specific enterprise), specify in detail the scope, order, and stages of implementation of all tasks. It is also

assumed that the maximal implementation period will be defined by an act. The same will be true for the limits of time deviations from general obligations.

- The second, very important novelty should be a complex nature of the program, i.e. covering all aspects of the environmental impact generated by the given enterprise. This is a departure from the rule of defining the scope of the use of environment by the given enterprise with regard to each separate environmental component and type of environmental threat. From this point of view, the program should contain the stages and deadlines agreed for implementation of all tasks related to environmental protection, which should be implemented concurrently as far as possible.
- A partial novelty of the program should be a definition of potential easing or postponements of execution of fees and monetary fines related to the use of environmental resources. Principles and limitations of the use of those elements in the program should also be defined through an act.

### 7.3 Sanctions and guarantees

An integral element of the program should be a set of guarantees, that would ensure implementation of obligations within the agreed time limits. An important feature would be that the guarantees are applied automatically, i.e. the foreseen sanctions would be enforced right after the deadline given for implementation of the task has passed and the expected result has not been achieved. The presence of sanctions in the program would be mandatory and a set of sanctions available precisely defined in regulations that would introduce the proposed institution. The sanctions included in the program could not be less severe than those applied in a normal routine. It seems that the sanctions should primarily be based on financial and legal instruments. Additionally, a system of financial (property) guarantees could also be established, which could be used for execution of dues imposed as a result of applied sanctions.

The sanctions would include:

- Administrative monetary fines — the primary rule should be an immediate execution of fines postponed during the implementation of the program (together with due interests); the program could also foresee additional fines for non-timely implementation of undertaken obligations or deviations from the program content.
- Mandatory immobilization of machines or equipment if the environmental requirements, agreed for it, has not been timely achieved; the person responsible for noncompliance with this sanction would be subject to penal responsibility.
- Suspension (cease) of the program implementation and switch to the general routine of execution of protective obligations. Administrative monetary fines provided in the compliance program may supplement the system of monetary sanctions foreseen towards all enterprises, or replace this system. The relevant decision should be taken into account while formulating the program, so the summary sanctions are adequately more severe than those provided by the generally binding regulations. The fines should be set at such a level so the real costs related to the fine born by the enterprise are significantly higher than the benefits (savings) resulting

from the neglect of implementation of a given task within the program. The cases of mandatory holding off a particular activity defined in the program, would essentially have to modify the solutions, based on the existing standards. This particularly relates to the situation when, according to the regulations currently in force, the decision about holding off the activity is typically arbitrary (the relevant authority "may" decide). In such cases, provisions of the program would have to precisely define when such a decision is made. In relation to legally foreseen cases when the decision about holding off activity is currently mandatory, but the appraisal of circumstances depends on an individual judgement (e.g. in the cases of "deterioration of the state of the environment" resulting from the activity), the program should attempt to define (using some parameters) the situations to be classified as "the state of deterioration of the environment."

#### 7.4 Summarizing of basic compliance program elements

Summarizing, it should be stated that the content of the program should focus on the following elements:

- identification of ultimate and interim conditions of the use of environment, including individual (concerning a particular enterprise), detailed definition of the scope, order and stages of implementation of the tasks oriented towards fulfillment of obligations related to all environmental components affected by activity of the given enterprise;
- identification of time schedule for implementation of tasks;
- identification of potential easements (reductions or postponements) in fees and fines related to the use of environmental resources, together with specification of utilization of those funds for implementation of the task encompassed by the program; and
- definition of the scope and method of application of sanctions to be applied automatically if the tasks included in the program are not fulfilled by the enterprise.

### 8 IDENTIFICATION OF CRITERIA OF ELIGIBILITY FOR "COMPLIANCE PROGRAMS"

As mentioned and justified above, application for the compliance programs should not be common, but restricted only to certain, eligible enterprises, characterized by a specific situation — environmental, economic, technical and organizational. The circumstances should be clearly specified in legal regulations. The first condition, however, should be that the program can only be provided to the already existing enterprises. It should also be stressed that giving the possibility to apply for a program to all businesses would be irrational also for pragmatic reasons (it would "choke" the administration with too large and too complicated projects).

Having said that, a list should be prepared of prerequisites to be fulfilled by an enterprise to be considered eligible for the compliance program. It should also be assumed that those criteria should be possibly most single-meaning, and not leave much to an arbitrary judgement. This would help to avoid any disputes as to the issue of eligibility for compliance programs.

The criteria could be classified in two groups — objective and subjective conditions.

The first group are the circumstances not depending on the enterprise, resulting from environmental, technical and organizational or social conditions. The examples could be: particular nuisance for environment caused by utilized technology and large difficulties in changing this technology; operation in the areas or sectors subject to structural unemployment, in "environmentally problematic" areas (i.e. whose environment is degraded or opposite - has some special values). Also to be mentioned among the examples are difficult economic situation caused by external factors (not depending on the quality of management, efficiency of work and similar factors).

Precise definition of those conditions could be done, as it is in the European Union through the use of the institution of "lists," defining for example the type of used technology (particularly arduous for the environment), size and type of the enterprise, or types and scope of environmental nuisance (especially emissions). Such criteria should be transparent and precise.

A formal way to identify enterprises eligible for a compliance program would be an authorization of the Minister of Environmental Protection, Natural Resources and Forestry to compile such list and publish it as an executive act. There are two versions of such list possible:

- a list of names, listing specific enterprises which cause high environmental nuisance; and
- a list based on more general criteria, e.g. a type of utilized technical installations and equipment, type of production, type and scope of environmental impact generated.

The need for objective criteria to be used here speaks in favor of the latter option.

Subjective conditions are those that would have to be fulfilled by the enterprise applying for a compliance program. A preliminary condition would be preparation of an environmental impact assessment. The enterprise should also prove that it has undertaken or is prepared to undertake certain activities towards fulfillment of environmental requirements, such as:

- activities resulting from binding regulations and decisions defining the scope and requirements related to the use of environmental resources (environmental permit, mandatory decisions, etc.);
- investment activities that enable the enterprise to obtain other required decisions; and
- activities resulting from recommendations of environmental impact assessment.

The enterprise would also be obliged to prove that the funding of such activities has been secured and that the activities undertaken have an integrated character (take into account all aspects of generated environmental impacts).

Fulfillment of such normative conditions should be evidenced in the application for commencement of the process of issuing a decision defining the compliance program, submitted to the relevant authority. Rejection of such application would be given in the form of a decision. The enterprise would have the right to appeal through general legal procedures.

## 9 PROCEDURE FOR ISSUING THE ACT INTRODUCING A "COMPLIANCE PROGRAM"

Adopting the above assumptions related to objectives and legal formula of the proposed mechanisms to be introduced, requires preparation of a procedure for issuing a relevant administrative act. Some of the listed objectives can practically only be achieved through relevant procedural solutions. The simplest way would be to assume that the typical administrative procedure will be used, based on the regulations of the administrative procedure code.

However, bearing in mind some special features of the proposed act and resulting from them (and from some legal standards currently in place or under preparation in the European Union) requirements, possibilities of their full implementation within the framework of the existing procedures should be carefully examined. The main needs include:

- providing real and direct influence of the enterprise involved on the content of the decision — through allowing for elements of contrariety at this stage of the process where this content is agreed;
- providing mechanisms that will protect the party and at the same time enable efficient functioning of the institution taking into account assumed high arbitrary nature and wide possibilities of individual interpretation of the content and scope of protective obligations impose over the given enterprise;
- increasing the level of professionalism and objectivity of administration authorities and restricting the possibilities of influencing these authorities during the decision making process;
- ensuring sufficient public interest representation (including representation of local public interests) in preparation of the program content; and
- widening possibilities of constant supervision of implementation of the undertaken obligations and further increase in the efficiency of their execution.

Fulfillment of the above listed needs, from the point of view of a relevant procedure, requires an analysis of possibilities and obstacles present in the administrative procedures currently in place. The attempt of such an analysis has been made. The example of description of analysis of the second need is presented below:

This need assumes the need for provision of protective mechanisms, that will ensure the possibility of effective operation of compliance programs as well as will protect interests of the enterprise that takes part in the process. This need is dictated by an arbitrary character of many issues involved in the process (e.g. in relation to time-deadlines, scale of easements, size of sanctions, etc.). As it has been shown earlier, such element of arbitration is necessary if we want to maintain the individual character of programs. Defining detailed parameters of the principles guiding the decision making process of this type is impossible. Such situation within the framework of the existing administrative procedures leads to the following threats:

- huge number of appeals directed to the administration authority of the second instance; the appeals will be submitted in every case when the enterprise was not granted the best conditions permitted by law (e.g. the longest possible time framework, the highest easements, the lowest fines, etc.); and

- uncontrolled freedom in the actions of an administration authority.

The above threats are clear if we take into account that no effective mechanisms of control of arbitrary decisions have been developed within the existing administrative procedures framework. Especially this role can not be played by a judicial control of administrative decisions as this control focuses on the legality of decisions and not on their technical justification. In this light, the typical way of imposing mandatory decisions seems inadequate for the purpose of compliance programs which require securing both the interests of an enterprise and efficient functioning of administration. It should be kept in mind that the large number of appeals submitted might even hold up the decision making process as each appeal will require a complete, new analysis of the basic problems. This will lead to the situation when using the entire institution will become impossible.

It should also be taken into account that leaving decisions in the competencies of administration authorities, when the criteria for those decisions are essentially arbitrary (which in this case is necessary because of specific nature of the institution of programs) is perceived in a negative light by the parties as leaving an uncontrolled freedom to the body preparing the content of decision. This feeling could be prevented by implementation of the first need, i.e. allowing for participation of the enterprise in the decision formulation process, as well as leaving to it the final decision whether to accept the proposed conditions or rather remain subject to general regulations.

It should also be noted that construction of a comprehensive (in the understanding of the administrative procedures code) justification for such an arbitrary decision would be very difficult for an administration authority and therefore appraisal of such decision would be difficult for any inspection. Approval given by the enterprise for the content of the decision would significantly reduce such problems.

Summing up - the analysis of the existing regulation has lead to crystallization of major problems that can not be effectively eliminated on the basis of the current administrative procedures related to the decision making process. These are:

- low, in a general opinion, efficiency of mechanisms that should guarantee a real influence of the party on the content of a decision (according to the adopted concept such influence seems to be essential);
- lack of legal formula enabling division between the institution representing public interest and deciding about details of an arbitrary decision and the institution accepting this decision;
- difficulty in implementation and little practical effectiveness of mechanisms providing administrative and judicial control of arbitrary decisions, which can lead to uncontrolled freedom in decision making (injustice towards a party, corruption, etc.), blockage of administration structures (e.g. large numbers of appeals coming in from parties that claim they were not treated in the best possible way); and
- limited possibilities for the involvement into the process of decision formulation of sufficiently specialized experts and representatives of broad spectrum of public interests.

## 10 SCOPE OF NECESSARY MODIFICATIONS OF THE ADMINISTRATIVE PROCEDURE TOWARDS THE “COMPLIANCE PROGRAMS” FORMULATION

The analysis carried out in the previous chapter shows that there are some features of the existing procedures that do not allow it to fully meet the assumed objectives. We should therefore find an answer to the question whether and to what extent modifications should be proposed. Such modifications are given in the next chapter on the procedure for formulation of the program's content.

It should also be stressed, however, that the concept limits a necessary modification to the minimum and does not really interfere into regulations of the administrative procedure code but only uses some institutions provided in this act. This relates particularly to the institution of an administrative agreement which is proposed for the agreed compliance program. The idea is to spread the weight of decision about the program content over the equal partners entering negotiations of this content and to leave the function of legal control to an administration body (voivoda). Assumed mechanism and scope of the regulation should, through the control of legality, ensure that the public interest is taken into account.

The essence and idea of the proposed procedural modifications towards achievement of the said objectives would be the following:

- A stage of preparation of the content of a compliance program should be identified, based on the principle of contrariety, with the participation of certain equal parties who lack such a basis for involvement in the existing legal situation.
- The parties would be: the interested enterprise and the negotiation committee, which would provide both the expertise and representation of local interest currently lacking a basis in the existing legal situation.
- At this stage the process would follow the regulations of the administrative procedure code relating to a process of gathering evidence and an administrative hearing (used respectively). Its major objective would be to gather the approval of the program from all interested parties.
- The result of this stage of the process would be treated as an agreement signed by both parties in the understanding the administrative procedure code.
- The relevant administration authority would endorse the signed agreement, having checked it only in legal terms (it could not interfere into technical decisions considered legally correct). This assumption is narrower than the competence of the body endorsing an agreement adopted in current regulations. Such restriction seems necessary in the light of the principles adopted here — first of all it strengthens the importance of previously conducted negotiations, in which public interest was broadly represented. Decision of the administration being the result of an agreement between interested parties body would not be subject to typical control procedures.

## 11 CONCEPTUAL BASIS FOR PROCEDURES TO PREPARE THE CONTENT OF A "COMPLIANCE PROGRAM" (DETAILED ASSUMPTIONS)

The summary of the reasoning being made in this article is constituted by the concept which can be illustrated within the eight following points:

- Negotiations would focus on defining the content of the administrative decision introducing a compliance program for a given enterprise. The compliance program would have to be constructed in such a way as to take into account all aspects of environmental impact caused by the given enterprise. The objectives of negotiation process could normatively be defined as follows:
  - defining the shortest possible deadline for real implementation of imposed environmental obligations;
  - provision of possibilities for concurrent operation of the enterprise and implementation of environmental objectives;
  - ensuring the use of technological solutions complying with the criteria of best available technology from the point of view of both environmental protection requirements and economic capacity of the enterprise;
  - facilitating implementation of protective activities by the given enterprise through the introduction of installments, postponement or reduction of fees for the use of environmental resources, however, only within the limit absolutely necessary for such facilitation; and
  - ensuring effectiveness of execution of the adopted decisions.
- Negotiations could be entered only by these enterprises that fulfil certain criteria. The application for initiation of this form of process would have to contain the draft of the program, type and characteristics of activities to be undertaken, their importance for achievement of environmental protection objectives (particularly in relation to the achievement of compliance with the existing for ambient and emission standards), level of advancement. The application should also propose a subject of negotiations important from the point of view of the applicant. Financing sources for planned activities should also be specified as well as deadlines for achieving compliance with the environmental standards in force. Acceptance or rejection would be given by the relevant voivoda in the form of a decision. The right of appeal would apply to the cases of rejection.
- The subject of negotiations could be a content of the compliance program within the limits defined by the act. Principles of the use of environmental controls during the program implementation could be negotiated. At the same time, the decision would contain orders of implementation of certain obligations, deadlines for their completion and deadlines for reaching the compliance with general environmental standards, level of fees for the use of environment and schedule of payments. The scope of negotiations concerning the level of fees and schedule of payments for the use of environment would be limited through the provision that a potential reduction or postponement of payments are only possible if they facilitate



implementation of activities aimed at environmental protection. This fact would have to be evidenced through specifying in what way (related to the program) the funds thus "saved" will be used.

- The negotiation would have to include also some restriction and guarantee provisions, including in particular the monetary fines applied if the protective obligation have not been fulfilled. It is assumed that this element of the decision will on the one hand play a disciplinary role while on the other hand will facilitate the execution of guarantee measures through an earlier and clear identification of circumstances of their use. When negotiating the content of the decision permitting the use of environmental resources, the parties would be obliged to include in it provisions monetary fines for the failure in fulfillment of obligations within the defined time framework. The level of such fines could not be lower than for example two-fold the level of possible benefits (savings) from noncompliance with imposed obligations. The parties of negotiation could also define cases when the failure in fulfillment of a specific obligation would result in issuing an administrative decision holding off operation of the enterprise. The parties could also define circumstances justifying and excusing a failure in fulfillment of the obligations.
- Scope of negotiations would be defined in a normative way. This would be done through identification of the limits within which the negotiation commission could modify the content of imposed obligations, and on the other hand, through defining criteria which should be used as guidance while negotiating the decision content. While negotiating the content of the decision permitting the use of environmental resources, the negotiation commissions would be obliged to take into account the following circumstances in particular:
  - current state of the environment in the given area as well as ambient standards in force;
  - environmental protection programs and general emission standards in force for the given area or a type of activity;
  - current and possible to achieve (after implementation of planned measures) level of adverse environmental impacts caused by the applicant enterprise;
  - effectiveness of the proposed technical and organizational protective measures from the point of view of environmental protection requirements (Best Available Technology concept should be used here in the understanding of Integrated Pollution Prevention and Control Directive); and
  - economic and financial situation of the applicant and actual capabilities of implementation of planned activities.
- The negotiations would have a form of an initial process whose result, confirmed by a relevant protocol, would be treated as an agreement (in the understanding of existing regulations), and would be a binding base for the voivoda to endorse the content of the compliance program through a decision. The voivoda could only check the compliance of the negotiation

results with the law. The proposal does not assume the need for detailed regulations of the process of negotiation as this is defined in the administrative procedure code, on which that formal framework should be based, especially in relation to administration hearing, process of gathering evidence, and others. Some matters, however, should be clarified. First of all, the maximum time limit for the negotiations should be defined in order to avoid using this tool as a way of survival of the period of time without any decision. The same purpose would be served by withdrawal of the right to complain at the decision that accepts the agreement (with one exception - when the decision content is not in line with the protocol of negotiations) and by granting such decision a status of the mandatory immediate implementation by law.

- Negotiations with the applicant enterprise would be carried out by a specially established negotiation commission, being a representative of the public interest in the process. The Commission would be established in the voivoda's office and would work on the basis of the rules established by him. The Commission would comprise three people delegated by each: voivoda, voivodeship inspectorate for environmental protection, and local Parliament. The candidates would have to have the proved professional knowledge in environmental protection. On the motion of an interested local authority, a representative of this authority could be included in the Commission with a full voting rights. The Commission would also have a representative of nongovernmental organizations involved in the process on the basis of the relevant regulations of the administrative procedure code. The Commission members would be nominated and dismissed by a voivoda. The dismissal could be the result of the member's own request, request of his/her delegating body or own initiative of voivoda in some situations defined in the relevant regulations. Impartiality of members should also be ensured by the act during the Commission operation. The person employed in a governmental administration body or a local authority, delegated to the commission should in that period be excluded from the entire decision making process concerning environmental permits related to this particular enterprise in question. The costs of the negotiation proceeding would lie on the enterprise applying for the proceeding.
- Important for the proposed concept would be to specify some guarantee measures that could be used in cases of breach of the previously negotiated program conditions (apart from the measures included in the program itself). For example, if a breach is found in the conditions of compliance program which was negotiated between the given enterprise and the negotiation commission, the environmental protection inspector could, apart from using relevant legal steps, apply to the relevant voivoda for withdrawal of the decision. Also the local authority for the area where the enterprise is located could apply to relevant voivoda for withdrawing the decision. The voivoda, issuing as the first instance, the decision of endorsement of a compliance program whose content had been negotiated with the interested enterprise, could also on his own initiative, issue a decision cancelling the program if a breach of the program is found and regardless of any monetary fines or other sanctions provided in the program

itself. In such situations the enterprise would again be subject to general regime of principles of the use of environmental resources. Issuing the decision cancelling the program should be allowed after the prior warning of the enterprise and call for removal of the causes in a specified period, and only when the period granted has passed. The enterprise asked to correct its actions should notify the voivoda within the period given and prove that the compliance with law has been regained.

## **12 CONCLUSIONS**

We are optimistic that the implementation of these new authorities will offer the Polish environmental compliance and enforcement programs a sound basis for making needed progress in both compliance with environmental laws and prevention of pollution in a practical manner which preserves the rule of law but recognizes economic realities.



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## **COMPLIANCE AGREEMENTS FOR ENVIRONMENTAL RISK MANAGEMENT IN THE CZECH REPUBLIC**

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### **SUMMARY**

In the Czech Republic, environmental protection policy has been developing rapidly over the period from 1990 to 1995. Starting from strong repressive enforcement, Czech environmental policy was modified to adopt a more difficult, but in a long-term perspective more efficient strategy of compliance agreement procedures. Lessons learned from the Silesia Project, environmental and human health risk assessment and risk management program run by the Czech Ministry of the Environment with significant support of the United States government are presented in this paper as a model example illustrating the viability and sustainability of such an approach.

## **1 "ENFORCEMENT PHASE" IN THE CZECH ENVIRONMENTAL POLICY**

### **1.1 Historical background**

After the principal democratic political changes in 1989, the government of the former Czechoslovakia (the Czech and Slovak Federal Republic was split into the independent Czech Republic and independent Slovak Republic on January 1, 1993) facing many economical, social and environmental problems raised during the communist regime. A polluted environment and unsatisfactory human health conditions were the most serious ones. Requests for a cleaner environment were the same level of priority as requests for building a strong democratic political system and a stable free market economy. That is why Czechoslovakia started to form an institutional and legislative system of environmental protection at the same time the base for the economical reconstruction and the privatization process was founded.

### **1.2 Institutional and legislative framework**

The first steps toward making significant changes in the environmental protection practice were taken in the field of institution building. The Ministry of the Environment was established and a system of state administration at the district and municipal levels were formed and implemented. Environmental protection activities were officially included in a public administration system performed by elected representatives in municipalities (at the level of "self-management" for municipal authorities). In 1991, the Czech Inspection of the Environment (integrated from previous inspection bodies operating independently in different environmental sectors) was formed to provide state supervision in environmental protection issues.

During an intense period from 1990 to 1992, the basic legislative framework of environmental protection was prepared. Important new Acts were passed (i.e., the Environmental Protection Act, the Waste Management Act, the Nature Protection Act, the Environmental Impact Assessment Act, a new version of the Clean Air Act) and other related Acts were amended.

Both the new Czech institutional and legislative environmental protection systems were based on a long-term European tradition of environmental enforcement, mostly preferring deterrent (charges, fines, penalties) to measures of "positive stimulation" (tax relieves, systems of subsidies). Standards specifying acceptable levels of environmental pollution were constructed on the "emission (source) principles" for individual pollutants accordingly to standards used in countries of the European Union. To reach the requested environmental quality sooner, some of these standards were more strict than similar ones in Germany, France etc. As large investments were expected and necessary to follow the strong legislation, specific "softer" conditions were set for the period of transition (1992 to 1998). This option should enable industrial and other polluters to make the investments "step by step" and thus to overcome the difficult investment period easily.

### 1.3 Current problems in environmental enforcement

Experience gained during the recent two years can confirm now (relatively close to the deadlines set for the "period of transition") that the original expectations tied with the desired impacts of the new environmental legislation were too optimistic. The state administration, inspectors and polluters are facing situations which cannot be directly solved by implementing traditional enforcement techniques, officially used in the Czech Republic. For example:

- To be economically viable, some industrial companies have to invest at first in improvements of their production technologies and equipment, to build new, more efficient capacities. Continuing in the current strong deterrent environmental enforcement (i.e., forcing companies to invest in very expensive environmental protection options, requesting payment of progressive charges, fines and penalties for environmental pollution currently caused) can lead the companies to bankruptcy with serious economic and social impacts.
- Reaching the stringent environmental pollution standards (specifically those more stringent than in the European Union Countries) is - in some cases - beyond possibilities provided even by the best available technologies.
- The environmental enforcement process based on the "stack" principle is being applied in the same way in the whole country. The stack principle means that emission standards have been set for individual sources of pollution, without specific attention to conditions at the place where the source is located. Despite limited financial resources, there is no explicit possibility to set priorities in the enforcement effort. This fact can result in situations in which the cost of environmental protection is much higher than benefits provided by this option, and in general, the efficiency of environmental protection is lower than could (and should) be.
- In some cases, standards for specific kinds of pollutants which can make a significant impact on the environment and/or on the human health, have not been included into legislation as yet; in fact, there is no explicit legislative way to force polluters to reduce such risks.

## **2 "COMPLIANCE PHASE" IN THE CZECH ENVIRONMENTAL POLICY**

To solve the problems with environmental enforcement (including these ones specified above), a modified approach to environmental policy and its enforcement was accepted. As making the current environmental legislative framework "softer" in general is not possible, the Czech Ministry of the Environment developed new possibilities for using the environmental compliance process to provide an "extra dimension" to environmental enforcement.

The principles describing this approach were included into the new "State Environmental Policy" <sup>1</sup> prepared by the Czech Ministry of the Environment and approved by the Government of the Czech Republic in August 1995. Based on the leading principle (the responsibility of the present generation to preserve and transmit fundamental life values to future generations) the document specifies a "socially acceptable level of environmental and health risks" as the main criterion for decision-making in dealing with the environmental and/or human health protection. The government expects that implementation of the "State Environmental Policy" will increase significantly long-term effects and efficiency of the environmental protection. Normative, economic and informative measures defined in the document should stimulate environmental compliance processes as a way to reach the expected environmental goals as efficiently as possible, without negative social and economic side-effects.

## **3 COMPLIANCE AGREEMENTS FOR ENVIRONMENTAL RISK MANAGEMENT — THE SILESIA PROJECT**

### **3.1 The Silesia Project**

The Silesia Project has been accepted as an example that principles included into the new "State Environmental Policy" (with specific emphasis on the environmental compliance approach) are viable and sustainable.

The Silesia Project is an environmental risk assessment and risk management project designed to identify actions to reduce human health risks caused by environmental pollution originated in the coal-mining and iron and steel-producing region surrounding Ostrava (the Czech Republic). The project is coordinated by the Czech Ministry of the Environment in cooperation with the United States Environmental Protection Agency and founded by both the Czech and United States Governments. During the period June 1991 to May 1992, the initial screening risk analysis was performed for fields of environmental pollution (air pollution, surface water pollution, drinking water contamination, food contamination, waste disposal, occupation health) in the specified region. Based on the result from the comparative risk assessment, environmental priorities were set in July 1992 by representatives of central government, local governments (districts and municipalities), regional industries and scientific research institutions. Consequently, the management strategies to address the most significant risks were developed in the form of industrial demonstration projects.

### **3.2 Reducing risks of coke oven emissions — risk management strategy**

Results of the screening risk analysis were released in 1992, were that air pollution risks are considerably higher than those posed by any other category of environmental pollution in the Ostrava Region. Reducing human health risks caused by coke oven emissions was identified as the top priority in regional environmental protection.

In March 1993 (after difficult considerations dealing with a risk management approach in general), the demonstration project was started. The goal was to minimize risk posed to human health by emissions (organic compounds, particles) from 6 coke plants operated by 4 companies in the region. Starting conditions were very "unfriendly": industries did not agree with the risk assessment results, municipalities (mainly Ostrava City Council) decided to use any possibility to stop coke production in the Ostrava City and considered the proposed project activities as worthless ones. In addition, the current Czech legislation did not set any specific standards for these types of risky emissions, therefore the Czech Inspection of the Environment looked upon the proposed project as an unfair activity against the Czech environmental legislative system. The situation was felt to be an important and sensitive political issue as well.

To solve this problem, the following steps were taken:

### 3.2.1 Project preparation phase: March to May 1993

This phase included: developing the project proposal; attracting and involving all necessary participants; forming a project management team; obtaining necessary financial sources; and preparing and approving the detail project description and work plan.

### 3.2.2 Technical and environmental audit: June to September 1993

Detailed audits were performed for each of the coke oven batteries at each of the operating coke plants to evaluate technical status of the facilities, identify sources of risky emissions and estimate their quantity.

### 3.2.3 Coke market analysis: September 1993 to January 1994

Market analysis were prepared for each of the coke plants and for the total regional coke production in three alternatives of scope: Czech Republic market - European market - World market.

### 3.2.4 Mitigation options development: October 1993 to March 1994

Lists of mitigation options (in short-term and long-term perspectives) were prepared for each of the coke plants. Low-investment options began to be implemented immediately.

### 3.2.5 Detail risk assessment: March to November 1994

Based on the audit and lists of mitigation options, detailed risk assessments were performed individually for each of the coke plant and for the regional coke industry in general. The risk was evaluated regarding to the current situation and to the future conditions (after mitigation options will have been implemented).

### 3.2.6 Cost-benefit analysis of proposed options: November 1994 to April 1995

For each of coke plans and for regional coke industry in general, cost benefit analysis was performed to evaluate each of the proposed investment mitigation options.

## 3.3 Compliance agreement for supporting risk reduction options in the coke industry located in the Ostrava City area

In November 1993, the Ostrava City Council decided to apply land-use planning as a tool to close down two of the coke plants operated by the Ostrava-Karvina Coal Mines Comp. This decision would cause both troubling economic impacts on the Company and significant social problems in the Region. The deadline was set for December 31, 1997.



Through the Project Silesia, a negotiation process was recommended both to the City and the Company. The negotiation was to set complex conditions, necessary for reducing human health risks currently posed by these two coke plants. The proposal was accepted and started to be implemented in February 1994. During facilitated discussions, results of studies mentioned above were used for drafting an agreement between the City and the Company. The agreement covered "gaps" in current legislation and identify:

- Which options should be implemented by the Company to reach the emission standards specifically set with the respect to the acceptable level of human health risks posed by coke oven emissions (based on recommendations confirmed by the Regional Institute of Hygiene and by the Regional Office of the Czech Inspection of the Environment).
- Deadlines set individually for each of the options requested by the compliance agreement.
- Enforcement mechanisms applied by the Ostrava City (including involving the public by forming a citizens' "watch-dog group").

In May 1995, the consensus of all the participants was finally reached and the 14th version of the compliance agreement (which was in fact much more stringent than the current Czech environmental legislation) was approved. The agreement was signed in June 1995. 'The information issued by the Ostrava City at the end of December 1995 has confirmed that the compliance agreement was fully respected and followed by the Company.

#### 4 CONCLUSIONS

The negotiation between the Ostrava City and the Ostrava-Karvina Coal Mines Comp. had been started, run and successfully completed before any official support involved in the "State Environmental Policy" was expressed. Also another environment compliance process was started by the Silesia Project before this document was approved (i.e., a negotiation between the government authorities, Ostrava City and a company responsible for an extremely expensive complex remediation of a heavily polluted abandoned coke plant area in order to manage human health and environmental risks posed by soil and underground water contamination.)

Some potential problems could be identified based on this previous experience to avoiding difficulties in early phases of environmental compliance activities:

- The historic tendency "not to act and wait for a strong legislative requests or prescriptions" and to avoid actions based on voluntary approaches is very significant. Attracting all necessary participants to discussions about compliance goals, strategies and enforcement "in between" the current environmental legislation takes much time and needs much patience from facilitators (moderators) and participants.
- Identifying roles and responsibilities of all participants (and making them accept these roles and responsibilities) seems to be the key step to a constructive environmental compliance process. As the current system of the Czech environmental legislation and enforcement does not specify the roles and responsibilities taken in a compliance process by governmental authorities, municipalities ("self-management" authorities), public and

polluters clearly, each problem should be approached individually, with sensitivity with respect to local economic, social and political conditions. In general, most of the environmental compliance activities should be taken by municipal authorities, industry (polluters) and public. The government authorities should provide a guarantee for respecting the fundamental principles of environmental policy and the basic framework of the current environmental legislation (including encouraging participants to solve also problems "in between" the current environmental protection acts).

- Educating the public to leave the position of passive acceptors of environmental pollution risks (which resulted from the former "environmental and human health protection taboo" in the communist regime) and to accept an active role in compliance negotiations and enforcement is a difficult and long-term process which needs much effort made by the central and local governments, mass media and polluters.

Despite the difficulties specified above, the strategy of well enforced environmental compliance seems to be promising, viable and efficient even in countries which have to solve fundamental conversions toward a market economy.

#### REFERENCE

1. State Environmental Policy, Ministry of the Environment of the Czech Republic, Prague, 1995.

## THEME # 7:

### MAKING PROGRESS: REGIONAL EXAMPLES, CAPACITY-BUILDING AGENDA, INTERNATIONAL/REGIONAL NETWORKS

Theme 7 includes summaries of regional meeting discussions at the Conference on the status of country programs, identification of capacity building agendas and future plans for networking within the regions. Papers of individual country experiences outline the following areas:

- The improvements in achievement of compliance and improved program design since the Third International Conference on Environmental Enforcement.
- A specific environmental problem and related environmental requirements for which compliance is sought; in particular, it would be useful to address problems related to the "Principles of Environmental Compliance and Enforcement" case study topics (i.e., mining, tourism, petroleum, waste disposal, coal burning for power, illegal shipments).
- The particular program design challenge facing the country; in particular those related to the UNEP institution-building workshop subjects (i.e., organizing, human and financial resources, permit processing, and compliance monitoring and enforcement response).
- The impediments and problems associated with achieving program goals that existed prior to the Third International Conference on Environmental Enforcement.
- The impetus to correct the compliance or institutional problem.
- The steps taken to identify and consider solutions.

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1. Summary of Africa Regional Meeting, <i>Facilitators: A. Adegroye, F. Hanekom, UNEP Facilitator: J. Skinner, Rapporteur: D. Novak</i> .....	821
2. Summary of Americas Regional Meeting, <i>Facilitators: J.C. Bravo, C. Currie, M.A. Gonzalez S., J. Wise, UNEP Facilitators: C. Cocault, T. Udall, Rapporteurs: J. Jeffery, R. Sturges</i> .....	827
• Oaxaca Declaration .....	840
• Proceedings from Managua Meeting: Creation of the Central American Enforcement Network .....	843

3.	Summary of Southeast Asia and Pacific Regional Meeting, <i>Facilitators: A. Santosa, R. Vasquez, UNEP Facilitators: M. Radka, C. Wasserman, Rapporteurs: K. Rubin, J. Mozingo</i> .....	851
4.	Summary of South Asia Regional Meeting, <i>Facilitators: A. Santosa, R. Vasquez, UNEP Facilitator: R. Glaser, Rapporteurs: K. Rubin, J. Mozingo</i> .....	865
5.	Summary of Central and Eastern Europe Regional Meeting, <i>Facilitators: A. Mizgajski, E. Kruzikova, G. Bandi, UNEP Facilitators: H. Laing, H. Kesselaar, Rapporteurs: S. Casey-Lefkowitz</i> .....	869
6.	Summary of West Asia and Middle East Regional Meeting, <i>Facilitators: T. Genena, R. Rotenberg, UNEP Facilitator: O. El-Kholy</i> .....	873
7.	Summary of Western Europe Regional Meeting, <i>Facilitators: ,Rapporteurs:</i> .....	875

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8.	Public Information as an Environmental Policy Tool: The Indonesian Experience, <i>N. Makarim, J. Butler, S. Tumiwa</i> .....	881
9.	The City of Ki-Takyushu's Experience Concerning the Implementation of Counter measures for and Compliance with Environmental Protection Legislation, <i>R. Hitsumoto</i> .....	893
10.	Survey of Environmental Law and Enforcement Authorities in China, <i>Y. Zhao</i> .....	903
11.	Enforcement of the Legislation on Genetically Modified Organisms in The Netherlands, <i>I. van der Leij, M.S. Thijssen</i> .....	923
12.	Environmental Laws, Capacity Building and Compliance Monitoring — The Hong Kong Experience, <i>J.E. Boxall, W.F.S. Ho, C.K.P. Lei, C.W. Tse</i> .....	931
13.	Problems in the Enforcement on Radioactive Materials in the National and International Trade in Metal and Metalscrap, <i>G.M. Breas and P.I. van der Vaart</i> .....	949
14.	Some Environmental and Enforcement Issues Relating to the Siting of a Medium Scale Steel Mill on the Shores of the Manukau Harbour, Auckland, New Zealand, <i>C. Hatton</i> .....	955
15.	Enforcement Strategies of the Israel Ministry of the Environment, <i>R. Rotenberg</i> .....	963
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17.	Features of Licensing and Control of Environment in Romania, <i>I.D. Vasilescu</i> .....	983

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18. From Environmental Planning to Enforcement: A Case Study from Egypt, <i>T.M. Genena</i> .....	991
19. El Salvador's Experience in the Design of Environmental Programs, <i>G. Navarrete Lopez</i> .....	997
20. The Role of Goals, Steps, and Content of Comprehensive Compliance Programs in Achieving Environmental Compliance and Enforcement in Romania, <i>D. Popescu</i> .....	1003
21. Thailand's Environmental Enforcement Program, <i>K. Homchean</i> .....	1013
22. The Range of Legal Enforcement Tools in Lithuania and Problems, <i>D. Lygis</i> .....	1021
23. Licensing and Enforcement at Municipal and Provincial Level in North Brabant: Developments in Recent Years, <i>J. Blenkers, N. Dols, P. van der Linden</i> .....	1025
24. An Integrated Approach to Environmental Enforcement — A Case Study, <i>B. Baron</i> .....	1043
25. Compliance and Enforcement Programs on Residual Waters, Case Study: Costa Rica's Grande De Tarcoles River, <i>M.A. G3n3z3lez Salazar</i> .....	1049
26. Development And Implementation Of Information Exchange By Enforcement Of Environmental Legislation, <i>J. van Dijk</i> .....	1069
27. See also Environmental Enforcement and Public Advocacy in Ukraine, <i>S. Kravchenko</i> .....	515

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See related papers from other International Workshop and Conference Proceedings:

1. Process of Upgrading the Polish Environmental Enforcement Procedures, *Z. Kamienski*, Volume I, Oaxaca, M3xico
2. A South American Country Example: Environmental Legislation Enforcement in Mendoza, Experience and Challenges, *J. L. Puliafito*, Volume II, Oaxaca, M3xico
3. Social-Economic Problems Experienced in Compliance and Enforcement in Tanzania, *W.M.K. Masilingi*, Volume II, Oaxaca, M3xico
4. Russian Federation State Evaluation of Explored Reserves as an Economic and Geological Enforcement for Meeting Ecological Requirements for the Development of Natural Fuel and Raw Mineral Deposits, *M.V. Tolkachev*, Volume II, Oaxaca, M3xico
5. The M3xicoan Experience on the Enforcement of Environmental Normativity, *F. Bahamonde Torres*, Volume II, Oaxaca, M3xico
6. Overview of Compliance and Enforcement in the United States: Philosophy, Strategies and Management Tools, *C. Wasserman*, Volume I, Utrecht, The Netherlands
7. Another Country's System: Sweden, *A. Melin*, Volume I, Utrecht, The Netherlands



## AFRICA REGIONAL MEETING SUMMARY

Facilitators: Adegoke Adegrooye, Francois Hanekom, and John Skinner  
 Rapporteur: David Novak

### GOALS

Workshop discussions focused on:

- Shared problems and challenges
- Institution-building needs
- Opportunities for institutional support and exchange (review of existing mechanisms)
- Proposals for regional networking: agenda for action
- Desired linkage to international capacity building efforts
- Targets of opportunity

## 1 INTRODUCTION

More than 20 participants from 10 countries within Africa, along with representatives from the Netherlands, the United States and UNEP met on the third and fifth day of the conference to discuss driving forces for and barriers to environmental compliance and enforcement. They discussed the status and accomplishments of programs in the region, networking needs and first steps for organizing a regional compliance and enforcement network.

## 2 DISCUSSION SUMMARY

The first session began with a discussion of the driving forces and barriers to enforcement and compliance experienced by different African nations. After the UNEP workshop on organizing programs was presented, participants entered into an open discussion regarding enforcement program design, enforceable requirements, and compliance monitoring, where possible solutions to specific problems and experiences of individual countries were discussed.

The next session began with a review of the driving forces and barriers to enforcement and compliance discussed previously. The workshop participants then briefly reviewed issues relating to the organizing of programs, environmental challenges, enforceable requirements, and compliance monitoring.

### 2.1 Enforceable permitting requirements and implementation

Discussions focused on several issues:

- First, in regard to the issue of relocation or rules affecting industrial location, representatives from Nigeria indicated that they felt that a minimum level must be established at the federal or national EPA level even if the regional EPA has lower or no standards, there must be some uniform minimum standards.

- Discussions also addressed bureaucratic bottlenecks and how to avoid them. Representatives from Tanzania indicated that they involve industry in developing a precise schedule for permitting in order to avoid bottlenecks or delays by the investor, bureaucrats, etc. The question was raised about what happens if the government misses the timeframe for issuing the permits? Kenya described their one-stop licensing. EPA is not responsible for issuing permits. In Malawi licensing agencies cannot issue permits without consulting with the environmental agency.
- How many public hearings should be held before permitting? The group recommended one general and one specific.
- When should a permit be revised or reapplication be made? The group recommended that there is a need to reapply with increased production if there is an increase in pollution or use of resources.
- Whether all facilities need a permit? The group discussed the fact that this would be based upon size and the environmental impact and ambient conditions.
- The question of how long a permit should be issued was discussed along with the difference between licensing and permitting.

## 2.2 Compliance monitoring and enforcement response

Several issues were discussed including:

- Appropriate enforcement mechanisms and sanctions against whom: the group discussed how one determines what a criminal action is and how to treat joint ventures. Who is responsible for paying fines or serving time?
- Compliance at government owned or operated facilities with reporting and environmental requirements, in particular, who defends the government when violations are taken to court.
- The problem of balancing profit and other national interests versus environmental compliance. The group decided that the language and tact with which government is approached concerning violations is critical.
- Centralized versus decentralized enforcement responsibilities and authorities: federal governments often set policy while enforcement takes place at the state and local levels. The fact that strategic industry is often politically protected by national governments was raised and a solution offered that it may be effective to take provisional steps with enforcement of regulations to get things moving in the right direction rather than take no action at all. Another approach is to broaden the group of persons responsible for non-compliance to cushion the blow.
- Balanced budgeting: what should the relationship be between the budget for enforcement and the budget for inspections and which should receive more resources? What percentage of the budget should be set aside for violations? The group decided that the answer will vary by country, but it is necessary to be sure to have enough enforcement resources to respond to violations. Prosecution may come from a different budget than inspections and related costs may just be field costs.



- Publicizing enforcement actions: how to go about publicizing violations and enforcement actions? Discussants indicated that it is important to train reporters on environmental issues and to encourage an environmental awareness section in the newspaper. Suggestions included creating relationships with NGOs in order to publicize information. There also must be appropriate access to information by the legislature. Newsletters and fact sheets by the agencies are helpful.
- Degree of public involvement, how and when the public should get involved in designing requirements, monitoring compliance and enforcement response.

### 2.3 The need for institution building

The need for institution building was then discussed, and the following issues raised:

- Dealing with diversity between countries.
- Differing levels of technical expertise.
- The need for centralized institutional support within individual countries.
- The need to have a well trained and efficient inspection and reporting staff.
- The need to acquire more technical equipment.
- The need to increase the prominence of environmental agencies within individual countries.
- Limitations on financial and capacity building expertise.
- The need to focus on regional goals.

### 2.4 Networking needs

Opportunities for institutional support and exchange were then discussed and questions raised. What can individual countries learn from each other? How do countries go about facilitating the development of individual compliance and enforcement programs and the exchange of ideas between countries within the region? Several suggestions came out of this discussion:

- Develop an inspector exchange program between countries.
- Develop an information exchange program between countries.
- Bilateral exchange of legal and technical advice and expertise.
- The suggestion that current inspectors receive some legal training (not a law degree, but a minimal amount of training concerning environmental law and the legal framework within the country).
- Develop a mechanism where academic resources can be pooled throughout the region, and environmental training can take place.
- Develop a list of international capacity building opportunities (inventory).
- Identify a core of experts in Africa to assist in developing capacity.

## 2.5 Organizing an African environmental compliance and enforcement network:

Based on this discussion, a framework for a regional network was established. Dr. Adegoke Adegoroye from Nigeria agreed to establish an African Regional Secretariat, which will be charged with organizing and contacting enforcement and compliance officials from five parts of Africa in order to facilitate the training and exchange of information and technical expertise within the region. Representatives were then selected from the participants to act as "Coordinators" for five sub-regions within Africa.

- Mr. Martin Lloyd, from South Africa, will be responsible for gathering information and contacting enforcement agencies in Southern Africa.
- Dr. Alao Yekini Akala from Benin, will be responsible for gathering information and contacting enforcement agencies in Western Africa, and from the French speaking African countries.
- Mr. Frank Turyatunga will be responsible for gathering information and contacting enforcement agencies in Eastern Africa.
- The proposal was put forward to coordinate with Dr. Tarek Genena (who attended the West Asia/Middle East Regional Workshop) from Egypt to perform these responsibilities in North Africa.
- The question of who will be responsible for Central Africa is still under consideration.

## 2.6 First steps: an African Regional Training Workshop

The participants agreed to hold an African Regional Training Workshop in South Africa in March or April, 1997. This Workshop will serve as a "train the trainer" workshop for enforcement and compliance officials throughout Africa. The Workshop will also serve to strengthen ties between the African nations and to provide enforcement and compliance principles training to officials in countries which were not able to attend the 3rd or 4th International Environment Conferences. The proposed Workshop will also serve to prepare African participants for future International Enforcement Conferences. Dr. Francois Hanekom, from South Africa agreed with the Workshop premise, and will seek official approval to move forward with planning for the workshop upon his return to South Africa.

## 2.7 African Regional Center(s) for Capacity Building

An official proposal to establish an African Regional Center for Capacity Building will be put together by Dr. Adegoroye, and sent to all African participants who attended the Fourth International Conference for review and comment. The creation of the Regional Center will be addressed in more detail during the Regional Training Workshop to be held in March or April of 1997.

# 3 CONCLUSIONS

The consensus of the participants in the African Regional Workshop is that a lot of positive accomplishments have come out the two meetings. The participants agreed upon a preliminary set of institution building needs and a structure to meet the needs of Africa in five subregions, with

sub-regional leaders identified. They agreed upon the hosting of an Africa training program to develop a core set of trainers to be able to establish a common set of principles and frameworks within Africa on which to build with a timeframe and structure for action.

### List of Participants Africa Regional Meeting

Dr. Alao Yekini Akala	Ministere de l'Environnement de l'Habitat et de l'Urbanisme	Benin
Mr. Choma Johnson Matale	Department of Mines	Botswana
Dr. Ossama El-Kholy	Egyptian Environmental Affairs Agency	Egypt
Dr. Tarek Genena	Egyptian Environmental Affairs Agency	Egypt
Mr. Kihumba Francis Njuguna	National Environment Secretariat	Kenya
Mr. Raphael Peter Kabwaza	Ministry of Research and Environmental Affairs	Malawi
Mr. Ernest M. Makawa	Ministry of Research and Environmental Affairs	Malawi
Dr. Adegoke Adegroye	Federal Environmental Protection Agency	Nigeria
Dr. Chris Iyayi	Federal Environmental Protection Agency	Nigeria
Dr. Modupe Taiwo Odubela	Federal Environmental Protection Agency	Nigeria
Ms. Jemimah Eugenia Cole	Ministry of Transport, Communications and Environment	Sierra Leone
Dr. Francois Hanekom	Department of Environmental Affairs and Tourism	South Africa
Mr. J. J. Jordaan	Department of Environmental Affairs and Tourism	South Africa
Mr. S. M. Lloyd	Department of Environmental Affairs and Tourism	South Africa
Dr. J. H. Neethling	West Cape Department of Environment and Cultural Affairs	South Africa
Mr. W. E. Scott	Department of Environmental Affairs and Tourism	South Africa
Ms. Ann Sugrue	Gauteng Provincial Administration	South Africa
Hon. Wilson Masilingi	Parliament of Tanzania	Tanzania
Mr. Lamex Omara Apitta	Ministry of Education	Uganda
Mr. Frank Turyatunga	National Environment Management Authority	Uganda
Mr. Robert A. Wabunoha	National Environment Management Authority	Uganda
Mr. Mfaro Moyo	Ministry of Lands and Water Resources	Zimbabwe



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## AMERICAS REGIONAL MEETING SUMMARY

Facilitators:	Javier Cabrera Bravo, Chris Currie , Marco Antonio Gonzalez Salazar, John Wise
Rapporteurs:	John Jeffery, Rick Sturges
UNEP Facilitators:	Claire Cocault, Tom Udall

### GOALS

The goal of the workshop was to explore regional issues dealing with the major driving forces and barriers related to the development and sustainability of an effective enforcement and compliance program in each of the represented countries, including group discussions of problems and solutions. The group's expectations for this meeting and what it hoped to accomplish in the time frame allotted are as follows: (1) open and frank discussion of problems areas, participation in problem solving, how these problems were overcome and why actions were taken; (2) opening new lines of communication, cooperation, and coordination; and (3) in so doing the group would be able to reach a joint agreement and understanding of common achievable goals.

## 1 INTRODUCTION

Participants from the Americas were so numerous they initially met in two separate sessions, A and B, to permit greater opportunity for exchange. Combined sessions met together on the final day of the Conference to address ongoing networking opportunities and needs for exchange and cooperation. This report is a composite of both sessions and indicates when participants of only one session were involved.

## 2 DISCUSSION SUMMARY

### 2.1 Common themes within the region

Participants discussed common themes that provided a context for environmental programs within the region.

- Transition towards democracy

The transition towards democracy has introduced new social systems which in turn have raised public expectations, led to the emergence of an important role for NGOs, and opened access to information and communications.

- Changing concept of governance

Throughout the hemisphere there have been rapidly changing notions of how to govern with a shifting landscape of authorities, responsibilities and roles between the federal or national level and state or provincial and local or municipal levels of government. This is made even more complex by overlapping jurisdictions, and an uncertain and changing role for the judiciary.

- Changing concept of rule of law

Throughout the region, the concept of the rule of law is being embraced which has brought several changes. Among these are the passage of framework environmental laws, demands for consistent and fair environmental enforcement, new concepts of property with stronger property rights, an expansion of rights and standing to sue, criminalization of environmentally damaging conduct and corporate liability.

- Economic and social forces

All the countries in the region must deal with significant issues of poverty, economic activity which is not entirely visible to government regulators, development pressures, globalization of trade and industrial activity, privatization and debt service issues facing governments which require them to cut back or at least closely manage program costs.

- Trend toward free trade

The recent moves within the Americas to establish common markets is increasing both transboundary flows of legal and illegal waste and potentially hazardous and toxic chemicals, and increased environmental pressures related to tourism.

- Regional identity

There is a clear emergence of continental and hemispheric identity but a marked absence in the leadership and structures necessary to effectively follow through in the area of environmental protection. UNEP has been a regional constant but the promise of the "Oaxaca Declaration" which the participants from the Americas drafted and signed at the Third International Conference in Oaxaca, Mexico in 1994 for ongoing networking has not been realized.

- Limited resources

This includes human, technological, and financial as well as limited institutional capacity.

- International agreements

International agreements are playing a significant role in the development of environmental programs and their enforcement within the region.

## 2.2 Driving forces in the region for environmental compliance and enforcement programs

While there was some concern regarding the definition of the term public opinion, the group agreed that if it included issues such as public awareness, participation, education, the press, and NGOs, then it was the number one driving force throughout the region as it related to why governments have or need an environmental enforcement and compliance program. Secondary issues were determined to be: economics (e.g. marketplace pressure, tourism, international agreements), dedicated professionals, and highly visible sources of pollutants.

## 2.3 Barriers to successful environmental compliance and enforcement

The major barrier was determined to be limited resources (e.g. human, technical, financial) needed to accomplish the mission of the country's environmental organization. Secondary issues ranged from human nature (resistance to change, consumerism, lack of awareness/education) to

political pressure and inter-governmental competition for resources to fragmented laws and regulations to the lack of imaginative and/or flexible approaches to problem solving. These barriers add up to limited institutional capacity to implement environmental programs.

#### 2.4 Compliance and enforcement issues of concern in the region

Discussions dealt with the following issues:

- General compliance and the need for a targeted approach (large emitters, risk related, etc.).
- The use of agreements and why the regulated community signs them (e.g. Are they buying time?)
- Are schedules needed to confirm compliance and are audits needed to verify aspects of the agreement?
- When is enforcement used for those who signed but have not yet reached compliance?
- What role do international agreements play in pressuring facilities into compliance?
- The need for both a carrot and a stick and the concern about industrial information being confidential and for what is it used: self-disclosure, enforcement, funding requests.

#### 2.5 Common environmental challenges and priorities

Another group discussion was held regarding the environmental challenges and priorities with which each country must deal. As the group comprised a mix of country sizes, environmental organization experience and resources, political agendas and economic development plans there was no true consensus as to a specific major pollution source throughout the region or the effected medium from a specific source. However, many spoke to the need to control non-point sources (water, agricultural run-off, storm-water, etc), automotive emissions, and the after-effects of mining and natural resource exploration. In Canada and the United States the issues of greenhouse gases, climatic change, ozone depleting substances, and the misuse of land lead those media most affected. In Mexico, Chile, Paraguay, Nicaragua, and Panama each stated the need to control emissions from non-point sources, mining, and natural resource exploration. The islands of the Antilles and Aruba spoke to the need to control oil refinery discharges and small businesses (solid/hazardous waste disposal).

#### 2.6 Country examples

Discussions provided an opportunity to highlight some country programs, summarized in Annex 1.

#### 2.7 Existing networks within the Americas for environmental exchange

Participants identified many existing networks within the region for both bilateral and multilateral cooperation on environmental matters. These include:

- NACEC — North American Commission for Environmental Cooperation, involving Canada, U.S. and Mexico

- Environmental Enforcement Associations (USA state associations which include some border states in Mexico and Canada)
- Canadian Association of Wildlife Enforcement Directors
- Summit of the Americas
- Central American Alliance for Sustainable Development (ALIDES) — CONCAUSA Declaration
- La Paz Agreement (U.S.- Mexico)
- Central American Commission for Environment and Development (CCAD)
- Organization of American States (OAS)
- Interamerican Bar Association
- Central American Interparliamentary Commission for the Environment and Development (CICAD)
- CSJ
- Bilateral Agreement
- Mexico - U.S. Integrated Border Environmental Plan (IBEP) "Border 21"
- Mercosur - Southern Common Market Agreement (Working Group to Harmonize Environmental Laws)
- Proposed Environmental Center for the Amazon Region
- Amazon Treaty
- Andean Pact (Pacto Andino)
- NGO Network (Environment and Natural Resources Foundation is a member from Paraguay, Uruguay, Brazil, and Argentina)
- Informal Enforcement/Compliance Officials Networks of "Working Level Officials" (e.g. Yukon/Alaska)
- ICLEI - Urban Environmental Problems (Based in Canada — works in Latin America)
- Megacities NGO
- Environmental Indicators Network (UNEP and CIAT - Cali, Colombia)
- Grupo de Rio
- Grupo de los Tres
- Mexico/Central American Agreements
- UNEP/ROLAC - United Nations Environment Program - Regional Office for Latin America
- Canadian Association of Environmental Enforcement Officials
- Inter-American Convention on Human Rights and the Court of Justice
- IUCN Regional Chapter
- OECS - Organization of Eastern Caribbean States

Only a few of these networking mechanisms now address environmental compliance and enforcement issues. The participants then focused on what the needs were for networking and how best to use these or develop additional avenues for cooperation.



## 2.8 Networking needs for environmental compliance and enforcement for the Americas

Several areas of networking needs were identified in six broad topical areas.

### 2.8.1 Information

Participants identified the importance of having the following types of information to support enforcement program implementation, networking and capacity building:

- Establish an internet conference on environmental enforcement. The host vehicle could be Environ\$en\$e Database sponsored by US EPA or the NACEC Network.
- Directory of governmental ministries and agencies listing key contacts.
- Directory of NGOs listing key contacts.
- List of environmental offenders, in particular, information on the operation and compliance status of multinationals operating within respective countries.
- Compendium of environmental legislation (NACEC has North American Environmental Laws on-line)
- Working lists of environmental and enforcement priorities in other countries.
- Directory of available training resources.
- Compile list of libraries (NACEC library available on-line).
- Ensure access to other key documents and reports such as:
  - Copy of Portland Model Act on Crimes Against the Environment.
  - UN Secretary General Report on Environmental Crimes.

While the group supported the use of the internet for making this information available, other mechanisms for sharing information were discussed. Two specific offers to enhance information exchange were made including:

- Special issue of Brazilian Law Review on Environmental Enforcement and Compliance (W/ Contributions of Two Groups)
- Mr. W. Futrell, President, Environmental Law Institute (ELI), volunteered to develop and distribute a newsletter dealing with regional issues of compliance and enforcement as a follow-up to this meeting.

### 2.8.2 Training

Participants discussed the need for training programs to be developed and delivered, operated and staffed by people from the region who are familiar with regional issues and can offer relevant experience to their counterparts. Training resources should be:

- Focused on the needs and priorities of the region.
- Translated to language and custom.
- Hands-on practice and experience.

Participants also discussed the need for a compendium of training needs and training resources. This would potentially be a project developed as a cooperative project between UNEP and individual countries.

Following one of the presentations a need was identified regarding the use of technical assistance personnel and the role cross-cultural awareness and sensitivity plays in developing and maintaining international relationships. The group as a whole agreed that it was better to send a culturally aware staff member than one whose sole qualification was being an expert in a specific field or function.

#### 2.8.3 Organize a "Caucus of the Americas"

Given the many different vehicles for networking and the need to establish a focus and to set priorities, the participants discussed the need to establish a "Caucus of the Americas."

The Caucus would provide input into agendas for:

- Exchange about common issues.
- Setting regional priorities.

It was decided that regional issues that were defined and listed would include not only enforcement issues but also financial or technical aspects of compliance and prevention issues as well.

#### 2.8.4 Sub-regional networks on particular geographic issues and problems

Participants agreed that to really begin to solve certain types of environmental issues, the region would have to support the organization of smaller, more focused networks on the basis of geographic and specific issues of interest. This could be accomplished through face to face meetings or via the internet-Environment\$e.

#### 3.8.5 Establish a task force for follow-up

A small group of dedicated and interested people is needed to:

- Plan the next steps.
- Seek governmental involvement and support.
- Seek sources of funding.
- Get academics involved.
- Get judicial, executive, legislative involved.
- Develop proposal for the next meetings within the region and internationally.

This same group of volunteers would serve as a liaison with the Executive Planning Committee for the Fifth International Conference on Environmental Compliance and Enforcement and provide agenda items for regional meetings to be held before the next international conference. The results of these regional meetings should provide the focus and foundation of the 1998 Conference. If possible, financial support should be used to support these regional meetings, building to the Conference. Participants should even consider whether it would be preferable to have the Conference in 1999 or 2000, in order to give regional networks time to organize and meet. Regional rather than national linkages could then be identified during the Conference. The participants voiced concern that support for the Conference will decline unless all participants help

to set the agenda to ensure that topics were of importance and relevance to each country, that the Conferences provide for translation when needed, and that exchange would be advanced by having all abstracts, documents and cases well in advance of the Conference.

#### 4 CONCLUSIONS/NEXT STEPS

Participants in the Americas regional meetings from the Caribbean, South and North America found that there was a common context and theme that linked them together in addressing environmental challenges and environmental compliance and enforcement program design and implementation. The two Americas' sessions, meeting separately, independently reached the same conclusions. This consensus was reinforced and confirmed in a joint session.

Discussion focused on the value of establishing regional networks and on the notion of organizing regionally based meetings. Participants agreed on a new concept, a broadly defined "Network for Environmental Compliance and Enforcement for the Americas." This network would retain as its focus enforcement issues, but be inclusive enough to also address matters of law and policy. The network would help to meet needs related to increased communication and information through both individual and governmental actions. Proposals for action within six specific topics were then identified:

- Exchanging information.
- Training.
- Establishing a "Caucus of the Americas" to identify issues and set priorities.
- Establishing subregional networks to organize smaller, focused exchanges within the "Caucus" based upon geographic or other specific issues and interests.
- Establishing a task force to ensure Conference follow up and engage with the Executive Planning Committee for the next Conference

The internet was proposed as a vehicle to discuss environmental enforcement issues. Existing systems such as those sponsored by the U.S. Environmental Protection Agency (EPA) or the North American Commission on Environmental Cooperation (NACEC) might be used.

A regional inventory of people, programs, issues and organizations should be compiled to advance the development of a regional network. For example, directories which identify key contacts in government ministries and agencies, identify important contacts in non-governmental organization communities, list environmental offenders, identify available training resource contacts and courses, and identify library resources.

In regard to training, the needs and priorities of the region require training translated to conform to the language and customs, combined with hands-on practical scenarios based on relevant regional experience.

They identified many existing networks for addressing environmental issues but few with a focus on implementation, compliance and enforcement. The participants identified networking needs and mechanisms for follow up.

In particular, a small group of dedicated and interested volunteers will identify themselves to work with the members of the Executive Planning Committee in planning how the recommendations of the Americas groups can be achieved and incorporated into the 1998 Conference. These next steps include seeking additional involvement and support from participating

governments; seeking alternative funding sources; and encouraging the participation of those representing academic institutions, the judiciary and the executive and legislative arms of government.

Agenda items for regional meetings to be held before the next international conference need to be identified. The results of these regional meetings should provide the focus and foundation of the 1998 Conference. If possible, financial support should be used to support these regional meetings, building to the Conference. Participants should even consider whether it would be preferable to have the conference in 1999 or 2000 in order to give regional networks time to organize and meet. Regional rather than national linkages could then be identified during the Conference. Again, support for the Conference will decline unless all participants help to set the agenda.

The members of the Americas groups would like to pay special tribute to the hospitality and good nature of our hosts. The "Spirit of Thailand", a spirit of openness and support, provides a strong incentive for moving the content and results of future Conferences to ever higher heights. The will to improve environmental enforcement and compliance is here, is real and is waiting to be harnessed. We must not lose the opportunity.

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## **ANNEX 1**

### **1 BOLIVIAN TARGETED APPROACH**

A brief presentation was given by the Bolivian representative that covered the current situation in which the principles of their environmental program is structured around four pillars representing the aspects of Social, Economic, Environmental Protection, and Governmental offices. Bolivia has adopted a policy of procedures that cover inspections and emission limits for new and existing facilities. Newer facilities face more stringent requirements in their permit approval and in the inspection of their facilities. Bolivia is undertaking a targeted approach looking at their largest emitters and those sites that are the greatest risk to the environment.

### **2 MEXICAN EXPERIENCE WITH DECENTRALIZING ITS PROGRAM**

Mexico's representative presented an overview of their environmental program and the current and future issues facing Mexico's environmental program. With movement towards decentralization of the organizational structure and responsibilities, there are concerns within the government itself, some of which aid in the resistance to change. NGOs don't believe the states and local governments can handle these new responsibilities, while industry is worried that the states will be too hard on them as they begin to assess fees to operate in their respective areas. Several factors will need to be addressed such as: the establishment of a state and local infrastructure; law reforms; increased public, academic, and NGO participation; and the need for local regional cooperative enforcement/compliance work groups. Many believe in Mexico that the Border Area (100 kilometers on each side of the Mexico-U.S. border) and what is happening as a result of bi- and trilateral international agreements will change and/or dictate what occurs throughout all of Mexico. As part of these agreements, third party audits, even from other countries and international organizations are becoming common place. Much has been learned from the binational work groups. Their experiences and group dynamics are being put to use as Mexico looks to its environmental future.

### **3 NACEC HANDLING OF THE MIGRATORY BIRD KILL PROBLEM IN NORTH AMERICA: INTERNATIONAL PRECEDENT**

The issue of the Silver Lake migratory bird kill was brought up as a third party external audit and the effect that the outcome of this quick trilateral response will have on future international agreements and actions. The CEC was able to address the transboundary issue in a manner that was sensitive of the sovereignty issue, the need for better and faster communications (both between governments and outward to the public and press) and the need for financial support, enhanced coordination and technical assistance.

### **4 CHILE'S PROGRAM**

The representative from Chile gave a brief overview of environmental management conditions in her country. As a first step towards the establishment of a national organizational structure, the National Environmental Commission (CONAMA) was given the responsibilities of oversight and coordination of Chile's environmental activities. Within the various governmental

agencies and ministries there are over 3000 inspectors throughout Chile involved in some aspect of environmental enforcement. CONAMA is working to review: (1) the available resources; (2) the responsibilities of each institution; (3) the need for outside expert assistance; and (4) the individual training needs for each institution.

## 5 NICARAGUA'S PROGRAM

Following these discussions a brief presentation was made by the representation from Nicaragua. While the establishment of an environmental management framework was signed into law in 1991, it wasn't until 1994 that problems with governmental micro/macroeconomic management, sustainable development, and other similar concerns were addressed and the Ministry of Environmental Directorate was created by joining the offices of Natural Resources and those of the Environment. Currently over 160 staff members of the Ministry work directly with the 143 major municipalities. There are no state, county, or regional offices and a framework for outreach needs to be developed to articulate this concern but resources are limited. The legal system is in the process of reform/change and several laws dealing with general environmental management, fisheries, mining, and water are pending final approval. There is a need to flesh out these bills through the development of regulations, norms and limits.

One of the major sector-based industries targeted for enforcement is tanneries. There are over 350 small to medium facilities currently operating through an international assistance program. A pilot demonstration project is underway with facilities that have the resources to utilize the results of this effort. Using a Japanese method, it is hoped that water discharges containing chromium will be reduced from 12,000 to 10 ppm. An inventory, mapping and indexing effort is also being performed in conjunction with the discharge reduction portion of this project. Companies are regulated to pay for the amount of pollutants they emit. The government was unaware that discharges were as high as 12,000 ppm and had originally thought that an acceptable limit of 0.5 ppm could be achieved without a large investment. There had been little enforcement activities prior to this project and a lack of information on the impact of these discharges to the environment which made decision making and priority setting difficult. One of the laws pending will address the issue of waste water discharges. A question was raised as to why the government doesn't hire more inspectors. The response was that while there is pressure internally from the public and externally via internationally signed agreements, the government is committed to an austerity program. However, the Environmental Ministry is getting bigger as others shrink in size. A question was asked about the ability of municipalities to join or consolidate their resources to better address the environmental issues confronting them. The response was that while there was no direct restriction to this process it was very difficult to actually implement such a plan of action. A new system has been developed to address this issue that incorporates Environmental Impact Assessment (EIA) requirements, permits, and inspections and steps are being taken to integrate public participation, community training and basic understanding of the new process itself. This has shown to be very hard to do and industry has indicated a strong negative reaction to this course of action. In the absence of regulations, international requirements, guidelines and standards are applied. This also pertains to multinational facilities as well. The pilot study mentioned earlier will be utilized as a guide for the future development and implementation of new regulations.

Nicaragua understands that passing a law is not enough to protect the environment and that through the process and framework of regulations and rules, public participation, and in the knowledge that every issue can not be resolved at once, hopes that a phased, integrated approach will in time overcome the impacts to its environment. A clear example of this is the cost to clean up refinery discharges that have polluted a local water supply. A U.S. \$60 million investment was

needed to supply drinking water from an external source and the refinery has been requested to install U.S. \$40 million in control device equipment. Had the control equipment been put into place earlier the need for the \$60 million investment would have not occurred.

## **6 NETHERLANDS ANTILLES**

Another presentation was made by the representative of the Netherlands Antilles, who spoke about the new attention being paid to the environment as a result of increased public awareness and information received from questionnaires given out to tourists visiting the islands. The major concerns to the islands are emissions from the refinery and solid/hazardous waste disposal from small businesses. Due to ongoing governmental and bureaucratic conflicts within the government itself progress on regulations, policies dealing with enforcement and compliance, along with new or pending legislation has been slowed. Coupled with limited human and technical resources and the fact that the organization will never see much growth it is hard to develop and maintain a sense of motivation. To overcome these issues the inspectorates of each island work in cooperation with other governmental offices such as the police, traffic control, public housing, public works, and security to increase the number of field personnel available to address environmental concerns. Through technical and financial assistance received from the Netherlands, the islands hope to move away from the current individual strategic island plans and develop a common vision that sets priorities, improves communications and enhances cooperation. These efforts may require a bottom-up change in the way things get done. The translation of governmental endorsement for environmental issues to the implementation of actual policies is lacking. There has been heavy industrial lobbying to cut the cost of installing or putting into place practices currently required. A review of the process that sets discharge limits, assesses industrial accomplishments, and establishes standards needs to be undertaken. The use of international and other national standards should be considered. The inspectorates are working very hard to treat each industry sector in the same manner and to spread out its staff so that all industrial sites receive equal treatment. The atmosphere for change in the political and public arena is now.

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**LIST OF PARTICIPANTS FOR AMERICAS REGIONAL MEETING**

Mr. David R. Aggett	Environmental Protection Branch - Environment Canada	Canada
Mr. William Andrews	West Coast Environmental Law Association	Canada
Ms. Nancy Bircher	Ministry of Environment, Lands and Parks	Canada
Mr. Daniel Couture	National Programs Directorate - Environment Canada	Canada
Mr. Christopher Currie	Enforcement Management Division - Environment Canada	Canada
Mr. Daniel Lindsey	Department of Renewable Resources	Canada
Mr. Guy Martin	National Programs Directorate - Environment Canada	Canada
Lic. Javier Cabrera Bravo	PROFEPA	Mexico
Mr. Carlos Gonzales Guzman	PROFEPA	Mexico
Lic. Moises Medleg S.	Secretaria de Medio Ambiente, Recursos Naturales y Pesca	Mexico
Ms. Clare Cocault	United Nations Environment Program	UNEP
Dr. Mike Axline	University of Oregon	United States
Ms. Dorothy Bowers	U.S. Technical Advisory Group to ISO 14000	United States
Mr. Steven A. Herman	U.S. Environmental Protection Agency	United States
Ms. Ignacia Moreno	United States Department of Justice	United States
Mr. John Rothman	U.S. Environmental Protection Agency, Region 9	United States
Mr. Tom Udall	Office of the Attorney General	United States
Dr. Elton Lioe-A-Tjam	VROM	Aruba
Mr. J. C. Gras	Parquet Officer Van Justitie	Curacao, NA
Mr. Quirino Richardson	Milieudienst Curacao	Curacao, NA
Mr. John J. Van Klaveren	Kabinet voor Nederlands-Antilliaanse Arubaanse Zaken	The Netherlands
Ms. Linda Duncan	North American Commission for Environmental Cooperation	
Mr. Fred Campbell	Natural Resources Conservation Authority	Jamaica
Mr. Marco Antonio Gonzalez Salazar	Ministerio Recursos Naturales, Energia Y Minas (MIRENEM)	Costa Rica
Ms. Patricia Madrigal Cordero	Consultores Ambientales	Costa Rica
Mr. Guillermo Navarette Lopez	Secretaria Ejecutiva del Medio Ambiente (SEMA)	El Salvador



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Ms. Clarisa de Ferrera Vega	Ministerio Publico	Honduras
Dr. Desire Elizondo Cabrera	Ministry of Environment and Natural Resources	Nicaragua
Mr. Marco Tulio Hernandez	Hernandez, Virviescas, Gomez & Asciados	Panama
Dr. Claudio Marcelo Creimer	Direccion Provincial Control Ambiental	Argentina
Dr. Aldo Rodriguez Salas	Ministerio de Medio Ambiente, Urbanismo y Vivienda	Argentina
Mr. Daniel Sabsay	Fundacion Ambiente y Recursos Naturales (FARN)	Argentina
Mr. Felix Moreno	Ministerio de Desarrollo Sostanible y Medio Ambiente	Bolivia
Mr. Waldo Vargas Ballester	Ministerio de Desarrollo Sostenible y Medio Ambiente	Bolivia
Mr. Antonio Herman Benjamin	State of Sao Paulo	Brazil
Mrs. Stella Goldstein	State of Sao Paulo	Brazil
Dr. Patricia Matus	National Commission for the Environment (CONAMA)	Chile
Ms. Marta Zamundia	Programa de Emisiones y Fuentes Fijas	Chile
Dr. Doris Polania Villanueva	Ministry of Environment	Colombia
Mr. Giovanni Rosania	Ministerio de Energia y Minas	Ecuador
Ms. Lillian Portillo	Ministerio de Agricultura y Ganaderia	Paraguay
Dr. Jorge Caillaux Zazzali	Sociedad Peruana de Derecho Ambiental (SPDA)	Peru
Ms. Theresa Serra	Country Department III, Latin America and the Caribbean Region	World Bank

## ANNEX 2 OAXACA DECLARATION

## DECLARACION DE OAXACA

REUNIDOS en la ciudad de Oaxaca, México, el 28 de abril de 1994, a las 18.30 hs. en el marco de la III CONFERENCIA INTERNACIONAL SOBRE "ENVIRONMENTAL ENFORCEMENT", los abajo firmantes deciden constituir una RED DE <sup>AMIGOS</sup> ~~RESEARCHERS~~ - DEL DERECHO AMBIENTAL, que tendrá como fin facilitar el intercambio de información y el trabajo en colaboración entre las partes, en los siguientes temas:

- \* Compliance and enforcement (palabras que serán traducidas cuando se encuentre su equivalente en español).
- \* Acciones públicas y defensa de los intereses difusos.
- \* Regulaciones existentes en los distintos países.
- \* Organización de cursos y eventos, siendo el primero en la ciudad de La Plata, Argentina. Respecto a lo antedicho, <sup>solici-ta-tes</sup> ~~tenemos el honor de contar con~~ el auspicio de la OEA. *y otras inst. tuciones internacionales*
- \* Toda otra cuestión de interés de las partes, sea jurídica o no.

Los firmantes acuerdan que solo podrán integrarse nuevas personas, siempre que sean "AMIGOS" de al menos dos de los miembros fundadores y sean admitidos por todo el resto de la RED.

SIENDO TODO CUANTO SE HA CONVENIDO HASTA  
EL PRESENTE, FIRMAN A CONTINUACIÓN LOS  
INTEGRANTES FUNDADORES DE LA "RED DE  
~~Amigos~~  
~~Amigos~~ DEL DERECHO AMBIENTAL".-

COLOMBIA

*Gerardo Samirant*  
*fundador.*

PARAGUAY

URUGUAY

*Manuel...*  
MANUEL CASILLAS

BOLIVIA

*Ricardo Casner-Bold*  
RICARDO CASNER-BOLD WILDO. JARAS

ARGENTINA

*Yuricus M. (Florencia)*  
YURICUS M. (FLORENCIA)  
CRISTINA MARTINEZ

ORGANIZACIÓN DE ESTADOS AMERICANOS

CHILE


*Yuricus M.*

BRASIL



*N. San Vicente/cj*

CANADA

*[Signature]*  
PUERTO RICO

  
J. J. Arce / Panama

PANAMA

  
Roberto Tarte  


EL SALVADOR

Honduras

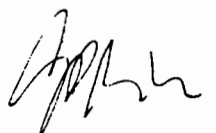
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Puerto Rico

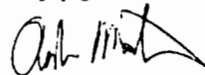
Costa Rica

  
RODRIGO TARTE

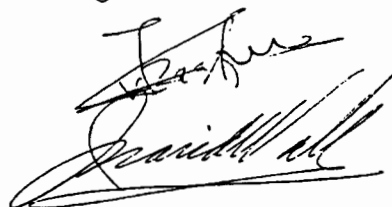
PANAMA

  
GIL NOLET

B. I. D.



United States



Holland

Guatemala

### **ANNEX 3 PROCEEDINGS FROM THE MANAGUA MEETING: CREATION OF THE CENTRAL AMERICAN ENFORCEMENT NETWORK**

Editor's Note: The Managua Meeting post-dated the Fourth International Conference. The Managua Proceedings are included to illustrate the networking envisioned by participants at the Americas Regional Meeting – many of whom were at the Managua Meeting.

#### **OVERVIEW**

The First Annual Conference on the Regional Enforcement of Environmental Law was a joint project of the Central American Commission for Environment and Development (CCAD) and U.S. A.I.D. and received support from Nicaragua's Ministry of the Environment and Natural Resources (MARENA). Over a three day period, it brought together key players in the enforcement of environmental law in each of the Central American countries, including Panama and Belize.<sup>1</sup> The conference gave valuable training to 42 public officials, created a network of actors in the enforcement of environmental law, served as a visible sign of support to efforts to create national institutions, and facilitated communication between NGOs and the government officials responsible for developing and applying environmental laws. By the conference's conclusion, the representatives signed a formal resolution to form CCAD's Technical Commission on Environmental Legislation. Participants were lodged in Hotel Las Mercedes where all the sessions took place, and the hotel's relative isolation on the edge of Managua led to greater cohesiveness amongst the participants and contributed to the sense of mutual support fostered by the event.

#### **1 PARTICIPANTS**

The primary value of the conference was to bring together a wide variety of officials who are critical to enforcing environmental laws within their respective countries. The group included participants from Public Ministries (including Procuradores and prosecutors), their Executive Departments ("Contralorias")<sup>2</sup>, their Judicial Branch (including Supreme Court Justices and Judicial Academies), their Environmental Authorities (Ministries of Environment or Legal Advisors) and members of the Legislative Assembly's environmental commissions. Representatives from NGOs in Nicaragua, Costa Rica and Guatemala also attended. Finally, observers and advisors from the US EPA, US AID, Mexico's Environmental Enforcement Agency (PROFEPA) and Mexican Institute of Ecology, representatives of sectorial regional organizations dealing with pesticides, air and water quality, CCAD and PROARCA were present. The participants made important international contacts, and officials from different countries shared their respective experiences. Furthermore, participants from the same country had a rare opportunity to get know their counterparts in the public or private sector.

#### **2 TRAINING MATERIALS**

CCAD provided the participants with crucial materials needed to effectively apply existing environmental laws. These materials included: (1) a matrix of international and regional conventions showing each state's degree of legal commitment to it (i.e., signed, ratified, etc.), (2) lists for each

country's general environmental legislation and also those statutes specifically applicable to toxic wastes and solid wastes, and (3) copies of regional conventions, including the foundational convention to CCAD. Potentially, the most valuable material was the personal experiences each participant brought to the discussion.

### 3 PRESENTATIONS

The participants' presentations were designed to train the officials, allow them to share experiences, and to discuss resolutions to common problems. These were sectorial presentations on compliance with ALIDES environmental legal commitments.

#### 3.1 Training

The first day was devoted to training the participants. Dr. Marco Gonzalez of CCAD opened by lecturing on the environmental law movement in Central America, detailing the formation of CCAD and national environmental councils. He reviewed the series of obligations undertaken by the states since the 1950's which have led to the present CONCAUSA agreement under which the US and the Central American states have made specific promises to cooperate in environmental protection efforts. He described the founding of the System for the Integration of Central America, the Protocol of Tegucigalpa which first mentioned the duty of the states to collectively protect the environment, the subsequent impulse to form national environmental commissions, the issuance of the Central American Agenda 2000 prior to the Rio conference, the elaboration of regional conventions on specific subjects, the ALIDES agreement which included a detailed list of regional environmental promises and policies, and finally the CONCAUSA agreement signed at the Summit of the Americas. Dr. Gonzalez stressed that the sectorialization of environmental law--whereby the environment is legally-protected only by a patchwork of laws treating specific resources (i.e., Forestry) or specific activities (i.e., Pesticides)--is coming to an end since five states have already passed general environmental acts. In closing, he described the series of enforcement workshops which the EPA and CCAD are offering in each country (so far, in Belize, El Salvador and, in October, in Guatemala)--workshops which are complemented by the Regional workshop itself.

To give the participants a sense of the parameters of their mission, Erwin Garzona of PRIDE/PROARCA presented the results of the just-completed Comparative Risk Assessment (CRA) project for the region. He explained the concept of CRA and how the study was carried out to identify the most pressing needs particular to the region. The project gleaned that "brown" issues are the most pressing in Central America and specifically hierarchized the problems according to the regional urgency: 1) water treatment, 2) solid wastes, and 3) pesticides. Next, he explained how they chose the most adequate and cost-effective responses, depending on regional capabilities and predilections, identifying two key strategies for counteracting each of the three problems. This CRA project marks the first time ever that a region has collectively identified the problems that they want to tackle. One participant raised concerns about the fact that Costa Rica's number one priority, air contamination, was not included as one of the three regional priorities. Garzona explained that the CRA procedure verified that air contamination was in fact a problem most pressing in Costa Rica, but that the other three problems had more regional importance and also were severe in Costa Rica as well. Additionally, he noted that Costa Rica already has programs in place to combat this particular problem.

Mexican and US environmental protection officials completed the training phase by suggesting theories and strategies for implementing environmental law. The Mexican PROFEPA participants, headed by Humberto Ortiz Wetzell, the General Director of Coordinating Delegations,

summarized the Mexican system, including diagrams showing the institutional structure and the role of inspectors in the process. Most questions treated the issue of building an institutional framework that was capable of carrying out inspections and enforcement actions, and the Mexican representatives explained how they have progressed in this work.

Two EPA attorneys, Peter Lallas and Lawrence Sperling, and one DOJ litigator, James MacAyeal, suggested theoretical approaches to enforcement. Lallas distributed a 50-page outline of the institutional and legislative parameters which are potentially part of an effective environmental legislative regime. Although the document was too expansive to cover in a brief presentation, he raised several salient points, and, over the subsequent days, several Central American participants commented on the usefulness of the outline for their work and understanding of such regimes. Lallas encouraged feedback on the outline, emphasizing that it was a work-in-progress and intended to leave space for inputs from regional actors. MacAyeal focused on an explanation of the particular relationship between U.S. courts and the EPA in applying environmental regulations. Finally, Sperling discussed the theoretical importance of enforcement actions, or at least the importance of creating a culture of obedience whereby parties believe it is in their interest to comply with the law, and therefore regularly do so.

### 3.2 Experiences

The second day was dedicated to sharing experiences--first, the regional efforts in specific areas, and, second, national efforts to act through certain institutions.

#### 3.2.1 Technical Experts on Regional Programs

First, technical experts spoke about regional programs to counteract some of the most pressing "brown" issues: water quality, air pollution, and pesticides. Mario Gutierrez, the Regional Secretary of Technical Committees from the Regional Coordinating Committee of Potable Water Institutions (CAPRE) opened by describing the growth and strengthening of CAPRE and its creation of regional water quality norms and model laws. First, he emphasized that national regulations on potable water should use WHO guidelines as a benchmark. Next, he explained the key aspects of regulation, and reviewed the current status of such regulation in each of the Central American states--El Salvador and Nicaragua have recently adopted as law the CAPRE statute. Finally, he reviewed the articles of the CAPRE statute which imposes a duty on the State to supply water meeting specific minimum criteria within five years, except in special circumstances. CAPRE's work has contributed greatly to the passage of uniform and effective water quality laws in many countries, and has led a greater harmonization of standards in the region.

Ronald Flores of Swisscontact ProEco, an organization supported by the Swiss government and private sector which offers technical support and advice in controlling air quality, reviewed the obligations relating to air quality improvement undertaken in ALIDES, and he reported on the state of compliance with those promises. In ALIDES, Central American governments subscribed to two air quality obligations: (1) to eliminate the use of leaded gasoline and (2) to regulate the vehicular emissions. In terms of leaded gasoline, Guatemala has prohibited its sale since 1992, and in 1996 the rest of the countries, except for Panama, legislated the gradual elimination of leaded gas use. He noted that several countries are prohibiting the import of automobiles without catalytic converters and encouraged Nicaragua and Honduras to follow suit, or risk becoming the dumping grounds for obsolete and dangerous motors. In terms of vehicular emissions, only Costa Rica is enforcing a program of Inspection and Maintenance (I/M) for all motor vehicles. Flores reviewed the current preparations for such I/M regulations in other countries, noting that all countries have the legal basis needed to emit regulations, but that Nicaragua, Panama and Guatemala seem far from putting an

I/M program in place. Finally, he reviewed the key aspects of an I/M program, noting that the simultaneous elaboration of these programs in Central America makes it possible to create a uniform regulatory system.

Roosevelt Gonzalez Vasquez of the International Regional Organization of Agropecuario Sanitation (OIRSA) described the growth of the movement to create adequate and uniform pesticide registration and labeling practices throughout the region. While OIRSA has existed since 1953 with the goal of promoting the harmonization of agropecuario legislation, regional efforts to harmonize pesticide regulation did not begin until 1979. First, he reviewed the series of meetings that have contributed to the drafting of model regulations for the labeling and registration of pesticides. In the September 1996 conference of the Application Committee, it was agreed that all labeling would be done according to the guidelines approved in the conference, and that any label approved by one country would be accepted by the others. While there are hopes of creating a single, comprehensive Central American registry, Vasquez noted that current efforts are focussed on the passage within each state of pesticide legislation that follows the guidelines of model legislation which the FAO helped draft.

### 3.2.2 Panel on Enforcing Environmental Law

Second, five panels of officials related their experiences in connection with enforcing environmental law in their own countries. These sessions sparked the greatest number of questions, with frequent lively interchanges between the speakers and their audience. The panelists were encouraged to explain concrete experiences, and many participants recognized their own difficulties and could ask detailed questions to compare the two.

The first panel generally considered the impact of citizen participation in enforcement. As a prelude, a legal advisor from Belize, Dr. Winston McCalla, explained the Belizean common law system and environmental regime. He offered particular examples of environmental problems, and how legislation has directly responded to them. Participants followed up with questions about the common law system, and the general interest raised appeared a valuable contribution in the process of recognizing Belize to be a Central American country. Next, Guido Cubero, the legal advisor for Costa Rica's Ministry of Environment and Development, described the Costa Rican experience with citizen participation, and was followed by brief descriptions made by panelists from the other countries. The most common experience was having a new legal provision that allowed for complaints, but little public awareness of the channel and little institutional capacity for handling complaints.

The second panel was composed of prosecutors of environmental laws. Carlos Solozano of El Salvador was the lead panelist, opening with a speech lamenting the escalating devastation of his country's environment, which is already in a critical state. He complained that Salvador has an "infinitude" of laws and his office receives a "landslide" of complaints of all sorts, but that there is no political will or institutional ability to prosecute these charges. Fundamentally, he charged, the problem is the impunity of officials that allow the environmental devastation, despite the immediate health consequences that a great majority of the population is suffering. Many prosecutors echoed his comments. Zorayada Calix from Honduras emphasized the fact that attorneys in this field need the support of technical advisors in order to prosecute cases which can often be complex and difficult to define. Furthermore, she reported that there are only six prosecutors for such cases in the country, that they never leave the capital, and that the majority of the cases they handle are against small farmers who are cutting wood for subsistence needs. Alvaro Vasquez of Guatemala gave a fiery speech about the role of a prosecutor and the need to pursue cases in the face of personal intimidation. While inspirational and widely appreciated by the participants, his speech and the



reaction to it underlined a fundamental problem with creating effective environmental regimes in the region: these few prosecutors face enormously powerful private and state interests which take violent measures to ensure that laws are not enforced.

### 3.2.3 Panel on Vigilance Over the Environment

The third panel was composed of officials in the executive branch agency responsible for vigilance over the environment (e.g., the Procurador of the Environment, the Procurador of Human Rights, the Attorney General's office). Teresa Centeno of Guatemala made the opening presentation, and was followed by representatives from Nicaragua, El Salvador and Honduras. Carlos Canas, who is responsible for the Environmental Rights division of El Salvador's Human Rights office, explained the most pressing problems that commonly concerned regional officials in his position. He and his three staff members are responsible for protecting the right to a healthy environment of all Salvadorans. While there are plenty of laws which they may invoke (both national and international), there are too few people to handle the wide variety of complaints and too little technical expertise to properly analyze problems, both from a scientific and legal point of view. Canas reported that, when he himself took the job in 1992, he knew nothing of law since he was an engineer trained in solid waste management. He stressed the importance of having personnel who are both versed in scientific fields and the law. Additionally, he offered a few sample cases of the work they have done, including the successful closure of a small factory which had been discharging aluminum wastes into a river in a densely-populated area for several years, despite the repeated complaints of residents. Nevertheless, his message, like most of the panelists, was one of deep worry due to their inability to stop the devastation of the environment.

Due to time limitations, the fourth and fifth panels had to give brief presentations. The fourth panel was composed of members of the national courts or of the Judicial Academy responsible for the training of judges. The panel emphasized the need not only for technical support in scientific fields, but also the comprehensive training of judges in environmental law, considering that most were unaware of the statutes and obligations already in force. The fifth panel was made up of members of the "Contraloria" offices of Nicaragua, Costa Rica and Panama--the only states which have such an office. These panelists lamented the lack of political support for environmental programs. Augustin Jarquin Anaya of Nicaragua headed the panel and specifically complained that his office lacked the scientific-technical expertise to handle many environmental issues.

### 3.3 Alternative Approaches and Resolutions: Creating an Environmental Law Action Network.

Dr. Marco Gonzalez of CCAD led off the third day with a brief explanation of the importance of strengthening the environmental law action network which was forming in the region. He noted that in the ALIDES agreement, the Central American countries undertook specific obligations to counteract the problems of water treatment, solid wastes and pesticides. He stressed the importance of harmonizing national approaches to these problems, and reviewed the present status of regional efforts in the three fields.

Next, Alejandra Sobenes of IDEADS gave a brief history of her organization and their formation of RODA, the Network of Central American Environmental Organizations. IDEADS' original work was promoting cooperation amongst regional technical experts, but has evolved into a network that includes legal experts and aims to assist lawyers from all member countries. IN 1996, IDEADS formed RODA by bringing together founding environmental organizations from Mexico, Guatemala, Honduras, El Salvador, Nicaragua and Costa Rica, and, by the end of the

conference, Sobenes reported that Panama had just committed itself to join RODA. IDEADS' first project is monitoring compliance with the international convention on biodiversity and is working on strengthening ties between NGOs and government offices.

Participants questioned Dr. Gonzales and Sobenes about the future of the network, remarking that the network should include more organizations and involve formalized training. Dr. Gonzales noted that moving in these directions would be an improvement, but that the network should remain flexible—that is, that it is called a “net” for the very good reason that it includes spaces that allow for movement, for comings and goings, for creativity, and for a wide range of commitments to the environmental effort. He emphasized the need to first form a critical mass of lawyers with knowledge of environmental law.

Subsequently, NGOs from Nicaragua and Costa Rica had the chance to reflect on the networking process, emphasizing that environmental protection is necessarily an interdisciplinary practice, including anthropology, sociology, and psychology as well as technical sciences.

#### 4 CLOSING

In closing, participants from each country expressed their reactions to the materials presented throughout the conference and suggested which directions that future efforts in enforcement of environmental laws should take.

Honduran delegates voiced great satisfaction with the conference and emphasized that future efforts should stress the strengthening of Technical Commissions to give legal support to their enforcement arms. They also noted that in the future, more environmental legal advisors should be included in such seminars. Finally, they commented on the value of seeing how other countries confront the common problems that they share and remarked that the conference helped to show that environmental problems do not respect political borders and so resolutions must surpass those borders as well.

Panama stressed the need for a follow-up conference on the same topic and drafted a declaration for all participant countries to sign, outlining future goals: the strengthening of an environmental law network, increasing the Technical Commission's capabilities, holding a workshop in Panama in December, and gaining more support for prosecutors. The delegates pledged to continue working on environmental protection upon their return to Panama.

Costa Rica focused on worries raised by the conference. The participants recommended that for the next seminar, each country should prepare a report which describes each organism's ability to enforce environmental laws, listing statistics and giving sample cases.

Guatemala noted that the conference will help to legitimate the enforcement of environmental provisions, making it a recognized field of law. The delegates voiced their extreme satisfaction with the meeting, reiterating the importance of overcoming intimidation in order to properly enforce the law.

El Salvador reported that the conference had supplied them important tools needed to apply the law, yet noted that much training and conscience-raising is still sorely-needed. “Our eyes still need opened,” the delegates said, pointing out that more lawyers need to get used to thinking in terms of environmental protection and rights. They noted that the political actors are prone to constant change, but the institutional actors (such as lawyers working in the government and NGOs) are less prone to such changes, and therefore the education of the latter can have a real and lasting effect.

Mexico expressed satisfaction in being able to share its experiences with its neighbors, and repeated the importance of having a deep conviction to further environmental protection.

U.S. EPA participants spoke about particular future plans, stressing the need for specifying five and ten year goals. They described the on-going project to create a databank of Central American environmental law that will allow easy access to critical knowledge for anyone with the use of a computer. They spoke of their intention to sponsor future cooperative workshops, both on the theme of enforcement and on specific topics such as pesticides and solid wastes.

In closing, the participants proposed, discussed and approved of a unanimous declaration. The statement, signed by all participating nations, formally created the Regional Environmental Law Enforcement Network, supported CCAD's new Technical Commission on Environmental Law, and welcomed the course on environmental law to be given in Panama in the second week of December.

## REFERENCES

1. The Contraloria is potentially a very powerfully government official due to his control over budgetary matters and his relative autonomy. The Contraloria is elected by the Parliament and controls the execution of the national budget. He oversees the management of governmental offices and has the power to impose civil and administrative liability on those which are not properly meeting the legal requirements of their duties. He may also press for penal sanctions. Only the governments of Nicaragua, Honduras and Costa Rica feature Contralorias; these functions are carried out by the Tribunal of Accounts in El Salvador and the Court of Accounts in Guatemala.



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## ASIA-PACIFIC REGIONAL MEETING

Facilitators: Ahmed Santosa, Rachel Vasquez  
Rapporteurs: Jack Mozingo, Ken Rubin,  
UNEP Facilitators: Mark Radka, Cheryl Wasserman

### 1 INTRODUCTION

Nearly sixty participants met in two separate sessions (A and B) the third day of the Conference and as a whole on the final day of the conference to discuss driving forces for environmental compliance and enforcement, barriers to effective compliance and enforcement programs, the status and accomplishments of programs in the region, common challenges, regional cooperation and networking needs, and next steps. Many in the group also met once in the evening to organize an informal network among the participants. The first day participants from South Asia joined in the discussions of Session A, but because of the established environmental networks existing for South Asia, they met separately on Friday to discuss follow up and networking. A separate write up has been prepared on the South Asia community.

The Regional meeting resulted in a priority listing of critical environmental problems and issues in each country and current status of legal, financial, and technical aspects for the region. This is a very good basis for follow up action on implementation and capacity building.

### 2 GOALS

Workshop discussions focused on:

- Shared Problems and Challenges
- Institution-building needs
- Opportunities for institutional support and exchange (Review of existing mechanisms)
- Proposals for regional networking: agenda for action
- Desired linkage to international capacity building efforts
- Targets of Opportunity

### 3 DISCUSSION SUMMARY

#### 3.1 Driving Forces

Participants had an opportunity to express what they believed is driving environmental compliance and enforcement in their countries and in the region as a whole. In order of most frequently cited to least frequently cited forces they are:

- Public awareness and high public expectations (South Korea, Malaysia, New Zealand, Thailand, Hong Kong, Bhutan), also mass media and publicity (Malaysia, Philippines) along with increased awareness of industry to sustainability (PRC), social traditions and values, both moral and religious (Bhutan)
- Environmental laws and state plans (Malaysia, Mongolia, Thailand, PRC); international obligations (Australia, Malaysia, Japan) as well as non-legal environmental initiatives (e.g. Clean Rivers" project in Indonesia)
- NGO's: domestic influence and public pressure (Thailand, Japan, Philippines, Malaysia, Hong Kong) as well as international NGO influence on and scrutiny of world and regional banks and other project donors (World Bank) in turn influencing countries (Mongolia)
- Environmental Problems (Australia, Thailand) and need to protect resource base (PRC, Thailand, Cambodia, Malaysia); population and economic growth (Malaysia, Australia, Philippines—energy production) and globalization (Japan)
- Education: compulsory environmental education at the primary (Bhutan), secondary and legal education (Taiwan)
- Economic incentives, e.g. Pollution prevention (Japan); privatization (Malaysia)
- Evidence of political will (Malaysia) and fear of government intervention (Hong Kong)

### 3.2 Barriers to Environmental Compliance and Enforcement

Participants brain stormed what they felt were the greatest impediments to the success of environmental compliance and enforcement. They came up with the following list:

- lack of interagency coordination on compliance enforcement matters
- inability of governments to pay competitive salaries leading to difficulties in attracting and retaining qualified staff
- rapid societal change
- poor understanding on the part of the regulated community
- corruption
- outdated laws that emphasize punitive actions and allow little flexibility
- small threat of enforcement and low costs of violations

The group then used the UNEP institution building workshop materials to explore organizational design issues since those were most prevalent. Regulatory and enforcement program designs are outlined in section 3.3 below, but a common issue which transcended all country programs was fragmentation. In many countries, Inter-Ministerial councils and other organizational responses to fragmented authorities have been constituted, but these generally focus on policy issues; there are few if any examples where such bodies or systems dealt with ongoing implementation issues related to permit issuance, compliance monitoring and enforcement.

### 3.3 Regulatory Program Status Overview

The region contains programs in different stages of development with many highly developed programs and those that are first being organized. There are varied approaches as well from which participants can continue to learn from each other. The majority of countries in the region have environmental compliance and enforcement programs in place with adequate laws, regulations, and requirements, permit systems, inspection programs, training, self-monitoring, third party audits, citizen complaints, a full variety of enforcement response mechanisms, written response escalation policies. Those that do not yet have these program elements are in the process of creating them. Hence a tremendous amount of progress has been made within the last five years. Yet, some problems remain with implementation. In brief:

#### 3.3.1 Australia:

Decentralized programs, with authorities mostly at state level. Difficult to summarize neatly, but complete with respect to requirements (laws, regulations, and permits), compliance monitoring, and enforcement. Degree of sophistication varies greatly among state programs.

#### 3.3.2 New Zealand:

Similar to Australia, with authorities decentralized among 16 regional councils. Sophisticated cost-recovery system based on unit costs per activity. Complete with respect to requirements (laws, regulations, and permits), compliance monitoring, and enforcement.

#### 3.3.3 Cambodia:

Created Ministry of Environment in 1993. Formulating framework law now. Existing authority/programs focused on resource use/allocation. No existing environmental compliance or enforcement.

#### 3.3.4 PRC:

Comprehensive, constitutionally based laws, but implementation difficult. Spending 0.7% of GDP on environment, but estimate of need is 1.5%. Permits are experimental for water in selected regions, a corps of trained inspectors, enforcement authorities on paper but lack of systematic follow up to violators.

#### 3.3.5 Japan:

1993 comprehensive law. Complete with respect to requirements (laws, regulations, and permits), compliance monitoring, and enforcement. Programs are characterized by partnerships of citizens, government, industry and academia.

#### 3.3.6 Thailand:

Enforcement program at facility level handled by Industrial Works Department in the Ministry of Industry. Overall ambient environmental protection program handled by Pollution Control Department. Overall, program is complete with respect to requirements (laws, regulations, and permits), compliance monitoring, and enforcement. Authority is spread among many agencies (20 laws).

### 3.3.7 Philippines:

Comprehensive, but outdated laws (i.e. no discharge limits). Environmental quality agency (Environmental Management Bureau) within overall resource management agency (Department of Environment and Natural Resources). Some gaps in enforcement tools. Environmental impact assessment is a major driver of requirements and action.

### 3.3.8 Vietnam:

Recent law, not much experience with implementation yet.

### 3.3.9 Malaysia:

Comprehensive laws, regulations, permits. Program largely administered at state level. Strong enforcement authorities and elaborate permit systems. 1974 legislation resulted in 17 main regulations now there are a total of 36 environmentally related laws posing issues of how to best coordinate their implementation. Most statutes are by sector so it is challenging to coordinate across sectors and among three levels of government. A new act is being discussed with increased penalties.

### 3.3.10 Hong Kong:

Comprehensive laws, regulations, and permit system in response to extremely high population density. Strong compliance monitoring and enforcement response with 600 inspectors.

### 3.3.11 Taiwan:

Comprehensive laws, regulations, and permit system at county and city levels. Gaps in compliance monitoring and enforcement tools.

### 3.3.12 South Korea:

Comprehensive laws, regulations, and permit system. Strong compliance monitoring and criminal enforcement authorities.

### 3.3.13 Bhutan:

No specific environmental laws, but there is a Draft National Environmental Policy Act and environmental strategy. At present, National Environmental Commission applies Land Act and policies. Public awareness comes from religious underpinnings. They now have about 20 staff members headed by the Deputy Minister instituting their environmental program.

### 3.3.14 Mongolia:

New 1995 law, with regulations being developed.

### 3.3.15 World Bank:

Current focus is on environmental impact assessment, but would like to help with enforcement capacity building.

### 3.3.16 Bangladesh:

Currently working master plans and strategies under recently passed law. Country focused on economic growth with little interest in environmental compliance or enforcement.



3.3.17 Nepal:

New Ministry of Environment with authorities that overlap with those at local level. Military charged with enforcement.

3.3.18 India:

Overall, program is complete with respect to requirements (laws, regulations, and permits), compliance monitoring, and enforcement. Authorities split between national and state levels.

## 3.4 Compliance Monitoring (see Figure 1)

Figure 1. COMPLIANCE MONITORING (session B)

Country	Inspectors	Training programs	Source Self-Monitoring	Third party Audits	Citizen Complaints	Special Roles for Inspectors
Australia	X	State level	X	X	X	X
Cambodia	X			X	X	urge and advise
Hong Kong	X	X	X	X	X	advise
Indonesia	Sectoral	Sectoral	X	new law	X	
Japan	X	Local	X	Some	X	
Malaysia	X	X	X	X	X	on-site enforcement
Mongolia	X	X	X			
New Zealand	X	On the job	X	X	X	able to issue abatement notice
Philippines	X	X	Major sources	X	X	advise, closure order
PRC	X	X	Major sources		X	Radioactive
South Korea	X	X	X		X	Police only
Thailand	X	X	X	X	X	
Vietnam	X		X	X	X	

3.4.1 Inspectors

Most countries within the region have dedicated environmental Inspectors within environmental agency in all countries except Indonesia, Nepal and Bangladesh where inspectors are part of other ministries (for example, Ministry of Industry).

### 3.4.2 Training

Training of inspectors is very strong in Australia (State level) and strong in the PRC, Japan, India (training institute), Philippines, Malaysia, Thailand, and Hong Kong. Only on-the-job training available in New Zealand and none available in Cambodia, Nepal, or Vietnam. Bhutan administers an initial examination but no further training. Thailand certifies laboratories.

### 3.4.3 Source Self Monitoring

Source self monitoring in all countries except Cambodia, where it appears only in draft law to date, and Bhutan. Especially focused on large industries in Japan, India, Philippines (continuous air emissions monitoring required for large sources), and Hong Kong. Sources are required to monitor in the Philippines, but the information is not used at present.

### 3.4.4 Third Party Audits

Exist in all countries except Cambodia, PRC, Japan, India, South Korea, Nepal, Mongolia, and India. Thailand delegates auditing function to private sector to stretch limited budgets of government agencies. Third party audits are specified in permits in Thailand and Hong Kong. Malaysia intends to begin using third party audits, and hopes to certify auditors.

### 3.4.5 Citizen Complaints

All countries have some mechanism to accommodate citizen complaints except Bhutan and Mongolia. New Zealand, India, and Malaysia maintain 24-hour hot-lines, and Thailand also maintains a hot-line with 48-hour responses. More than half of the work effort in the Philippines originates with citizen complaints. In Malaysia, citizen complaints sets priorities. There is no system to respond to complaints in Indonesia. Thailand encourages use of media to raise attention to a particular enforcement need and one newspaper has a phone hotline for pollution complaints. The Pollution Control Department has a complaint unit, exemplary of the kind of unit existing in many countries which in turn refers complaints to relevant agencies. Hong Kong reported getting and responding to over 12,000 citizen complaints a year. Just to get a feeling for the extent to which complaints were driving inspection budgets, when asked the relative importance of citizen complaints to directing country inspection resources, Hong Kong indicated that 70% of noise, 30% of air, and 10% of water inspections were in response to complaints as compared to 10% in Japan, 20% in Korea, 100% in Australia--at the national level, 30% in Malaysia, 100% of serious complaints in Indonesia (with no systematic process for receiving and responding to complaints generally), and less than 10% in Thailand.

### 3.4.6 Special Roles of Inspectors

Most countries that have inspectors provide them other duties such as provision of technical guidance, issuance of abatement or closure orders, spot audits, water quality planning, and various prosecution roles. Malaysia allows for on-site enforcement, and New Zealand allows inspectors to issue abatement notices in the field.

### 3.4.7 Financing

Of additional interest is the fact that in Thailand, permit and annual fees for the cost of inspection go to the general revenues as do permit fees in the Philippines.

**Figure 2. ENFORCEMENT RESPONSE AUTHORITIES AND POLICIES**

Country	Informal/Citizen Enforcement	Administrative	Civil/Judicial	Criminal Fines/Imprisonment	Enforcement Response Policies	Penalties
Hong Kong	seldom; try to discourage discretion	written warnings	seldom used; judicial review available	finer common; can imprison up to 2 years, but not used	Yes, through guiding principles	10% of maximum for 1st offense. Maximum 20k \$US
Thailand	dialogues; informal requests	revoke license; fine revenues accrue to issuing agency	strict liability with compensation	court decides fine and/or prison	Pyramid, but unpublished -- flexibility to jump	Used as last step
Malaysia	dialogues; informal requests; only directly affected parties	can impose bond for clean-up up to \$100K	government and aggrieved party	court decides fine up to \$25K per violation and/or prison; imprisonment not used to date.	Yes, but not in writing	Yes up to \$25K per violation. Also can restrict offenders' export/import
Bangladesh	Visits of Minister and other officials	Yes, variety of responses	Yes	\$2,000 or 5 yrs in prison for owner	Yes	Determined by Courts
Nepal	especially used for solid waste	Yes, cancel license	rarely	finer common, prison rare	Yes - done by Department of Industry	Up to \$2,000 per violation
India	citizens can take court action	no fines/penalties		6 mo - 6 yrs; fines only through court	Yes	Yes - imposed by court
Vietnam		Close facilities				Up to \$10K per violation usually does not work; up to 3 million yen for illegal dumping.
Japan	Use mass media reports; shame is best approach	public exposure	part of culture is to avoid courts	try to avoid fines	Yes	Yes, up to 100k \$US
PRC	Yes, but does not happen much	most common	common; compensation	sometimes for most serious cases; court authority	All specified in law	Yes, up to 100k \$US
Cambodia	No	No	compensation for damages in proposed legislation	No	In proposed law only	No
New Zealand	Yes; citizen only	Yes	Judicial only	Yes-to mitigate effects; Up to 2 years in jail.	Yes	\$4 K/day up to \$200K - judge decides
Australia	Yes, citizen suits; not widely used	Yes	Civil more than criminal	Try to avoid criminal since must go to court; Yes to jail	Yes, but not published	Up to \$1 M to owners and directors; 500k corporate, 100k private

### 3.5 Enforcement Response authorities and policies (See figure 2)

Within the region, countries utilize a range of approaches, some legal, some involving creative use of public and private pressure, to respond to violations and gain compliance. (See chart) For example administrative enforcement is relied upon by Hong Kong almost exclusively including the use of fines and possible jail terms. Thailand uses administrative remedies such as license revocation and fines with revenues accruing to the issuing agency. Mass media and public shame is used to effect in Japan. In Bangladesh they use visits by the Minister and other officials. Australia has an enforcement pyramid with self-correction at the base, various administrative actions next, criminal penalties next and suspension of licenses at the apex.

### 3.6 What works?

Participants came up with the following list of what seemed to work and not work from their experiences:

- 1) Permits tied to goals: must be specific, implementable, defensible, measurable, enforceable
- 2) Reducing penalties for self-disclosure and correction of violations
- 3) Negotiating pollution prevention or audits into enforcement settlements
- 4) Shame, publicity
- 5) Frequent inspections/visits
- 6) Voluntary compliance; assistance to small-scale companies
- 7) Financial incentives: as examples, tax holiday for pollution control equipment imports, tax credit for pollution
- 8) Targeting:
  - Based on sectors
  - Based on local conditions: as example, air inspections in dry season, water inspections during wet season
  - Reducing permit requirements for active pollution prevention
- 9) Awards for companies that adopt ISO 14000
- 10) Maintain accountability
- 11) Requiring enhanced performance or cleanup in return for economic advantages
- 12) Nonregulatory approaches to affect "guest" companies:
  - Information sharing
  - Publicity in companies' home country
  - Requiring home country standards
  - International "sanctions"
  - Report to home country parent company

**Figure 3. ROUGH CUT AT COMMON ENVIRONMENTAL CHALLENGES**

Country	Pollution sources	Affected medium (air, water, land)	Other
Thailand	Tanneries Textiles Automobiles Construction	Water Water Air Air	Hazardous waste disposal
New Zealand	Timber Petrochemical	Urban storm water	Sediment "Orphan sites"
Malaysia	Metal finishing Food & beverage Quarries Rubber Pig waste Distillation/ fermentation Non-industrial sources- e.g. motor vehicles	Water     Air, Water	
Indonesia	Textiles Tapioca Pulp & paper Mining (construction materials)		Hazardous waste
Japan	Mobile sources	Air	
South Korea	Small-scale operations	Water	
Bhutan	Wastewater plants Deforestation	Water Endangered species	
PRC	Sewage Industrial growth	Water Air	
Philippines	Small industry Solid waste Mobile sources	Water (65% nonpoint source) Air	Hazardous waste (no capacity)

### 3.7 Common Environmental Challenges and Priorities: Targets of opportunity

To assess whether the countries within the region faced some common environmental challenges each participant in Session B was asked to contribute their perceptions of what the biggest challenges were. It became apparent from the discussions, that 1) there were groups of industrial and human development activities that were common challenges within the region, 2) some countries had successfully addressed environmental problems from industrial sectors that other nations within the region were just beginning to address, and 3) that more work could be done to identify common problems which could benefit from shared information on control, prevention, compliance status information, inspection techniques and compliance strategies.

### 3.8 Opportunities for Networking:

The Region already has in place, a variety of mechanisms to meet cooperation and networking needs. Yet, additional needs were identified as follows:

1) More complete baseline information on:

- Expertise of individuals within the region
- Environmental Laws
- Environmental Policy
- Technical Solutions to environmental problems accessible resources by persons in libraries, CIEL's database and other means.

Many members of the Asia/Pacific group met one evening to discuss forming a network concerned with environmental law in the region. The group discussed whether the focus would be on environmental law and policy but decided that the need was to move beyond this narrow focus to include issues of implementation, enforcement and practical solutions as well.

2) Electronic Bulletin Board and/or other communication methods (i.e. newsletter)

3) Universal access to E-mail and the Internet (only half the participants are hooked up currently)

4) Training across a wide variety of subjects:

- Environmental Management for small enterprises
- Sectoral information
- Customs Officials
- Inspectors to implement Laws
- Technology and equipment
- Rule development
- Permit writing
- Enforcement responses
- Legislative drafting
- Implementation of international conventions (in particular, networks to exchange country information on responses to these conventions)
- Judiciary personnel on criminal enforcement
- Criminal Enforcement (police, public officials, judges)

The participants also discussed the need for training in the regulated community, especially when a new control regime is introduced. Hazardous waste control was cited as but one example.

Participants favored modularized training with one group common to all countries and others specific to each country.

5) Personnel Exchanges -- especially on-site trips to observe/learn how one country solved a problem

6) Follow-On Regional Meetings to keep momentum going including an Asia-Pacific Conference on Environmental Law, possibly in Singapore.

#### 7) Transboundary cooperation

- Bi-lateral agreements for disposal of PCBs
- Sharing lists of shipping companies
- Sludge dumping in Malaysia and Singapore and potential exchange of enforcement information

Participants discussed the potential for a joint submission to GEF (administered jointly by the World Bank, UNDP, UNEP) which considers Transboundary/Maritime issues one of its four top priorities) for a grant on coordination.

### 3.9 Training Resources Available

There are many training resources already available through the following channels:

- UNDP, UNEP
- World Bank, regional banks
- Country training institutes such as National Civil Service Institute in Malaysia or
- Bilateral assistance e.g. U.S. EPA enforcement training, Japan International Cooperation Agency
- Local Universities (e.g. Chiang Mai University or Asian Institute of Technology in Thailand)
- Partnerships with NGO's and industry
- US Asia Environmental Partnership

A "virtual regional training network" was discussed to combine training expertise of all countries so that overlap is avoided.

## 4 CONCLUSIONS/ NEXT STEPS

- 1) Establishment of a network among participants within the region focusing on environmental law and policy to share baseline information and needs
- 2) Cataloguing existing training opportunities with an eye toward making them more widely available in the region and sharing them efficiently
- 3) Explore GEF grant funding of regional project in maritime/transboundary protection
- 4) Training the trainers on criminal enforcement, who can then train country police, public officials and judges within the context of their own country
- 5) Implement the network to build capacity in a wide variety of areas, including, for example, capacity building for compliance with international conventions
- 6) Explore opportunities for follow up meetings of this group to further develop and implement regional linkages
- 7) Explore how to best link up with other regional networks

The regional meeting resulted in assignment to six individuals to prepare position papers to be distributed to all participants by July 1996. The conference sponsors are requested to provide electronic listing of participants so that this step can be accomplished.

**LIST OF PARTICIPANTS FOR ASIA AND PACIFIC REGIONAL MEETING**

Mr. Damcho Dorji	Royal Government of Bhutan	Bhutan
Mr. Ugyen Tenzin	Royal Government of Bhutan	Bhutan
Mr. Sam Chamroeun	Ministry of Environment	Cambodia
Mr. Mak Sophy	Ministry of Environment	Cambodia
Mr. John Boxall	Environmental Protection Department	Hong Kong
Mr. Patrick Lei	Environmental Protection Department	Hong Kong
Mr. Tse Chen Wan	Environmental Protection Department	Hong Kong
Mr. Hamrat Hamid	Environmental Impact Management Agency	Indonesia
Mr. Mas Achmad Santosa	Indonesian Center for Environmental Law	Indonesia
Mr. Reiji Hitsumoto	Environment Bureau - City of Kitakyushu	Japan
Mr. Choei Konda	Environment Agency	Japan
Mr. Jalaluddin Ismail	Department of Environment	Malaysia
Mr. James Dawos Mamit	Natural Resources and Environment Board Sarawak	Malaysia
Dr. Aziz Abdul Rasol	Department of Environment	Malaysia
Mr. Mohamad Sayuti Sepeai	Department of Environment State of Sabah / Lubuan	Malaysia
Mr. H. Badam	Ministry of Nature and the Environment	Mongolia
Dr. J. Tsogtbaatar	Ministry of Nature and the Environment	Mongolia
Mr. Donald Carter	Resource Council, Hamilton Office	New Zealand
Mr. Chris Hatton	Auckland Regional Council	New Zealand
Mr. Hu Baolin	National Environmental Protection Agency	Peoples Republic of China
Mr. Suli Wang	National Environmental Protection Agency	Peoples Republic of China
Dr. Wang Xi	Center for Asian Legal Studies	Peoples Republic of China
Ms. Zhao Ying	East Asian Legal Studies Program	Peoples Republic of China
Ms. Abigail Modino	Senate Committee, Environment & Natural Resources	Philippines
Mr. Antonio A. Oposa Jr.	Philippine Ecological Network (PEN)	Philippines
Ms. Rachel A. Vasquez	Environment Management Bureau	Philippines
Dr. Yeong-Ren Chen	Environmental Protection Administration	Taiwan
Dr. Gwo Dong Roam	Environmental Protection Administration	Taiwan



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Mrs. Kasemsri Homchean	Industrial Estate Authority of Thailand	Thailand
Ms. Suwamarin Jugsujinda	Thailand Environmental Institute (TEI)	Thailand
Mr. Chamnan Junruang	Chiang Mai Governor's Office	Thailand
Dr. Seni Kamchanawong	Faculty of Engineering	Thailand
Dr. Pakit Kiravanich	Pollution Control Department	Thailand
Ms. Sunee Mallikamarl	Chulalongkom University	Thailand
Minister Yingpan	Manasikarn	Thailand
Mr. Virah Mavichak	Department of Industrial Works	Thailand
Dr. Nonglak Pancharuniti	Thailand Environment Institute (TEI)	Thailand
Mr. Virach Payackapan	The Royal Thai Police	Thailand
Ms. Santivipa Phanichkul	Thailand Environment Institute (TEI)	Thailand
Sub Lt. Preecha Phetwong	First Regional Harbour Master Office	Thailand
Dr. Tippawan Prapamontol	Chaing Mai University	Thailand
Mr. K. Sukondhasingha	The Federation of Thai Industries	Thailand
Mr. Pornchai Taranatham	Pollution Control Department	Thailand
Dr. Saksit Tridech	Office of Environmental Policy and Planning	Thailand
Mr. Suvidh Voravisuthikul	Department of Land Transport	Thailand
Dr. Amnat Wongbandit	Thammasat University	Thailand
Mr. Panithan Yamvinij	National Economic & Social Development Board	Thailand
Mr. Le Van Kieu	Ministry of Science, Technology & the Environment	Vietnam
Mr. Phung Van Vui	Ministry of Science, Technology & the Environment	Vietnam
Ms. Jean Aden	Asia Technical Department	World Bank



## **SOUTH ASIA REGIONAL MEETING**

Facilitators: See Asia-Pacific Regional Meeting  
 UNEP Facilitator: Rob Glaser

### **GOALS**

Workshop discussions focused on:

- Shared Problems and Challenges
- Institution-building needs
- Opportunities for institutional support and exchange  
 (Review of existing mechanisms)
- Proposals for regional networking: agenda for action
- Desired linkage to international capacity building efforts
- Targets of Opportunity

## **1 INTRODUCTION**

The South Asia representation at the Conference was sufficiently small that it was deemed desirable for the group to join in one of two Asia meetings on the third day of the Conference, Session A, and to meet separately on Friday to discuss follow up and networking because of the established environmental networks existing for South Asia. The combined and separate South Asia regional meeting resulted in a very good basis for follow up action on implementation and capacity building.

## **2 DISCUSSION SUMMARY**

### **2.1 Driving Forces**

Participants had an opportunity to express what they believed is driving environmental compliance and enforcement in their countries and in the region as a whole. It was interesting to note differences in perceptions of driving forces within South Asia countries versus Asia-Pacific. In order of most frequently cited to least frequently cited forces they are:

- Environmental legislation (Bangladesh, Nepal) and international obligations (Nepal, Bangladesh)
- Environmental Problems related to population density, deforestation, biodiversity concerns, natural hazardous (Bangladesh), wildlife preservation and tourism (Nepal)
- Strong role of the Judiciary (Nepal, Bangladesh, India)
- Public awareness and pressure (Nepal)

- Strong NGO's (India)
- Education: training institutes (India)

## 2.2 Barriers to Environmental Compliance and Enforcement

For countries within South Asia, participants noted:

- a lack of strong political will stemming from new democracies which are unwilling at this time to take on environmental enforcement issues.
- lack of capacity building related first to legislation without supporting rules or regulations and a prevalence of sectoral rules which lack coordination in development or implementation therefore the lack of interagency coordination on compliance enforcement matters was a serious impediment given sectoral approaches.
- limited resources including the inability of governments to pay competitive salaries leading to difficulties in attracting and retaining qualified staff

## 2.3 Regulatory Program Status Overview

The region contains programs in different stages of development with many highly developed programs and those that are first being organized. There are varied approaches as well from which participants can continue to learn from each other. The majority of countries in the region have environmental compliance and enforcement programs in place with adequate laws, regulations, and requirements, permit systems, inspection programs, training, self-monitoring, third party audits, citizen complaints, a full variety of enforcement response mechanisms, written response escalation policies. Those that do not yet have these program elements are in the process of creating them. Hence a tremendous amount of progress has been made within the last five years. Yet, some problems remain with implementation. In brief:

### 2.3.1 Bangladesh

Currently working master plans and strategies under recently passed law. Country focus on economic growth with little interest in environmental compliance or enforcement.

### 2.3.2 Nepal

New Ministry of Environment with authorities that overlap with those at local level. Military charged with enforcement.

### 2.3.3 India

Overall, program is complete with respect to requirements (laws, regulations, and permits), compliance monitoring, and enforcement. Authorities split between national and state levels.

### 2.3.4 World Bank

Current focus is on environmental impact assessment, but would like to help with enforcement capacity building.

### 3.4 Compliance Monitoring

#### 3.4.1 Inspectors

Only India and Sri Lanka reported dedicated environmental Inspectors within environmental agency Nepal and Bangladesh inspectors are part of other ministries (or example, Ministry of Industry).

#### 3.4.2 Training

Training of inspectors is very strong in India and it is not yet available in Nepal, or Bangladesh.

#### 3.4.3 Source Self Monitoring

Source self monitoring is highly developed in India, especially focused on large industries with requirements which often go to continuous air emissions monitoring for example. This is fully described in the Capacity Building Support document on Source self-monitoring requirements.

#### 3.4.4 Third Party Audits

Is not really relied upon by governments in the region as a means of compliance monitoring.

#### 3.4.5 Citizen Complaints

All countries have some mechanism to accommodate citizen complaints. India maintains 24-hour hot-lines.

### 3.5 Enforcement Response authorities and policies

Within the region, countries utilize a range of approaches, some legal, some involving creative use of public and private pressure, to respond to violations and gain compliance. (See chart). In Bangladesh they use visits by the Minister and other officials

### 3.6 Opportunities for Networking:

The Region already has in place the South Asia Economic Cooperation, SAEC which has an Environment Committee. It is a Ministry level Committee which can better serve the important role of cooperation in environmental compliance and enforcement. The participants recommended that activities of this group be expanded to address environmental compliance and enforcement matters, and that it serve as a means of organizing regional workshops, seminars and the like on this subject. Next month the issue is climate change and the representatives at the conference will raise the opportunity to review related compliance and enforcement issues.

## 4 CONCLUSIONS/ NEXT STEPS

Participants will expand the focus of SAEC's Environment Committee to integrate compliance and enforcement issues.

**Figure 1. ENFORCEMENT RESPONSE AUTHORITIES AND POLICIES**

Country	Informal/Citizen Enforcement	Administrative	Civil/Judicial	Criminal Fines/Imprisonment	Enforcement Response Policies	Penalties
Bangladesh	Visits of Minister and other officials	Yes, variety of responses	Yes	\$2,000 or 5 yrs in prison for owner	Yes	Determined by Courts
Nepal	especially used for solid waste	Yes, cancel license	rarely	fines common, prison rare	Yes - done by Department of Industry	Up to \$2,000 per violation
India	citizens can take court action	no fines/penalties		6 mo - 6 yrs; fines only through court	Yes	Yes - imposed by court

**LIST OF PARTICIPANTS FOR SOUTH ASIA REGIONAL MEETING**

Ms. Mary Gade	US Environmental Protection Agency	USA
Mr. Robert Glaser	Ministry of Housing, Spatial Planning & the Environment	The Netherlands
Mr. Jan Van Den Heuvel	Ministry of Housing, Spatial Planning & the Environment	The Netherlands
Mr. Lal Kurukulasuriya	United Nations Environment Program	UNEP
Mr. A De Lange	Public Prosecutors Office	The Netherlands
Mr. M. Abdul Latif Mondal	Government of Bangladesh	Bangladesh
Mr. G. Rengasamy	Tamil Nadu Pollution Control Board	India
Prof. Yubaraj Sangroula	Institute for Legal Research and Resources (ILRR)	Nepal
Mr. Sadhu Ram Sapkota	Ministry of Population and Environment	Nepal

## CENTRAL AND EASTERN EUROPE REGIONAL MEETING

Facilitators: Gyula Bándi, Eva Kruziková, Andrzej Mizgajski  
 Rapporteur: Susan Casey-Lefkowitz  
 UNEP Facilitators: Huub Kesselaar, Harley Laing

### GOALS

The main goal of the regional meeting for Central and Eastern Europe, including states of the former Soviet Union, was to learn innovative approaches to environmental enforcement from each other. The participants decided to first establish the status of the participating countries' environmental compliance and enforcement programs and then to work together to understand challenges common to countries with economies in transition. The participants decided to then focus on institutional and programmatic needs and to discuss opportunities for regional networking and linking country needs to international capacity-building efforts.

## 1 INTRODUCTION

Twenty-five participants from twelve Central and Eastern European countries met to discuss environmental enforcement issues of special concern in the region. The participants represented the point of view of both local and national offices of the Ministries of Environment and Environmental Inspectorates, as well as the non-governmental community.

## 2 DISCUSSION

### 2.1 Status of Legal Framework in the Region

The group established that although most countries have an environmental legal framework in place, including regulations and a permitting system, the compliance and enforcement programs in the region are still mainly undeveloped. Most participating countries reported having the basic elements of an enforcement program, such as inspectorates with the ability to assess fines and penalties. Some countries also reported elements of compliance promotion, such as the ability to negotiate compliance schedules in certain situations. However, no participating countries reported having a written enforcement policy or integrated enforcement and compliance program.

### 2.2 Driving Forces and Barriers to Environmental Enforcement

The group identified some common driving forces behind environmental compliance and enforcement programs in the region. The two most common were national legislation and the move to harmonize that legislation with the European Union directives. The requirements of international conventions and a desire to harmonize environmental protection practices with the practices of the Organization for Economic Cooperation and Development (OECD) also ranked high among common driving forces.

From the many barriers to effective enforcement, participants noted political problems, such as lack of political will and the priority of economic issues. They also focused on problems of government infrastructure, such as a low level of professional capacity, institutional problems, and

uncertainty during a time of administrative reform. The group also noted problems in the private sectors, such as a lack of respect for the rule of law, out-dated industrial technology, and a low awareness of environmental problems.

### 2.3 Common Challenges

From a long list of common challenges, the group selected three shared issues in the region to discuss in more detail. These were the issue of decentralization, privatization, and environmental policy-making.

The group identified the issue of decentralization as being central to the debate of which level of government should have authority and resources to regulate specific aspects of environmental problems. After discussing advantages and disadvantages of centralization and decentralization in the context of environmental enforcement, the group concluded that the goal should not be decentralization in itself, but finding the appropriate level of government to regulate each environmental program. The group concluded further that the challenge for the region is to find this balance for environmental enforcement authorities.

When listing barriers, many participants had mentioned the transition to an economy with more private ownership as one of the difficulties for enforcement, especially regarding land reform privatization and restitution. The group concluded that privatization itself was not the problem, but that environmental problems were caused when such a complex change was undertaken without a legal and enforcement infrastructure to handle regulation, liability, and controls on the behavior of private firms and individuals.

As a third shared challenge, the participants discussed how environmental policy-making was approached in the context of laying a basis for effective enforcement programs. Most countries in the region have developed or are developing an integrated environmental policy and a framework environmental law. It was noted that environmental policies create the opportunity to set the stage for integrated pollution control and pollution prevention which can become central issues to enforcement programs. Some participants noted that policy functions as a set of statements, under which implementation is flexible and under which enforcement priorities and allocation of resources are determined over time to meet specific needs.

### 2.4 Possibilities for Effective Enforcement

The group next focused on possibilities for effective enforcement in the region. Many participants felt that the main problem in the region is a lack of effective enforcement tools and a lack of tools to measure the success of programs. Participants agreed that, in general, the enforcement process in the region is based on traditional tools, such as fees and fines, but that there are a few innovations in different countries which need to be shared within the region. However, some participants felt that the barrier went deeper than traditional enforcement tools to a lack of political will and institutional capacity to use those tools.

The group identified citizen enforcement mechanisms, such as citizen petitions, citizen complaint mechanisms, and citizen enforcement suits, as an example of an effective enforcement tool. Specific examples of innovations included a new possibility for cooperation between citizen enforcers and the prosecutors office in Russia.

Participants also raised negotiated compliance agreements, as an innovative enforcement tool in the region. Examples of these included negotiated compliance schedules which are being used in Slovakia and Romania, and compliance agreements between the government and industry which are being used in the Czech Republic and Poland. However, the group felt that a barrier to these newer approaches is a lack of discretion for government enforcers to apply the appropriate tool to the appropriate situation.



Finally, the group discussed sharing information with the regulated community as a useful method for achieving environmental compliance. For example, in Romania, inspectors are holding meetings with various sectors, such as coal mine managers, to inform them as to enforcement activities and to listen to their compliance difficulties and needs.

## 2.5 Regional and International Networking

The group decided that the largest challenge facing Central and Eastern Europe is to develop integrated compliance and enforcement programs to replace the current piecemeal approach. It was agreed that a regional working group should be established to continue the exchange of information in this area. As major topics for regional discussion were agreed:

- Centralization versus decentralization.
- Ownership and privatization.
- Development of enforcement programs.
- Training of enforcers, negotiation skill.
- Exchange and share data.
- New enforcement tools.
- Transboundary issues (access to information and cooperation e.g. police).

## 3 CONCLUSIONS

- Most of the Central and Eastern European Countries possess a legal and organizational framework on which a second legislative system for integrated environmental policy, implementation and enforcement can be developed.
- Main barriers for further developments are the lack of political will and the priority given to economic development. The transfer and institutionalization of political and administrative structures in East European countries should be used as opportunity to establish a sound policy and institutional capacity.
- Cooperation and exchange of information within the region as well as with other (further developed) countries will accelerate national programs.
- To make a start with regional cooperation a meeting will be organized in 1997. Main topics will be: centralization versus decentralization; ownership and privatization; training and information exchange.

Assistance and input of knowledge was promised by US-EPA and the Dutch Inspectorate for the Environment.

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**LIST OF PARTICIPANTS CENTRAL AND EASTERN EUROPEAN REGIONAL MEETING**

Ivan Zavadsky	Ministry of Environment	Slovakia
Stanislaw Wajda	Ministry of Environment	Poland
Zbigniew Kamiński	State Inspectorate for Environmental Protection	Poland*
Harley Laing	U.S.E.P.A.	USA
Jan van Doorn	National Crime Intelligence Service	The Netherlands
Svitlana Kravchenko	EcoPravo-L'viv	Ukraine
Vera Mischenko	Ecojuris	Russia
Helena Cízková	Regional Office, Ministry of Environment	Czech Republic*
Nikolay Sidjimov	Municipal Association	Bulgaria
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Andrzej Mizgajski	Provincial Office Environmental Protection Department	Poland

\* Organizational committee for 1997 regional meeting on environmental compliance and enforcement.

## **WEST ASIA/MIDDLE EAST REGIONAL MEETING**

Facilitators: Tarek Genena, Ruth Rotenberg  
UNEP Facilitator: Ossama El-Kholy

### **GOALS**

Workshop discussions focused on:

- Shared problems and challenges.
- Institution-building needs.
- Opportunities for institutional support and exchange.  
(Review of existing mechanisms)
- Proposals for regional networking: agenda for action.
- Desired linkage to international capacity building efforts.
- Targets of Opportunity.

## **1 INTRODUCTION**

The representation from the West Asia/Middle East was smaller than expected and so broad conclusions could not be reached on next steps. However, the group had a good discussion which led to several conclusions.

## **2 DISCUSSION SUMMARY**

2.1 There are significant differences among the nations in the region in terms of environmental issues, status of environmental laws and their implementation, but each nation is struggling to address them.

2.2 There are some cooperative efforts already underway which should be expanded to focus on related compliance problems. The participants will go back and review existing mechanisms and projects for these opportunities.

2.3 Political will, time, and effort is needed before a functioning network for environmental compliance and enforcement can be established within the Region, but participants will follow up with working groups at both the national and regional levels and see how specific activities might benefit from exchange.

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**LIST OF PARTICIPANTS FOR WEST ASIA AND THE MIDDLE EAST**

Dr. Ossama El-Kholy	Egyptian Environmental Affairs Agency	Egypt
Dr. Tarek Genena	Egyptian Environmental Affairs Agency	Egypt
Ms. Bina Baron	Ministry of the Environment	Israel
Ms. Ruth Rotenberg	Ministry of the Environment	Israel
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His Excellency Ahmed Obeidat	Jordan Environment Society	Jordan
Mr. Ali A. Murshed	Sharjah Municipality	United Arab Emirates
Ms. Susan Becker	United Nations Development Program	UNDP

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## WESTERN EUROPE REGIONAL MEETING

Facilitator: David Slater  
Rapporteur: Alun W. James

### 1 INTRODUCTION

Representatives of 10 countries took part in the meeting of the Western European Region plus a representative of the European Commission. As you might expect, the fact that 9 of the 10 countries belong to the European Union meant that there was a good deal of common ground - but the discussions also exposed national differences.

### 2 GOALS

Workshop Discussion focused on

- Driving forces for environmental compliance and enforcement.
- Barriers to compliance and enforcement.
- Institution building needs.
- Opportunities for Institutional Support.
- International Capacity building efforts.

### 3 PAPERS

In the paper of Slater and James describes the experiences of the United Kingdom as a Member State of the European Union. Relevant information is shared out of these experiences. Van Doorn points at the international cooperation in combatting (international) environmental crime.

De Krom provides an overview of the successes and problems in enforcing supranational legislation of the European Community on the supervision and control of shipments of waste.

Van Gent reports about the European inspection project on the notification of new substances in which 14 European countries participated by inspecting approximately 100 companies.

### 4 DISCUSSION SUMMARY

#### 4.1 Driving Forces

The main Driving Forces for environmental compliance and enforcement mentioned were:

- public concern for, and media interest in, the environment, and
- policies of the national government, these policies often reflecting legislation of the European Union.

The Commission representative noted that the driving forces for this legislation were:

- the European Community Treaty;

- the 5th Action Programme of the European Community;
- Petitions and Questions from the European Parliament and Ombudsman;
- Non Governmental Organisations; and
- the policy of the Commission to work with Member States on improving the compliance with EC legislation and its enforcement.

Others important driving forces mentioned were:

- the cost savings and market benefits to industry from good environmental procedures ("clean technology");
- tough penalties imposed by courts; and, especially in the Netherlands and Italy:
- Police/Carabinieri involvement in environmental crime issues.

#### 4.2 Barriers

The most frequently identified barriers to compliance and enforcement were:

- differences between different levels of government within a country and poor communication among these levels.

These barriers were cited even more often than decreasing financial and political support. But these problems also were identified by most countries. Complexity of legislation and re-regulation pressures was also cited as a major problem. As mentioned, one of the driving forces was public concern but a backlash to this was also a perceived barrier:

- the public find it difficult to be environmentally active and don't want to compromise their freedoms, for example to have cars.

Perceived pan-European barriers were:

- inequitable legislation in different countries;
- uneven implementation and enforcement of legislation in different countries;
- not enough integration in the legal approach between different levels, and
- the quality of some EU legislation on the environment.

#### 4.3 Country program designs

We got bogged down a bit in discussing country program designs, but it became clear that the main problem, again, was difficulties between different levels of government within a country. All countries, or parts of countries, in the Region have some form of strategic plan, though implementation is often at different levels of government.

#### 4.4 Other topics

Other topics of mutual interest were discussed.

On enforceable requirements, many were concerned about the treatment of small and medium-sized enterprises (SMEs). In particular, should they be under the same permit requirements as larger firms. It was agreed that this subject should be pursued within the EU Network for the Implementation and Enforcement of Environmental Legislation - the IMPEL Network.

The requirement for self monitoring and EMAS was recognized as beneficial tools but governments should not rely on these alone to get compliance with legislation - they were not a substitute for regulatory inspections.

It was agreed that the effectiveness of enforcement in terms of the protection of environmental quality was more important than the number of inspections. That is, the risk posed by an industrial plant (as a result of its inherent hazard, the quality of its operator, or the sensitivity of the local environment) should influence the inspection frequency.

When the tools of enforcement were discussed, significant differences between countries were found. Some enabled regulators to impose fines directly on industries not complying with permits; others required court cases to decide upon fines. Many countries felt the fines allowed by statute were too lenient: sometimes it was cheaper for an industry to pay the fines than install abatement measures. It seemed, however, that new laws in some countries provided for higher penalties.

Again, on a Europe-wide basis, the Commission would like to see a more transparent system in all countries for the imposition of sanctions. It was agreed that a broad range of sanctions - administrative, civil and penal - were necessary for proper control.

## 5 CONCLUSIONS

In the Fifth Environmental Action Program for the European Union a strategic plan for sustainable development in Europe is presented in which enforcement is a major subject, argued by market oriented approaches, such as environmental charges, negotiated agreements, fiscal instruments and environmental liability.

The European enforcements week-long staff exchanges are a great mechanism and morale builder. Networks deliver information, consistency across programs and support for problem solving.

The conclusions of the discussions in term of the action plans for the Region are:

### 5.1 Institution Building Needs

Referring back to some of the main barriers to compliance and enforcement (ie. differences among different levels of government and complexity of legislation), it would be of great benefit if, somehow, it were possible to improve the relationship and communication between different levels of government and to simplify the legislation relating to the environment including permitting procedures.

### 5.2 Opportunities for Institutional Support and Exchange

The Western Europe Region has the IMPEL Network which provides support and exchange opportunities. It already has Working Groups looking at:

- 1 Technical Aspects of Permitting.
- 2 Procedural and Legal Aspects of Permitting.
- 3 Compliance Assessment and Inspection.
- 4 Training and Management Issues, and
5. Trans-frontier Shipments of Wastes.

In future IMPEL will be able to influence policy development in the European Union by sharing with policy makers the practical experience of implementing existing regulations. At the same time, IMPEL may also be able to provide useful information and experience to the European Economic Area (EEA) and other European countries.

### 5.3 Linkages to international capacity building efforts

More training would be desirable for all countries in the Region, and we see a proposed UNEP manual is a very useful tool in this regard.

Again regarding linkages, it seemed that *one* could benefit from the expansion of networking in two directions:

- First, to network more effectively within each country, and
- Second, to try to network beyond the Region. That is, to try to link IMPEL to Networks that have been, or will be, established in other Regions. That is, to help create an effective worldwide network of Regional networks. It was suggested that, just as each country in the EU has a national coordinator for IMPEL, one could have a single point of contact for other regions wishing to access IMPEL. An appropriate contact point may be the IMPEL Secretariat which has just been established by the Commission and Member States.

### 5.4 Specific Opportunity

A specific opportunity identified was the rapidly developing Internet. This can provide the practical means for inter-regional contact. Information exchange possible from the linking of Networks can provide real benefits to compliance and enforcement in Regions in all parts of the world.



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## INFORMATION SHARING AS AN ENVIRONMENTAL POLICY TOOL: THE INDONESIAN EXPERIENCE

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### SUMMARY

Indonesia has recently launched a program to report to the public on the environmental performance of its businesses. Under its Business Performance Rating system, called PROPER, the Government of Indonesia's Environmental Impact Agency (BAPEDAL), reports business performance with the use of color codes (from gold to black). While the program is new, with the first round of business ratings published as recently as December 1995, results as indicated by the response of Indonesian businesses have been very promising. Further, this scheme has proven to be easy to understand by both the public and business.

### 1 PUBLIC INFORMATION AS AN ENVIRONMENTAL POLICY TOOL

Environmental authorities throughout the world are increasingly recognizing the positive potential of policies that take into account the relationships of business with their communities and their markets. Reputation is critical to these relationships, and policies directed toward the environmental reputation of firms can be a powerful tool for improving their environmental performance.

The use of reputational incentives as embodied in public information policies is a recent environmental policy development, and experience around the globe is fairly limited. Although there are many ways that information on industrial environmental performance can be shared with the public, much of the experience to date is in implementing pollutant release and transfer registries (PRTRs) which are catalogues of pollutants introduced to air, water, and land from a variety of sources. For example, the U.S. Toxic Release Inventory, instituted in the mid-1980s, provides information to the public about releases of toxic chemicals into the environment from nearly 23,000 facilities. Since 1988, total releases have declined by 44.1 percent.<sup>1</sup>

Alternatively, information on environmental performance can be provided to the community through product labeling. For example, Taiwan has conducted a Green Mark program since 1993. To qualify products for green labeling, manufacturers must meet a set of criteria that includes consideration of their compliance with environmental standards and their success in reducing wastes.<sup>2</sup>

The Government of Indonesia has recently followed yet another approach to informing the public about the environmental performance of the country's industries. Under Indonesia's PROPER program, businesses are rated by the Environmental Impact Agency, BAPEDAL, based on clearly articulated criteria; the results of this rating are reflected in a single index that is widely publicized.

## **2 THE ENVIRONMENTAL PERFORMANCE RATING OF BUSINESSES (PROPER) IN INDONESIA**

### **2.1 Background - the need for innovative environmental policies in Indonesia**

With a population of about 200 million, Indonesia is the fourth most populous country in the world. The country has experienced remarkable economic growth, rising from one of the poorest countries in the world in 1967 (with per capita income of US \$50) to current per capita income rapidly approaching US \$1,000. During the 1970s and 1980s, Indonesia's manufacturing output doubled in volume every six to seven years. Thus, by 1990, manufacturing value added was approximately eight times its 1970 level in real terms. According to World Bank staff estimates, it is likely to expand another 13-fold by the year 2020. Manufacturing, which contributed only about 13% of total GDP growth in the 1970s, and 23% in the 1980s, is expected to contribute more than 33% in the 1990s and nearly 45% in the following decade.<sup>3</sup>

However, Indonesia's industrial expansion has brought with it largely uncontrolled industrial wastes and pollution leading to severe environmental degradation. The total pollution load contributed by the industrial sector has grown exponentially. World Bank estimates indicate that emissions of SO<sub>x</sub>, NO<sub>x</sub>, and total suspended particulates (TSP) increased by factors of five between 1975 and 1988.

In response to Indonesia's rapidly increasing environmental problems, the Government of Indonesia created BAPEDAL in 1990 as an independent agency whose mandate is to:

- Develop its own institutional capacity for environmental protection, management, training and education as well as those of provincial and municipal governments and put into place an information system for environmental protection.
- Create and enforce environmental protection regulations.
- Develop market mechanisms and economic incentives for environmental protection.
- Develop a tripartite system of enforcement which emphasizes strategy-sharing with nongovernmental organizations (NGOs).

Unfortunately, it has been extremely difficult to achieve this mandate. The new agency, while growing, still lacks experience in monitoring, and responding to Indonesia's mounting pollution problems. Further, according to the Presidential Decree establishing BAPEDAL, the agency has the mandate to control pollution and environmental degradation. However, this mandate was not followed by clear authority. As such, this could be seen as a restriction on the agency but on the other hand it may provide an opportunity for larger authorities. Consequently, the new agency has had to be creative and to pursue innovative policies that transcend traditional command-and-control approaches. In this light, public information has been a key policy tool in the new agency's efforts to combat Indonesia's rapidly mounting industrial pollution problems.<sup>4</sup>

## 2.2 Indonesia's experience with reputational incentives prior to PROPER

Two reputational programs that have leveraged additional resources to further BAPEDAL's goals: ADIPURA (Presidential award for cleanest cities) and the PROKASIH (clean rivers program). Both programs ingeniously skirt the constraints of BAPEDAL's institutional capacity.

ADIPURA is awarded annually by the President of Indonesia to the cleanest cities in the country. Under this program, a national-level review committee is put together with representatives from provincial governments, nongovernmental organizations, academia and line ministries. This committee meets to review applications from each town and city competing for the award. In 1993, 58 towns and cities participated; the number was significantly larger in 1994 and 1995. Mayors are reputed to be competing for these awards under strong encouragement from their governors, thus providing strong incentives for the actions. Citizens also take great pride in winning this award and hold parades and other special events to celebrate the award.

The PROKASIH program targets all factories discharging waste water into a specific river. In essence, the program enlists industry to sign an agreement with the local mayor and BAPEDAL on waste water management and specific levels of discharge. Under PROKASIH, each provincial governor is responsible for program implementation within their province. The operational responsibility is delegated to the Vice Governor who chairs a team, with representatives from the provincial-level offices of the Department of Environment, Development Planning Board (BAPPEDA), universities, research laboratories, NGOs, local officials, and other relevant sectorial agencies that monitor the factories' adherence to the agreement. If they are found to be in violation, factories are prosecuted on the specific standards set in the agreement instead of national and provincial regulations. The involvement of NGOs and other stakeholders in this program has broadened the support base for enforcement, which has in turn created greater pressure on businesses to comply with their agreements. From 1989 to 1994, PROKASIH activities have dealt with 31 rivers in 13 provinces; the program now encompasses more than 50 rivers in 17 (of Indonesia's total 27) provinces.<sup>5</sup>

## 2.3 Introduction to PROPER

Building on the success of ADIPURA and PROKASIH, BAPEDAL has recently added public information as another key ingredient of its policies to improve the environmental performance of Indonesian businesses. Under PROPER, BAPEDAL has implemented a system for rating the environmental performance of industries and for publicly announcing the ratings. Unlike PRTRs, the PROPER system is based on publishing a single indicator of environmental performance. The program is expected to serve two objectives: (1) promote compliance with existing regulations; and (2) reward firms whose performance exceeds regulatory standards. BAPEDAL announced the results of its first rating cycle in June 1995.

Like ADIPURA and PROKASIH before it, PROPER works in parallel with, not as an alternative to environmental regulations and enforcement. Given BAPEDAL's current limited institutional and technical capacity the strategy to develop PROPER has been very careful and conservative. Foremost in the development of PROPER was to ensure that it was well articulated to all stakeholders to ensure that everyone understood them. Further, the program needed to be accurate and its evaluation and the rating process had to be transparent to lend it credibility. To ensure this, BAPEDAL chose to rate only 187 companies in the program's first year. As technical capacity develops, so too will the number of businesses in the program. BAPEDAL expects to have about 5000 companies participating in PROPER by the turn of the century.

**Table 1. Listing of the ratings and their requirements:**

Exceed Compliance	Gold	All requirements of <b>Green</b> , plus similar levels of pollution control for air and hazardous waste. Polluter reaches high international standards by making extensive use of clean technology, waste minimization, pollution prevention, recycling, etc.
	Green	Pollution level is lower than the discharge standards by at least 50 percent. Factory also ensures proper disposal of sludge, good housekeeping, accurate pollution records, and reasonable maintenance of the waste water treatment system.
In Compliance	Blue	Factory only applies sufficient effort to meet the minimum discharge standards.
Not In Compliance	Red	Factory makes some effort to control pollution, but it is not sufficient to achieve compliance.
	Black	Factory makes no effort to control pollution, or causes serious environmental damage.

To keep the program simple in its first year, the initial set of ratings only measured business performance vis-à-vis the management and discharge of waste water. Although Indonesia's existing environmental regulations cover waste water, as well as air pollution and hazardous waste, the regulations on hazardous waste and air pollution are recent, with a Presidential Decree issued in 1994 for hazardous waste and a 1995 Ministerial Decree specifying air emissions standards for stationary sources. On the other hand, regulations on water pollution have a significantly longer record of development and implementation. Further, PROPER currently uses the national water pollution regulations as there are both national and provincial water pollution regulations. In some cases the provincial regulations differ significantly from their national counterparts.<sup>8</sup> To simplify matters and to ensure that ratings criteria are uniform throughout the country, it was decided that national standards would be used. Eventually, PROPER is expected to be a multimedia program and will include toxic waste and air pollution. It is possible that the methodology will be adapted to include provincial regulations.

For its first year, PROPER included three groups of companies in the program: those already in PROKASIH; those volunteering for the PROPER program; and selected "special cases."

To be rated **Blue** the plant has to comply with the minimum standards for waste water management and discharge. As such, the criteria for a blue rating becomes the minimum baseline from which factories exceed compliance or do not meet compliance.

To move from **Blue** to **Green** the factory must meet all the requirements for the Blue rating and:

- Pass an inspection by BAPEDAL inspectors to prove that the factory's pollution is at least 50 percent less than the relevant discharge standard in the most recent six months of pollution reports prior to the rating.
- Pass an inspection by BAPEDAL inspectors to show that the factory manages and disposes of its sludge in an environmentally responsible manner.
- Demonstrate to BAPEDAL inspectors that it practices good housekeeping.
- Submit accurate and up-to-date pollution records monthly to BAPEDAL.
- Show BAPEDAL inspectors that its waste water treatment systems are in good operational condition and well maintained.

BAPEDAL designed the **Green** rating to exceed all the requirements for ISO 14000 certification. By pinning this rating-level to an international standard, it lends credibility to the program and encourages companies interested in ISO certification to participate in PROPER by providing a pre-certification check point against which they can measure their preparedness for ISO 14000 certification.

To move from **Green** to **Gold**, the factory must meet all the requirements of the **Green** rating and undertake a special audit by recognized experts. For the first cycle of ratings, no companies were able to achieve this rating. The special audit will judge whether the plant:

- Shows BAPEDAL inspectors that its waste water treatment systems are in good operational condition and well maintained.
- Demonstrates excellent performance in the adoption of cleaner production.
- Uses recyclable products and environmentally friendly inputs.
- Recycles/reuses its materials.

In an attempt to include some assessment of air and hazardous waste performance and to place a marker for future inclusion of standards for these mediums, several decision rules have been established. However, they were done in recognition that reliable plant-level data on air and hazardous waste data are still scarce.

- If a plant that produces hazardous waste meets the criteria for a **Green** rating based on its water pollution, but does not have the operating permit required by the hazardous waste regulation, its rating remains **Blue**.
- For a **Gold** rating, a plant that produces hazardous waste must have the operating permit required by the hazardous waste regulation and be determined by the special audit team to be handling and managing its hazardous waste in an environmentally responsible manner.

The difference between a **Blue**- and a **Red**-rated plant is that the **Blue** plant meets the minimum standards of waste water management and discharge while the **Red** plant has shown an effort to meet the standards, but has not succeeded. These efforts are judged by:

- An observable investment in end-of-pipe treatment or at least partial installation of a primary treatment system.
- Credible demonstration of a pollution reducing process or input change.

The difference between a **Red** and a **Black** rated plant is that the latter has neither a primary treatment system for its waste water nor can it demonstrate that it has instituted a process or input change to reduce pollution. In addition, if BAPEDAL receives a complaint from a neighboring community that a plant is polluting, it is immediately considered for a **Black** rating. BAPEDAL staff then follow-up with an environmental audit of the plant and an assessment of damage from discharges to air, water and land.

The PROPER process is kept relatively simple. The most time involved steps are the data gathering required of the company for the self reporting of data and the verification and compliance analysis by BAPEDAL. Figure 1 represents the PROPER process.

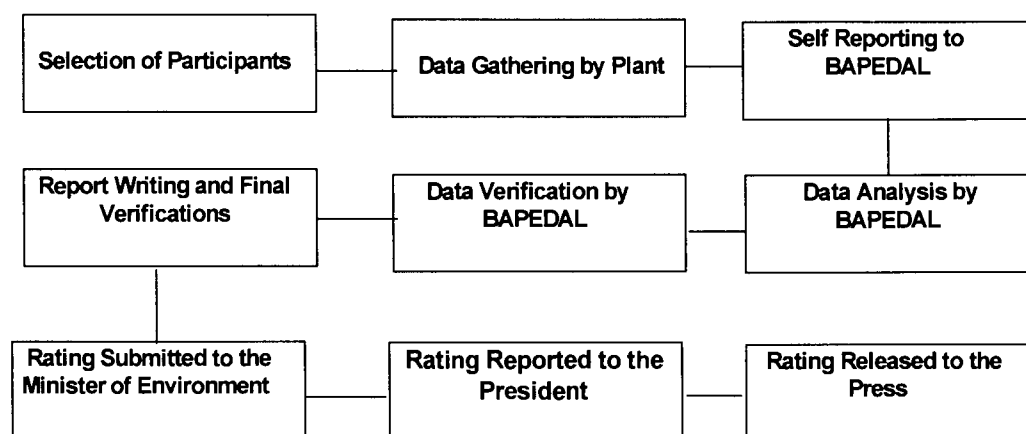
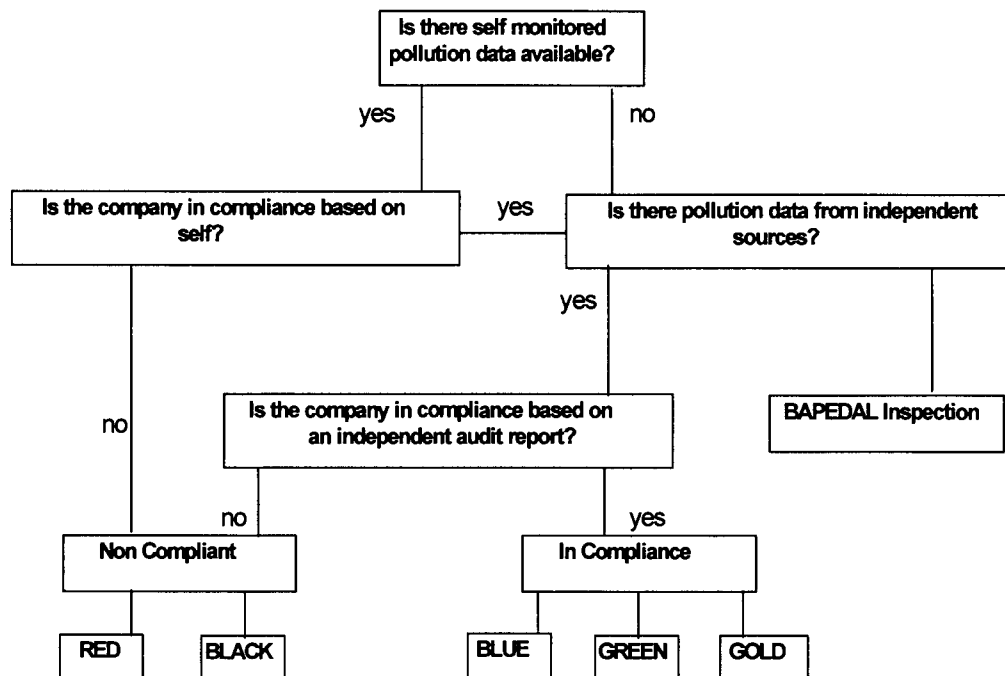


Figure 1. The PROPER process

Figure 2 presents the process for compliance analysis (the "Data Analysis by BAPEDAL" and "Data Verification by BAPEDAL" boxes in the above diagram). The compliance level of a plant is first assessed based on data that is self-reported by the plan (Appendix 1 presents a summary of the requirements for pollution and production data that plants have to self-report on - suffice to say, they are quite demanding). If the plant does not meet the minimum requirements then it is judged non-compliant and rated **Red** or **Black** accordingly. If the self-reported data shows no violation of the standards, an independent assessment by BAPEDAL inspectors and a review of the plant's monthly monitoring reports is then undertaken. Because data is not always reliable, BAPEDAL acts as a final filter in this three-step process. Since **Gold**, **Green**, and **Black** rated companies are extraordinary, they have to go through this final process. During this step, BAPEDAL staff from all divisions discuss any ambiguities, and additional information from staff members may be used to improve the accuracy of the rating. In some cases, the final ratings have been changed as a result of these proceedings.<sup>7</sup>



Figure 2. The process for compliance data analysis and verification by BAPEDAL



#### 2.4 Results of PROPER's First Rating Cycle

The results of the first round of PROPER were announced in June 1995 with 187 companies being rated. However, only the names of the 66 plants rated **Green** and **Blue** were initially announced. The 121 plants rated **Red** and **Black** were privately notified of their rating and given until December to comply before their names were publicly announced.

In December, 1995, the results of a midterm review were announced: 26 additional companies had joined the program, and the companies that were originally rated **Red** and **Black** and whose names were not announced in July, were also made public.

**Table 2. Results of PROPER - June and December 1995**

Type of Rating	June Number of Plants	December Number of Plants
Gold	0	0
Green	5	4
Blue	61	72
Red	115	108
Black	6	3

It is interesting to contrast the percentages of companies compliant in June and December. This comparison indicates the seriousness with which companies view their PROPER rating. Table 2 above shows that, in just six months, the percentage of companies with a blue rating (compliant) increased by 18 percent, with the six poorest ratings dropping from six to three. Table 3 summarizes the final ratings by industry ownership.

**Table 3. 1995 Results of PROPER by ownership in each category (percentage)**

Rating	Locally-Owned	Foreign-Owned	State-Owned
Gold	0.0	0.0	0.0
Green	0.8	7.4	2.8
Blue	30.3	70.7	50.0
Red	65.9	19.5	47.2
Black	3.0	2.4	0.0
<b>Total</b>	100.0	100.0	100.0

## 2.5 Impact of PROPER

Both public announcements of PROPER's first rating cycle resulted in a wave of reporting on industrial pollution and its impact on Indonesia. Both the local and international media covered the story intensively with many articles on PROPER and other environmental issues. The announcements also activated many communities and nongovernmental organizations as they became aware of the environmental performance of plants around them.

BAPEDAL was initially wary of potential litigation from plants unhappy with their rating. On the contrary, they received phone calls from plant owners and managers asking for assistance on how they could improve the environmental performance of their company. Even companies that were rated **Green** called to see how they could improve their rating to **Gold**.

By the December announcements, more than 20 new companies had joined the program. Of the original 187 companies rated in June, the number of companies rated **Black** had dropped from six to three, a decrease of 50 percent for the most serious offenders.

### 3 THE FUTURE FOR ENVIRONMENTAL PROTECTION POLICIES BASED ON PUBLIC INFORMATION

Although PROPER is still in its infancy, it is an excellent example of how public information can be a powerful policy tool for environmental protection. PROPER demonstrates that environmental agencies should rethink their role, and consider moving beyond policies based solely on command-and-control or economic incentives. Rather, environmental authorities can gain leverage through nontraditional programs that harness the power of communities and markets. Further, there is ample room for other information-oriented approaches, including voluntary participation/compliance programs such as Indonesia's ADIPURA and PROKASIH.

The number of PROPER-rated firms that moved from Black and Red to Blue indicates the effectiveness of the PROPER approach as a policy tool for improving environmental compliance. But the fact that firms have shown a strong interest in improving their ratings to at least Green suggests that this approach can also be an important policy tool for encouraging firms to move beyond compliance to adopting clean production programs. Adoption of pollution prevention and clean production has often occurred in developed countries largely by default, i.e., companies have often gone beyond minimum compliance in order to get ahead of increasingly stringent regulations and mounting public pressure. In contrast, PROPER is a public policy tool that provides an explicit incentive to adopt clean technologies and production methods.

For environmental agencies in developing countries that are struggling to build their institutional capacity in the face of rapid industrialization, an approach such as PROPER deserves serious examination. Indeed, countries as geographically dispersed as Mexico and the Philippines have expressed interest in establishing a business rating system, and the World Bank has recently announced that it is sending an expert to the Philippines to assist the government in establishing such a program.<sup>9</sup>

The United States - Asia Environmental Partnership (US-AEP) is also working to promote policies that use public information to leverage more responsible environmental behavior by producers. The program, led by the United States Agency for International Development (USAID), supports the efforts of Asian countries to improve business reporting on their environmental performance and provide meaningful channels to share this information with the public.

The experience of PROPER and other similar programs elsewhere in the developing world lend credibility to the idea that environmental policy should not be directed solely to the relationship between regulators and the regulated. Rather, it is the inclusion of all stakeholders in a process that is well articulated, transparent and that provides both positive and negative incentives that has produced a program that is both innovative and, so far, shows every sign of success.

#### ENDNOTES

1. 1996. 1994 Toxic Release Inventory. Public Data Release. Executive Summary. Washington, D.C.: US Environmental Protection Agency.
2. 1995. Environmental Regulations (1), Environmental Protection Administration, Government of the Republic of China.
3. 1994. Indonesia: Environment and Development. Washington, D.C.: The World Bank.
4. See Makarim, Nabriel. 1992. "Environmental Impact Management in Indonesia", pp 33-35 in T.E. Chua and L.R. Graces (eds) ICLARM Conference Proceedings, Ministry of Environment and Canada-ASEAN Center, Singapore; Asian Development Bank and International Center for Living Aquatic Resources, Philippines.

5. Ibid.
6. Afsah, Shakeb, B. Laplant, and D. Wheeler, 1995. "What is Proper? Reputational Incentives for Pollution Control in Indonesia." World Bank, Washington, D.C.
7. Ibid
8. 1996. *Public Opinion, Markets are New Weapons in Pollution Fight*, Press Release No. 97/S004, Washington, D.C.: The World Bank (August 21).

**Appendix 1. Summary of the Requirements for Pollution and Production Data**

Key Questions	Information Needs	Nature of Information
1. Does the plant meet the effluent standards as specified in Appendix I to IV of the regulation Kep/MEN/03/1991?	1. What is the pollution per unit of the plant? 2. What is the standard applicable to the plant?	1. Average monthly pollution concentration? 2. Average monthly flow rate? 3. Monthly output in units as specified in KEP-03/MENKLH/II/1991? 4. KEP-03/MENKLH/II/1991 standard?
2. Does the plant comply with the requirements of Articles 3.1, 5.1 and 5.2 of the regulation Kep/MEN/03/1991?	3. Is there a flow meter? 4. Is the flow rate measured and recorded daily? 5. Is the effluent sampled and analyzed once a month?	5. Type of flow meter? 6. Number of observations on flow rate per month? 7. Number of observations of parameter concentration for the month?
3. How reliable are the data used to measure questions (1) and (2)?	6. Are pollution concentration data reliable?  7. Are flow rate data reliable?  8. Are production data reliable?	8. Is there an operational waste water treatment system in the plant? 9. What is the sampling method? 10. How frequently are effluents sampled and analyzed? 11. Is the production process batch or continuous? 12. Are data reported for all outlets in the plant?  13. Is the flow continuous? 14. Is the flow meter reliable? 15. Is the flow meter well maintained? 16. Is the flow measurement taken daily and recorded? 17. Is the production process batch or continuous? 18. Are the units of production consistent with KEP-03/MENKLH/II/1991? 19. Are the production data correct for intermediate products and by-products? 20. Are production data consistent with the reported capacity of the plant?



## THE CITY OF KITAKYUSHU'S EXPERIENCE CONCERNING THE IMPLEMENTATION OF COUNTERMEASURES FOR AND COMPLIANCE WITH ENVIRONMENTAL PROTECTION LEGISLATION

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### SUMMARY

To achieve environmental protection people must be conscious of the need for environmental protection and must take concrete actions in accordance with rules established for that purpose.

For example, in the developing nations experiencing continued economic growth, there are strict standards and rules, but this does not necessarily mean that environmental protection is being achieved. One of the biggest questions we are currently faced with is to what extent should we enact the measures which are available to us to protect the environment.

A severe pollution problem arose in the city of Kitakyushu in the 1960s, but through the partnership of the citizens and the parties responsible, the city was able to overcome this problem. The city is now actively involved in international cooperation related to the environment in an attempt to put the experience and technology that was gained in the process of dealing with pollution problems to work for developing countries which are suffering similar problems. Among our activities in this venue thus far, we conducted a review of pollution fighting experiences in conjunction with the World Bank in 1993.

The city of Kitakyushu's anti-pollution measures and its later international cooperation on environmental problems have been highly praised throughout the world, as is exemplified by their introduction in the Organization of European Cooperation and Development (OECD) report, the receipt of the UNEP Global 500 Award, and receipt of the United Nations' Regional Government Commendation at the Global Summit.

### 1 WHY WERE THE MEASURES OBEYED?

#### 1.1 Problem awareness and the regional government

The first step towards solving environmental problems is raising awareness of the problem. To raise awareness it is necessary to have the information and educational tools for conducting an appropriate situational analysis.

In the city of Kitakyushu's response to its environmental problems, there was general rise in interest in such problems throughout Japan at that time and against that background, from the 1950s onward, many anti-pollution demonstrations were staged by citizens directly victimized by pollution. These citizen groups conducted their own research on the problems, made requests for improvements to the factories, and lobbied to legislative assemblies on a large scale.

In Japan at that time, a local autonomy system backed by the Constitution was already in place and local governmental leaders and representatives were chosen by direct vote by the people of the region. At the same time, the local government, as the branch of government closest to the

people, was responsible for the welfare of the citizens, and while planning ways to stimulate industry was also responsible for protecting the health of resident citizens. As a result, the local government was responsible for the comprehensive running of all aspects of the government and, thus, they were not forced to choose between either the environment or development.

Faced directly with the facts about pollution, first citizens, then assemblies and legislatures, and finally even corporations recognized very clearly the grave importance of the problems.

### 1.2 Incentives

Corporations, due to their responsibility as members of the local community, had no choice but to treat these problems very seriously. Also, within the corporate community, major corporations took the lead in actively looking for solutions to the pollution problems and other corporations followed their example.

There are several reasons why corporations took an active approach to looking for solutions to the pollution problems. One of these reasons was that there was unbiased guidance based on scientific proof, such as from wind tunnel experiments. Another reason was that the period in which these problems arose was one of rapid economic growth and the purchase of new equipment and capital investment was possible. Furthermore, the problems arose at precisely the time when new equipment and investment were needed anyway.

The pollution countermeasures actually improved economic effectiveness in some ways. Through improvements to production equipment, corporations were able to save resources and conserve energy and these benefits became economic incentives for implementing anti-pollution measures.

### 1.3 Crisis management

On the other hand, in some ways the corporate response was not as much an attempt to strengthen countermeasures for the purpose of achieving cost benefits as it was the implementation of crisis management countermeasures. They implemented countermeasures immediately because of the possibility that ignoring the problems could lead to greater damage later. A good example of this was the dredging of the mercury contaminated silt on the bottom of Dokai Bay.

Crisis management has existed in Japan in the form of afforestation and flood prevention works for a long time. These old practices, seen in the unified actions of the regional communities (including the corporations located therein) in dealing with the pollution phenomenon, brought about success.

### 1.4 Japanese culture

It is probably a unique aspect of Japanese culture, but the members of each regional society have an extremely strong aversion to shame. When a social action of a certain community is criticized, this provides a strong negative incentive to change. On the other hand, once an anti-pollution measure was authorized by a community, all of the community members tended to obey it.



## 2 WHY WAS IT POSSIBLE TO OBEY THE ANTI POLLUTION LEGISLATION?

### 2.1 Local automation and the constitution

The regional autonomy guaranteed by the Constitution can be given as a major piece of the framework that allowed for compliance with the pollution prevention rules. Pollution is actually a local problem and the active approach of the local governments, which are the administrators of each region, towards solving the problems was indispensable in eventually overcoming them.

### 2.2 Organizational adjustments

The city of Kitakyushu is a city of one million people which was born out of the merger of five cities in 1963. Each of the five cities acting independently would not necessarily have had the socioeconomic capacity to face these problems, but by combining into a single city they were able to create sufficient power to overcome the challenges posed by pollution.

The city of Kitakyushu started out with just one worker dedicated solely to pollution countermeasures, but the function gradually expanded over time becoming a group in 1963, a department in 1965, a division in 1970, and a bureau in 1971. The city's Environment Bureau was actually established five days ahead of the nation's Environment Agency. Adjustments to the organization of local governments in line with those of the federal government are indispensable for the success of large scale projects.

### 2.3 Regional leadership in pollution countermeasures

The federal government provided a basic framework for fighting pollution by establishing laws, etc., but the local governments, located closest to the people, played a major role as the driving force which carried out the everybody-work of implementing the countermeasures. In order to implement effective measures, the city of Kitakyushu was given the authority to establish regulations on pollution. As a result, the pollution countermeasures within the region were able to make progress in leaps and bounds. But, it was only possible for the city of Kitakyushu to receive such authority in the first place because the city had put together the capacity needed to enforce such regulations.

In the case of the city of Kitakyushu, in order to proceed with the anti-pollution measures in a comprehensive and well planned manner, the city first decided on an environmental pollution control program, and then, to implement detailed countermeasures, independently decided on local ordinances and an outline of essential points. This legislation set regulations which were stricter than those imposed by the federal government. The right of local governments to establish independent standards is also guaranteed by law in Japan.

In the city of Kitakyushu, individual workers acted on their own to gain a grasp of the actual situation and to understand the systems causing the pollution problems. They also conducted inspections of the corporations and gave instructions for making improvements. These activities were carried out in accordance with the law. These instructions were from the very outset not in terms of legal action, but rather were technical instructions for concrete actions to improve the situation against the background of the authority which had been granted to the city, and were both practical and effective.

The city workers assigned to do this work had specific knowledge of pollution problems, but their capabilities were further developed through their experiences out in the field and through being dispatched to organizations specializing in related technologies. The city earned the trust of

its residents by responding to complaints from citizens and reports of pollution related accidents immediately, and by implementing night patrols and other monitoring activities to complement the strict regulations,

Among the various actions taken by the city of Kitakyushu, the agreement on environmental pollution control deserves special mention. The Agreement on Environmental Pollution Control was a voluntary agreement between the government and corporations which called for strict pollution control measures going beyond those set out in the legislation and which were not enforceable by law. But the corporations maintained strict compliance with the contents of the Agreement. The reasons why the corporations complied with this voluntary agreement are as I have outlined above.

Starting with the city of Kitakyushu, local governments throughout the country formed a network for exchanging information and sharing experiences. The work of the local government was also made easier by communicating local desires and requests to the federal government through this network. The local governments were also able to establish think tanks which included experienced scholars and members of the federal government by using this network.

In order to strengthen its scientific response to the pollution problem, the city of Kitakyushu established an environmental science research center and conducted scientific surveys and research on pollution.

### **3 CONCRETE MEASURES TO IMPROVE THE SITUATION**

#### **3.1 Regional authority**

Regional authority was of tantamount importance in assuring improvement. The city of Kitakyushu was the first city in Japan to obtain the authority to issue smog warnings based on the air pollution prevention law. This authority made the reduction of pollutant emissions a sure thing because it gave the City the power to halt the operation of factories depending on the level of pollutants in the air.

The "special weather information system" which the city established independently as an early stage of forced improvement leadership, was based on observations of the environment, and was a system whereby the city made demands to corporations for preventive countermeasures prior to causing serious air pollution.

#### **3.2 Conferences and partnerships**

The city of Kitakyushu promoted the formation of links between experienced scholars and common citizens through the creation of the "anti-pollution measure deliberation council" and other groups to deliberate countermeasures to the pollution problem from an expert and broad-minded point of view.

The Kitakyushu Air Pollution Control Connecting Conference was made up of representatives from major corporations based in the city, the prefecture, and the entire country. The Conference's purpose was to provide a place for exchanging information and opinions on the practicality of legislation, for establishing mutual understanding in the way of thinking among corporations, and for the rough enforcement of preventive measures. The Conference played a major role in the implementation of pollution prevention measures by adding the participation of federal developmental agencies, clarifying the possibility for direct connections to the growth of individual companies, and establishing trusting relationships.

### 3.3 The agreement on environmental pollution control

The city of Kitakyushu decided on local ordinances which contained provisions much stricter than the national standards in order to confront the pollution problem. In addition, the city also decided on an outline of essential points which spelled out the city's policy in detail. These actions made possible effective and efficient countermeasures which matched the special characteristics and needs of the region.

With the implementation of the agreement on environmental pollution control (the voluntary rules decided upon by the government and corporations) the city was able to achieve compliance with standards stricter than the laws that were in place, could regulate items that were not legal regulations, and conducted pre-use inspections of new industrial equipment. The conclusion of the agreement also played a vital role in ensuring the creation of places for discussion and argument on the issues, such as the Conference mentioned above.

There was a federal program for providing financial assistance to the victims of pollution, but the city of Kitakyushu established its own independent financial assistance and rehabilitation system to help victims who did not meet the criteria for receiving aid from the federal program. This system showed the high priority which the local government assigned to the welfare of local residents, and along with the conclusion of the Prevention Agreement helped to win the trust of the region's citizens.

### 3.4 Education of personnel

In order to ensure a sufficient number of experts in the necessary fields of knowledge, the city hired persons with specialized knowledge and then made efforts to further develop these specialists into excellent workers with thorough experience in daily operations through on the job training programs.

### 3.5 Monitoring and leadership

Monitoring of the sources where pollution is created is the most basic step in pollution prevention. Production site inspections conducted by trained personnel without prior notification ensured corporate compliance with legal standards, and made it possible for the city to take a position of proper leadership against these problems.

The city also reacted immediately to complaints from citizens and reports of pollution related accidents with sincere efforts to solve the problems. Also, the city's pollution prevention stance was in line with the thinking of the people of the region and earned the understanding and trust of the city's residents through activities such as the carrying out of nighttime monitoring patrols.

### 3.6 Technological development and survey research

The local government did not simply force compliance with the legal standards in a one-sided manner, but rather made efforts in the field of scientific surveys and research, and was able to provide concrete technological information geared towards improvement of the pollution problems and was able to show the effectiveness of the measures being taken. Among these scientific endeavors, the independent improvement plans adopted by corporations based on wind tunnel experiments were not only effective as corporate countermeasures, but also helped the companies involved avoid undue financial burdens, and as such contributed to the development of trusting relations between the corporations and the local government.

The corporations did not merely adopt the production technologies and pollution prevention techniques which had been developed by outsiders as they were, they further developed the technologies into truly useful new techniques through efforts on their own part.

### 3.7 Economic incentives: cleaner production

After experiencing the oil shock, the cooperations made through efforts to conserve energy by introducing new production equipment, improving equipment maintenance methods, and by recycling. These measures also helped to reduce the volume of pollutant substances and waste products given off by the factories and made a great contribution to pollution prevention efforts.

The corporations developed futuristic new methods for consuming energy one after another. These new technologies included the OG method for utilizing energy which had previously been wasted, and the serial casting method for the casting of metal products.

The simultaneous achievement of both pollution prevention and industrial development is clearly shown by the following statistical fact. In times of industrial growth the amount of fuel consumed (source of pollution) generally increases, but following the oil shock, even though the amount of fuel consumed decreased, the amount (value) of industrial output continued to grow.

The amount of sulfuric oxide pollutants was reduced by 75% through the combination of energy conservation efforts and by switching to the use of alternative energy sources low in sulfuric oxide.

The switch from many small scale sources to the consolidation of equipment, while improving production efficiencies, also made a great contribution to the implementation of effective environmental countermeasures.

### 3.8 Public investment: improvement projects

In the area of environmental improvement, the local government and other public sector groups also carried out actual improvement projects. The construction of a public sewer system including a waste processing plant played a major role in alleviating the water pollution problems caused by untreated sewage.

The city of Kitakyushu conducted a dredging project to revitalize the Dokai Bay which had become so polluted that it was referred to as the 'sea of death'. The project of dredging and removing all of the bottom silt which contained more than 30 ppm of mercury was carried out based on scientific surveys and results analysis, with great care taken to prevent secondary pollution in the areas dredged. The costs of the dredging operation were borne fairly by the government and the public based on responsibility, with the corporations footing 70% of the bill.

## 4 THE POSSIBILITY OF TRANSFERRING THE CITY OF KITAKYUSHU'S EXPERIENCE TO DEVELOPING COUNTRIES

The experience which the city of Kitakyushu, and all of Japan gained through the process of overcoming pollution problems can provide many hints and ideas to developing countries but, since the economic social, and cultural conditions are different in each country and region, the specific policies and technologies used in Japan can not be applied directly to the situations currently faced by developing countries. The World Bank's report advises that when cooperating with the developing countries in environmental matters, the developed countries should support them not only in specific environmental activities, but also in the overall education of technological and managerial administration.

#### 4.1 Economic, social, and cultural factors

On the point of economic growth and industrial strategy, the fact that Japan was able to conduct sufficient investment in pollution prevention technology was in large part due to the fact that Japan was able to achieve a high rate of economic growth, and also owed to the unique relationship between the government and industry whereby they worked together to find areas of agreement in laying out the country's economic policy'

The fact that the freedom of speech and the right to hold political discussions were guaranteed played a role in the success of dealing with pollution problems in Japan. Freedom of speech allowed for the upsurge of the grassroots anti-pollution movement, and the government and industries that received the message of this movement had no choice but to take measures to prevent pollution. Another factor was that Japan had achieved the highest level of education in the world by the 1950s and had a high level of literacy, and the people's consciousness of the pollution problem was heightened by a campaign against pollution by the mass media. Under these circumstances, private citizens and corporations realized that it would not be good to be singled out and criticized for anti-social behavior by the citizen groups.

The roles of the Central Government and regional public organizations were divided as follows. The Central Government created a broad legal framework and provided assistance, while the regional public organizations, who had to be sensitive to the feelings of the regional residents as their leaders were chosen by elections, took a position of leadership in the prevention of pollution.

The setting of prices as a part of the energy policy, the promotion of self-administration systems among corporations, and the introduction of large volume transportation systems were also effective steps taken in fighting pollution.

#### 4.2 The applicability of Japan's experience to developing countries

The developing nations have a habit of prioritizing development over the environment but the first thing that needs to be done is for the governments and industries to develop the ability to evaluate the effects of their actions on the environment, and to strengthen monitoring capability.

The developing nations must also draw a sharp distinction between the things that were done in Japan that can be put into use immediately, those that can be used as a part of mid to long term planning, and those measures that will never be possible to introduce.

Actions that are highly feasible include the expansion and improvement of the ability of local governments to purpose and implement anti-pollution legislation, the development of environmental protection systems and organizations/personnel at the regional level, governmental assistance, the granting of legal authority, the conclusion of pollution prevention agreements with corporations, and the establishment of systems for resolving complaints from citizens, to name a few.

The existence of a system which allows for frank and cooperative discussion between the government and industries and improves the independent administrative ability of corporations through a pollution prevention management system is very important.

Review of the production processes themselves leads to the simultaneous achievement of economic growth and environmental protection. The raising of expert technicians and the development of pollution prevention industries and technology improvement consultants are all necessary as well.

Simple and inexpensive traditional technologies are often highly applicable as solutions to pollution problems. Also, it is necessary to give careful consideration to whether modern cutting-edge technology or traditional labor intensive methods are more appropriate for fighting pollution in each situation.

Making low-interest loans from the government available to corporations, the use of tax breaks, the strategic setting of energy prices, and the effective management of the overall tax system are all things that can be done to encourage corporations to take anti-pollution measures.

Education about the environment, the promotion of learning, the creation of systems to assist victims, and the monitoring of the sources of pollution are all important. Providing ways for citizens to participate in solving environmental problems is also extremely important.

## **5 INTERNATIONAL ENVIRONMENTAL COOPERATION**

In order to put the experience of the city of Kitakyushu gained in the process of overcoming its pollution problems to use for the developing countries currently suffering under similar situations, the city is actively promoting International Environmental Conferences which bring together industry, government and scholastic institutions.

### **5.1 The taking in of trainees**

Among the items on the international cooperation menu is the taking in of trainees from foreign countries. The city of Kitakyushu started taking in trainees in 1980 and has now trained more than 1,360 people. The city of Kitakyushu's training program is run in cooperation with Japan International Cooperation Agency and mainly consists of on-the-job-training, taking advantage of the wide range of corporations in the region. Over 200 firms are cooperating with the training program and many universities and governmental agencies are involved as well. As is to be expected, the local people welcome the trainees wholeheartedly.

The city is making an effort to follow up with the trainees who have completed their course and returned to their country by sending out a newsletter, *Environmetopia*, on a regular basis. The contents of the program are constantly being improved but a follow up survey is conducted every five years in an effort to maintain a good grasp of the needs in each country.

### **5.2 Dispatching experts**

The City of Kitakyushu dispatches highly experienced experts overseas to provide technological guidance that meets local needs. To date, the city has dispatched more than thirty experts to twenty three countries.

### **5.3 International Conferences**

The city of Kitakyushu has hosted many international conferences as a means of exchanging a wide range of experience and information. Since 1987, the City of Kitakyushu has hosted thirteen international environmental conferences with participants totaling over seven thousand people.

The city of Kitakyushu does not only dispatch individual experts, but is also conducting useful technological cooperation by going to foreign countries in the form of joint projects between industry, government, and scholastic institutions. In October 1993, the city sent a team of forty nine instructors and interpreters to the city of Dalian in China to conduct a technological seminar. Again, in January of 1996, the City sent a party of 36 people to Dalian with analytical equipment and computer software to conduct an environmental exchange seminar. The seminar was not just "discussion" but also included many useful areas of cooperation such as high level training on how to use the analytical equipment, etceteras.

#### 5.4 International cooperation implementation organization

The city of Kitakyushu is the home to KITA, a specialized organization which conducts international technological cooperation. KITA is a non-profit corporation established under the cooperation of the local young men's organization, industry and governmental agencies which carries out a wide variety of cooperative activities including the running of training programs.

Other programs the City is involved in include the "International Center for the Study of East Asian Development" which is run jointly with the university of Pennsylvania of the United States and does research looking at environmental problems from an economic point of view, the "Kitakyushu Forum on Asian Women" which does research on women's issues and the environment, "The Industrial Club of West Japan" which is a private sector group involved in international environmental cooperation through volunteer activities, and many other NGOs.

#### 5.5 New steps in international cooperation

The city of Kitakyushu is providing support for the planning of the "Dalian Environmental Demonstration Zone." This is a major project of the Chinese Government. The objective is to cooperate with environmental improvement activities in China, which is an important country for protecting the environment of the Earth. The aim of this plan is to designate a model city and conduct a concentrated and comprehensive environmental improvement project there, and then spread the experience and achievements of the project throughout the entire country. The idea for the Dalian Environmental Demonstration Zone was originally proposed to the Chinese Government by the city of Kitakyushu.

It was recently decided, based on the finalization of the master plan that ensures the efficient and effective implementation of the Dalian Environmental Demonstration Zone project, that the project would receive assistance in the form of ODA from Japan. The combination of cooperation from a local government which is very familiar with the everyday work associated with environmental improvement activities and the receipt of ODA brings hope and expectations for a more practical, new level of international environmental cooperation.





## **A SURVEY OF ENVIRONMENTAL LAW AND ENFORCEMENT AUTHORITIES IN CHINA**

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### **SUMMARY**

This paper provides a basic picture of enforcement of environmental law in China, a key issue in the 1990s. Part I briefly surveys the historical development of environmental protection and current environmental problems. Part II reveals the driving forces to ensure enforcement: a legal framework and implementation measures. Part III analyzes enforcement tools and response to violations. Part IV discusses the factors that affect enforcement and examines the roles and responsibilities of different groups of people. The author argues that the most enlightened environmental goals would not be achieved without effective enforcement.

### **1 INTRODUCTION**

As a developing country, China is taking steps to develop economic prosperity and improve standards of living, which increases the tremendous challenge to manage its environmental problems. Rapid economic development in the past twenty years exploited natural resources and speeded energy consumption at the expense of the environment. The government leaders, realizing that development should be handled so that environmental protection and economic progress simultaneously accelerate and limit each other,<sup>1</sup> accepted the term of "sustainable development", which within the context of China's Agenda 21, means rapid economic development aimed at improving the quality of life for its people in a manner which maximizes the efficiency of resources and minimizes environmental degradation.<sup>2</sup>

Hard work in the 1980s to establish a legal and management framework promoted the nation's capacity to protect the environment. Progress has been made in ecological environmental agriculture and forests, water and soil conservation, and industrial pollution control.<sup>3</sup> However, despite these accomplishments, China's efforts are weakened by inadequate enforcement and compliance with regulations. Enforcement issues were not emphasized until 1990.<sup>4</sup>

#### **1.1. Trends in environmental problems**

Reforms and open policy accelerated the nation's economic growth.<sup>5</sup> A calculation based on constant price showed that from 1978 to 1996, the average annual growth rate in gross national product (GNP) was 10%.<sup>6</sup> Spectacular economic success produced severe environmental problems. A study revealed that environmental degradation caused economic loss almost equal to one-fifth of the total national income.<sup>7</sup> Generally speaking, the trends in environmental problems are that certain parts have been controlled, however, the nation's environmental status is degrading and the prospect is one of crisis.<sup>8</sup>

Coal is the chief source of energy, which provides 73% of the total commercial energy consumption.<sup>9</sup> In 1994, SO<sub>2</sub> emissions were 18 million tons and expected to rise to 23 million tons a year by 2000.<sup>10</sup> China is now the third largest contributor to global climate change, after the United States and Russia.<sup>11</sup> In the absence of major breakthroughs in combustion technology and conversion of coal, air pollution can be expected to deteriorate with advances in urbanization, industrialization and growing household energy consumption. As coal continues to be a primary source of energy, air pollution from coal combustion will be a persistent problem.<sup>12</sup>

Expanding industrial production discharges a large amount of wastes into the environment, resulting in a sharp contradiction between pollution control and industrialization.<sup>13</sup> More than 40 of the country's large cities lack adequate water supplies.<sup>14</sup> Accelerated industrialization focuses on developing energy supplies, transportation and communications as well as infrastructure and basic industries like iron and steel which are heavily polluting industries. The control of industrial pollution poses a formidable task, while the inadequacy of mechanisms defy early fundamental solution. The major source of water pollution is industrial waste containing toxic chemicals and heavy metals. In 1994, discharges of waste water reached 36.53 billion tons, which includes 21.55 billion tons of industrial waste and 80% were discharged into rivers, lakes and the sea without any treatment.<sup>15</sup> Industrial solid wastes will soon reach 250 million tons a year.<sup>16</sup> The booming township and village enterprises were started at a very low technological level and have no incentive to control pollution. Inadequate pollution control threatens the ecological and agricultural system of the vast rural areas.<sup>17</sup>

Urbanization has become the common trend of development of all countries of the world, irrespective of historical background and social system. With the advances of China's economy, urban construction which includes infrastructures and public facilities such as housing, transportation, communications, water supply, drainage, heating and gas supply, cause strains to the environment.<sup>18</sup> Currently, only 20% of the sewage has been treated in cities.<sup>19</sup>

Overpopulation poses burdens to the ecological environment. Soil erosion, expansion of desertification and salinization, soil loss and the decrease of its organic substances have posed grave difficulties for China's agricultural development.<sup>20</sup>

## 1.2 Development of environmental management

The cornerstone of environmental protection in China is the promulgation of the Environmental Protection Law for trial implementation in 1979 by the Standing Committee of the National People's Congress. Before that, there were only several pieces of policies or guidelines concerning water conservation, soil erosion control and "three industrial wastes (liquid, gaseous and solid)" recycling.<sup>21</sup> The First National Conference on Environmental Protection showed the government's awareness and placed environmental protection on its agenda, however, environmental management institutions were few or suffered from a lack of staff.<sup>22</sup> The two fundamental elements of the 1979 law were the requirements to establish the environmental protection institution nation-wide and to set forth the basic framework and principles for environmental laws.<sup>23</sup> The 1982 People's Republic of China Constitution amendment confirmed the nation's goal to protect people's living environment and natural resources. Since then, a series of laws on environmental protection and natural resource conservation have been enacted.<sup>24</sup> In 1989, the general Environmental Protection Law was enacted which marked that the environmental protection legal regime would finally be established by the early 1990's.

As economic and social development changed rapidly, it called for a response in China's statutes. Several years of implementation revealed the fact that non-enforcement harmed the requirements of environmental legislation. After the first round of legal drafting in the 1980s, rule makers began to evaluate the effectiveness of regulations. The other motivation for China to im-

prove its environmental legal framework and strengthen domestic enforcement is its responsibility under the international environmental conventions and treaties which it joined.<sup>25</sup> The Environment and Resources Protection Committee newly established by National People's Congress announced in March 1994 its actions to draft and revise environmental laws over the next few years, which it intends to be substantially stricter and compatible with enforcement.<sup>26</sup>

In 1993, the State Council issued a circular on enhancing the enforcement of environmental law which also calls for the new administrative legislation activities to promote enforcement. The nation-wide enforcement inspection campaign was initiated which has lasted for four years so far.<sup>27</sup> The National Environmental Protection Agency is drafting the directive to strengthen environmental enforcement on behalf of the States Council.<sup>28</sup>

## **2 BASIC DRIVING FORCES BEHIND ENVIRONMENTAL ENFORCEMENT: LAW AND IMPLEMENTATION MEASURES**

### **2.1 Environmental legal regime**

China's legal system of environmental law is a complete and independent system composed of numerous interrelated environmental laws, regulations and rules.<sup>29</sup> The foundation for the framework of environmental protection law in China is the Constitution,<sup>30</sup> which provides the duty of the State to protect and improve the living environment.

Article 26. The state protects and improves the environment in which people live and the ecological environment. It prevents and controls pollution and other public hazards. The state organizes and encourages afforestation and the protection of forests.

Article 9. The state ensures the rational use of natural resources.... Appropriation or damaging of natural resources by any organization or individual by whatever means is prohibited.

The 1989 Environmental Protection Law is the general guidance and basic regulatory structure of environmental law. It provides fundamental principles, rules, basic requirements and legal responsibilities for nature conservation and pollution control. It requires that environmental concerns be incorporated through environmental planning into its national economic and social development planning.<sup>31</sup> An environmental management system has been established, under which the State Council's National Environmental Protection Agency has been delegated the authority to manage environmental protection at the national level, while local government's Environmental Protection Bureaus have responsibility for the environmental management and enforcement under their jurisdiction. The system also assigns the responsibilities to other State Council's agencies to coordinate environmental management.<sup>32</sup>

There are also some specific environmental laws concerning the conservation of natural resources and areas of pollution control which were enacted by the Standing Committee of the People's Congress, such as Marine Protection Law, Forestry Law, Mineral Resource Law, Water Pollution Control Law and Air Pollution Control Law, etc.

The environmental administrative regulations dealing with the management, supervision, and procedures to facilitate the enforcement of environmental laws and policies are issued by the State Council and its agencies. For instance, the State Council issued the Rule on Levying Pollution Emission Fees to enforce article 28 of the Environmental Protection Law. The law is autho-

rized to issue implementation guidelines for its programs independently or in partnership with other agencies. One example is that it was delegated by the Water Pollution Control Law to promulgate the Implementing Regulation on Water pollution Control Law which was approved by the State Council.

When the environmental requirements are ambiguous or conflict with each other or in the absence of clear statutory language, interpretation will solve the questions at hand to facilitate enforcement. Interpretative bodies have their authorities based on who issues the regulation or came from the delegation of the law. The Legal Committee under the Standing Committee of the National People's Congress tells what Congress' intent of the law is, and the State Council answers questions about the regulations it enacted. Normally, when passing a new regulation, the State Council delegates the authority of interpretation to an agency. The National Environmental Protection Agency exercises its duty by direct delegation from laws or interpretation of regulations and rules it passes. For instance, article 45 of the Regulation on Noise Control which was passed by the State Council authorizes the agency to interpret it. To questions arising from local environmental bureaus concerning the intent of legal issues, the agency will issue interpretations directly to the bureaus, published it in its own publication or Chinese Environmental News and disseminated to environmental bureaus at the provincial level who will then distribute it to all local environmental bureaus in that province.

As a compliment to national laws and regulations, local regulations play an important role in regional environmental protection.<sup>33</sup> Local regulations deal with environmental problems which are not regulated by national laws. Some local programs may provide legal experience and precedents for national programs after several years of practice. When lawmakers at the national level try to impose a new policy for which it either lacks experience or is controversial, they will select several provinces or cities to field trial it in local regulations and gain legal experience, then impose it into national law. One example was the issuing of permits for preventing water pollution. In 1987, eighteen provinces and cities were selected to issue water effluent permits, after several years of field tests, the Implementing Regulation on Water Pollution Control Law in article 9 provided permit requirements to facilities when they discharge pollutants into a body of water. Traditionally, control of water pollutants is based on their density or concentration. Several provinces like Shanxi and Jiangsu tried to control total amounts of released pollutants in their local regulations. The amended water pollution prevention law which was passed on May 15, 1996 recognizes this program in article 16.

However, shortcomings exist in the legal regime itself which pose a barrier in the law if it is to be enforced effectively. The government primarily relied on technical or political staff, instead of legal counsel to assist in handling environmental matters. Certain issues lack specific regulations to apply. This can be seen in the management of toxic and harmful chemicals, desertification and land use. Some issues only have policies rather than regulations to enforce, such as the management of ozone depletion which relies on a national plan.<sup>34</sup> For existing regulations, some provisions reflect central planning and are not flexible to take account of social realities. For instance, the Environmental Impact Assessment is subject to be pre-reviewed by a firm's superior department. But the reality is that firms turn independent and don't have superior departments under the current situation. This pre-review requirement doesn't apply to private-owned enterprises which are several millions in quantity and lead to severe environmental pollution.<sup>35</sup> When enforcing the regulations, the enforcement officials always find that the provisions are not specific enough to be enforced or lack necessary procedures.

## 2.2 Environmental standards

Environmental standards are the most important part of the environmental legal regime. They are the basis for pollution control. The National Environmental Protection Agency is in charge of issuing the national environmental quality standards, while local governments at the provincial level establish their local environmental quality standards for items which are not included in the national standards.<sup>36</sup> In accordance with the national quality standards as well as economic and technological reality, the agency enacts the national emission standards. For issues which are not covered by national emission standards, local governments at the provincial level are responsible, or they can set emission standards more stringent than the national's.<sup>37</sup>

## 2.3 Measures to enforce the regulations

### 2.3.1 Environmental Impact Assessment

Every capital construction project, technological renovation project and regional development project which might affect the environment is required to complete an Environmental Impact Assessment (EIA) statement or fill in the forms of environmental impact report before construction.<sup>38</sup> The assessment includes: (1) general information of the project such as nature of the project, technical process and situation of pollutants, etc. (2) environmental status around the project. (3) analysis and prediction of short-term and long-term impacts of the projects. (4) proposals concerning monitoring. (5) cost and benefit analysis. (6) evaluation of the pollution the project is likely to emit, its impact on the environment, and the measures to prevent and control it.<sup>39</sup> The facility can't commence the project until the assessment has been reviewed and approved by the environmental agency.<sup>40</sup>

The Environmental Impact Assessment is an effective mechanism to prevent pollution in China, especially for preventing new sources of pollution. However, only 60.8% of projects evaluate their environmental impact.<sup>41</sup> The assessment requirements do not ask that the papers assess the alternatives to the proposed project. It also only focuses on the separate project and lacks the requirement for regional or area-wide impact evaluation. Some time it falls to just paperwork due to improper government intervention and inadequate public participation.<sup>42</sup>

### 2.3.2 Three simultaneities

"Three simultaneities" is designed to ensure control of new facilities which means installations for the prevention and control of pollution at a construction project which must be designed, built and operated together with principle parts of the project simultaneously so as to prevent new sources of pollution.<sup>43</sup> The design of the pollution control instrument is imposed in the Environmental Impact Assessment requirement and subject to the review by the local environmental bureau. Only after approval by the bureau, should the project put into operation. Prior approval is required for necessary dismantle and idle.<sup>44</sup>

### 2.3.3 Monitoring

Monitoring includes self-monitoring by firms and inspection monitoring by environmental bureaus. The National Environmental Protection Agency is authorized to issue guidelines and establish monitoring network in cooperation with other agencies<sup>45</sup>. The national network has four levels: national, provincial, city and county. Several regional networks, such as the offshore monitoring network and the Huaihe River Valley monitoring network, have also been established.<sup>46</sup> Most of the large and medium enterprises have their own monitoring equipment.

#### 2.3.4 Permit

Emission permit systems have been widely applied in the international community to control pollution. China began its pollution permit field test in the mid-1980s but is still in its infant stage. The Environmental Protection Law, Water Pollution Law and Air Pollution Law do not have provisions on this matter. The only legal requirement is the Implementing Regulation on Water Pollution Law which was approved by the State Council and issued by the agency in 1989. Due to lack of legal position and support, permits can only be required at certain severely polluted areas and facilities. In 1994, 13,747 permits were issued in 240 cities. The current permit system in China is still a single permit mainly in air and water. Further research has been done to extend the water pollution permit system to the entire nation.<sup>47</sup> In revising Water Pollution Law, law-makers intended to impose a permit system into the statute which unfortunately was not adopted by the Standing Committee of the National People's Congress. Losing this chance to obtain legal support will halt the development of a permit system.

Combined with the emission permit system, broadly applied is the pollution emission report and registration system. It requires facilities to report to the local environmental bureau on their pollutant's categories, quantities and concentrations directly or indirectly discharged into the environment, as well as technical information on treatment. The local environmental bureau registers the situation and keeps the file. Facilities should report to the environmental bureau any change about the pollution discharge.<sup>48</sup> This system provides the environmental agency with the newest data on each facility.

#### 2.3.5 Inspection

Environmental law delegates to the environmental protection bureaus at various levels the duty to inspect facilities on site and the facilities are required to provide required information and cooperated with the inspection.<sup>49</sup> Several provinces, such as Henan, Hubei, as well as Beijing, Tianjing have established inspector institutes specifically in charge of the inspection function which is separate from the environmental protection agencies. Each inspector has to show his or her ID which is issued by the environmental bureau at the province level.<sup>50</sup>

Apart from the rest of the world, China uses collective action through a campaign to enhance the masses' environmental consciousness against violations. One way is the inspection campaign which is normally launched by each province. The National Environmental Inspection Campaign initiated in 1993 which has been lasting for four years promotes local government enforcement of environmental requirements and the fight against violations. A 1994 inspection campaign revealed that 3,000 violations had been discovered in 10 provinces. One example of the campaign's influence on local government is that Henan province launched its pollution control program on Huaihe River which planned to shut down 61 heavily polluted facilities in 1994, clean up 15 major polluters in 1995 and build 5 municipal sewage facilities before 2000.<sup>51</sup>

#### 2.3.6 Economic incentive

According to the "Polluter Pays" principle, the Chinese government levies fees on pollutants discharged by facilities. As long as a facility discharges pollutants into a body of water, it falls under the requirement to pay fees. If the facility's pollutants exceed the national or local standards, it has to pay additional fees and should eliminate and control the pollution.<sup>52</sup> Different from water pollutants, only if the pollutants emitted by facilities exceed national or local emission standards, should facilities pay fees, which also means facilities do not have an obligation to pay a fee if they emit pollutants which fulfill the emission standards.<sup>53</sup> Eighty percent of the fees must subsidize facilities for pollution control, while 20% are used to subsidize environmental monitoring instruments and other administrative costs of environmental protection agencies.<sup>54</sup> The program coordi-

nates the economic development and environmental protection and helps to balance the environmental, social and economic efficiencies. The environmental agencies can concentrate money to deal with major pollutant sources and comprehensive contamination. At the same time, it enhances the environmental agency's capacity.

However, several issues pose a barrier to the effectiveness of enforcement through levying fees. The fees charged for excessive emission of pollutants are lower than the cost of pollution control instruments, so facilities would rather pay the emission fees than control pollution. Emission fees also are allowed to enter the production cost which facilities can shift to the consumers and shade their responsibilities. The program itself doesn't cover all pollutants, such as sulfur dioxide, and only the pollutant of the most excessive discharge is subject to a levying fee regardless of the fact that some facilities discharge over two kinds of pollutants through a blow-off pipe.<sup>55</sup> Also, there lacks a scientific method to fairly distribute the fee as a subsidy among facilities.<sup>56</sup>

### 3 ENFORCEMENT TOOLS

Environmental protection agencies, both national and local environmental bureaus, are delegated authorities to take action when the regulated community fails to comply with environmental laws. They also can call upon enforcement actions in associating with other agencies. The enforcement tools include administrative actions, judicial actions and criminal prosecutions.

#### 3.1 Administrative tools

Administrative tools ensure the environmental agency's ability to order regulated community to comply with laws or to take necessary measures to protect the environment. Administrative orders are broadly used to deal with environmental matters in China. Local Environmental Protection Bureaus mainly undertake the enforcement tasks in their jurisdiction.

The environmental bureau has to decide whether to bring an action within 10 days after disclosing the violation or after citizen complaints. At least two officials work on the case, examining the severity of the violation, and providing suggestions which will be subject to approval by the Review Committee of the bureau. It is required that an order state the nature of the violation, valid evidence, related regulations and the decision.<sup>57</sup> The regulated party can appeal to the environmental bureau at one level higher than it for rejudging or it may bring a law suit before a court against the environmental bureau within 15 days of receiving the order directly. It is at the violator's discretion to select either administrative appeals or judicial review. This is different from the procedure in the U.S. which requires violators to exhaust their administrative appeals before seeking judicial review.<sup>58</sup> Administrative orders are not self-enforcing, in that the environmental bureau shall apply to the courts for compulsory enforcement in the event of noncompliance.<sup>59</sup> In order to promote the role of judicial in protection of the environment, some local environmental bureaus work closely with the courts. Some have even established a courtroom to specially deal with environmental cases.<sup>60</sup>

##### 3.1.1 Warning

The environmental bureaus can issue warning letters for light violations. The purpose is to notice the party not to let its action lead to worse pollution in order to avoid penalties. It can be applied separately or adjunct to other tools.

### 3.1.2 Fines

Environmental laws generally authorize administrative penalties for most violations. For example, a \$ 35,000 fine was imposed on the Capital Iron and Steel Corporation in Beijing in early 1993 under the air pollution control law. The penalties are assessed based on severity, per violation, which can be any amount but not exceeding the statutory limit. The fine is the most significant enforcement tool in China. The amount of fine isn't stated in laws such as water and air pollution control laws but in their implementing regulations. The newly adopted Solid Waste Pollution Control Law is the exception which states the amount in the text and imposes the highest amount.<sup>61</sup> Environmental bureaus at different levels have different limitations on fines.<sup>62</sup>

Some environmental laws have penalty provisions limiting penalties based on the person who is responsible for the violation. For example, the Regulation on Preventing Ships from Polluting the Ocean imposes penalties not to exceed 20% of one month's income of the violator.

### 3.1.3 Deadline for completion of required action—compliance deadline

If a company emits pollutants exceeding the standards and causes severe pollution, it is required under environmental laws to take actions to eliminate and control the pollution, and achieve full compliance within a certain date.<sup>63</sup> The decision for such a deadline is issued by the government where the company is located. The environmental bureau sets the requirements, inspects, and ensures its enforcement. Non-achievement within the deadline will subject the violator to penalties including additional charges for emission fees, fines, and even shut down. The environmental bureau has the authority for the first two penalties. Because the shut down has an essential influence on the economy, any shut down is decided by the government.<sup>64</sup> Since compliance deadlines for small businesses are decided by the government, it causes excessive paper work for the government. In order to deal with the most substantial issues, there is a trend to delegate the authority to environmental bureaus in some local environmental regulations. For instance, the city of Wuhan passed a rule which authorizes its local environmental bureaus to set deadlines. If the regulated party refuses to fulfill its duty, the competent agency will assign a third party to eliminate the pollution and recover the cost.<sup>65</sup>

### 3.1.4 Injunction

Typically, the environmental agency has authority to enjoin an enterprise temporarily from operation and the government orders the regulated party to shut down. The government applies its authority under two conditions. One relates to compliance deadlines, the government will shut down the facility if it can not fulfill the requirements within the deadline. The other is subjected to the polluting facilities located in a special protected area such as drinking water source or in residential areas due to wrong-design in the past. Under this circumstance, the government issues a decision that orders the facility to shut down its physical operation in this special area and relocate in another area.<sup>66</sup>

Under the "three simultaneities" requirement discussed above, if the pollution prevention equipment for the project has not been completed or fails to meet the required standards, and the principle project has put into operation, the environmental agency may order the regulated party to suspend its operation and concurrently impose a fine.<sup>67</sup> Regulations also allow the environmental agency to require the regulated party to re-install pollution prevent equipment which has been dismantled or left idle without approval.<sup>68</sup>



### 3.1.5 Permit revocation

The Implementing Regulation on Water Pollution Control Law authorizes the environmental bureau to revoke permits under certain circumstances.<sup>69</sup> When the permittee fails to comply with a permit condition, the environmental agency may first order it to achieve the requirement. Only when the permittee still severely violates the permit, will the environmental agency determine to terminate the permit.

## 3.2 Dispute settlement by environmental agency

A firm who pollutes the environment and harms other persons has to compensate for damage. When a dispute arises between the firm and other persons over liability, parties may request the environmental agency to be the mediator to settle the case.<sup>70</sup> Based on fairness and willingness, the environmental agency will provide a proposal. As long as the parties agree with the terms of the proposal, the proposal turns to be the agreement binding the parties. If a party doesn't agree, it may file a civil action for the liability against another party before a court and the civil settlement process automatically stops if the court accepts the case. Civil settlement by the environmental agency is not the necessary process. The parties may also bring a law suit directly before the courts.

## 3.3 Judicial enforcement

The courts' function in protecting the environment in China is not as strong as it is in the U.S. For example, there are no authorities to provide environmental agencies with recourse to the courts for enforcing environmental requirements, except the compulsory implementation of the administrative decisions by the courts at the request of the environmental agency. Courts in China include the People's Supreme Court, local courts at different levels and specific courts such as maritime court and railway communication courts. The system of courts consists of several branches: civil, criminal, commercial and administrative, plus an implementation branch. Courts assert their duty to handle environmental issues in the following respects: civil litigation which is claimed by plaintiff against the polluter, judicial review of administrative actions filed by the regulated party, and criminal sanctions to fight environmental damage.

### 3.3.1 Civil litigation

Citizens or organizations may file actions before courts against firms whom they think pollute the environment and cause damage to their property or harm their health.<sup>71</sup> The plaintiffs can be one person, one organization or a group. Courts handle the case according to the procedural requirements stated in the Civil Litigation Law. Courts can mediate the case based on the willingness of parties before final judgment. Parties may appeal to a higher level court once.

### 3.3.2 Administrative litigation

The Administrative Procedure Law delegates to the regulated community the right to sue administrative agencies to protect their legal rights. Environmental laws restate these provisions. In 1994, 228 cases were completed by the courts and environmental agencies won 212.<sup>72</sup> The environmental agencies are liable for their illegal activities. However, not every administrative activity is subject to judicial review but certain ones which relate to (1) environmental administrative penalties; (2) decisions on turning down an application for environmental permit or license; (3) not performing authorized duties; (4) illegally requesting a regulated party to conduct an environmental

act; and (4) other activities stated in regulations.<sup>73</sup> Regulations and rules issued by environmental agencies which have binding effects, and those activities which the environmental agencies have final judgment delegated by regulations are not subject to review by courts.

When courts hold that the environmental agencies don't properly perform their duties or violate the regulated parties' legal rights, they will revoke the agencies' decision and request them to reissue a new decision or act within a specified period of time.<sup>74</sup> Normally, the courts only review whether the environmental agencies properly perform rather than the legitimacy of administrative activities themselves. It is the environmental agencies' discretionary activities to make the decision. However, the courts may make their own decision on the environmental matter at hand when the courts find the administrative activities substantially lack fairness.<sup>75</sup>

### 3.3.3 Criminal sanctions against environmental degradation

In the battle against environmental degradation, one of the most effective weapons is the criminal sanction. In China, the public security authorities—police, are to investigate the cases of environmental crimes, the prosecutorial authorities are the legal supervisory body to exercise the power of prosecution on behalf of the state, and the courts exercise the power of judgment. Environmental agencies are consultant agencies to facilitate the investigation and provide information.

The legal rules on crimes against the environment can be found both in environmental laws and criminal laws. The Environmental Law states:

If a violation of this Law caused a serious environmental pollution accident, leading to the grave consequences of heavy losses of public or private property or human injuries or deaths of persons, the persons directly responsible for such an accident shall be investigated for criminal responsibility according to law.<sup>76</sup>

Water, air and solid waste laws also provide that violations of these requirements shall be imposed through criminal liabilities by referring to the related provisions 115 or 187 of the Criminal Law.<sup>77</sup> The Criminal Law has provisions prohibiting various types of environmental degradation, however, it has no special chapter or category of "crimes against the environment", nor does it use that term. This makes it difficult for the courts to apply these provisions to judge environmental crimes. For example, the crimes of poisoning, causing severe accidents due to violation of the regulations on management of hazardous substances and neglect of duties provided in articles 115 and 187 are difficult to apply to all the activities which pollute and damage the environment. Also, current law is silent on such issues as liability of legal persons (corporate entities) which are the main part of environmental crimes, liability for activities which are potentially dangerous, and liability in the absence of either intent or negligence. In 1994, there were 3001 environmental pollution accidents, including 141 serious cases. Most of them were settled by administrative sanctions or only paid compensations rather than being imposed criminal penalties.<sup>78</sup>

The trend is to specify and clarify environmental crimes and penalties. The National Environmental Protection Agency is soliciting experts to prepare a set of amendments to the Criminal Law which will be submitted to the Standing Committee of the National People's Congress next year. Some commentators call for setting up a precedent rule for environmental criminal penalty.<sup>79</sup>

## 4 ROLES AND RESPONSIBILITIES

### 4.1 Government

The State Council is responsible for the nation's environmental quality, while local governments at various levels are in charge of the environmental quality of areas under their jurisdiction.<sup>80</sup> They have the obligation to take measures to improve environmental quality. However, the priority of government is economic development. The country invests a meager 0.7 percent of its gross national product in environmental protection.<sup>81</sup> Experts have admitted that at least 2 percent of the country's gross national product would be necessary merely to prevent a worsening of water shortage and air pollution.<sup>82</sup> Less environmental budgets make the government have few resources of technical and regulatory capacities to devote to the environment. It is difficult to balance between maintaining economic and social development and managing environmental degradation. Even environmentalists also admit that economic growth has a higher social value.<sup>83</sup> A survey-based study shows that 27 percent of those surveyed disagreed to take away funding from developmental projects to environmental friendly projects; and 71 percent were strongly against the idea if it required cutting the other governmental services, such as housing and price subsidies.<sup>84</sup> This leads to the fact that the national policy on environmental protection evolves and builds on the basis of the level of national economic and social development which means that environmental management could not hinder economic growth.<sup>85</sup> When setting environmental requirements, law-makers have to take the polluter's economic capacity into consideration, since the purpose of requirements are not to shut down the facilities.

Economic reforms caused decentralization in China.<sup>86</sup> Local governments accumulated more independent power to regulate their policy. Accordingly, some local governments tend to override the wishes of the central government in enforcing national laws and enforce them only when the laws benefit their local interest.<sup>87</sup> The political accomplishments of a governor or mayor are evaluated by the economic development during their five years of administration which causes a situation in which they always favor short-term economic advantage, even if that involves sacrificing the environment, especially when conflicts exist between environment and economic benefits. 1995 nation-wide inspections revealed that environmental protection lacks financial support. Most provinces integrate environmental protection into their social and economic plan, however, the funding for the environment is not involved. In order to attract investment in their region, local governments are willing to ease environmental criteria. City of Fuzhou revoked the noise pollution fee imposed by the State Council in its regulations. Investors always are afraid of the governmental bureaucracy which requests new projects to go through a lot of agencies to get approved. A city in Guangdong province simplified the process and cut certain agencies, including the environmental bureau. The local environmental bureau lost its authorities and some heavy polluting projects were built in the area. In order to "protect" some firms who pay a lot of taxes to its local treasury but pollute the environment, local governments intervene in the discretion authority of environmental bureaus which protect the firm from its legal obligation to control its pollutants.

### 4.2 Cooperation between agencies

Environmental laws call for environmental protection within the authorities of the State Council's agencies. The agencies are also responsible for "the supervision and management of the prevention and control of environmental pollution"<sup>88</sup> and "the protection of natural resources".<sup>89</sup> When an issue concerning environmental matters is subject to several agencies's authorities, these agencies may work together to promulgate a regulation or rule. The Regulation on Automobile Emission Pollution Management is such a case which was enacted by the National Environmental

Protection Agency, Ministry of Public Security and Ministry of Transportation etc. In order to facilitate cooperation between agencies, the Environmental Protection Committee under the State Council has been established to provide chances for all agencies involved in environmental protection to exchange information and feedback, to consult with each other, to find financing and to negotiate on some issues. Some important policies are also subject to discussion in the Committee. For example, in 1986, the Environmental Protection Committee in association with the State Planning Commission and the State Economic Commission passed the Regulation on Environmental Management of Construction which provides the procedure for the Environmental Impact Assessment and the requirement of "three simultaneities".

Since many agencies can also issue special declarations and administrative decisions to ensure compliance directives passed by higher level authorities regarding environmental protection, the possibility is that each agency may make its own decisions that deviate from what the national policies are designed to achieve.<sup>90</sup> Accordingly, the poor cooperation between different agencies happens very often which leads to the situation that in some areas, authorities are overlapping while in some areas, no other agency likes to regulate and environmental agencies do not have authority to do it. One example is the management of automobile emissions. The public transportation agencies are delegated the authority to monitor emissions,<sup>91</sup> however, the capacities and availabilities of them are not enough for this job while the environmental agencies who have the monitoring equipment and staff do not have the authority. Some provisions require agencies such as business and industry, land and planning to cooperate with environmental agencies in which they will not agree on the project, issue a permit or license, and assign land to the project if the environmental agencies does not approve the Environmental Impact Assessment. Unfortunately, some agencies are reluctant to work together with the environmental agency.

#### 4.3 Environmental agencies

Under the law, the National Environmental Protection Agency is authorized to conduct unified supervision and management of environmental protection which on the face of it looks like the agency has a lot of power in protecting the environment. However, the concept of "unified" is not clear, especially when the authorities are overlapping with other agencies, it is hard to decide how the cooperation works. Sometimes, the agency has to persuade other agencies to enforce their legal obligation to deal with environmental matters.

The enforcement approaches are that the agency plays the role of determining law and policy at the national level and substantial exercise of the implementation is done at the local level of environmental bureaus. So the key to success in environmental protection work depends on how the local environmental enforcement officials handle environmental problems and how they condition the decision situations.

The environmental bureaus at the provincial level basically issue their local legislation and policies, and also directly deal with the regulated community which are mostly large enterprises. City and county environmental bureaus enforce the environmental program under their jurisdiction. The capacity in the local level, especially in county environmental bureaus, lack financial and personal resources. In some areas, the environmental bureau is one department of another agency and does not have an independent role. Local environmental bureaus were easy to attack during the governmental institutional reforms. In later 1992 and early 1993, during the institutional reforms, some local environmental bureaus' authorities were weakened and some of the independent bureaus were merged into other bureaus.

Many local environmental bureaus do not have enough financial resources and personnel from the government. Monitoring equipment and technology are rather backward and lack inspection vehicles and telecommunications. Forty to sixty percent of local environmental bureaus' monitoring stations don't have necessary capacity for their job.<sup>92</sup>

Environmental enforcement is very complex combining legal, technical and science issues. As we talked about the legal framework, Chinese environmental regulations normally provide general requirements and sometimes the language is not clear enough. When enforcing the regulations, environmental enforcement officials have to develop measures that combine law and technology, to create a process which specifies the various environmental standards and different operational methods. Their capacity is the main determinant of the effectiveness of enforcement which currently is still backward at the county level. Since environmental protection agencies are really new, most staff came from other agencies and very few persons are specialized in the environment. There is not sufficient technical expertise to monitor ongoing performance. The officials lack regulatory and administrative skills necessary to effectuate pollution control law. A survey revealed that only 56% of those reviewed mention that they had received some kind of formal training.<sup>93</sup> The training was mostly a short term pre-working seminar which did not provide technical training, particularly for pollution control. The technical parts of the job - the sampling procedures, the use of chemicals and equipment - were supposed to be learned by working together with the more senior and experienced officers. This has been changed gradually but still very slow. The Environmental Management Institute was established in 1981 to train environmental employees at the local level. The National Environmental Protection Agency established several training centers in cooperation with universities to design courses in majors, such as environmental law, monitoring, pollution control and information analysis.<sup>94</sup>

#### 4.4 Industry

Industrial product accounts for 70% of GNP in China. *"One of the intended effects of environmental laws and regulations is to provide a level playing field for industry, so that it can contribute to a better quality of life without depleting resources or damaging the environment and jeopardizing current and future generations' health and economy."*<sup>95</sup> Chinese environmental laws set up strict standards for industry to comply with. One of them is to request industry to establish its own environment management institution and to carry out its environmental duties.<sup>96</sup> Environmental protection institutions have been established in industrial enterprises, especially in large and medium sized state owned enterprises. Some are independent environment institutions with professional staff in charge of environmental protection work. Some were established and affiliated with safety and technical offices. Small businesses normally assign one person or relevant office to deal with environmental matters. Enterprises have to integrate the environmental protection into their routine business plan which should be consistent with environmental requirements.<sup>97</sup> Most enterprises have monitoring institutions equipped with monitoring instruments. They regularly self-monitor the pollutants and report data to the environmental agencies. To ensure the firms comply with their responsibility, environmental agencies negotiate with the firms to reach an agreement which involves detailed measures on how they may operate and measures they need to take to comply with environmental standards, and provide rational pollution control goals. Enterprises also should educate their employees to develop their capacity for voluntary compliance.

The industrial groups have more interest in development than in the environment. When law-makers issue a law or a standard, industry always argues that the law or the standard is too strict for enterprises to apply. Individual enterprises are reluctant to invest more money in installing equipment to control pollution. Some enterprises do not have environmental institutions or lack professionals in charge of environmental management. The status of township enterprises is even

worse. They only focus on their benefits and ignore the environmental requirements. An iron mineral factory at a county in Sichuan province dumped its wastes in the river which led to the flood and caused serious damage to the county.<sup>98</sup>

#### 4.5 Citizens

Citizens are an important resource for detecting certain types of violations which can provide the necessary information for the environmental agency.<sup>99</sup> Chinese Environmental law admits citizens' right to protect the environment and to complain on actions which pollute or damage the environment.<sup>100</sup> Citizens may report through mail or by visiting environmental agencies' offices to notify of possible violations. In 1994, 2,112 letters had been received and 2,362 people complained and filed 1,718 environmental damage cases to environmental bureaus in Beijing. About 95% of the cases have been settled.<sup>101</sup>

Though some project's Environmental Impact Assessments were sent to citizens for their comments, there are no explicit provisions concerning public hearings in the rulemaking process until the Administrative Penalty Law which provides public hearing principles and requires citizens to be noticed on administrative actions. When making a rule, the National Environmental Protection Agency normally sends the draft to other agencies, local environmental bureaus and certain experts at universities or research institutions for comments. During this period, some citizens may be informed about the relevant environmental issues, but these are rather narrow and they lack formal channels to express their comments. It is not convenient for the public to access updated information since the information is not broadly disseminated. Newly amended water pollution prevention law imposes the requirements for public opinion to a project's impact assessment which will enhance the public participant in environment.

Public awareness about their environmental rights has been promoted during the past few years, however, well-organized citizens' groups concerned with protecting the environment are very few, so the burden for government keeping its promise to protect the environment is not strong enough. There is a need to encourage public organizations, such as labor unions, youth league, and the women's federation to participate in environmental protection.

The strategy to approach public awareness is education on environmental knowledge to promote their ability to voluntarily protect the environment, report violations and superintend the government. There now are different training courses in education. The training of government officials normally integrates environmental issues into other training courses to enhance their awareness of the environment and to support their job. Some universities have established environmental departments to train professional experts in environmental technology and management. Also primary education of juveniles is very common at various schools. In 1989, the City of Chaozhou at Gouang Dong province was awarded the "Global 500" award by UNEP.<sup>102</sup>

## 5 CONCLUSION

The framework of environmental legislation and enforcement measures have been established, however, China still lacks the will to achieve compliance with and efficient enforcement of environmental requirements, which weakens the results of requirements which are envisioned by environmental laws. This is a significant barrier for the country to achieve its goals to protect the environment and public health. A sharper emphasis on enforcement from the government will develop the nation's capacity to deal with environmental degradation burdens from rapid economic development. The new efforts to improve its environmental legal system will promote the environmental compliance and enforcement in China.

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## ENDNOTES AND REFERENCES

1. Shouqiu, Cai and Voigts, Mark . *The Development of China's Environmental Diplomacy*. Pacific Rim Law & Policy Journal. Vol. 3, 1993 Special Edition.
2. China's Agenda 21. White Paper on China's Population, Environment, and Development in the 21st Century. Approved by the State Council in March, 1994. (hereinafter China's Agenda 21).
3. National Report of The People's Republic of China on Environmental and Development, August 1991. This is an official conference document contributed by the government of China to the preparation for the 1992 United Nations Conference on Environment and Development held in Brazil. (hereinafter National Report).
4. In December 1990, the State Council issued the Directive on Further Strengthening Environmental Protection which calls for strict enforcement of environmental laws and regulations throughout China. China Environmental News (in Chinese), Dec. 20 1990.
5. For more discussion on economic reform in China see Donald C. Clarke, *What's Law Got to do With it? Legal Institutions and Economic Reform in China*, 10 UCLA Pac. Basin L.J. 1990 (hereinafter Clarke).
6. White Paper on Environmental Protection, issued by the State Council, News Office, June, 1996. (hereinafter white paper).
7. Geping, Qu. *New Development of Global Environmental Problems and China's Response Strategies*, 1 CHINA ENVIRONMENTAL SCIENCE (English) (1990).
8. Kunmin, Zhang & Ruilin, Jin. *A Course in China's Environmental Protection Law* (in Chinese). Qinghus University Press, 1990 (hereinafter Zhang & Jin).
9. National Report, supra note 3.
10. Annual Report On Environmental Quality of China, 1994 (hereinafter 1994 Report).
11. Elizabeth Economy. *China's Thick Air*, *The Plain Dealer*. October 2, 1995.
12. National Report, supra note 3.
13. Id.
14. Head, John W. Using Criminal Sanctions to Fight Environmental Damage in the P.R.C. East Asia Executive Reports, Sept. 15, 1995 (hereinafter Head).
15. 1994 Report, supra note 10.
16. Head, supra note 14.
17. National Report, supra note 3.
18. Id.
19. White paper, supra note 6.
20. National Report, supra note 3.

21. Xi, Wang and Blomquist, Robert F. *The Developing Environmental Law and Policy of the People's Republic of China: An Introduction and Appraisal*. Georgetown International Environmental Law Review, 39-40, 1992 (hereinafter Wang & Blomquist).
22. Zhang & Jin, pgs. 54-55, supra note 8.
23. Id, page 4.
24. Statutes addressing water and air pollution, forestry, grasslands, fisheries, mineral resource, land use, soil and wildlife conservation, and marine protection were enacted in 1980's, while water and soil conservation law, and agriculture law was promulgated in 1992 and 1993 respectively.
25. Ross, Lester. *The Next Wave of Environmental Legislation; Special Report: China's Environment*. The Chinese Business Review, Vol. 21, No. 4, July, 1994, (available in LEXIS NEXIS Library).
26. Two laws have already been amended and a new law has been adopted by NPC so far. The Law on Prevention and Control of Air Pollution Amendment was enacted on August 29, 1995, and the Law on Prevention and Control of Water was just amended on May 15th, 1996. The Law on the Prevention and Control of Solid Waste was adopted on October 30, 1995 and took effect on April 1, 1996. The Environmental Protection Law, the Marine Environmental Protection Law as well as forest, fisheries, grasslands and mineral law will be amended in the next few years. The new statutes on noise control, toxic and harmful chemicals management, natural resource conservation, desertification prevention and energy savings will be completed by 1998. The above information came from the unpublished paper presented by Hu Baoli at the National Environmental Legislation Workshop, April 9—11, 1996.
27. In 1993, the State Environmental Protection Committee (SEPC) under the State Council and the Environmental and Resources Protection Committee (ERPC) of the National People's Congress co-launched a nation-wide campaign to inspect the enforcement situation of environmental law and natural resource law.
28. Report on the National Environmental Legislation Workshop. Unpublished Paper by Legislation and Policy Division of NEPA.
29. "Law" refers to the legal documents adopted by NPC or its Standing Committee which has the highest priority legal documents issued by the State Council which are called "administrative regulations". NEPA and other agencies also have authority to pass "rule" and "regulation". For a discussion of the formal structure of lawmaking in China, see Clarke, supra note 5, 17. Also see Keller, *Legislation in the People's Republic of China*, 23 U.B.C.L. Rev. 3, 1989.
30. The Constitution of the People's Republic of China, 1982. The National People's Congress enacted Constitution in 1975, revised it in 1978 and 1979, and adopted a new Constitution in 1982 which contained the language acknowledging environmental protection duties of the government.
31. Environmental Protection Law, article 4.
32. Id, article 7.



33. Local regulations refer to (1) rules and regulations adopted by People's Congress and their Standing Committees at the provincial level, capital cities of provinces and large cities which are designated by the State Council; (2) rules and regulations issued by the governments at and above the county level.
34. *National Plan in Phase-out Substances Which Deplete the Ozone Layer*. Available from *Common Responsibility of Human Beings* (in Chinese). Environment and Science Press, 1993.
35. *China Environmental Enforcement Report*. Represented at the UNEP's Beijing workshop by Legislation Division of NEPA, 1994, (hereinafter Enforcement Report).
36. Environmental Protection Law, article 9.
37. *Id.*, article 10.
38. *Id.*, article 13. The early regulation for EIA was the Management of Construction Projects issued in 1986 by the SEPC, National Planning Commission, and National Economic Commission.
39. *Id.*
40. *Id.* Most projects EIA are reviewed by environmental agencies at province, city or county level depending on their investment. Projects whose investment exceed 200 million yuan (\$ 25 million) are reviewed by NEPA.
41. White Paper, *supra* note 6.
42. Wang & Blomquist, 65, *supra* note 21.
43. Environmental Protection Law, article 26.
44. *Id.*
45. *Id.*, article 11.
46. China Environment Yearbook 1995. Chinese Environmental Science Press. (hereinafter 1995 Yearbook).
47. Chinese Environmental Science and Research Institute is responsible for technical support.
48. Environmental Protection Law, article 27; Water Pollution Law, article 14; Air Pollution Law, article 11, and Solid Waste Law, article 31.
49. Environmental Protection Law, article 14.
50. Rule on the Management of Inspection Identification, passed by NEPA in 1992.
51. *1994 National Environmental Enforcement Inspection Report*, by Xie Zhenhua, Administrator of NEPA, 1995 Yearbook, *supra* note 46.
52. Water Pollution Law, article 15.
53. Air pollution Law, article 12. Though during the revision of Air Pollution Law, law-makers intended to strict the requirement to charge fee upon emission of pollutants, not on exceeding the standards, objections from industries prevented the NPC from accepting the idea.
54. Rules on the Management of Emission Fees, article 10.

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55. Hu Baolin, *Enforcement of Pollution Discharge Fee in China*, published in Proceeding, Volume 1 for the Forth International Conference on Environmental Compliance and Enforcement, Thailand, April 22-26, 1996,
  56. *Id.*
  57. Rule on Environmental Administrative Sanction, article 20, issued by NEPA on July 7, 1992. Compilation of Laws and Regulations on Environmental Protection, 2nd ed. Chinese Environmental Science Press, 1993. (hereinafter Compilation).
  58. *United States v. Beatty, Inc.*, 401 F. Supp. 1040. (N.D. Ky. 1975).
  59. Environmental Protection Law, article 40.
  60. 1995 Yearbook, p. 310, *supra* note 46.
  61. The Law on the Control of Solid Waste Pollution impose 1,000,000 RMB (\$1=8.5 RMB) by the Customs as maximum amount which exceeds 20,000 RMB for Water and Air Pollution Control laws.
  62. Implementing Regulation on Water Pollution Control Law, article 35. The environmental bureau at county level has the authority to impose a penalty not exceeding 10,000 RMB, while the bureau at city level's authority is not more than 50,000 RMB. Any amount beyond their authority is subject to the approval of its superior environmental bureau. The bureau at province level can fine up to 200,000 RMB which is the highest amount the environmental bureau has been authorized.
  63. Environmental Protection Law, article 29.
  64. *Id.*, article 39.
  65. Zhang Kunmin, ed., *Environmental Implementation in China* (in Chinese), 261-267, University of Policy and Science Press, 1993. (hereinafter implementation). Also see Marine Environmental Protection Law, article 41 which delegates the right to Marine Protection Agency. Recover cost is seldom used in China.
  66. Water Pollution Prevention Law, article 19.
  67. Environmental Protection Law, article 36.
  68. *Id.*, article 37.
  69. Implementing Regulation on Water Pollution Control Law, article 34.
  70. Environmental Protection Law, article 41.
  71. *Id.*, article 6.
  72. China Environmental Yearbook, 1994. Environmental Science Press, (hereinafter 1994 Yearbook).
  73. Implementation, 235-247, *supra* note 65.
  74. Administrative Procedure Law, article 54.
  75. Implementation, 235-247, *supra* note 65.
  76. Environmental Protection Law, article 43, 44.

77. The Criminal Law was adopted in 1979.

Article 115 provides that whoever violates the regulations on the control of articles of an explosive, combustible, radioactive, poisonous or corrosive nature, giving rise to a major accident in the course of production, storage, transportation or use and causing serious consequences, is to be sentenced to not more than three years of fixed-term imprisonment or criminal detention; when the consequences are especially serious, the sentence is to be not less than three years and not more than seven years of fixed-term imprisonment.

Article 187 states that state personnel who, because of neglect of duty, cause public property or the interests of the state and the people to suffer major losses are to be sentenced to not more than five years of fixed-term imprisonment or criminal detention.

78. Suli, Wang. *The Environmental Criminal Justice in China*. Paper presented at the Fourth International Conference on Environmental Compliance and Enforcement. April 22-26, 1996, Thailand and published at the Conference's Proceedings.
79. *Id.*
80. Environmental Protection Law, article 16.
81. Elizabeth Economic, *supra* note 11.
82. *Id.*
83. ... "We are in favor of economic development and improving the environment within this development. We do not agree with the pessimistic view which calls for stopping or slowing the tempo of economic development." Qu Ge-ping and Jin Chang-li, 1984 "Environmental Management". In Qu Ge-ping and Woyen Lee, eds., *Managing the Environment in China*. London: Tycooly International Publications.
84. Chan, Hon S., Wong, Koon-kwai, Cheung, K C, Man-Keung Lo, Jack. *The Implementation Gap in Environmental Management in China: The Case of Guangzhou, Zhengzhou, and Nanjing*. *Public Administration Review*. July/August 1995 (available at LEXIS-NEXIS Library). (Hereinafter Chan).
85. *Id.*
86. Nillel, Michael Irl. "Chinese Characteristics" in *Corporate Clothing: Questions of Fiduciary Duty in China's Company Law*. *Minnesota Law Review*. Vol. 80, 1995. Also see Clarke, *supra* note 5.
87. Beijing closed more than 1,000 unauthorized development zones which were offering tax concessions and other incentives to encourage foreign investment outside of central government supervision. *Id.* Also see Kevin Murphy, *For Many China Firms, and Order to Sink or Swim*, *International Herald Tribune*. August 13, 1993 (available in LEXIS-NEXIS Library).
88. Environmental Protection Law, article 7. These include the state administrative departments of marine affairs, the harbor superintendency administration, public security, transportation, and railways, etc.

89. The administrative departments of land, minerals, forestry, agriculture and water conservancy of the local governments at or above the county level exercise this function.
90. Chan, *supra* note 84.
91. Regulation on the Management of Automobile Emission, article 3 and 27.
92. Enforcement Report, *supra* note 35.
93. Chan, *supra* note 84.
94. Twenty Years of Environmental Protection in China. Chinese Environmental Science Press, 1994.
95. Editorial, *Industry Compliance for Sustained Environmental Protection*. Industry and Environment. Vol. 19, No. 1, January-March 1996.
96. Environmental Protection Law, article 24.
97. *Id.*
98. 1994 National Environmental Enforcement Inspection Report., *supra* note 51.
99. Cheryl Wasserman, *Overview of Compliance and Enforcement in the United States: Philosophy, Strategies and Management Tools*, Proceedings for the International Enforcement Workshop, May 8-10, 1990. Utrecht, The Netherlands.
100. Environmental Protection Law, article 6.
101. 1995 Yearbook, *supra* note 46.
102. Twenty Years of Environmental Protection in China, *supra* note 94.

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## **ENFORCEMENT OF LEGISLATION ON GENETICALLY MODIFIED ORGANISMS IN THE NETHERLANDS**

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### **SUMMARY**

In this paper some data will be presented on the enforcement of the legislation on genetically modified organisms (GMO's) in the Netherlands. So far many offenses have been encountered which are not always easily enforced. The problems with enforcement arise, for instance, from complex procedural aspects of the legislation and several properties of the notification system. From the experience with the Dutch legislation, we think that for the development of future enforceable genetically modified organisms legislations simple procedures, strictly defined notifications or permits and used terminology are of great importance.

## **1 LEGISLATION ON GENETICALLY MODIFIED ORGANISMS IN THE NETHERLANDS**

### **1.1 General concerns with genetically modified organisms**

Genetic modification of organisms is a technique which is widely used to alter the genetic constitution of organisms for, for instance, research purposes, the production of proteins used in the food or pharmaceutical industry and the improvement of agricultural breeds, varieties or strains. Using this technique new organisms may arise which have potential hazards for man or the environment. In order to reduce or manage such potential hazards, specific legislation has been formulated by some competent authorities. The Genetically Modified Organisms Decree pursuant the Chemical Substances Act Genetically Modified Organisms Decree was enacted by the parliament in 1990 and modified in 1993.

However, formulation of legislation does not mean that it's obligations are automatically being observed. Thus the question arises whether the regulations are being fulfilled. And, if they are not, are they enforceable? This article means to give an answer to these questions and to give some recommendations towards those countries that mean to develop regulations on activities with genetically modified organisms.

### **1.2 Current administrative framework**

The objective of the Genetically Modified Organisms Decree is to manage the potential risks associated with activities with genetically modified organisms. The management of potential risks has been enacted by:

- The obligation to apply for a permit for the release of a genetically modified organism into the environment.

- The obligation to notify one's activities with genetically modified organisms under contained use to the authorities. Contained use of genetically modified organisms involves activities with genetically modified organisms within the physical containment of a laboratory, animal facility, glass house or process installation.

A notification or a permit application for working with genetically modified organisms involves highly detailed information on the combinations of genes, vectors and host organisms which are going to be used. Following notification or the appliance for a permit, a risk assessment of potential hazards associated with the activities with these genetically modified organisms is being executed. This risk assessment leads to a set of special precautions that should be taken to lower the risks associated with the use of the genetically modified organisms. As a consequence of this system, the allowed activities are restricted by the gene/vector/host combinations notified. Therefore it is not allowed to use any other gene/vector/host-combination than those notified, even in the case when an unnotified combination could be safely used under the particular safety regime.

So far 28 different companies in the Netherlands have applied for 83 permits to release genetically modified organisms into the environment. Most of these releases involve transgenic plants. For the contained use of genetically modified organisms 175 institutions have done over 1800 notifications. The permitted activities for the contained use of genetically modified organisms deal with very diverse organisms like microorganisms, mammals such as mice or cattle, fish, insects, frogs etc. (See tables 1 and 2)

**Table 1. Institutions with Releases of Genetically Modified organisms (GMO's)**

Institutions	Contained use of GMO's	Release in the environment
Universities	yes	yes
Hospitals	yes	yes
Research institutes	yes	yes
Polytechnic schools	yes	no
Companies for the improvements of breeds and seed cultivation	yes	yes
Companies with medical or laboratory applications	yes	yes
Large industrial companies	yes	yes
Biotechnological companies	yes	no

**Table 2. Permits Issued for Genetically Modified Organisms (GMO's)**

Organisms released	Number of permits	Type of permitted activities
Plants:		
- Potato	- 36	- field trial
- Carnation	- 1	- field trial
- Cabbage	- 1	- field trial
- Chrysanthemum	- 2	- field trial
- Cichory	- 5	- field trial
- Swedish turnip	- 1	- field trial
- Rapeseed	- 6	- field trial
- Maize	- 7	- field trial
- Sugarbeet	- 11	- field trial
- Tomatos	- 2	- field trial
- Carrot	- 1	- field trial
- Sunflower	- 1	- field trial
Other organisms:		
- Human bone-marrow cells	- 1	- gene therapy
- Human somatic cells	- 1	- gene therapy
- Cattle	- 1	- field trial
- Aujeski virus	- 2	- field trial
- Pseudomonas fluorescens	- 1	- field trial
- GMO waste	- 3	- transport and destruction of waste

## 2 ENFORCEMENT OF LEGISLATION ON GENETICALLY MODIFIED ORGANISMS IN THE NETHERLANDS

The Main Department Enforcement Environmental Legislation of the Inspectorate for the Environment of the Ministry of Housing, Spatial Planning and the Environment has the responsibility to enforce the Genetically Modified Organisms Decree. So far two scientifically trained people are involved fulltime in the enforcement of the Genetically Modified Organisms Decree.

### 2.1 Implementation of enforcement activities

Inspections of permits for releases of genetically modified organisms are relatively simple and involve inspection of all enforceable regulations of the permits.

Inspections of institutions, in which contained use of genetically modified organisms take place, is much more complex. This complexity leads to a rather long time which is necessary to prepare the inspector for one inspection. One way to tackle this problem to some extent, is to perform short inspections in which only one small topic of the legislation is inspected.

In general inspections for the contained use of genetically modified organisms deal with compliance to:

- the obligation of notification;
- the obligation of having a biosafety officer;
- rules on furnishing of — or the working procedures; and
- general biosafety rules.

## 2.2 Enforcement of offenses of the Genetically Modified Organisms Decree

During practically all inspections done so far, offenses have been encountered. Severe offenses are enforced immediately by means of criminal or administrative law. Other offenses are initially enforced by a notification. Upon negligence of this notification or reiteration of the offence, enforcement occurs by means of the criminal or administrative law.

The frequency of offenses of release permits is relatively low, probably due to the conditions of the permits which are easy to fulfil.

The frequency of offenses of the legislation for contained use is much higher. During almost all inspections one to several offenses were identified. Most of these offenses dealt with incomplete notification of activities with genetically modified organisms. A minority of the offenses were observed on the rules concerning furnishing, the working procedures or the availability of a biosafety officer.

So far three criminal lawsuits have been pursued. Two for the release of genetically modified organisms into the environment and one for the contained use of genetically modified organisms. The recording for the release lawsuits were relatively easy, due to the fact that the offenses involved actions that could be checked visually.

The recording for the contained use lawsuit encountered several difficulties in demonstrating the offence. These difficulties arose mainly from:

- the complexity of the procedural aspects of the legislation;
- the lack of administrative obligations;
- the unclear definition of terms used in notifications; and
- the vague delimitation of notifications.

The exact nature of these difficulties are described in the next paragraph. Due to the lack of adequate administrative obligations 16 interrogations had to take place. The lawsuit has cost about half a year of labor of one person and is still under surveillance.

Administrative law is so far considered to be less effective for the enforcement of offenses of the Genetically Modified Organisms Decree. This is due to the relatively long time which is necessary for the execution of the administrative law procedures compared to the time which is needed for execution of the procedures of the Genetically Modified Organisms Decree.



### 2.3 Problems encountered with inspections and enforceability of the legislation

Although offenses of the Genetically Modified Organisms Decree are frequently detected, the legislation possesses several enforceability problems. There are several causes for the complexity of the inspections and these problems with the enforceability. One of these problems is intrinsic to the topic: genetic modification. The others lie within aspects of the legislation, such as: the procedures of the legislation, the notification system and the history of the development of genetically modified organism legislation. These causes will be discussed below.

#### 2.3.1 Genetic modification

It is intrinsic to the topic that it is usually impossible to see or measure whether an organism is a genetically modified organism. As a result the inspection whether a permit holder is working within the borders of his license, is a complex task. It involves interviews with researchers, literature research and administrative research. However, for a great deal of information the inspectors are dependent on the cooperation of the permit holder. Therefore, in order to enable inspections genetically modified organism legislation needs specific qualities compared to other legislation.

#### 2.3.2 Complex procedures of the legislation

The legislation means to assess and manage potential risks involved in activities with genetically modified organisms. This risk is determined by use of technical and scientific data and criteria. Different levels of risk involved in activities with genetically modified organisms lead to a different procedure for obtaining a permit. This means that the procedure for working with a "high risk genetically modified organism activity" is more profound than one in case of a "low risk genetically modified organism activity". This has led to a very complex system of procedural categories of genetically modified organism activities with very diffuse and overlapping boundaries and with different obligations per procedural category.

As a result, during inspections much time is used for determining which procedure of the genetically modified organism decree is relevant and whether an offense has occurred or not. Furthermore, if offenses are determined they are often difficult to enforce by criminal law. This is due to the loosely defined procedural categories and the necessity to demonstrate precisely which obliged procedure has been offended.

#### 2.3.3 Properties of the Dutch notification system

The notification system bears at the moment three main problems with enforceability. First of all, notifications are done by (part of) a research project. Hence, an institution may have done over 50 notifications. For enforcement by criminal law one needs to demonstrate that the offense activity with genetically modified organisms does not fall under one of the other notifications done by the institution. One can imagine that this is a very laborious task.

Secondly, the terminology used in notifications is often poorly defined or unclear. As a result, encountered offenses often lead to much debate with the permit holder about whether or not a term gives consent for the offense as seen by the inspectors. As an example, permits often refer to a vector and its derivatives. However, it is not defined when a vector is still considered to be a derivative or when it should be considered as a new vector (and thus a new (changed) license should be applied for).

Thirdly, the notifications result in consent for a very limited range of activities which is a combination of described hosts with certain vectors and inserts. This means that for a good inspection, the inspector has to ascertain that no other than the permitted combinations are being used. However, as stated before, a genetically modified organism can neither be seen, smelled or

measured. Thus, in order to be able to inspect whether a permit holder is working within the limits of his permit, there should be very precise administrative conditions in the regulation or permits. These kind of detailed conditions are lacking at the moment in the Dutch legislation. Such conditions should consider all activities which are being performed within a laboratory and which should be administrated in accordance with a very strict format. This way the inspector will be relatively easily able to see whether there is an illegal situation.

#### 2.3.4 History

Finally, in the period from 1982 until 1993 it was common that institutions with genetically modified organism activities were obliged to notify their activities to an Advisory Board. With the enactment of the modified Genetically Modified Organisms Decree in 1993 the notifications to the advisory board together with the advise on safety precautions which had to be taken, received the status of permits drawn in accordance with the Genetically Modified Organisms Decree. In the period before 1993, however, enforcement of these notifications was virtually absent and compliance was more or less voluntary. As a result these notifications were not established in consideration of possible enforcement and delimitation of the 'old' notifications is poor. To inspect and enforce an undelimited project is a very complex (sometimes impossible) task.

### 3 CONCLUSION AND RECOMMENDATIONS

The legislation on release as well as contained use of genetically modified organisms is energetically enforced since the modification of the Decree in October 1993. The experiences so far show that enforcement of this law is possible but very difficult. It must be stated that enforcement of intended illegal activities is virtually impossible. Furthermore, enforcement activities require a great amount of expertise and experience with the subject of genetic modification.

Most countries of the world, so far, lack legislation for activities with genetically modified organisms. Due to expansion of activities of biotechnology companies, more and more countries are coming into contact with activities with genetically modified organisms. To avoid possible risks of these activities development of some sort of specific legislation is inevitable. As described earlier, the enforcement difficulties of the Genetically Modified Organisms Decree in the Netherlands are connected with several aspects. These aspects involve the legislation itself, the way it's been implemented and the history from which it descends. Based on our experience we would like to bring the following points of interest and recommendations under the attention of those who want to develop a genetically modified organism legislation.

#### 3.1 Whether to have formal legislation or voluntarily observed guidelines

The problems with enforcement of the Genetically Modified Organisms Decree may partially result from the fact that compliance of the contained use legislation in the years before 1993 has been regarded as more or less voluntary. As a result issues concerning enforceability of the contained use legislation have until then not been taken into consideration.

First of all, we would like to suggest that one should make a very clear decision on the desirability of enforcement of the genetically modified organism regulations to be developed. The actual choice one has to make is whether a formal enforceable legislation will be enacted or a voluntarily observed guideline will be developed. Legislation by itself has no use if it is not enforceable. The desirability of enforcement will influence the outcome of the bill of the genetically modified organism regulations to major extent.

One should bear in mind that, if one wishes to enact enforceable legislation, much effort will have to be invested both by the branch and the legislator. Only a part of this effort will be necessary in case of voluntarily observed guidelines.

If one decides for voluntarily observed guidelines, very good examples for such guidelines may be found in the Dutch legislation and in a set of guidelines which have been formulated by some cooperating countries. If one decides for the development of enforceable genetically modified organism legislation we would like to give some recommendations underneath which, we think, are of great importance.

### 3.2 Referencing international guidelines

One could also decide to use the internationally developed guidelines as a starting point for the development of national legislation. Such kind of transposition of guidelines for the contained use of genetically modified organisms into enforced legislation has taken place in the Netherlands. The big advantage of such transposition is, of course, that the implementation can take place within a very short time. It is, however, just plain logic that regulations or guidelines which are written from a point of view of voluntariness of the applicant, lack enforceability. One should keep in mind, therefore, that upon transposition of guidelines into formal legislation, a great deal of the guidelines needs to be rewritten into enforceable conditions.

In addition it might be possible that in first instance voluntarily observed guidelines are implemented which later on will be transposed into enforceable legislation. In that case transposition of notifications done under the guideline into formalized notifications may be attractive but will encounter the same kind of enforceability problems as we have in the Netherlands. A solution for this problem without severe administrative burden for applicants could be, for instance, transposition of the voluntary projects into permits connected with a limited validity.

### 3.3 Tailored administrative conditions

As a consequence of the fact that genetically modified organisms can neither be seen, smelled or measured, there is a greater need for administrative conditions in the genetically modified organism legislation compared to what is normally needed for other legislation. Such administrative conditions will, however, not be welcomed by the applicants, as it will cause a substantial administrative burden. Without those administrative conditions, however, enforcement will be very difficult.

### 3.4 Specifying conditions and procedures

We recommend that the procedures for notification or permit application are kept as simple as possible. This may lead to a preferable system in which only very few procedures exist which do not relate directly to the potential risks involved with the activity with genetically modified organisms.

Another point of importance is that one should decide very carefully what level of detail is really wanted or needed for permits and notifications. The high level of detail in permits and notifications lead to a rather small permitted range of genetically modified organism activities. The rapid development of new techniques and vector/host systems for genetic modification will easily and rapidly lead to a large variety of new gene/vector/host combinations wanted to be used. Thus, the limited range of permitted activities with genetically modified organisms is in conflict with the intention of science to develop and explore. We believe that the high amount of offenses connected with the notification system in the Netherlands is firmly connected to this conflict.

A solution for this problem might be the development of a system in which the notifications are being done on the level of the specific set of biosafety rules used in the laboratories. The applicant would then only have to notify that they are working under a certain set of safety rules. This would result in a high level of freedom in the activities with genetically modified organisms for which consent has been given. Again as a consequence, an extensive administrative system would be needed for inspection. However, the higher level of freedom might make the burden of the obliged administration more acceptable for the applicant.

### 3.5 Definition of terms

Once a decision has been made on the level of detail wanted for the notification or permit system, one should define very strictly the terms which are used in the notifications or the permit applications. As we have seen in the Netherlands, many items in consents and permits are not very strictly defined. This becomes a problem as soon as one wishes to enforce offenses since any differences in interpretation of terms can cause drastic problems. It is, therefore, extremely important to define exactly what, for instance, is regarded as a vector, a gene or a host. Another important issue that needs a definition and clear boundaries, is the research area that may be covered by one notification.

Finally, many other items in the regulation also need very clear conditions. For instance, what the exact tasks of the biosafety officer are, how he/she should implement them and so on.

Summarizing, we strongly advise on basis of our experience that matters of compliance and enforcement are considered at every stage of the development and implementation of genetically modified organism legislation. Moreover, in order to achieve a law, which meets the demands of proper risk management, feasibility and enforceability and which is reasonable in its obligations, cooperation between scientists, policy makers and inspectors is absolutely necessary from the very beginning.

## **ENVIRONMENTAL LAWS, CAPACITY BUILDING AND COMPLIANCE MONITORING — THE HONG KONG EXPERIENCE**

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### **SUMMARY**

A review is given of the institution building and legislative development for pollution prevention and control in Hong Kong. The enforcement organization, compliance monitoring regime and environmental improvements are illustrated also.

### **1 BACKGROUND**

Hong Kong is densely populated with over six million people in an area of around 1,000 square kilometers, and faces similar environmental problems to those encountered by many other major urban cities with rapidly growing populations and economies. For example, diesel vehicles contributing to high particulate concentration in the air, dusty construction sites with noisy equipment causing local pollution problems, bathing beaches polluted by untreated sewage, and the indiscriminate discharge of toxic wastes into local waters.

Pollution affects the daily lives and health of the general public. In 1989 the Government recognized that "serious environmental pollution in Hong Kong is an unfortunate by-product of economic success and population growth," and the government's priority was to halt the environmental decline and to commence programs to provide fundamental environmental improvements.<sup>1</sup>

While the solution to environmental problems lies with the whole community, Governments have the role to set up the institutional and legislative framework to facilitate changes in the current culture and lifestyle from "pollution generation" to "pollution prevention and control", to cultivate an environmental ethic in the community and to encourage all sections of the community to make their contribution.

The establishment of a sound legislative framework requires the strong backing of senior government officials and community leaders. The "Pollution Black Spot" visits organized by the Environmental Protection Department for the Governor, Chief Secretary, leading members of the Legislature, senior newspaper editors and other influential people from industry and commerce enable them to have a better appreciation of the pollution problems faced by the majority of the community. It also results in an attitude change in favor of proposals for new environmental measures and legislative controls.

## 2 CAPACITY BUILDING

With the increase in population and economic activity in the late 60's and early 70's, the environment was under stress. Specific problems at that time included: pollution from sewage of coastal waters including the semi-enclosed Tolo Harbor, Victoria Harbor and the bathing beaches; pollution of the New Territories, in particular from livestock wastes and industrial discharges; and increasing air pollution in urban areas from dark smoke and sulphur dioxide emissions by industry. The Hong Kong Government in 1974 therefore commissioned a team of consultants to review the pollution problems and to make recommendations on how they should be tackled.

The findings indicated the urgent need to develop a flexible framework for environmental planning and management to accommodate the rapid growth of Hong Kong's thriving economy. The Environmental Protection Unit (EPU) was set up in 1977 to formulate environmental policy and to coordinate the activities of the several departments involved in pollution control and other environmental protection work.<sup>2</sup>

In 1981, the Environmental Protection Unit was upgraded to a better resourced Environmental Protection Agency (EPA) with the role of developing a comprehensive program of environmental protection measures - particularly legislative proposals - as well as collecting, through environmental monitoring, the data needed to provide a basis for the development of policies appropriate to Hong Kong. While this provided a central focus for developing a comprehensive pollution control program, it still left the enforcement of environmental legislation to a disparate collection of government departments, where the environmental responsibilities were peripheral to their main functions, resulting in a debilitating lack of focus and determination for a coordinated effort to halt the decline of the deteriorating environment.

These problems were recognized and dealt with in 1986 by the amalgamation of staff and resources from six government departments to create the Environmental Protection Department (EPD). The new department was given a more effective role in coordinating government efforts on environmental protection. Additionally, in order to complement the pollution control effort the Environmental Protection Department became responsible for the development of sewage and waste management programs.

Other significant institutional developments continued with the setting up of the Drainage Services Department in 1989 which was charged, *inter alia*, with implementing the sewerage programme and sewage disposal strategy.<sup>3</sup> In 1990 a new policy branch was created within the central government - the Planning, Environment and Lands Branch - with overall responsibility for policy making on all matters relating to environmental protection, land use and planning (Figure 2). The nongovernmental Advisory Council on the Environment, formerly known as the Environmental Pollution Advisory Committee was set up to provide advice to the policy branch. A Planning Department was created to be responsible for land use planning at both strategic and local levels.

The increasing range of enforcement activities under the four principal ordinances - the Air Pollution Control, Noise Control, Water Pollution Control and Waste Disposal had brought about an unwieldy centralized Environmental Protection Department. To improve efficiency and provide a local focus for the community, two regional offices known as Local Control Offices (LCOs) were set up in 1990.<sup>4</sup> The Local Control Offices concept was found to be both efficient and effective and in 1993 the number was increased from two to five and during 1995 increased to six (Figure 1). In addition to enforcing the four principal ordinances to address local pollution problems, the Local Control Offices are improving links with local communities to better understand their environmental concerns and be more clearly accountable to the community.

The Local Control Offices undertake a wide range of tasks to reduce pollution in their areas, and their main tools are the four principal pollution control laws (Table 1).

**Table 1. Major Activities of the Local control Offices**

<b>Handling Complaints</b>	
•	Noise from industrial and commercial premises, and construction sites;
•	Odor from industrial and commercial sources;
•	Smoke from chimneys;
•	Dust from construction sites and industrial sources;
•	Overflowing sewage and other waste waters;
•	Nuisance from improper waste disposal; and
•	Nuisance from pigs, chickens, ducks and pigeons farms.
<b>Restricting Polluting Activities</b>	
•	Restricting the use of construction equipment;
•	Approving the installation of chimneys and related air pollution control system;
•	Issuing licences for wastewater discharges;
•	Registering chemical waste producers; and
•	Issuing licences for the disposal of chemical waste.
<b>Inspecting to Prevent Pollution</b>	
•	Use of construction equipment;
•	Use of fuels;
•	Discharge of waste waters;
•	Handling chemical waste, including storage, collection and disposal; and
•	Operation of pig and chicken farms.
<b>Surveys</b>	
•	To spot smoky chimneys;
•	To locate unapproved fuel using plant;
•	To locate new wastewater discharges;
•	To locate new chemical waste producers;
•	To locate new pig and chicken farms in certain areas; and
•	To locate black spots of illegal waste disposal.
<b>Legislative Procedures</b>	
•	Prosecute offenders under the pollution control laws;
•	Serve notices to stop noise and air pollution;
•	Issue warnings to potential offenders; and
•	Keeping records of licences for public inspection.

### 3 LEGISLATIVE FRAMEWORK

Pollution control legislation is embodied for the most part in six ordinances enforced by the Environmental Protection Department:

- Water Pollution Control Ordinance.
- Waste Disposal Ordinance.
- Air Pollution Control Ordinance.
- Noise Control Ordinance.

- Ozone Layer Protection Ordinance.
- Dumping At Sea Ordinance.

The six ordinances contain the principal legislative provisions, and they are supplemented by more detailed specific regulations. They were enacted at different times and many have gone through several amendments.

The Water Pollution Control, the Waste Disposal and the Dumping At Sea Ordinances are complementary to each other, and are designed to protect the health and welfare of the community by ensuring proper handling and disposal of wastes as well as to achieve water quality objectives for marine and fresh waters. The Air Pollution Control Ordinance is the principal legislation to control air pollution in order to achieve and maintain an acceptable level of air quality by reference to a set of air quality objectives. The Noise Control Ordinance is designed to control noise pollution in order to maintain a satisfactory noise environment and to safeguard the quality of life for the community. The Ozone Layer Protection Ordinance is enacted to fulfil Hong Kong's obligations under the Vienna Convention and Montreal Protocol.

### 3.1 Water Pollution Control Ordinance

The Water Pollution Control Ordinance (WPCO) was first enacted in 1980. Under the Ordinance, the waters of Hong Kong are divided into 10 water control zones. Controls are exercised through a system of licensing whereby discharges of liquid effluents into an area designated as a water control zone require a licence from the Environmental Protection Department. The licence conditions are specified for each discharge with reference to a set of guidelines stipulated in a Technical Memorandum.

Water Quality Objectives are gazetted which are set at levels so as to safeguard the beneficial uses of the waters. These include such activities as swimming, boating, fishing as well as protection of aquatic communities. The Environmental Protection Department is charged with the responsibility to achieve and maintain the water quality objectives.

The first control zone in Tolo Harbor was declared in 1987, the control covered only twelve categories of industrial discharges, and exemption was granted to existing discharges which were allowed to increase both the volume and pollution load of their discharges by 30%. When the Ordinance was amended in 1990, the controls were extended to all types of discharges and all exemptions removed. Eight other water control zones have been declared, and the last covering Victoria Harbor has progressively been subject to control with the last phase to be implemented in early 1996.

The Ordinance was further amended in 1993 to improve the enforcement provisions, the regulation-making powers, as well as to increase the penalty provisions. The maximum fines were initially set at \$50,000 for a first offense, and \$100,000 for a second or subsequent offense. The level of fines was revised in both the 1990 and the 1993 amendments, resulting in \$200,000 for a first offense, and \$400,000 for a second or subsequent offense.

### 3.2 Waste Disposal Ordinance

The Waste Disposal Ordinance (WDO) was first enacted in 1980 to control the collection and disposal of wastes. It was subsequently amended in 1987 to introduce comprehensive control on livestock waste disposal. Under the control scheme, a total ban on livestock keeping in urban areas and urban fringes was enforced from June 1988, resulting in an immediate improvement in water quality of the streams and inshore waters and odor nuisance. However, the full enforcement of the livestock waste controls were continually delayed as a result of opposition by the industry.



Through a series of lengthy consultations and a thorough review of the whole scheme, the Waste Disposal Ordinance was amended in 1994. Under the revised control, the areas where livestock keeping was banned are further extended to cover the newly developed urban areas to avoid incompatible land-use, while in environmentally sensitive areas livestock farms are tolerated but no new farms are allowed. The enforcement provisions were improved also to achieve more effective controls and the penalty provisions increased 10 fold from a maximum fine of \$5,000 to \$50,000.

The Waste Disposal Ordinance was amended in 1991 to introduce specific controls covering the handling, storage, collection, transport, treatment and disposal of chemical wastes. These were implemented in three phases, the first phase requiring all chemical waste producers to register with the Environmental Protection Department by November 1992, the second phase introducing controls on asbestos waste, solid tannery waste and polychlorinated biphenyl waste, and the last phase extending controls to all other chemical waste commencing from May 1993. The maximum fines for an offense relating to chemical waste range from \$50,000 to \$200,000 for a first offense.

A new provision was introduced into the Waste Disposal Ordinance in 1994 to enable the Environmental Protection Department to exercise control on dumping of waste materials, which is an increasing problem especially in the rural areas. A high maximum fine of \$200,000 for a first offense, and \$500,000 for a second or subsequent offense was introduced under the new provision as a deterrent effect.

### 3.3 Air Pollution Control Ordinance

In 1983, the Air Pollution Control Ordinance (APCO) superseded the previous Clean Air Ordinance which was introduced in 1959. This new ordinance has extended the scope of control from smoke emissions from fossil fuel burning to all forms of air pollution. Under the Air Pollution Control Ordinance, a set of air quality objectives for Hong Kong has been established and the Environmental Protection Department is tasked to achieve these objectives as soon as reasonably practicable and to maintain the air quality thereafter.

The Air Pollution Control Ordinance has been amended in 1991 and 1993 to improve the regulation making powers and enforcement provisions. Its main provisions include a licence system for major air polluting processes and the requirement to use the best practicable means; an approval system for chimneys and furnaces; the power to issue notices to abate air pollution; the control of smoke emission; the control of asbestos through registration of asbestos work consultants, contractors, supervisors and laboratories as well as the setting of fuel quality and emission standards for motor vehicles. The maximum fine for an offense ranges from \$100,000 to \$500,000.

To solve the territory-wide sulphur dioxide problem, the Fuel Restriction Regulations were introduced in 1990 which banned the use of high sulphur heavy fuel oil while allowing only gaseous fuels to be used in Sha Tin, an area with poor dispersion characteristics. This resulted in a dramatic drop in the recorded levels of sulphur dioxide. Additional requirements were imposed on the viscosity of liquid fuel, bringing about a significant reduction in particulate and nitrogen dioxide emissions, further improving air quality in particular in the mixed industrial/residential areas.

### 3.4 Noise Control Ordinance

Noise in Hong Kong was first controlled under the Summary Offenses Ordinance mainly in the form of breach of peace such as neighborhood noise at night, and by permits issued for construction noise during holidays and at night. These provisions were enforced by the Police. With

the common use of air-conditioning systems in the 1970s, specific control on their noise emission was introduced as a nuisance provision under the then Public Health & Urban Services Ordinance. This was enforced in early 1977 by the Health Inspectors of the Urban Services Department.

In 1988, the more comprehensive Noise Control Ordinance (NCO) was enacted to consolidate the fragmented provisions in various ordinances and to extend the controls to other forms of noise problems. The Ordinance was then brought into force in 1989 and was amended in 1994 to tighten up control on noisy construction equipment and noisy manual construction work during restricted hours in densely populated areas, and to double the maximum fines for noise offenses.

The Noise Control Ordinance exercises control on construction noise such that percussive piling is prohibited at night (7 p.m. to 7 a.m.) and on public holidays, while other construction work involving the use of powered mechanical equipment during these hours would require a permit issued by the Environmental Protection Department. The type of construction equipment and time period allowed for its use are specified in the permit by reference to a Technical Memorandum, and may vary to strike a balance between construction work and the impact it has on sensitive parties. Certain noisy equipment such as air compressors and percussive breakers is controlled through the product noise regulations which stipulate statutory noise standards such that the old noisy equipment is phased out.

Regarding industrial and commercial noise problems, the Ordinance empowers the Environmental Protection Department to issue noise abatement notices to abate noise to a certain level within a specified period. Such noise level is determined by reference to a set of control criteria set out in a Technical Memorandum issued by the Secretary for Planning, Environment and Lands.

### 3.5 Ozone Layer Protection Ordinance

The Ozone Layer Protection Ordinance (OLPO) was enacted in 1989 to implement the 1985 Vienna Convention and the 1987 Montreal Protocol to control the manufacture, import and export of ozone-depleting substances. The Ozone Layer Protection Ordinance prohibits local manufacture of chlorofluorocarbons and halons, and imposes restrictions on their import and export. The Ordinance was amended in 1993 to extend controls on other ozone-depleting chemicals which are to be phased out under a new agreement of the Montreal Protocol. The maximum fine under the Ordinance is up to \$1 million.

### 3.6 Dumping At Sea Ordinance

The Dumping At Sea Ordinance (DASO) was enacted in 1995 to replace the Dumping At Sea Act 1974 (Overseas Territories) Order 1975. The Dumping At Sea Ordinance is designed to strengthen the existing controls on marine dumping and enable Hong Kong to fulfil its obligations under the London Convention to prevent damage to the marine environment as a result of the dumping of solid and semi-solid wastes in local waters. The maximum fine under the Ordinance is \$200,000 for a first offense, and \$500,000 for a second or subsequent offense.

## 4 LEGISLATIVE ENFORCEMENT AND ENVIRONMENTAL ACHIEVEMENTS

A clear and consistent enforcement policy together with a credible compliance monitoring regime are needed to achieve environmental goals. The enforcement policy accords higher priority to offenses with significant environmental damage or hazard to public health or those offenses

causing an intolerable nuisance or which are frequently repeated, where immediate prosecution without prior warning is both necessary and justifiable. Failure to comply with a notice to abate pollution is also subject to immediate prosecution in order to bring about the necessary deterrent effect. In seeking for a higher level of fines as provided under the Ordinance for a second or subsequent offense, previous conviction records are made available to the judge for reference in his sentencing of repeated offenders.

A feature of the four principal pollution control laws (Air Pollution Control Ordinance, Noise Control Ordinance, Water Pollution Control Ordinance, Waste Disposal Ordinance) is an explicit requirement that their provisions apply equally to the Government. However government departments and their employees are not liable to prosecution, and the control mechanism is for the Director of Environmental Protection as the authority to report all breaches of the ordinances to the Chief Secretary who is the head of the Civil Service. This arrangement is built into the laws to ensure Government compliance with the regulatory requirements and in sharing the environmental responsibility.

In order to establish and maintain a credible enforcement regime, specific "target performance measures for enforcement" have been laid down as set out in Table 2 as the guiding reference in organizing enforcement checks. Due to resource constraints, there is a need to priorities enforcement action. Proactive inspections according to a prioritized schedule are carried out to check for compliance, apart from follow-up investigations in response to complaints through the hotline set up in each Local Control Office, which serves as an effective network for monitoring local situations and public concerns by making use of the public as eyes and ears to watch out for pollution incidents.

In the past, inspections were carried out on a functional basis - air /noise/water/waste control -grouped under different divisions of the Environmental Protection Department. Through the setting up of Local Control Offices which have assumed most of the enforcement responsibility, there is more coordination between the functional teams which operate within the same Local Control Office. In the waste and water control areas, integrated enforcement has been practised since 1993. Further integration covering the four media (air/noise/water/waste) will help to streamline the current practices and reduce the number of multiple inspections to the same premises.

Multimedia enforcement promotes a better image of the Environmental Protection Department to the industry, apart from improving the overall effectiveness and efficiency in deploying staff resources. To equip all inspectors with the necessary skills to carry out multimedia enforcement, multi-skill training of inspectors has been organized since early 1995. A pilot scheme to conduct multimedia enforcement has been launched in late 1995 in tackling pollution problems related to construction sites and restaurants. It is expected that multimedia enforcement will be introduced progressively throughout 1996 and 1997, with corresponding changes to the organizational set-up of the Local Control Ordinances.

The increasing number of pollution complaints, which amount to over 12 000 in 1995, clearly demonstrates the higher expectation of the public to enjoy a clean environment (Figure 3). Whilst over 700 convictions were achieved by the Environmental Protection Department during 1995 (Figure 4), there is a need to step up enforcement in order to prevent pollution through the deterrent approach, and to achieve further environmental improvements against a background of increasing pollution loads as illustrated below.

#### 4.1 Air control

The introduction of the Fuel Restriction Regulations in July 1990, which limited the sulphur content of liquid fuel to 0.5 percent by weight, had led to a reduction of overall sulphur dioxide levels by 40%, and for badly affected mixed industrial/residential areas, the drop was as high as 90% (Figure 5). The levels of sulphur dioxide in ambient air now generally comply with the air quality objectives, and as a result, the respiratory health of many people has improved.

#### 4.2 Noise control

Before the Noise Control Ordinance was introduced, construction sites were able to operate continuously for 12 hours a day between 7 a.m. and 7 p.m. on any working day. Since the control was enforced in 1989, about 60% of the percussive piling sites are being restricted to operate 3 hours per day and a further 16% of sites are restricted to 5 hours per day (Figure 6). This control benefits approximately 400,000 people annually.

#### 4.3 Waste and water control

Enforcement of the Water Pollution Control Ordinance has been effective in arresting the deterioration of water quality at some popular bathing beaches which otherwise would have to be closed as a result of excessive E-coli levels. The pollution was mainly caused by discharges from malfunctioning private sewage treatment plants installed in the nearby large residential blocks as illustrated in Figure 7.

The livestock waste control under the Waste Disposal Ordinance has brought about significant improvement to the water quality of certain streams and inshore waters in the New Territories, and a notable example is the reopening of Silvermine Bay Beach. The legislative control is complemented by financial assistance in the form of ex-gratia allowance payment to those farmers who choose to cease operation, and some \$770 millions have been paid out since 1988, resulting in a reduction of pollution load by over 70%, which is equivalent to the domestic sewage of 1.3 million people (Figure 8).

River Indus has been heavily polluted by livestock waste, industrial discharges, chemical waste, grease from restaurants, expedient foul sewage discharges, and sewage from village houses. Integrated control in the waste and water areas has brought about significant pollution load in the past few years (Figure 9). The overall water quality in the Indus has improved from the previous "very bad" grading to "bad" grading, and by the year 2000, the control of livestock waste coupled with the provision of new sewers to the unsewered villages will further improve the Indus to achieve good water quality.

Integrated control under the Water Pollution Control and Waste Disposal Ordinances has been effective in ensuring industrial effluents are pretreated before discharge to the sewers while the more concentrated metal waste is collected for treatment at the Chemical Waste Treatment Centre. This has brought about significant reduction in the high metal loadings of the sewage which caused disruption to the biological processes of sewage treatment plants, in addition to protecting public health and the marine ecosystem from their adverse effects (Figure 10).

**Table 2. Environmental Protection Department's Target Performance Measures For Enforcement**

CATEGORY	INSPECTION/INVESTIGATION ARRANGEMENT	TARGET PERFORMANCE MEASURES
<b>INSPECTION/INVESTIGATION CARRIED OUT BY LOCAL CONTROL OFFICES</b>		
Air Pollution (stationary sources)	<ul style="list-style-type: none"> <li>Regular inspection of all significant air polluters.</li> <li>Investigation in response to complaints.</li> </ul>	<ul style="list-style-type: none"> <li>Specified process: six times a year.</li> <li>Others: twice a year.</li> <li>Immediate investigation if prejudicial to health or transitory, otherwise investigation within five working days.</li> </ul>
Noise	<ul style="list-style-type: none"> <li>Investigation in response to complaints.</li> <li>Regular inspection of permit holders and products under control.</li> </ul>	<ul style="list-style-type: none"> <li>Immediate investigation if transitory (e.g. neighborhood noise and construction noise at restricted hours, by the Police); otherwise response within 5 working days.</li> <li>Operation of each holder to be checked at least once per year.</li> <li>Territory wide product noise enforcement check at least once per week.</li> </ul>
Water Pollution	<ul style="list-style-type: none"> <li>Investigation in response to complaints.</li> <li>Compliance monitoring of licensed discharges.</li> </ul>	<ul style="list-style-type: none"> <li>Immediate investigation if prejudicial to health, environmentally dangerous or transitory; otherwise response within 5 working days.</li> <li>Four times a year for major discharges.</li> </ul>

**Table 2. Environmental Protection Department's Target Performance Measures For Enforcement (continued)**

CATEGORY	INSPECTION/INVESTIGATION ARRANGEMENT	TARGET PERFORMANCE MEASURES
<b>INSPECTION/INVESTIGATION CARRIED OUT BY LOCAL CONTROL OFFICES</b>		
Livestock Waste	<ul style="list-style-type: none"> <li>• Regular inspections of all active farms.</li> <li>• Investigation of ceased farms and identification of new farms.</li> <li>• Investigation in response to complaints.</li> </ul>	<ul style="list-style-type: none"> <li>• Six times a year.</li> <li>• Area inspection of recorded farms once a year.</li> <li>• Immediate investigation if transitory or environmentally hazardous; otherwise investigation within five working days.</li> </ul>
Chemical Waste (waste producers)	<ul style="list-style-type: none"> <li>• Regular inspection of premises and trip-ticket records.</li> <li>• Investigation in response to complaints.</li> </ul>	<ul style="list-style-type: none"> <li>• Inspection of priority industries once every 6 weeks; others quarterly or half-yearly.</li> <li>• Immediate investigation.</li> </ul>
Chemical Waste (treatment & disposal facilities)	<ul style="list-style-type: none"> <li>• Regular inspection of licence holders.</li> <li>• Investigation in response to complaints.</li> </ul>	<ul style="list-style-type: none"> <li>• In-house treatment plants once every 6 weeks; others weekly or twice a month.</li> <li>• Immediate investigation.</li> </ul>
Waste disposal (unlawful deposit of waste)	<ul style="list-style-type: none"> <li>• Investigation in response to complaints.</li> </ul>	<ul style="list-style-type: none"> <li>• Immediate investigation if transitory or environmentally hazardous; otherwise investigation within five working days.</li> </ul>

**Table 2. Environmental Protection Department's Target Performance Measures For Enforcement (continued)**

CATEGORY	INSPECTION/INVESTIGATION ARRANGEMENT	TARGET PERFORMANCE MEASURE
<b>INSPECTION/INVESTIGATION CARRIED OUT BY LOCAL CONTROL OFFICES</b>		
Air Pollution (Asbestos emission)	<ul style="list-style-type: none"> <li>Investigation in response to complaint about asbestos emissions</li> </ul>	<ul style="list-style-type: none"> <li>Immediate investigation if friable asbestos is released, otherwise investigated within 7 days.</li> </ul>
Air Pollution (mobile sources)	<ul style="list-style-type: none"> <li>Process Smoky Vehicle Reports.</li> </ul>	<ul style="list-style-type: none"> <li>Reports per year.</li> </ul>
Ozone Layer Protection	<ul style="list-style-type: none"> <li>Investigation of suspected illegal imports/exports on CFCs and other ozone depleting substances.</li> </ul>	<ul style="list-style-type: none"> <li>Immediate investigation and response.</li> <li>Ensure compliance with requirements of the Montreal Protocol.</li> </ul>
Marine Dumping	<ul style="list-style-type: none"> <li>Regular spot check of licence holders through land and marine patrol.</li> <li>Investigation in response to complaints.</li> </ul>	<ul style="list-style-type: none"> <li>Operation of each licensee to be checked at least once.</li> <li>Immediate investigation to examine any need for punitive measures and prosecution.</li> </ul>
Chemical Waste (disposal at landfill)	<ul style="list-style-type: none"> <li>Inspection of disposal operation and waste checking at landfills.</li> </ul>	<ul style="list-style-type: none"> <li>Daily inspection and checking at the landfill.</li> </ul>
Chemical Waste (collection & transportation)	<ul style="list-style-type: none"> <li>Regular inspection of vehicles and trip-ticket records.</li> <li>Investigation in response to complaints.</li> </ul>	<ul style="list-style-type: none"> <li>Once or twice a month.</li> <li>Immediate investigation.</li> </ul>

## 5 NEW CHALLENGES

Since the setting up of the Environmental Protection Department in 1986, comprehensive legislative control has been introduced to tackle pollution problems in all the media. Most of the enforcement of the four principal pollution control laws is now carried out by the six Local Control Ordinances, which provide a more visible antipollution presence and a local focus for the community. Out of some 1500 staff in the Department, around 660 staff are deployed to the Local Control Ordinances. The enforcement experience of this staff enable them to provide valuable feedback to headquarters management groups in formulating proposals for the policy branch and the Legislature to improve existing laws or to introduce new laws.

Institutional and legislative framework must be flexible enough to change with demands and to meet new challenges. For example, there is a changing emphasis to adopt the 3R concept and pollution prevention approach as opposed to the traditional end-of-the-pipe solution in tackling toxic waste and water pollution. Vehicle smoke emission especially from the growing fleet of diesel vehicles has become a serious problem affecting air quality which requires tougher and more comprehensive law. The success of any new environmental measure would depend on concerted efforts between Government, the private sector and individuals within the community. The environmental awareness campaigns organized by the Environmental Campaign Committee as well as the liaison network set up between each LCO and its districts help to cultivate a much improved community environmental ethic which is needed to achieve a fully sustainable environment.

## ACKNOWLEDGMENT

A paper of this nature inevitably draws on the work and contributions of many others and the authors would like to thank the Director of Environmental Protection, the Hong Kong Government for permission to publish this paper, and express thanks to the contributions of many colleagues in the Environmental Protection Department.

## REFERENCES

1. White Paper: Pollution in Hong Kong: A Time to Act, Hong Kong Government, June 1989
2. Bidwell, R., 15 years of Progress? Environmental Institution Building in Hong Kong, Proceedings of Polmet 88, Vol. 1 pp 18-28, December 1988.
3. Reed, S.B. The Government's role in managing Hong Kong's High Pressure Environment. Proceedings of Polmet 91, Vol. 1 pp 579-598, December 1991.
4. Hong Kong Government, "Environment Hong Kong 95", Government Printer Hong Kong, 1995



Figure 1.

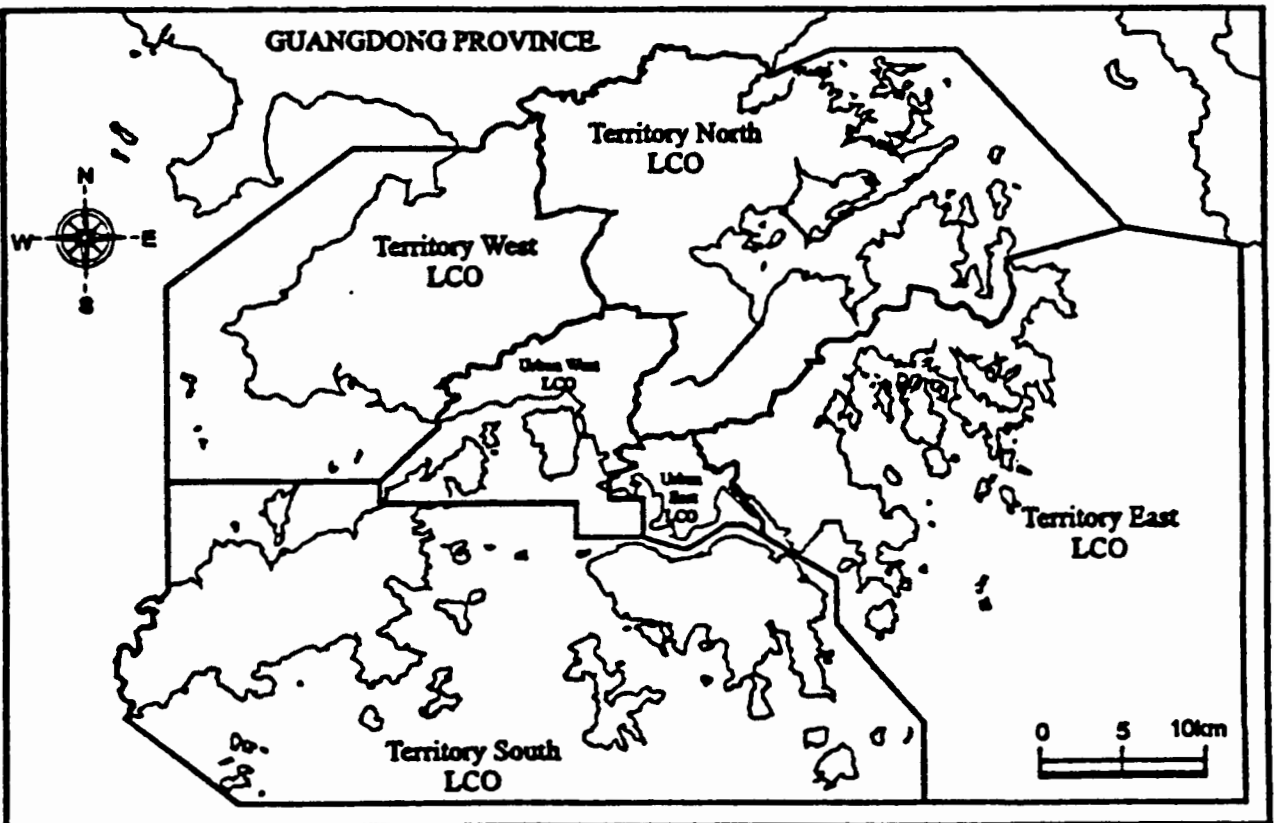


Figure 2.

## Hong Kong Government Structure for Environmental Protection - Legislative Development & Enforcement

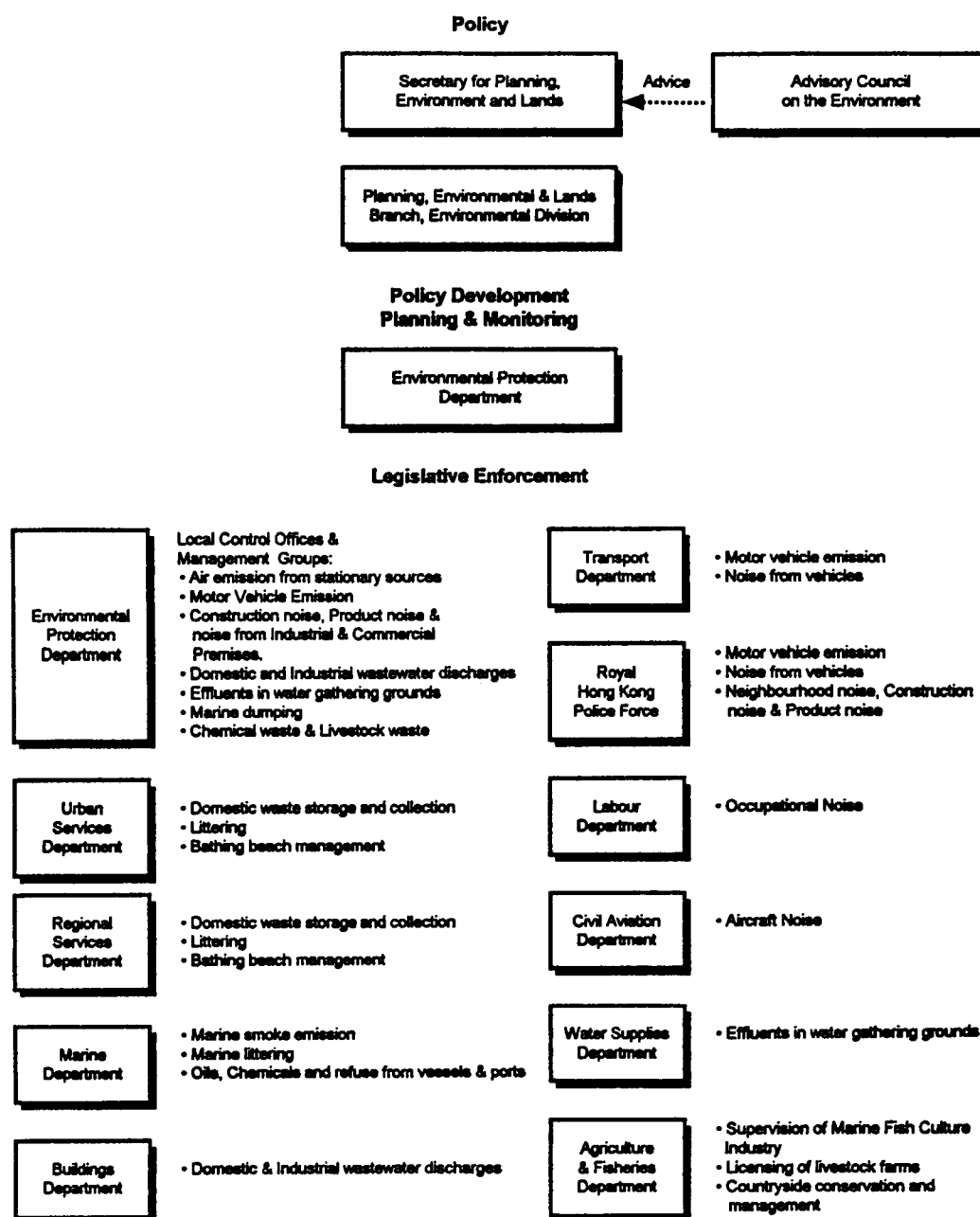


Figure 3.

## Pollution Complaints in 1995

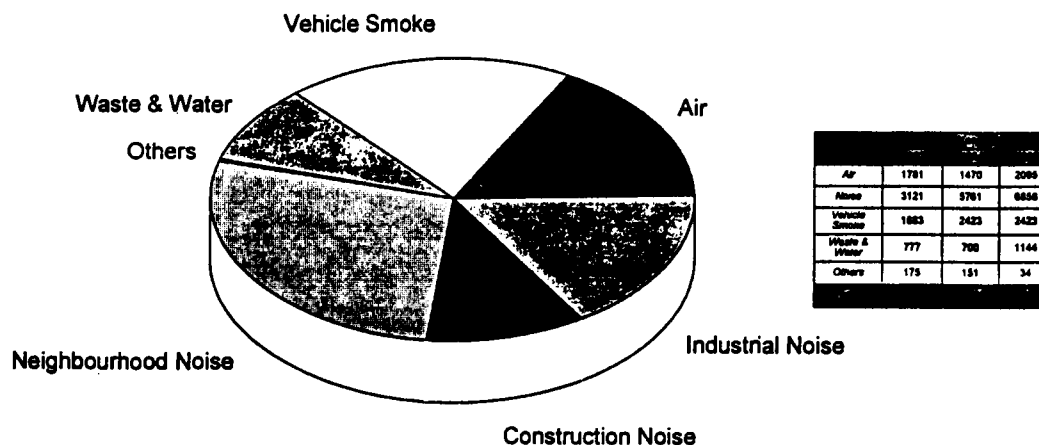


Figure 4.

## Successful Prosecutions in 1995

Ordinance

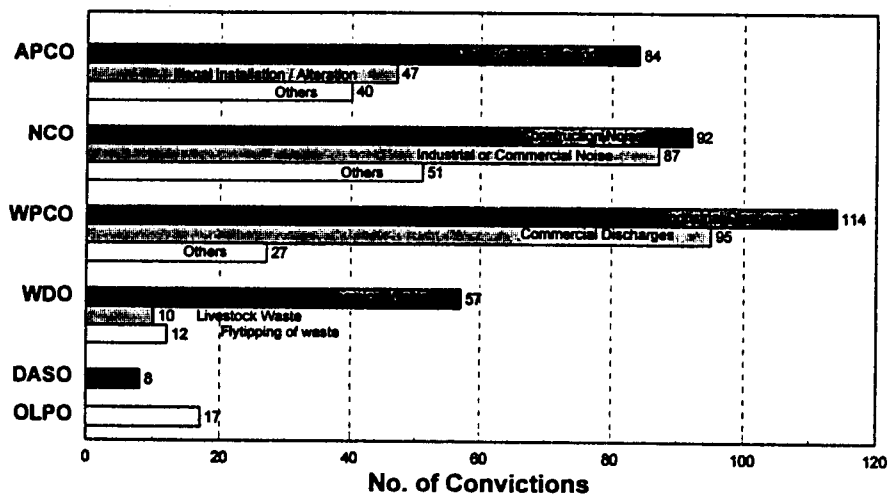


Figure 5.

## SULPHUR DIOXIDE LEVELS HIT BY FUEL REGULATIONS

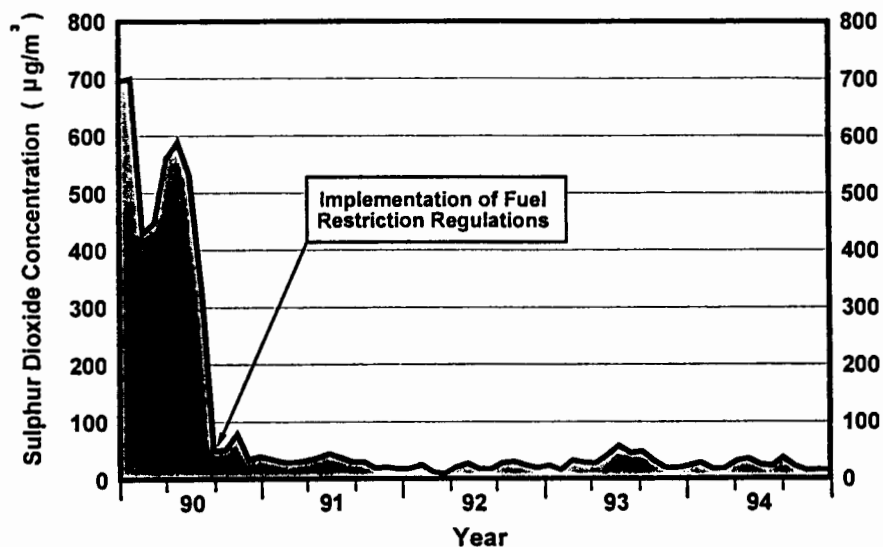


Figure 6.

## REDUCING THE DIN FROM PILING

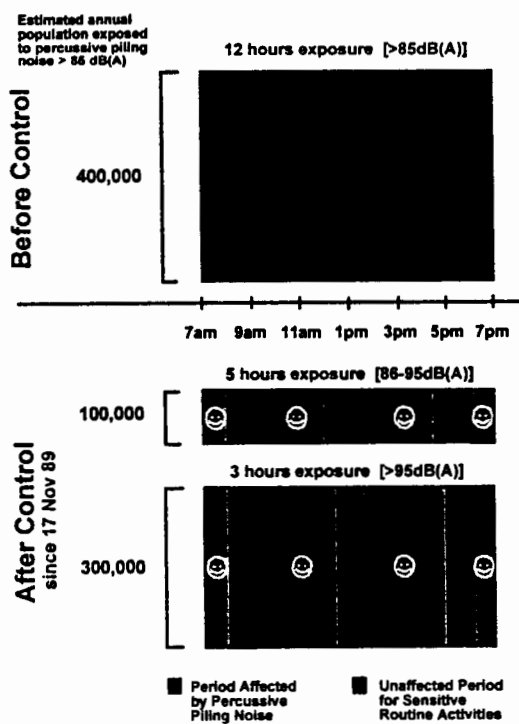


Figure 7.

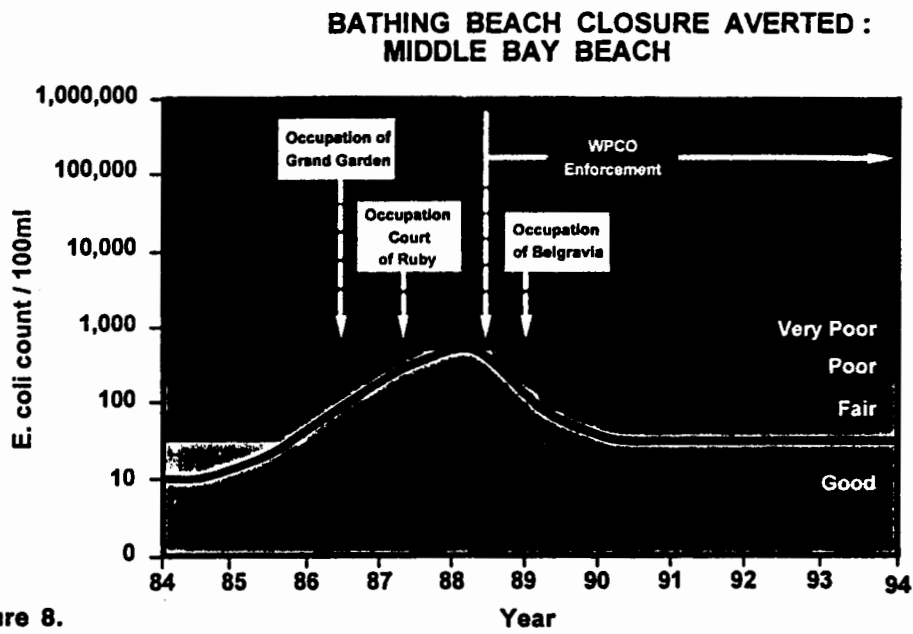


Figure 8.

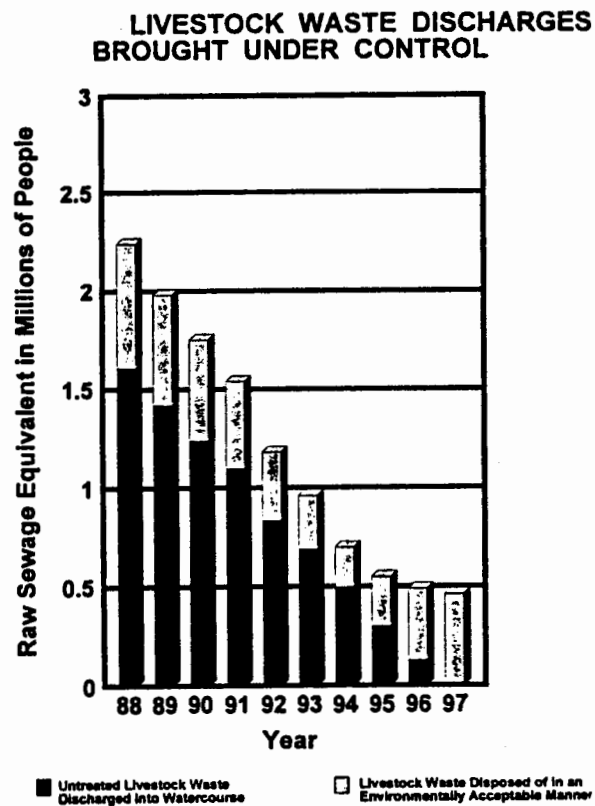


Figure 9.

**ACTIONS TO REDUCE POLLUTION LOADS  
IN THE RIVER INDUS CATCHMENT**

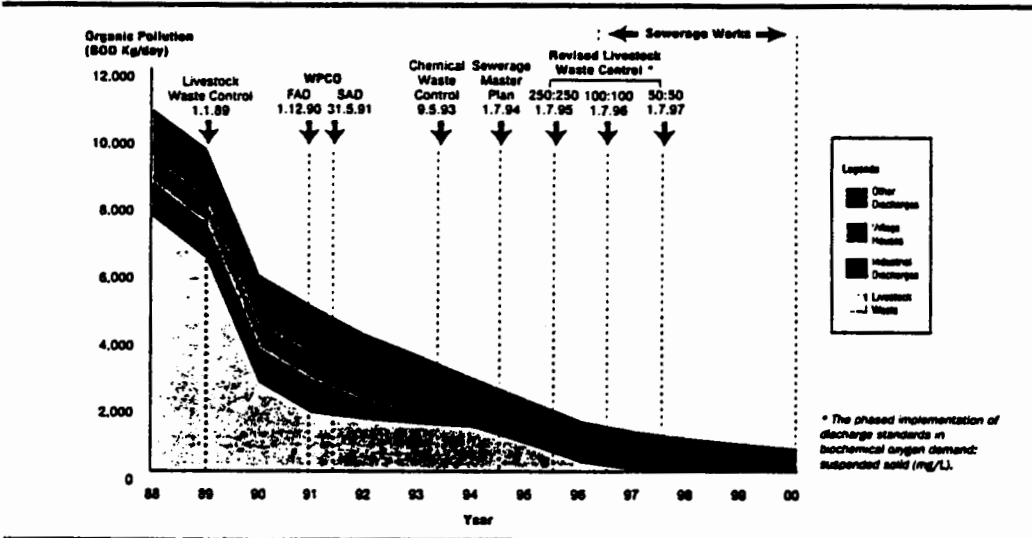
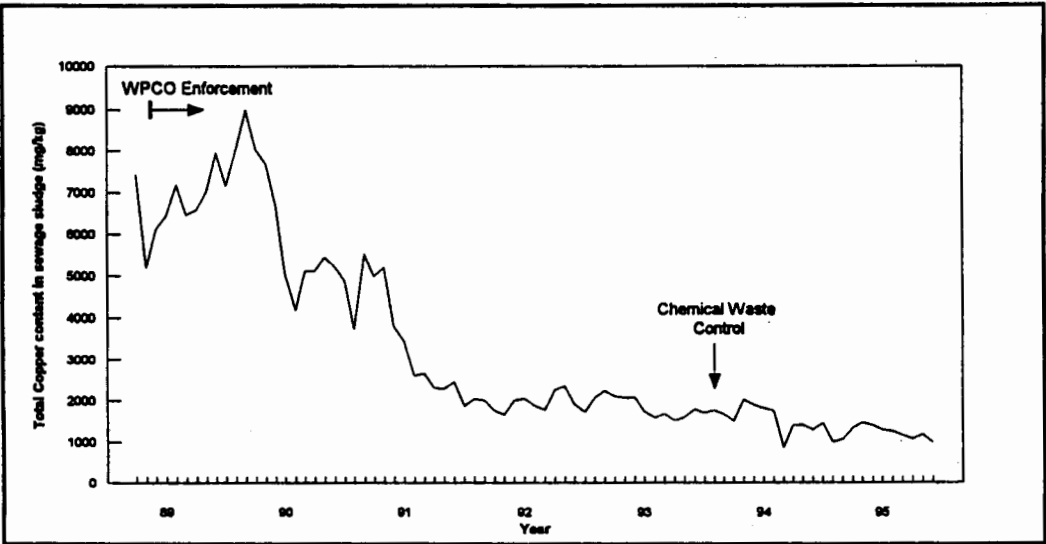


Figure 10.

**REDUCTION OF METAL LOADING  
IN THE SEWAGE OF SHATIN**



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## **ENFORCEMENT PROBLEMS WITH RADIOACTIVE MATERIALS IN THE NATIONAL AND INTERNATIONAL TRADE IN METAL AND METAL SCRAP**

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### **SUMMARY**

In this paper we discuss the problem of the increasing import in the Netherlands of radioactive metal and metal scrap. The enforcement with regard to this subject is difficult and differs quite a lot from country to country. An overview of incidents in the Netherlands over the last five years is given. The outline of the enforcement policy from the Dutch Inspectorate for the Environment on this subject is discussed. International exchange of information and cooperation regarding enforcement is recommended.

### **1 INTRODUCTION**

It is known for fact<sup>1</sup> that in a number of cases, radioactive materials have been incidentally processed along with metal scrap. Consequently, victims as well as substantial material damage have been reported. This has caused the major scrap metal processing and trading companies in North and South America to check the scrap metal supplied to them by using radiation detectors.

After some European companies started using these detectors, the Dutch Environmental Inspectorate has more frequently been informed about radioactive metal scrap being offered in the marketplace since 1990. Research into the nature of these products indicates that these are mostly composed of metal scrap which is contaminated with radioactivity of natural origin.

Radioactivity can contaminate the metal parts of installations that are part of industrial processes using natural raw materials. Examples are the fertilizer industry, oil and gas exploration and petrochemical industry.

Since 1990 it is compulsory for industries in the Netherlands to check all possible contaminated metal for the presence of radioactivity. In case the level of radioactivity exceeds the legal limit values, the specific metal needs to be decontaminated. Also in the Netherlands, a few major metal scrap traders have invested in radioactivity detectors since the middle of 1994. It is expected that more companies will follow this initiative. These investments have increased the number of reports to the government about radioactive metal scrap. In quite a number of cases the legal limit values were exceeded. A substantial part of these materials appeared to be from abroad.

The enforcement with regard to this subject, has been found to differ quite a lot from country to country. This applies to both the interpretation of the limit values as well as the way the legislation and directives are enforced. This article tries to point out the bottlenecks that occur during enforcement of the set regulation for the international trade of radioactive metal scrap.

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## 2 LEGISLATION

### 2.1 General activities covered by legislation

In the Netherlands, the following activities regarding radioactive substances are prohibited: to prepare, to have, to use, import, transport and disposal, unless a permit has been granted or an exemption has been allowed in a directive regarding execution of the law. European Community regulations are implemented in the Dutch Nuclear Energy Law.

### 2.2 Limit values

For contaminated metal scrap of which the contamination exceeds 100 Bq/g, a permit is required. This limit value focuses on contamination and not at the specific activity involved the total metal object. Other limit values, such as maximum allowable surface contamination for beta, alpha and gamma radiation have not been laid down in Dutch law.

### 2.3 Disposal of radioactive waste

In the Netherlands COVRA (Central Organization for Radioactive Waste) has been appointed as the only legal collector of radioactive waste. Consequently all radioactive waste is in the end going to one location in the Netherlands.

## 3 DESCRIPTION OF INCIDENTS IN THE NETHERLANDS

Table 1 gives the incidents that occurred and for which action has been taken.

The first incident involved tubing that was found to be contaminated. This tubing has been used for oil or gas exploration, as a means for extracting oil or gas from the earth. This can cause radioactive substances to attach on the inside of the tubing. Tubing eventually is being sold and gets welded onto the outside edges of containers. These containers, which have an open top, are in use for the transport by lorries of several types of bulk materials like waste or agricultural products. Investigation pointed out that about 150 containers with radioactive tubing were used in the Netherlands. By now, all of these contaminated tubing have been taken off. Where possible the tubing will be sent back to the originating country. In such cases where this is not feasible, the tubing will be decontaminated, after which the radioactive waste gets disposed by the Central Organization for Radioactive Waste.

Following this incident in 1991, more incidents with contaminated tubing occurred throughout 1994 and 1995. In some cases the originating countries could not be tracked down. Manufacturers of containers have been given a warning regarding contaminated tubing and in case of further violation measures will be taken.

The remaining radioactive metal objects besides tubing mainly consisted of contaminated stainless steel, which is known to come, as far as can be determined, from the "process" industry. This for example includes screens, heat exchangers and valves. Once a radioactive nickel-catalyst was reported; it concerned a radiation level at twice as much as the background radiation. Analysis pointed out that for the catalyst no permit was required. Also once a quantity of melted depleted uranium was detected. Probably it had been a metal piece from process industry (e.g. a uranium catalyst) melted together with nickel and copper. At one time active nickel-copper, likely to have come from nuclear industry or from some accelerator, was sent back to its originating country.



**Table 1. Contaminated product import into The Netherlands**

Date	Country of origin	Metal	Material	Isotope	Bq/g	kBq	Action
1991	Germany	Fe	Tubing on containers	<sup>226</sup> Ra etc.	2E3	6E5	Removed from containers
11-10-93	Finland	Ni-Cu	Activated pipes				Sent back
06-07-94	Dutch cont. shelf	Fe	Tubing	<sup>226</sup> Ra etc.	2E3	4E4	Cleaned
14-11-94	Morocco	Fe	Stainless steel	<sup>238</sup> U etc.			Sent back
14-11-94	Morocco	Fe	Stainless steel	<sup>238</sup> U etc.			Sent back
30-11-94	Morocco	Fe	Stainless steel	<sup>238</sup> U etc.			Sent back
30-11-94	Morocco	Fe	Stainless steel	<sup>238</sup> U etc.			Sent back
06-12-94	?	Fe	Tubing on containers	<sup>226</sup> Ra etc.	2E3	2E4	Search for the rest, remove from containers & cleaning
05-01-95	Tunisia	Fe	Stainless steel	?			Sent back
10-01-95	Israel	Fe	Screen	<sup>238</sup> U <sup>a</sup>	3E4	250	Selected/stored
13-07-95	England	Fe	Spraynozzle				Selected/stored
28-08-95	Russia	Ni 90%	Ingots/bars(Ni-Cu)	<sup>238</sup> U <sup>b</sup>			After research sent back
15-09-95	South-Africa	Fe	Stainless steel	?	?	?	Unopened sent back
20-10-95	Russia	Fe	Stainless steel	?	?	?	Unopened sent back
24-10-95	Germany	Ni	Catalyst	<sup>226</sup> Ra	2	4	Processed
02-11-95	Russia	Fe	Heat exchanger	<sup>226</sup> Ra			After research sent back
15-11-95	Russia	Fe	Tube with small tube inside				Selected/stored

<sup>a</sup> Natural Uranium    <sup>b</sup> Depleted Uranium

#### 4 ENFORCEMENT IN CASE OF IMPORT OF RADIOACTIVE METAL SCRAP

##### 4.1 Enforcement following a report from metal scrap trader

If a metal scrap trader detects a significant quantity of radioactive material when scrap has been offered, there are several possible alternatives. From these it is preferred by all parties including the Dutch government, that the whole shipment (often one or more sea containers) be refused by the addressee and sent back immediately to where it came from. When containers are sent back, the metal traders immediately inform the exporting company abroad and the Dutch Inspectorate. No further measures are taken unless the radiation level

on the outside of the container is equal to or greater than 10 micro Sv/h and/or there are indications that it is a high radioactive source causing the increased radiation level. In these cases a further inspection will be necessary by an expert.

In these cases there is a reason to investigate the cargo. This has to be done by a company with the necessary expertise, with permission for such activities from the Inspectorate. This investigation is at the expense of the owner of the material. Any radioactive materials found in such investigation will be sent back to its originating country according to directives determined by law or is being disposed of to the Central Organization for Radioactive Waste.

#### 4.2 Enforcement after reports from third parties

Sometimes the Inspectorate is informed by others about suspected import of radioactive metal scrap. When this happens the Inspectorate will conduct an investigation; measures will be taken against the transporter and owner if limit values are exceeded.

#### 4.3 Structured action plan for enforcement

Proactive, well organized measurements of all transports with metal and metal scrap that cross the border require much equipment and manpower with expertise. Thus only a very limited number of spot checks is possible.

This proactive way of enforcement by carrying out spot checks is used for shipments that come from countries where there is no sufficient legislation and/or enforcement on radioactive materials.

Also measurements and spot checks will be executed following information from abroad regarding suspected suppliers or suspected goods that are shipped to the Netherlands.

A structured action plan is being set up to put hold on the import of radioactive metal scrap. Such structured enforcement can only be realized through international information exchange and cooperation with other enforcers such as Customs. This action plan will also be communicated to and coordinated action is foreseen with the Inspectorate and other enforcers for chemical waste.

## 5 CONCLUSIONS

There is a problem regarding the illegal import of radioactive metal scrap. To prevent such materials from being traded in the Netherlands, Dutch companies have now the obligation to perform their own checking and/or decontamination of radioactive objects.

A structured action plan is being set up to put a stop to the import of radioactive metal scrap. International information exchange and cooperation with other enforcers is necessary.

## 6 RECOMMENDATIONS

It is recommended that in all countries legal measures are taken to ensure that industries check all possible contaminated metal scrap before export. Countries should inform importing countries about suspected traders and shipments. The exchange of information and cooperation regarding enforcement should be improved. Internationally the same measurement standards and limit values should be applied. In the international trade in metal scrap chemical

contamination can be found too. Assistance in finding suitable solutions on the enforcement on radioactivity may be obtained from Inspectorate and other enforcers who are involved in the enforcement on chemical waste.

#### **REFERENCE**

1. Lubbenau, Joel O. and Yusko, James G., Health Physics, vol. 68, no. 4, April 1995, pp. 440-451



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## **SOME ENVIRONMENTAL AND ENFORCEMENT ISSUES RELATING TO THE SITING OF A MEDIUM SCALE STEEL MILL ON THE SHORES OF THE MANUKAU HARBOR, AUCKLAND, NEW ZEALAND**

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### **SUMMARY**

A Steel Mill (in various corporate forms on its present scale) has operated a site on the shores of the Manukau Harbor since the mid 1980s. The two major consents (permits) granted in 1985 relating to combined stormwater and treated wastewater discharges from the site were in the period 1986 to 1988 often in varying degrees of noncompliance and consequently the subject of extensive consultation and a prosecution for serious breaches of the Consent (Permit) in 1988. Consent (Permit) approvals included stringent environmental standards, self-compliance monitoring, check monitoring (inspection) by the Regional Council (licensing authority), and environmental monitoring within the mixing zone and wider harbor environs.

Many problems have arisen with respect to the definition of compliance, the extent of the mixing zone<sup>1</sup> and with interpretation of environmental effects. These have resulted in a range of responses from regulatory enforcement (prosecution) to fully consensus based solutions.

This case study looks at the evolution of both statutory and voluntary controls on the site and its operations. Also how environmental values were identified, monitored and protected.

## **1 INTRODUCTION**

### **1.1 Administrative framework**

The Auckland Regional Council ("the Council") is the agency responsible for environmental management and enforcement in the Auckland region. Its responsibilities include the permitting of discharges of contaminants to air, soil and water. It is also responsible for pollution abatement and control.

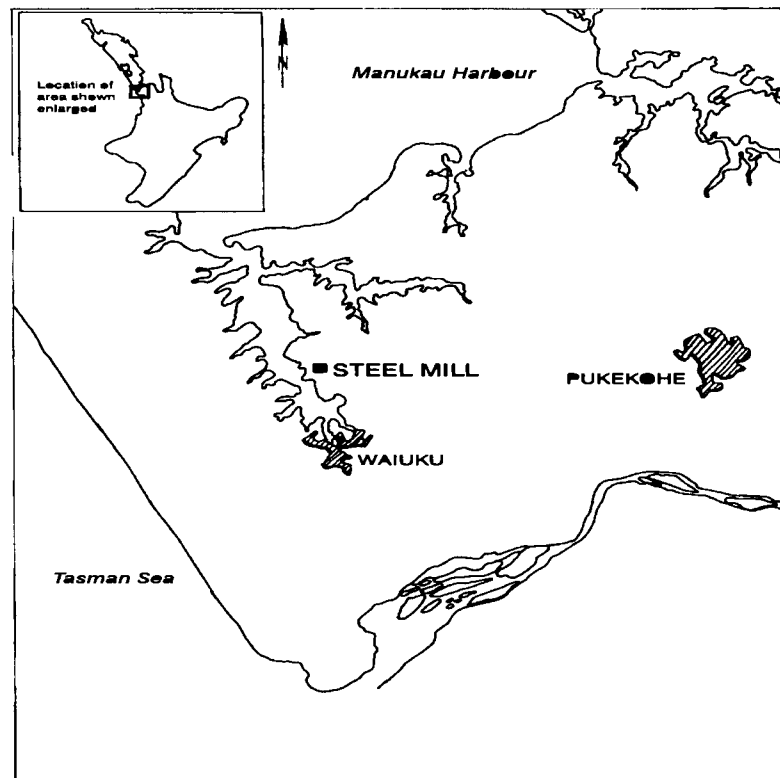
### **1.2 Background to the paper**

The Steel Mill has occupied a site on the shores of the Manukau Harbor since the early 1970s (see Figure 1). In the early 1980s the Company applied for a comprehensive set of land-use and contaminant discharge permits to cover a major expansion at the site. The permits included discharges to air and water and noise emissions. This paper discusses issues relating only to the water discharges.

### 1.3 The permits granting process

The applications for discharge permits were the subject of vociferous opposition by environmental interest groups and local Maori (the indigenous people). The applications were considered and granted by a statutory hearing committee of the Council. Stringent effluent standards and self-monitoring were imposed. Subsequently these decisions were appealed to a full judicial body (the Planning Tribunal). The original decisions were upheld and consents (permits) consequently came into effect with a term of fifteen years.

**Figure 1. Location of Work**



## 2 PERMITS SET THE SCENE

### 2.1 Liquid effluent standards

Annex 1 details the effluent parameters, standards and compliance definitions. It is of interest to note that the Company requested a set of interim standards be included. These would have been somewhat less stringent than the final standards to allow for the construction phase. This request was denied.

It should be noted that the effluent quality standards were proposed by the Company and its consultants. These were considered to be particularly stringent and therefore Council saw no need to oppose their adoption.

## 2.2 Environmental monitoring requirements

Annex 2 reproduces the two key special conditions relating to the environmental monitoring to be undertaken.

It will be noted that the final specifications were to be agreed between the Company and the Council at an unspecified future date.

## 3 ENFORCEMENT HISTORY

Right from the earliest days of the expansion at the site the Company had difficulties complying with some of the effluent standards. Initially this involved pH, temperature, suspended solids and total zinc. Ultimately the chronic noncompliance revolved around suspended solids and total zinc. The pH problems were resolved and temperature exceedances were waived as the standards were considered inappropriate. It should be noted that during this period the Company was complying with all other liquid effluent standards.

For the first couple of years the Council adopted a highly pragmatic approach to reported noncompliance. During this phase discharge volumes were well below those permitted therefore even with concentration exceedances mass discharges of contaminants were considered acceptable.

In late 1986 the Council became more and more concerned at the on-going noncompliance. From this time onwards the Council began 'flagging' to the Company its increasing dissatisfaction. Several written warnings were issued to the Company.

In an attempt to resolve the situation Council and Company staff met on several occasions. While progress was made a satisfactory level of compliance did not eventuate and the issues came to a head in early 1987.

After a monthly self-monitoring report identified significant noncompliance with respect to zinc the Council resolved to initiate a prosecution of the Company. The Company responded by requesting a meeting with the Council at political level. As a result of the meeting the Company agreed to bring forward a review of its wastewater treatment systems using overseas consultants but the prosecution was not withdrawn. Ultimately however, the case did not proceed as charges were withdrawn after the Company's consultants provided a credible defence at the eleventh hour to be excused from being held responsible. The Company engaged the consultants to review the capability and performance of its stormwater and effluent systems and identify a means for compliance.

An action plan was developed which included significant separation of stormwater and treated effluent systems, recovery of stormwater for process use, surge capacity for storm flows and the installation of a centrifuge to manage the growing slurry handling problem.

However, before the actions were fully completed by the second half of 1988 a series of significant noncompliance records were reported which the Council considered unacceptable. These involved exceedances of the suspended solids standard by 195 times and the zinc standard by 21 times. The Company's explanation was not considered acceptable and the Council resolved to initiate a prosecution. Thirteen charges were laid.

The case proceeded to court and the Company was subsequently convicted on twelve of the thirteen charges. Fines and costs amounting to NZ\$41,000 (US \$67,556) were imposed.

NOTE: The maximum penalty provided for at the time was NZ\$150,000 (US \$247,158) and NZ\$10,000 (US \$16,477) per day for an on-going offense.

## **4 ENVIRONMENTAL MONITORING ISSUES**

The initial environmental monitoring program involved multiple sites, sediment sampling and three species of shellfish. This design was reduced to one species of shellfish after three years of sampling as the additional monitoring was contributing little to the detection of impacts.

The Company undertook monitoring within the mixing zone and at a control site. The Council undertook monitoring outside of the mixing zone and at a control site. Overlapping sampling at one control and one test site was undertaken. Sampling and analyses were undertaken by independent field staff and laboratories.

For the first two or three years no problems came to light. However, after this time significant increases in total zinc were recorded in shellfish and the two data bases came under close scrutiny. Both data bases were confounded by major discrepancies at the overlapping sites.

Neither laboratory would accept responsibility and what transpired was a drawn out debate over methodology. This was only resolved when an independent reviewer audited the various designs and procedures. The outcome was that one laboratory was to be used and this was to implement a jointly agreed to quality assurance/quality control (Quality Assurance/Quality Control) program.

A considerable amount of time and money was wasted because the issues were not identified and addressed at the beginning of the monitoring program.

## **5 COMPLIANCE AND ENFORCEMENT PROBLEMS**

### **5.1 From the Company's perspective**

For various reasons there were problems for the Company inherent in the original permits. The major ones were:

- Without a transitional set of more relaxed standards there was virtually no way the Company could achieve compliance during the construction and commissioning phases.
- The nine at source effluent treatment systems were shown to be highly vulnerable to being compromised. They were without "downstream" back-up and when one system went down the whole effluent stream was at risk of noncompliance.
- The importance of contaminated stormwater from the 92ha industrial site was not recognized. The stormwater and effluent streams were combined well "up-stream".
- The Company's management staff perhaps for too long believed that compliance would be possible by better process control rather than major engineering modifications.
- The detailed effluent standards promoted by the Company were always going to be difficult to achieve.
- The higher than anticipated amounts of zinc in the iron ore, subsequently released from the thermal processes and captured by wet scrubbers, resulted in higher than anticipated loadings on the liquid effluent treatment systems.



- Delays in the reporting of effluent analyses exposed the Company to on-going noncompliance and late response to problems.
- Standards imposed meant that zinc and chrome based water treatment corrosion control regimes could not be used. The Company has struggled for years to gain acceptable corrosion rates in cooling systems.

## 5.2 From the Council's perspective

While the development of the effluent permit standards and general conditions were the subject of comprehensive technical input a number of fundamental problems were present which were not recognized. The major ones were:

- That the complex effluent and environmental monitoring required a very high level of Quality Assurance/Quality Control between the participating laboratories. This was ultimately resolved by detailed inter-laboratory checking and in the case of the environmental sampling a single laboratory was finally used. However, the lack of forethought resulted in much wasted effort and rendered blocks of data unusable.
- The definition of an "unacceptable effect" was not resolved until mid 1987.
- The definition of the mixing zone was not finalized until 1987.
- While effluent mass discharge was specified the mixing with contaminated stormwater completely undermined the use of mass discharge to measure permit compliance.
- The fact the Council in general had to rely upon self-monitoring data for enforcement created potential legal problems with respect to the use of such data for a prosecution.

## 6 LESSONS FOR BOTH THE REGULATOR AND REGULATED

Reliance on what were considered to be stringent effluent standards based on USEPA criteria gave all parties a false sense of security.

The Company incorrectly assumed it could achieve the standards "at source". The standard adopted for total zinc at one of the outfalls was in fact below "normal" stormwater levels.

The deferring of the definition of the 'mixing zone' was wrong as it was fundamental to the defining of compliance.

The deferring of defining an 'unacceptable effect' was also wrong. Too much emphasis was placed upon effluent standards as against the purpose of imposing such standards.

During the permit hearings the focus of evidence adduced was on the effects upon natural ecosystems. In fact, the final criteria for acceptability related to ensuring shellfish were not rendered unsuitable for human consumption outside of the 'mixing zone'.

The interaction between various processes was not acknowledged. The interaction between the air emissions controls and the liquid effluent stream was not allowed for. Also, for the purposes of liquid effluent concentrations stormwater was assumed to be uncontaminated, this was incorrect.

The Company failed to give the compliance with consents (permits) the importance it deserved considering the penalties involved.

This was reflected in the learned Judge's written decision in convicting the Company. In brief the Judge concluded:

"My essential finding was that — (The Steel Mill) — pushed its production program well ahead of its ability to comply with the water right. When it encountered difficulties in complying with that right it did not adequately adjust its operations."

Analytical time frames need to reflect those defined in the permit compliance specifications.

Under New Zealand law there is an unresolved question mark over the admissibility of self-monitoring data as evidence for a prosecution.

## **7 CONCLUSIONS**

Effluent standards should be relevant to the environmental protection issues involved and not simply adopted 'holus bolus' from published criteria.

Environmental monitoring programs intended to protect against unacceptable impacts should be considered in their entirety at the permitting stage.

Sampling and analytical procedures need to be the subjects of detailed protocols and Quality Assurance/Quality Control specifications prior to implementation.

Companies holding comprehensive waste discharge permits need to ensure those responsible for compliance are given the administrative technical and operational support necessary to achieve permit compliance.

Regulators dealing with large and complex procedures need to ensure that all interacting components are identified at an early stage and dealt with comprehensively.

The objectives of effluent standards and the particular resource values to be protected need to be identified at an early stage.

Enforcement via legal remedies is exceptionally time consuming and expensive for all parties.

## **ENDNOTES**

1. Editors note: The definition of a mixing zone is the geographic area of a waterbody over which a pollutant concentration is mixed with the water and diluted.

**Annex 1. Effluent Discharge**

Parameter	Maximum or Range not to be Exceeded	Type of Monitoring to Detect Maxima	Maximum Monthly Averages	Monitoring and/or Calculations to Establish Averages
<b>CONVENTIONAL</b>				
pH	6 - 9.5	a	N/A	-
Temperature (°C)	25	a	N/A	-
Suspended solids	30	a	15	Monthly avg. of results from (a)
Dissolved Oxygen	4 (minimum)	a	N/A	-
Chemical Oxygen Demand	40	g	-	-
Oil and Grease	10	g	2	Monthly avg. of results from (g)
<b>TOXIC SUBSTANCES</b>				
Zinc	1.5	a,d	0.2	e
Chromium 3+	0.2	b	0.005	e
6+(1)	0.1	b	0.005	e
Nickel	0.5	b	0.03	e
Lead	0.2	b	0.06	e
Copper	0.2	a	0.03	e
Mercury	0.0025	b	0.00125	e
Silver	0.02	c	-	e
Antimony	-	c	-	e
Cadmium	0.6	c	0.0025	e
Arsenic	5	c	0.6	e
Cyanide (2)	0.3	c	0.05	e
<b>NON-CONVENTIONAL POLLUTANTS</b>				
Iron	12.5	b	3	e
Aluminium	-	-	-	e
Phosphorus	-	-	-	e
Fluoride	-	-	20 weekly result only	f

**NOTES AND MONITORING FREQUENCY CODES**

- Chromium may be measured as total chromium until the concentration exceeds 0.1 mg/1 on grab samples and 0.005 mg/1 on composited samples.

2. No monitoring of cyanide is required until this material is used in the works.
3. Limits are for total concentrations determined on unfiltered samples.

#### **MONITORING FREQUENCY CODE**

- a. Single grab sample taken and analyzed once daily, seven days a week.
- b. Single grab sample taken and analyzed once per week.
- c. Single grab sample taken and analyzed once per month.
- d. A 24 hour flow proportioned composite sample collected and analyzed daily.
- e. A monthly composited sample of flow proportioned aliquots of the daily (24 hour) composite sample.
- f. A weekly composited sample of flow proportioned aliquots of the daily (24 hour) composite sample.
- g. A 24 hour flow proportioned composite sample taken and analyzed once per week.

#### **ANNEX 2      PERMIT CONDITIONS RELATING TO ENVIRONMENTAL MONITORING**

1. That the Grantee shall carry out annual monitoring of the level of heavy metals in sediments and key species of shell fish within the zone of initial dilution of the effluent and at a control site. The sites, parameters, species chosen, timing of sampling and other details of the sampling program are to be approved by the Manager, Regional Water Board. The Grantee shall carry out any studies necessary to define key species and develop criteria to be used in this monitoring program. Provided that the levels of heavy metals in sediments and biota within the mixing zone shall be determined before commencement of discharge.
2. That the Grantee shall immediately carry out further studies on the dilution and dispersal of the wastewaters and storm waters in the Waiuku Estuary if any significant ecological effects or unacceptable accumulation of heavy metals in shellfish become apparent.

## **ENFORCEMENT STRATEGIES OF THE ISRAEL MINISTRY OF THE ENVIRONMENT**

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### **SUMMARY**

Enforcement of environmental legislation is a top priority at the Israel Ministry of the Environment. Environmental compliance and enforcement techniques are not goals in themselves, but rather means to an end. They are based on a variety of components which include proper legislation addressing administrative, civil and criminal aspects. Thus, effective enforcement is a tool to achieve prevention and deterrence rather than punishment. As such, enforcement requires administrative measures, effective inspection, pre-criminal proceedings and an efficient prosecution system — all of which are geared towards reducing litigation in court and achieving desirable environmental solutions. These measures should be further enhanced by more active public participation in environmental enforcement.

### **1 INTRODUCTION**

The problem with being an environmentalist is that sometimes you stop seeing the view, and only see the garbage. Similarly, at the Ministry of the Environment, in our constant efforts to prevent and control pollution, we run the risk of losing sight of the many who do abide by environmental laws—and change their practices: fill out forms and reports and secure the appropriate permits and licenses to run their businesses. For every one of us who sees the cup half empty and fears that our limited resources do not allow for sufficient enforcement of the laws, there are others who see the cup as half full — even too full.

In fact, the Ministry was recently paid a backhanded compliment. The Israel Association of Industrialists expressed concern that under new conditions created by the newly established Palestinian Authority, Israeli goods and services will face undue competition from Palestinian competitors, due in part to the increased costs to Israeli industry caused by the need to comply with the high level of environmental requirements and enforcement. While we at the Ministry sometimes fear that our impact is not felt strongly enough, others apparently feel differently.

However, achieving this level of compliance and awareness has involved years of effort — and we still have a long way to go. Not every potential polluter is willing to abide by our demands. Thus, enforcement of environmental legislation remains a top priority issue of the Ministry of the Environment.

The prevailing approach to enforcement is of those who see enforcement merely in terms of criminal prosecution. Often the image in the public eye is that of an officer of the law taking a polluter to court, and a judge imposing criminal penalties. Environmental enforcement as practiced by the Ministry of the Environment, however, is a much broader issue and is comprised of a wide range of components.

## 2 ENFORCEMENT COMPONENTS

### 2.1 Legislation

Enforcement begins with, and is based on, effective legislation. To be effective, environmental legislation must aim for achievable standards, and have practical application. Where legislation is realistic, compliance is greater; and if prosecution is necessary, it is then that much easier.

Israeli environmental legislation is wide-ranging. It includes the application of national and municipal legislation as well as international law. It affects many national and local authorities and forms an integral part of the system of government. On the local level, nearly every aspect of municipal responsibility is related to environmental concerns—whether it be sewage, roads, garbage collection or general sanitation.

Environmental legislation is comprised both of laws that deal with specific environmental issues, and laws of a general nature which cover environmental matters. For instance, there is specific legislation concerning air, water, sea and noise pollution, litter and the use of hazardous substances. In addition, more general laws, such as the Planning and Building Law and the Licensing of Businesses Law, provide not only a framework but also an important legal base for controlling the use of resources and promoting sustainable development.

Regulations under the Planning and Building Law require the preparation and presentation of Environmental Impact Statements which constitute an integral part of the planning and building process.

The Licensing of Businesses Law, despite its apparently general nature and the fact that it was legislated in 1968 before environmental issues were on the agenda, is a most central and vital tool in environmental enforcement. It provides efficient tools, both on national and local levels, for the supervision of industries and businesses, by stipulating special conditions to a license and by allowing for the administrative or judicial closure of businesses not abiding by the law, its regulations and the above mentioned special conditions.

A very important characteristic of Israeli environmental legislation is that it is enforced through administrative, civil and criminal measures. For instance, within the Abatement of Nuisances Law, all three remedies serve as tools of enforcement. Under this law, administrative action is taken through special directives (known as "personal decrees") which order an individual polluter to take specific cleanup action. Issuing a personal decree allows the introduction of professional and technical requirements. Such decrees also ease enforcement, since it is easier to prove a breach of technical or administrative requirements in a decree than to prove the cause of a nuisance, or the level or extent of pollution.

Civil law is employed through the application of the Torts Ordinance. A breach of the Abatement of Nuisances Law would be considered a nuisance under the Torts Ordinance, making available all civil remedies, including the payment of damages.

But undoubtedly the most effective enforcement tool of the law is that of criminal prosecution. Under the Abatement of Nuisances Law, it is forbidden to cause strong or unreasonable air and noise pollution or odors, and the offender is subject to criminal punishment.

Criminal prosecution has some obvious enforcement merits. It is an effective deterrent tool, especially for those in high positions, such as managers of major industries, who are prepared to do a lot in order to avoid the stigma of criminal proceedings.

As much as we at the Ministry recognize the importance of criminal proceedings, we are also aware of its weaknesses. The main weakness in this context is that while it can be a deterrent for future crimes, criminal prosecution deals with an accomplished act—pollution

that has already occurred and caused damage. Criminal procedure is intended mainly to punish an offender — it is usually not effective in preventing crimes. For environmentalists, this is a very important consideration.

## 2.2 Prevention

A top priority issue for the Ministry of the Environment is the enforcement of preventive measures within the laws under its jurisdiction, as we all know that it is almost impossible to compensate for pollution and environmental damage after the event. Therefore, our main goal is to prevent the occurrence of pollution and damage, rather than to punish the offender and to impose fines. Prevention may therefore be considered as the ultimate goal of our environmental enforcement strategies. In order to achieve this goal, we utilize various methods.

## 2.3 Administrative measures

Administrative measures constitute a most important link and one of the bases of prevention. Thus, the granting of licenses for businesses is made conditional upon the fulfillment of certain stipulations aimed at preventing environmental damage. Among about two hundred thousand businesses which are licensed in Israel, the administrative and professional staff of the Ministry of the Environment intervenes in about five thousand cases per year, inter alia, by imposing "special conditions."

Likewise, the possession and use of hazardous substances is subject to approval by the Ministry through a permit system. Since the end of 1993, when the relevant law was amended and the Ministry started to implement this permit system, about fifteen hundred permits were dealt with and issued, out of an estimated potential of about seven thousand. Permit systems are operated at the Ministry of the Environment also in other fields, such as dumping at sea, but in much smaller numbers.

We at the Ministry consider that the very existence of such requirements in itself constitutes an enforcement measure.

Administrative and professional inspection and follow-up reveal that a vast majority of the public subject to particular requirements will abide by them and by the conditions stipulated in license or permit granted specifically to them. Out of the huge amount of regulated activities, only a relatively small number (a few hundred) of businesses are subject to further enforcement measures, as described below. As already mentioned, administrative enforcement has procedural advantages and it provides a more efficient method of enforcing environmental legislation.

## 2.4 Inspection

Of course, the mere existence of legislation and licensing requirements is not enough: close supervision is necessary to ensure strict compliance with legal stipulations. Executing inspection and surveillance is an essential expression of the Ministry's seriousness and rigor in performing its enforcement role. Without proper inspection mechanisms the Ministry cannot carry out the enforcement procedure, and with a lack of surveillance, even the most law abiding person may consider noncompliance.

On the administrative level, the Ministry operates a number of inspection bodies to enforce legal and administrative measures. These bodies are staffed by professionals in their respective fields who are also trained to perform inspection procedures and conduct investigations. In order for supervision to be effective, not only must the personnel have the necessary knowledge and qualifications, but they must also be legally authorized to carry out

their tasks. In fact, we place much effort into strengthening their powers with regard to entry, investigation and detention, as well as for an increase in their number and professional skills. Supervisory functions (inspections) are carried out in coordination with the scientific professional staff of the Ministry and its regional offices.

On the criminal supervisory level, a well equipped and highly mobile "environmental patrol," staffed by trained personnel authorized with police officers' powers, operates within the Ministry of the Environment. In addition, the Ministry also operates some specialized supervision units in specific areas: the Marine and Coastal Inspection Unit, and the Monitoring Unit for Poisonous Substances. Other bodies, such as the Nature Reserves Authority, the Drainage Authorities and various ministries (among them the Ministries of Health, Agriculture, Transportation and the Interior), also carry out supervisory duties and assist directly and indirectly in the enforcement of environmental matters as part of a so-called "Green Police." Furthermore, the local authorities have their own supervisory infrastructure, with thousands of inspectors who play a most important role in the supervision of business licenses, and in enforcement of municipal legislation. We recognize the need to improve the cooperation and coordination between the various bodies in order to avoid duplication and to increase their efficiency.

The role of effective professional inspection cannot be overestimated. A large number of cases of noncompliance are solved at this stage — after a "visit" from an interrogating inspector, who demonstrates the Ministry's strict intention to ensure that its directives and requirements are fulfilled.

Unfortunately, the Israel Police Force, which is nationally responsible for enforcement of the law, is involved in the enforcement of environmental laws only to a limited extent, partly because of a shortage of manpower and mainly because of their priorities in which the enforcement of environmental legislation is placed very low. In addition, it should be noted that the police lack professional skills regarding environmental issues.

In light of this, it would be correct to say that generally in Israel the role of enforcing environmental law is carried out by professional environmentalists trained and empowered as police officers, rather than by police officers equipped with technical and professional skills.

## 2.5 Public participation

As part of our efforts to strengthen the enforcement of environmental laws and to increase the number of people participating in the process, we have also recruited the general public.

Not without considerable opposition, but with the consent of the Knesset (Israel's parliament), we succeeded in introducing some years ago an innovation in the field of Israeli law enforcement procedures — the appointment of individuals from the general public as "Cleanliness Trustees." These volunteers participate actively in the enforcement of the Maintenance of Cleanliness Law by filing complaints against offenders of the law. The law has granted these volunteers the power to request a person, who in their sight commits an offence against the law, to identify himself. The complaints are the basis for a subsequent "finable offense" procedure. By the end of 1995, more than 120,000 "Cleanliness Trustees" were recruited from the general public, and about 10,000 tickets and court actions per year are initiated by their activities — not to mention the educational and preventive value of this widespread public activity.



## 2.6 Pre-criminal proceedings

As already mentioned, it is our policy at the Ministry to exhaust administrative and deterrent means of enforcement to the fullest extent possible. Unfortunately, however, there are those who are not deterred by any of the early stages of enforcement. Some people will continue to violate the law, even after they have been caught, until they are prosecuted in court and stopped. In such cases, we are left with no choice but to prosecute; a course we undertake without hesitation when it is unavoidable.

Sometimes, the actual threat of prosecution is sufficient, and can also be used to solve an environmental problem. For instance, before filing a case with the court, the relevant administrative or professional authority in the Ministry conducts a "hearing process" where the details of the case are presented to the suspect; he is called upon to respond and offer an explanation for his violations, and to suggest remedial steps he intends to undertake within a reasonable time period. This process has proved to be efficient: at this stage many of the violators find themselves embarrassed and threatened as they realize the severity of the Ministry's intentions, as well as the unpleasant consequences of the criminal proceedings they face.

Another example of a pre-criminal proceeding process is connected to the request to attain the consent of the Attorney General in order to prosecute a local authority (municipality) or the head of a local authority. In one case concerning pollution emanating from the waste disposal site of a small village in the Galilee, merely applying to the Attorney General caused the otherwise stubborn head of the local authority to carry out the required improvements.

## 2.7 Prosecution

Of course, at the end of the line are the truly determined violators, for whom the courtroom is the only option. Thus we reach the final stage of enforcement, which in the public eye is the principal image of enforcement.

The cases brought against polluters are handled within the general criminal system. Again, as in the case of the police, the State prosecution system rarely handles environmental issues due to an absence of both resources and awareness. The Ministry, therefore, prosecutes without going through the State prosecution system. The Ministry has taken on the services of private law firms that have been empowered by the Attorney General to represent the State in criminal proceedings. These legal services are financed through a special budget that has lately been allocated in order to finance the prosecution of environmental pollution offences, with special emphasis on prosecution in cases of pollution of water resources and pollution by solid and liquid wastes; or otherwise financed by the Maintenance of Cleanliness Fund and the Marine Pollution Fund — which are operated within the Ministry.

The budgets of these funds are based upon fines imposed in breach of the respective laws, from fees levied on manufacturers and importers of beverage containers (in the case of the Maintenance of Cleanliness Fund) and from a "Marine Environmental Protection Fee" imposed on owners or operators of vessels or certain shore installations. To a limited extent, the budgets of these funds are also derived from the State budget and from contributions. In each case, it is stated in the relevant law that the purpose of the fund is to concentrate monetary resources for the combat against and prevention of the related type of pollution, for cleanup operations, as well as for encouraging environmental education and awareness activities, and for financing the inspection and enforcement of these laws. Both the Maintenance of Cleanliness Fund and the Marine Pollution Fund are administered by committees composed of

representatives of the Ministry of the Environment, the Ministry of Finance and the public (two mayors), within the framework of the Ministry of the Environment under specific operational regulations and within a separate budget.

Out of the many administrative cases dealt with, as described above, only few reached the stage of criminal prosecution and had to be brought to court. During 1994/5 these amounted to twenty cases concerning pollution of water resources, fifteen cases on breach of terms of business licenses or hazardous materials' permits.

Different statistics characterize prosecution in the fields of solid waste and littering as a result of the work of the Cleanliness Trustees and the Environmental Patrol: about ten thousand "tickets" (finable offences) are issued per year, and about one hundred cases are brought to court by the above mentioned prosecution system.

The conclusion of a successful prosecution is, of course, when it results in a meaningful punishment. Attaining this end is not easy in light of the handicaps of the court system which is overloaded and lacks proper environmental awareness. The majority of environmental cases are dealt with in the magistrates and local courts. Even so, some cases are deliberated upon at the district court level and by the Supreme Court, sitting as a Court of Appeal or as the High Court of Justice.

### **3 FINAL REMARKS**

#### **3.1 General observations**

It should be reiterated that we would always rather prevent environmental damage than punish the offender. And where punishment is necessary, it is not a goal in itself, but rather a means to an end. All aspects of enforcement — from administrative action to supervision, court action, imposition of a fine or a prison sentence — are tools and not ends in themselves. Likewise, punishment is used as a deterrent not only against the actual offender, but against potential violators as well, and it has most important educational value.

Israel's system of punishment needs more muscle. Most notably, the level of fines should be increased to be more effective.

In conjunction with the Ministry of Justice, we are currently working to put forward a proposal that will raise the level of fines for the violation of almost all environmental laws. Also under consideration is increasing the use of the fine option (fineable offenses) where the offender has the option of paying a fine rather than going to court. In many cases, this is more efficient than court proceedings, and can be more effective.

In certain situations, however, a monetary fine is too weak a sanction. The stigma of a criminal sentence carries greater weight. For instance, although the head of a local authority or a manager of a large firm or industry does not care very much about the payment of a fine from public or otherwise non-private funds, even the potential threat of a prison term — and, of course, the stigma of criminal proceedings — have proven to be very effective.

Therefore, another aspect of the Ministry's prosecution policy and practice is that whenever legal proceedings are initiated against a company or authority, as a matter of regular practice measures are also taken on a personal basis against a high-ranking individual (mayor, manager, partner, etc.), even when it is clear that he has only indirect institutional responsibility; unless, of course, there is clear evidence that no responsibility or guilt whatsoever can be attributed to him.

### 3.2 The public's role

Last but not least, a component of the enforcement structure, which must be mentioned and which regrettably is still in its early stages in Israel, is the role of the public. As already mentioned, citizens play an important role as "Cleanliness Trustees" by filing complaints against offenders, which result in legal actions.

For many years, Israeli citizens have had the right to bring private criminal complaints, as well as to initiate civil proceedings in environmental matters under various civil and environmental laws. However, the amount of private environmental litigation has been very small (and this is not because we are a non-litigating society — quite the opposite).

Thus, the Abatement of Nuisances (Civil Claims) Law was passed in 1992 in order to encourage the public, and to ease the way for citizens to bring civil claims and secure injunctions against potential and actual polluters. Procedures according to this law provide a standing status to environmental groups and allow for a "group claim" — a rare phenomenon in Israeli legislation. The law also provides for special proceedings and grants the courts powers to issue immediate remedial decrees to prevent and stop pollution of various kinds (such as: air, noise, water, waste, hazardous materials, radiation and marine pollution, as well as nuisances caused by them) and to impose corrective measures.

When the law was passed, its main opponents claimed that the courts would be flooded by the number of claims of aggrieved citizens and environmental organizations. In actual fact, during the years since the law has been in force, we know of very few citizens' claims that have been brought under this law in all of Israel. Citizens direct an enormous number of complaints and requests to the Ministry, yet they fail to bring legal actions to court.

Nevertheless, it should be noted that in the past there have been several cases initiated by the public — by individuals as well as by organizations — which contributed greatly in the enforcement of environmental standards and improved environmental decision-making processes. Unfortunately, these cases are too rare, and the public's role is still the weakest link in the Israeli system of environmental enforcement.

It is therefore our opinion and belief that the challenge ahead rests not only with the legislature or statutory enforcement bodies, but also with the public. The Israeli public is expected to be the most effective enforcer of the law, both directly and indirectly.

As part of our enforcement strategies it is also our task to encourage the public, especially the young generation, and to inform and educate it on its right to a clean and healthy environment, to provide it with the technical data and legal tools to fight for that right and for a high quality of life and environment.



## **DEVELOPMENT AND ENFORCEMENT OF NEW ARMENIAN ENVIRONMENTAL PROTECTION LEGISLATION: PROBLEMS AND SOLUTIONS**

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### **SUMMARY**

This paper provides a brief background on Armenia and the current situation with an overview of new Armenian environmental protection legislation. Analysis of the enforceable requirements in the new legislation and related reforms are presented. Enforcement institutions, their current capacities and necessity of improvement of existing institutions and capacity building are discussed.

### **1 BACKGROUND**

Armenia is a landlocked, mountainous country located in the southern part of the Caucasus region. The smallest republic of the former USSR, Armenia covers an area of 29,800 square km and has a population of 3.7 million, over 96 percent of which is ethnic Armenians. Armenia shares a border with Turkey to the west, Georgia to the north, Azerbaijan to the east and southeast, and Iran to the south.

The following brief description of reasons for the current situation provides information on and clarifies reasons for the current design of environmental programs in Armenia.

The democratic process in Armenia began in February 1988 with environmental demands to stop operations of dangerous plants. After a few days, the movement turned into a political one that ultimately resulted in a declaration of independence and new parliamentary elections. In fact, the environmental movement's claim was so powerful that it resulted in shutting down very important components of the national economy without strong factual argumentation.

After closing four main constituents of the Armenian economy (the Nuclear Power Plant, Rubber (caoutchouc) producing chemical plant, and two other chemical plants), the economy collapsed. The situation became worse, even unbearable, after Azerbaijan and later Turkey imposed economic blockades, and there was political instability in Georgia. With only one undeveloped link to the outside world via Iran, even fuel had to be imported by air. Such arrangements could provide only basic, and sometimes less than that, needs of the population. For three years till the winter of 1995, Armenians had been living at the physiological level of survival, with no (sometimes one or two hours a day) electricity and no heating.

Those three winters caused:

- Extensive deforestation. The tree cutting was permitted by government but had gotten out of control.

- Release of water from Lake Sevan (the only pure water reservoir for the whole region both for the present and future generations) for energy production needs. Speedy eutrophication of the lake has become a real unmanageable environmental problem. One of the consequences of this problem is the impact on biodiversity of the region.
- Reopening of potentially hazardous Metamor Nuclear Power plant due to the circumstances of the economy and energy crisis. Another concern is an intention of the Government to build a new Nuclear Power Plant on Armenian earthquake-sensitive territory.
- 90% of actual unemployment and, unusual for the one of the richest among former USSR countries, poverty.
- Decline of health and education levels of the nation.
- Informational isolation from the world due to lack of electricity, technical equipment and disruption of postal services.
- Lost public credibility of the environmental movement and Nongovernmental organizations.

With these circumstances in mind (in fact, feeling them on our skin) we realized nationwide that economic and energy crises became a real environmental disaster for Armenia. That is why, in the process of developing the new law, we carefully kept balance between environmental protection and socio-economic development.

Fortunately, we were able to overcome some problems. Even under the blockade situation, the economy has started to go up (up to 17%) and people overcame the old mentality of relying and depending on government to solve their problems. This is the most important achievement of our transition period. Now most Armenians rely on themselves and mutual assistance. Many governmental reforms, such as 98% privatization of agricultural land <sup>1</sup> and privatization of many sectors of economy, contributed to this phenomena. Now 85% of the trade, 45% of transportation, 25% of service are in private hands. Currently, Internet access in Armenia is in very good shape, and Armenia can exchange information more freely and fully than the other former USSR countries. Privatization of industry is underway. Ongoing formation of the free market economy in the country presents an opportunity for economic development and we could invest more resources to recover our environment. To prevent future deterioration of our environment, we accepted as our development path an integrated pollution prevention and control approach. The reflection of this approach is basing the national environmental protection legislation on uniform procedures and principles of environmental impact assessment.

## 2 LEGAL ENVIRONMENTAL FRAMEWORK

At the very beginning of legislative activity (independent from Moscow) the Parliament imitated the US legislative structure, i.e., developed media-specific and field-specific laws. The experience inherited from the past regime did not allow us to quickly turn them into a legal system with detailed procedural enforceable requirements. Firstly adopted acts remain mostly declarative with some enforceable provisions and "open room" for application of environmental impact assessment (EIA). At the same time, study of other countries' experience helped us to realize in which way to move to reach environmental compliance and enforcement. Integrated pollution prevention and control approach was chosen as a preferable path <sup>2</sup>. Armenia has taken steps toward integration by passing laws that authorize assessment and control of toxic

substances across media, as well as laws that require environmental assessment of all projects. Ironically, the very declarativeness of the firstly adopted Acts helped to overcome this problem easily. Environmental Impact Assessment Act (EIAA) which was developed with the assistance and experience of the Environmental Law Institute (US)<sup>3</sup>, Center for International Environmental Law (US)<sup>4,5</sup> and U.S. EPA became a curative tool for those mistakes. Experience of countries in transition was taken into account as well. The logic of the Armenian environmental legislation will work in the following order: separate acts will regulate the current status-quo, whereas EIAA will ensure sustainable development and reform.

## 2.1 Principles of Environmental Protection Legislation of the Republic of Armenia

On July 9, 1991, the Parliament passed "The Principles of Environmental Protection Legislation of the Republic of Armenia" as a constitutional Act in the environmental protection field. The Act states the overall environmental protection policy and establishes a framework within which the Parliament will develop specific separate acts to protect the atmosphere (air), water, soil, natural (mining) resources, forest, flora, fauna, specially protected territories, endangered species, and manage waste, etc.

The Act also stipulates the following economic mechanisms for compliance with legislation to ensure nature protection:

- charges for using natural (mineral) resources, for pollution and other impact within the permissible limits;
- fines for violation of environmental legislation;
- higher taxes and other economic sanctions for failing to install new environmentally benign technologies;
- extra taxes for using environmentally hazardous technologies;
- tax, credit and other privileges for environmentally friendly manufacturing and conduct;
- licensing for unavoidable releases and discharges;
- compensation duties for damage caused by deterioration and destruction of natural subjects; and
- imposing obligations to restore destroyed environment and its separate components.

According to this Act, the state takes responsibility to provide safe, healthy and favorable natural conditions to satisfy the social, esthetic and cultural needs of the population. The law imposes obligations on the State Environmental Protection Bodies to timely and accurately inform the population about the condition of the environment.

By this Act the citizens have received:

- Rights to claim and to receive in a timely manner full trustworthy information about environmental conditions.
- Rights to receive full compensation for health damage caused by polluted environment, environmental accidents or disasters.
- Rights to live in the pure (no amendment yet!) environment, and in case it is destroyed, to receive the status of environmental refugees and to get equivalent compensation.

- Rights to participate in a process of developing environmental protection laws and enactment and to control their implementation.

The idea for the application of environmental impact assessments have expression in the "State Ecological Expertise" article, where all economic and social development programs, economic projects and plans, operating businesses and so on are considered the subjects of environmental impact assessment. In a required preliminary declaration, a list of binding protection activities to mitigate environmental impact according to standards should be submitted. This part of the Act is relatively less declarative since it specifies (maybe even more than it will be possible to manage) subjects of assessment. For large economic programs, permissions may be given by the Parliament or by a referendum.

The Act has shaped an idea about creation of an environmental prosecution and eco-police institutions. This was supposed to stimulate changes in the legal system. A General Environmental Prosecutor of Armenia was appointed by the Parliament and is working with already formed eco-police. They have prepared many cases to start prosecutions.

I would like to mention that this Act was worked out and passed when Armenia was still a part of the USSR; less than one year later Armenia became independent and the Parliament started to function freely.

## 2.2 Act on Specially Protected Territories

The second "Act on Specially Protected Territories" was passed on December 17, 1991, just after the referendum and declaration of independence. The Law determines different levels of protection of different kinds of specially protected territories and puts the responsibility on the state.

## 2.3 Act on Natural Resources

The third Act, the "Act on Natural Resources" was passed on March 19, 1992.

This Act ensures, to a certain degree, sustainable use of natural (mining) resources. It requires that natural resources be extracted and used with implementation of advanced technologies. This requirement is especially important for Armenia, which has limited deposits of a wide variety of rare natural resources, that, if used prudently, could be enough to cover some raw material requirements of the economy (e.g. electronic industry).

- The Act leaves "open door" for future full application of Environmental Impact Assessment in this area.
- This Act dictates restructuring in the executive branch to improve exploration of natural resources and environmental protection. This restructuring is still going on. Lack of appropriate experience hinders development of effective regulations.
- The first advanced law passed by the Armenian Parliament was a law about agricultural land privatization. We have already privatized 98% of our agricultural land, but the Parliamentary Committee decided that natural resources cannot be privatized. So the Act declares that the natural resources are the exclusive property of the Republic but can also be made available for private utilization.



- Mining and processing of the natural resources is paid for and can take place by license and awarding of contracts. The natural resources are freely available for a geological study, scientific research and geology-mining proposals.
- A contract between the Republic and user is the basic legal document that determines relations of parties. Only a court can resolve a dispute between them.
- The geological and other information about natural resources can be subject of buying and selling.
- According to this Act, any information about natural resources can be the property of a funding organization (state or private) or private persons. The state can buy that information from private sellers, but has it free from state organizations if they used the state budget to get this information.
- The Act stipulates the right of authors of scientific discoveries in this area.
- The primary discoverer in this area receives privileges to be the first explorer of a discovered field.

The problem with developing regulations with enforceable mechanisms still exists.

#### 2.4 "Act on Water"

The "Act on Water" was prepared by the government. Our Committee had just enough time to examine it and prepare recommendations. During the Parliamentary hearing of this act, the Committee's environmental protection amendments were adopted and in this case we have acquired an opportunity to impose stronger environmental claims on water users with imposing EIA requirements. This act mainly regulates water-use relations and the Committee may draft new acts on safe drinking water and quality of water.

#### 2.5 "Act on Protection of Air"

The Act entered into force on November 1, 1994. According to this Act the Parliament took responsibilities as the principal state body which will adopt all programs and policies related to air protection and oversee them for compliance.

The Act is mainly declarative and leaves "an open room" for Environmental Impact Assessment application. But there are some provisions which could be enforced immediately. Local authorities and inspectorates received authorization to prevent an entry of mobile sources to regions of their jurisdiction in case of violations of standards. Violations of standards by stationary sources could cause temporary closing until compliance is ensured or forever.

#### 2.6 "Act on Forest"

The Act entered into force on November 1, 1994. According to the Act the forest is the exclusive property of the Republic until it grows up to industrial utilization volume. Currently the Armenian forest is the subject of protection, rehabilitation, recreation and sustainable utilization only. Only temporary utilization (up to 5-10 years) under supervision of a state authorized body and local authorities is allowed.

The forests are divided into three groups:

- protected forests;

- recreative forests; and
- forests for specially protected natural territories.

There is the “open room” for environmental impact assessment application.

The Act stipulates fees for forest utilization. All detailed procedures have to be developed in regulations. There is a need to develop guidelines for pricing for different kind of utilization (recreation, hunting, scientific research, tourism etc.).

## 2.7 “Environmental Impact Assessment Act”

Armenian Environmental Impact Assessment Act (EIAA) was adopted by the National Assembly (the Parliament) on November 20, 1995 and was signed into law by President on December 12, 1995.

The Act implants uniform principles and procedures of environmental assessment into all passed and proposed acts.

The Act aims to ensure joint professional and public assessment of economic, social and other kinds of activities (including new construction, reconstruction, modification, enlargement, technical re-equipment, and demolition). In the conditions of a changing economy, most activities could be covered by this Act. Other aims are to evaluate the proposals on important development concepts, proposals, policies, complex projects and programs (strategic concepts) — in relation to assumed impact on the environment and socio-economic development. The assessment acts as a basis for eventual approval or disapproval of an activity or concept.

The Act is harmonized with environmental impact assessment approaches of International Conventions and development assistance agencies standards (the World Bank, EBRD, etc.), and includes:

- detailed procedure of environmental impact assessment (EIA) of proposed activities;
- environmental impact assessment procedure in the case of an activity of a transboundary context;
- brief procedure for assessment of proposals of concepts;
- detailed provisions to serve as workable tools for implementation and enforcement;
- detailed binding provisions on ensuring public participation and involvement in decision-making;
- a specific activity list based on the specifics of the country to be covered by and incorporated into the Act;
- binding provisions with time frames to be met both by promoter and authorities to avoid violations;
- certain provisions on extent of assessment;
- provisions which give rights to interested parties to appeal procedural violations through the court;
- provisions to ensure comprehensibility and intelligibility both for the promoter of an activity and the public;

- provisions incorporating mechanisms enabling bottom-up initiatives (regional and local authorities, public and nongovernmental organizations) to conduct environmental impact assessments for activities under the threshold values;
- requirements to submit an intention in at least two variants (alternative solutions); and
- requirements for post-project monitoring and analysis, which has to be articulated in the permit to start activity.

The Armenian legislation continues to be more declarative, and detailed procedures on enforcement and implementation are developed by various ministries in administrative rules and regulations. These shortcomings were overcome with this Act. The National Assembly was persuaded to include detailed enforceable procedures and requirements in this Act.

Another shortcoming we could not yet overcome is very little experience with laws containing precise numerical values. To avoid ambiguity in the law's application, a list of planned activities that require environmental impact assessment should be incorporated in the law. It should also specify criteria (threshold values) for the majority of activities, according to degree of impact. The legislative structure in Armenia does not allow appendixes to the Act with such a list. At the same time, scientifically developed and adopted threshold figures for different kinds of activities are also not developed for Armenian circumstances. The solution was to include in the Act a list of activities without threshold values as transitional provisions. The Parliament agrees that once these are developed they will be incorporated into the Act. In other words, solution was: without destroying the structure of the entire legislation, include the contents of annexes into the Act. The Act is still enforceable for those listed activities which need full EIA without any threshold values.

#### 2.7.1 Parties involved in environmental impact assessments (EIA)

- Promoter — a legal entity intending to realize an activity subject to the EIA. The promoter of the assessed activity bears the major part of the cost and responsibility associated with the assessment process.
- Submitter — a government entity who is the promoter of a concept.
- Authorized body — the body of the state administration which is responsible for managing the entire process. It issues the final approval or disapproval to start realization of an activity and submits a recommendation to the Approving body for decision on implementation of a concept.
- Approving body — the National Assembly, the Government and other authorized state bodies which are responsible for final decision on implementation of a concept.
- Affected authorities — regional state administration authorities and community self-administration authorities of an area or territory, that are likely to be affected by the environmental impact of a planned activity.
- Interested state body — a body of state administration which has concerns on a planned activity.
- Public — the population of an area or territory, which is likely to be affected by the environmental impact of planned activity or implementation of a concept.

- Experts — specialists who could be hired by proponent or submitter to prepare EIA.
- Authorized persons — organizations, groups, individual specialists who are granted license of professional competence by authorized body, and are eligible to perform and prepare relevant expert opinion on EIA documentation.

### 2.7.2 Procedures of EIA process

The Act contains all standard steps of the EIA process and determines the duration of each step.

- **NOTIFICATION AND SCREENING** — The EIA is initiated as soon as a notification on intention is submitted to the authorized body. The EIA procedures involve a promoter, experts, regional and communities leadership, the public, Nongovernmental organizations and the interested state body. A promoter has to submit notification with an already processed and categorized information. The notification must contain at least two alternatives of the activity together with a provision for a situation which might arise were the plan not to be implemented (zero alternative).
- **SCREENING** — In the case of activities under threshold values the authorized body shall conduct screening on the basis of notification and decide whether or not the activity in question is to be assessed under the Act. In this part of the Act we managed to persuade the Parliament and later the President to include bottom-up initiatives for conducting EIA. The interested state body, regional state authorities, community leadership and public receive the rights to require EIA for projects below threshold values. The authorized body, based on the received opinion, will decide whether to conduct a full EIA.
- **QUALITY CONTROL** starts at the beginning of public involvement when public can bring in any experts for advice. A more thorough control is carried during the elaboration of expert opinion on EIA documentation.
- **SCOPING** — The current Armenian legislation does not allow for stating content of EIA in the Act, but we have a minimal scope of requirements and philosophy for this in the Act. More detailed scope is developed in regulations which are currently tailored to meet the specific conditions of Armenia. The wider scope for EIA documentation shall be decided by the authorized body based on public opinion.
- **EIA DOCUMENTATION** — The promoter shall conduct an evaluation of its own activity from the assumed environmental impact and socio-economic points of view. The promoter can hire experts to perform this task. She/he has to submit documentation to the authorized body. The Act does not make reference to any strict time frames to conduct EIA for promoter.
- **IMPACTS** — EIA should evaluate four types of impacts: direct, indirect, cumulative and synergetic.
- **PUBLIC HEARINGS** — The Act contains three articles with detailed guidelines for public participation. The public starts to be involved in EIA process at the very beginning, immediately after notification of the

authorized body by the promoter. The second round of participation is at the stage of discussing of prepared documentation on EIA. The third one is at the stage of expert opinion discussion with the authorized body. At all stages of public participation, the authorized body is responsible and has an obligation to organize it together with the promoter and regional and community leaderships. All public comments have to be taken into account during expert opinion preparation and decision making. However, the Act does not contain any precise criteria on how to do that. This part of the Act and regulations needs improvements.

- **EXPERT OPINION ON EIA DOCUMENTATION** — Authorized body has to arrange expert opinion on EIA documentation before making decision. There is a possibility for voluntary preparation of documentation on EIA, but the assessment has to be exercised by licensed authorized persons designated by the authorized body. These authorized persons have to meet specific requirements to earn certificates and become authorized persons for assessing EIA documentation (a university degree, successfully passed authorized body's exam, 5 years experience in the field).
- **FINAL DECISION (APPROVAL OR DISAPPROVAL)** — The final decision is the responsibility of the authorized body. Without approval, no activity can start. The Approving body may not approve any concept for implementation without positive decision on by authorized body. These are very important requirements in the Act. They provide a single final operating permit for any activity by a single national body.  
The authorized body, after receiving prepared EIA documentation, should give a final decision to promoter during a specific time. If not, promoter can start activity without any decision taken prior to that. We understand that this is a very dangerous provision in the Act from environmental protection point of view because more complex projects will take more time for consideration. On the other hand, however, this provision enables us to try to protect the promoter from abusing of the Act by bureaucrats and corruption.
- **POST-PROJECT PROCEDURES** — There is no precise articulation of post-monitoring/auditing requirements in the Act, but the permission to start activity implies introduction of these requirements and monitoring of their implementation. The authorized body is responsible for carrying them out. The authorized body is also responsible for designating consultants for post-monitoring.
- **RESPONSIBILITIES** — Any kind of violation of procedures of the Act can be appealed by involved parties through the court. The Parliament Committees are currently developing detailed provisions to include them in civil and criminal laws.

Inadequate quality of EIA documentation can be appealed by any involved party to authorized body.

### 2.7.3 Importance of the adoption of EIAA for further reforms and development

Adoption of EIAA is a very revolutionary Act, not only for the Armenian Environmental Protection legislation but for the whole Armenian legislation as well.

The Act eventually unifies Armenian Environmental protection legislation into one logical framework. More declarative media specific acts will regulate the current status-quo, whereas EIAA will ensure sustainable development.

The Act introduces detailed enforceable provisions, which is the first experience in Armenian legislation.

The Act introduces precise figures in the legislation. This is unusual for Armenian legislation's mostly declarative context and might become a starting point for future development. The importance of having precise numerical values in the law prevents the executive bodies from manipulating threshold values. Only the National Assembly can make amendments.

The act introduces three detailed articles on public participation, obliging the authorized body to involve and earn public opinion. Before that, our legislation contained some declarative provisions on taking the public opinion into account, but no procedures and obligations were articulated to enforce them and earn public opinion.

#### 2.7.4 Problems to be addressed

Adoption of EIAA is a really advanced step in the reform of environmental protection field in Armenia. However, there is still a long way to go in establishing the EIA system by creating more institutions and capacity building.

We have to continue the development of the regulations emanating from the Act, prepare academic and Nongovernmental communities for EIA documentation preparation, prepare officials for implementation and enforcement of the Act, ensure higher public awareness in this field, get public credibility and eventually establish the whole system for EIA.

Currently, there is no annually published statistics on EIA performance in Armenia. All documentation on EIA is in the Department of Ecological State Expertise of the Ministry on Environmental Protection and Mineral Resources.

There are no guidelines for EIA pricing yet.

There is no information on quality of EIAs performed available for the public. All these problems should be addressed through development of appropriate regulations.

#### 2.8 Prepared drafts

The National Assembly's Committee on Health Protection, Social Issues and Environmental Protection has worked out the following drafts: "Act on Flora;" "Act on Fauna;" "Act on Waste;" "Act on Sevan National Park;" and is developing an "Act on Biodiversity."

An Act on Environmental Rights is under development and discussion. A draft that was already prepared needs improvement. The idea behind drafting this Act is to stimulate public involvement and influence decision making in the environmental protection area and to start the public participation and pressure process. We suppose that the direct act will focus people's attention on their rights - something we have experienced at the beginning of our independence. With the new act on free election<sup>8</sup> and with comprehensive articulated procedures on right to be elected we could change the composition of the Parliament and start building a democratic society.

The principles of this Act are supposed to be the following:

- The right to access information about environmental quality, proposed decisions, etc..
- The right to live in a favorable environment.
- The right on sustainable utilization of natural resources by any state or private producers.

The Committee intends to work out this Act in a comprehensive way to encourage people to know, understand and struggle for their own rights even though receiving compensations for physical and moral damage. The latter point is important for our country where the people in economic survival situations cannot think globally and abstractly even about the nearest future.

There is an intention in the future to streamline the whole relevant legislation into one single universal Act on Environmental Protection.

### **3 CURRENT ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT INSTITUTIONS**

After the new parliamentary elections and referendum on New Constitution held on July 5, 1995 the whole Executive Branch has been undergoing reform. The Ministry on Environmental Protection and Mineral Resources now oversees almost all pertaining environmental fields. Assembling all institutions under one umbrella this a taking step toward institution integrated pollution prevention and control. This structure will facilitate integration pollution control across environmental media and fields. But reforms at the legislative and administrative levels without parallel capacity building are not enough to ensure proper functioning of institutions in changed circumstances. Regulations which should follow each new environmental acts are not developed in their whole scope yet. Lack of experience and, more importantly, lack of enough information to develop them present another obstacle to accelerating this process.

Eco-prosecutor institution and eco-police cannot operate effectively until judicial and court-system reform is completed. Adoption of the new Constitution has accelerated these reforms but there is not enough attention to the environmental aspects of the development process. Capacity building in this sphere is extremely important.

None of above mentioned institutions have any register or any kind of publication to keep public aware on ongoing events.

The painful issue is interest groups and nongovernmental organizations. Indifference and frustration of people are real problems that need to be solved. There is no doubt that interest groups and Nongovernmental organizations are there, but they have not been too visible during this past four years. As I mentioned above, hopefully along with economic growth, legally provided right could be a basis for stimulation of public activity. This could be a proper way to foster the voluntary compliance attitude as well.

### **4 OPPORTUNITIES AND PROBLEMS IN FURTHER DEVELOPMENT OF ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT**

Development of Armenian Environmental laws and some programs illustrated that in spite of an extremely difficult transition situation Armenia could come up with innovative approaches and create opportunities for future reforms and development. For example;

- A basic environmental legal framework exists based on uniform principles and procedures of EIA. The path of further development and improvement is chosen.

- An authorization to issue a single operating permit covering discharges to all media is given to a single national body which is responsible for enforcement as well. It means that Armenia took a commendable step of linking the EIA process to final permitting decision, so that the proposed activities may not go forward until it has been demonstrated that they will not have unfavorable impact on the environment.
- The Ministry on Environmental Protection and Mineral Resources is developing National Plan for Action.
- Basic state enforcement environmental institutions are established.
- Legally provided opportunity for development of interest group and nongovernmental institutions exists.
- Information flow capacities exist.

Problems to be addressed are the following:

- further development of regulations, guidelines, rules, instructions;
- provisions of sufficient information flow to the state and public institutions;
- organization and provision of education and training for officials and academic and Nongovernmental communities;
- development of capacities for information exchange inside Armenia; and
- establishment of newspapers, magazines, and registers to ensure public awareness.

After independence and before the economic crisis came through, many international organizations offered their assistance to Armenia. During the four years of blockade these offers have been gradually decreasing. With no effective support from the international community, we could not prevent reopening of the Metzamor Nuclear Power Plant. The most we could do was just require some assessment. But no national consensus was earned by government for the reopening. Our government is intending to build another Nuclear Power Plant in a seismically active zone.

Now Armenia has its basic legal framework and our economy is going up. There is an opportunity to build effective system of ensuring wise decision-making through sustainable development. Assistance of international community could contribute to this process.

## REFERENCES

1. Armenian Legislation: "Land Code" 29 January 1991.
2. Haigh N. and Irwin F. (Eds.), Integrated Pollution Control in Europe and North America. The Conservation Foundation, Washington D.C. and Institute for European Environmental Policy, Bonn, Brussels, London, and Paris, 1990.
3. Working Papers prepared under the auspices of the Environmental Law Institute's Environmental Program for Central and eastern Europe., Washington D.C., 1991, 1992, 1993, 1994, 1995.
4. Hunter D. and Bowman M., 13 Mich. J. Int'l. L., 1992, pp 921.



## FEATURES OF LICENSING AND CONTROL OF ENVIRONMENT IN ROMANIA

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### SUMMARY

Romania's present environmental policy matches with worldwide concerns in this field. The responsibility for preparing legislation acts belongs to the Ministry of Waters, Forests and Environmental Protection (MoWFEP) in collaboration with other Ministries. The Environmental Protection Law represents the most important legislative improvement of the legal environmental framework and in the future all elaborated norms will derive from it. According to the Environmental Protection Law in Romania no industrial discharges into air, water or soil are permitted without authorization. The enforcement of the environmental legislation is achieved by Inspection. Its tools range from informal mechanisms such as warning through to prosecution, fines and imprisonment. It has established specific implementation programs consisting of actions to improve the environmental conditions of certain areas. Some "win-win" solutions for industrial restructuring and solving difficult environmental problems were found.

### 1 INTRODUCTION TO THE COUNTRY

Romania is a European country and is located in the South-Eastern part of Central Europe. There are three important elements that define the geographic position of Romania in Europe:

- the Danube River;
- the Black Sea - named by the ancient people "Pontus Euxinus" which means "The Welcoming Point"; and
- the Carpathian Circle (Mountains) - named by the ancient people "Corona Montium".

Romania covers an area of 237,500 sq. km and it has a population of about 23 million inhabitants at a density of about 95.8 inhabitants per sq. km.

Romania is today in a phase of transition to a democratic status resulting in reforms and restructuring in many sectors of the society.

Romania's present environmental policy matches with worldwide concerns in this field. One urgent issue in the protection of environment is its health related to industrial activity. The main environmental problems related to industry are:

- the reduction of discharges using better technology;
- the prevention of accidental pollution; and
- the change of pollutant technologies to less polluting ones.

## 2 LEGAL FRAMEWORK

In Romania Parliament establishes laws for the control of pollution in Acts of Parliament. These Acts provide the general framework for pollution control and they give the authority to issue more detailed requirements, for example standards, in Regulations.

The responsibility for preparing legislation acts belongs to the Ministry of Waters, Forests and Environmental Protection (MoWFEP) in collaboration with other ministries: the Ministry of Health or the Ministry of Public Works and Territorial Planning, Research Institutes and as a final step, approved by the ministries these institutes are subordinated to.

The environmental legislative system provides separate laws for different parts of the environment: water, air, soil, waste, noise, dangerous substances. The main laws, regulations and administrative decrees or orders applicable to discharges to the environment are listed in Appendix 1.

At the end of 1995, the Romanian Parliament voted the new Environmental Protection Law carried out by the Ministry of Waters, Forests and Environmental Protection with all the ministries and all the factors involved. The Environmental Protection Law represents the most important legislative improvement of the legal environmental framework and in the future all elaborated norms will derive from it.

## 3 INSTITUTIONAL FRAMEWORK

The Ministry is the central authority responsible for dealing with environmental protection issues. However, the day to day implementation of environmental policy is undertaken by regulators that work within the legal framework established by the Ministry. These regulatory bodies are:

- *Environmental Protection Agencies (EPA)* which are responsible for environmental protection at the local level; and
- *National Water Authority "APELE ROMANE" (NWA)* which is responsible for water protection, for authorizing discharges to the natural waters and it has branches at the local level; it is based on river catchment.

## 4 PROCEDURE FOR LICENSING

According to the Environmental Protection Law in Romania no industrial discharges into air, water or soil are permitted without authorization:

- All discharges in water require a license from the Ministry, for the most polluting processes, or to the National Water Authority, for all other discharges;
- Emissions into air require a license from the Ministry, for the most polluting processes or from the EPA, less polluting processes; and
- Treatment, storage or disposal of waste requires a license if it is emitted from one of the most polluting processes identified by the Ministry, or if it is waste controlled by the EPA.

**Table 1. Summary of responsibilities for licensing industrial discharges**

<b>Discharge</b>	<b>Issuing License</b>	<b>Monitoring</b>	<b>Enforcement</b>	<b>Prosecution</b>
<b>To Air</b>	MoWFEP EPA	EPA	MoWFEP-Insp EPA	MoWFEP-Insp
<b>To Water</b>	MoWFEP NWA	NWA	MoWFEP-Insp NWA	MoWFEP-Insp NWA
	<b>Radioactive Substance</b>	MoWFEP MoH	MoWFEP-Insp	MoWFEP-Insp
	<b>All Other Processes</b>	NRA	NRA	NRA
<b>To Land/Waste</b>	MoWFEP EPA	EPA	MoWFEP-Insp EPA	MoWFEP-Insp EPA

The responsibilities for licensing industrial discharges are divided according to Table

1.

- MoWFEP: Ministry of Waters, Forests and Environmental Protection
- EPA: Environmental Protection Agencies (local level)
- NWA: National Water Authority
- MoH: Ministry of Health

There are three key elements of this system:

- a clear separation of regulators from the regulated;
- the regulators are appointed to specialist organizations; and
- each regulator has responsibility for the whole regulation and enforcement cycle, from issuing permits to enforcing consent conditions; however, an important role in enforcement and prosecution is taken by inspections.

Some forms and procedures have been established in law to ensure proper communication among the regulators. The environmental license cannot be obtained without the water authority permit moreover the National Water Authority can veto the discharge if it will cause damages to environment.

The existing framework of licensing covers today about 3,000 facilities of industrial discharges. The main criteria used in the licensing process are designed to prevent unbalanced natural systems based upon existing natural conditions, to avoid overloading the existing capacity of the environment to support "the load" that is to be added by the respective industrial activity. For instance, consider an existing situation on a river. If another industrial activity requests to discharge certain "quantity" (load) of BOD5 (biochemical oxygen demand), the procedure to give the license is based on the calculation of self purification capacity of the river receiving the respective load in the respective location.

The license duration may vary up to five years. The license is to be renewed whenever the environmental authority considers it necessary. The industrial facility is obliged to require the license modification when the quantity or quality of the substance discharge changes. The environmental authority may modify the conditions provided in the existing license in special circumstances. These conditions are: environmental changes (e.g., changes of functions of the receiving river); quality standards changes; and any modification or technology applied.

## 5 IMPLEMENTATION AND CONTROL

Self-monitoring by industry is a common element in many licensing systems. The most significant discharges are required to undertake self-monitoring. The actual strategy of environmental protection provides the promotion of the self-monitoring systems. However the highest level of compliance monitoring is undertaken by the National Water Authority and EPA that check the industrial discharges.

Responsibility for the implementation of the environmental enforcement process has been arranged by Inspection.

At the national level:

- there are the inspectors from the Ministry (MoWFEP).

At the regional level:

- the directors of the regional water authorities pertaining to the "APELE ROMANE", and also the persons nominated by them; and
- the directors and inspectors of the EPA.

The main duty of the Inspection from the Ministry of Waters, Forests and Environmental Protection is the management of the environmental process, including promotion of compliance, supervision and enforcement.

By Romanian Environmental Protection Law the facility has to allow the inspector to come onto the site any time, whenever he is sent by the environmental authority.

There is a wide range of enforcement tools available, including:

- consent withdrawal;
- consent suspension;
- consent amendment;
- plant closure;
- prosecution leading to fines; and
- prosecution leading to imprisonment.

Actions taken in cases of noncompliance are decided on a case-by-case basis. The action will depend on the severity of the impact and the reason for noncompliance. The enforcement tools range from informal mechanisms such as warning through to prosecution, fines and imprisonment. Prosecution is normally seen finally or for persistent offenders.

The main economic instruments to make the investors or the companies to respect the regulations are fines. It corresponds to the polluter pays principle promoted in the Law of Environmental Protection (1995).

The fining procedure is provided by:

- Government Decision No. 138/1994 concerning penalties applied for those who do not respect the existing regulations regarding water protection.
- Government Decision No. 127/1994 concerning penalties applied for those who do not respect the existing regulations regarding environmental protection.

All the penalties listed in these Decisions are applying to both individual or juridical persons for breaking the existing laws.

**Table 2. Enforcement Actions — Summary of the enforcement proceedings used by MoWFEP Inspection in 1994**

Enforcement Action	Use by MoWFEP
No. of Inspectors (1994)	450
Typical training of Inspectors	Graduated specialist (most engineers) have 5-10 years experience in industry. Technical instructions elaborated by MoWFEP.
No. of facilities regularly inspected	2,900
No. of compliance visit (1994)	52,100
Frequency of visits	typically industrial units varies from 2 to 12 per year depending on "the size" of impact on environmental in the zone.
Violations (total)	6,234
Serious violations (putting in danger human health)	6
No. of closures (1994)	1
No. of licenses withdrawn	25
No. of licenses suspended (1994)	12
No. of prosecutions (1994)	6
Fines (total)	1,000 million lei

The punishment with imprisonment appears for the first time in recently promulgated Environmental Protection Law. These important aspects of the law reveal the increasing of awareness toward the environmental issues and it is contained in the European legislation.

The actions of Inspectors are not only based on punishment. Their duties focus on important industrial pollutants in targeted geographic areas considered environmental "hot spots". A number of industrial plants which are subjected on a zonal pollution were taken into account. A special observing regime was set upon them, with the special purpose of decreasing the global amounts of industrial pollutants. The factories belong to the following industries: metal-processing, chemical and oil-processing and agro-processing ones.

Some solutions were found for the waste waters deriving from these industrial areas:

- change of technical conditions;
- introduction and use of pretreatment conditions before discharges waste waters into municipal waste water system; and
- supplementary monitoring systems of discharges.

The Ministry of Waters, Forests and Environmental Protection Inspection takes place in good cooperation with the branches of the National Water Authority and EPA. It has established specific implementation programs consisting of actions to improve the environmental conditions of certain areas.

The beginning was the metallurgical region from Baia Mare, in the North part of Romania. Two big nonferrous metallurgical factories from Baia Mare City produced an important environmental impact by noxious releases evacuated in to the air, water and land. Some "win-win" solutions for industrial restructuring and solving difficult environmental problems were found. The successful result was obtained with the collaboration of Inspection with local health administration and the managers of the two factories.

The Inspection's future goal is to establish training programs for specialists belonging to coal industry and waste water treatment plants. It hopes that by this course the quality of their knowledge in environmental issues will increase. An important role is played by the mass-media in illustrating the Inspection's activity.

Romania has capability and competence in the environmental field and potentially large administrative resources. Still, it lacks presence of foreign currencies for better investments in the industrial restructuring and "clean technologies."

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**APPENDIX 1**

1. Law No.5 (1989) concerning the rational water management and water quality assurance.
2. Law No. 18 (1991) regarding the land fund.
3. Law No. 2 (1987) concerning conservation of forest.
4. Law No. 41 (1992) concerning the protection of forest fund.
5. Law No. 9 (1971) concerning the meadows' management.
6. Law No. 5 (1982) concerning cultivated plants and pesticides' regime.
7. Law No. 3 (1978) concerning human health insurance.
8. Law No. 17 (1990) concerning the legislative framework for the inland marine water, Romanian territorial sea water and the adjacent area.
9. Decree No. 414/1990 - establishing the admissible limit value of the main polluting substances in the waste waters before their discharge into natural waters.
10. Decree No. 466/1979 concerning the toxic products and substances' regime.
11. Gov. Decision 437/1992 concerning the import regime of any kind of wastes as well as of other goods dangerous for human health and environment.
12. Ministry of Agriculture and Food, Ministry of Health and Ministry of Resources and Industry Order No. 15/1991 concerning the production, trading and use of the pesticides for agriculture and forestry.
13. Ministry of Environment Order No. 170/1990 that approves the procedure and the competencies for issuing the environmental permit;
14. The Decision No. 113/1990 that approves the Content Regulation of the Documentation necessary to be submitted to obtain the environmental permit.
15. Ministry of Environment Order No. 437/1991 concerning the issuing of the environmental authorization.
16. Ministry of Environment Order No. 619/1992 concerning the elaboration of the ecological impact assessment studies for investments with impact.
17. MoWFEP Order No. 462/1993 concerning the approved of technical conditions for atmosphere protection.
18. Law No. 69/1991 concerning the public local.
19. Law regarding the Transport of Hazardous Substances (1972).
20. MoWFEP Order No. 9/1990 regarding the approved of Regulation for quantitative and qualitative waters necessary for industrial units.
21. Gov. Decision No. 861/1992 concerning general actions regarding the national water management.
22. Gov. Decision No. 615/1992 regarding the fight against flood, dangerous meteorological phenomena and the accidents at hydrological constructions.

**APPENDIX 2**

1. Law on the management of water resources-draft.
2. Law on the management of the forestry (forestry code)-draft.
3. Law on the organization, management and exploitation of pastures-draft.
4. Law on the management of land and reclamation activities draft.
5. Law on the exploration and exploitation of the natural resources draft.
6. Law on the plants' protection, phytosanitary, quarantine and regime of products for phytosanitary use-draft.
7. Draft on the creation and management of the Danube Delta Biosphere Reserve.
8. Law on the setting up of the regime for protected natural areas and natural monuments and on their management - draft.
9. Law on the seashore and coastal area protection-draft.
10. Law on the waste and hazardous waste management-draft (List of toxic products and hazardous waste with special regime of administration).
11. Guidelines for the activities submitted to authorization and permit procedures.
12. Guidelines for the activities requiring environmental impact assessment in view of environment permits emission.
13. Guideline on the limitation of the emissions of noxious gases in the atmosphere.
14. Guideline on the requirements for the waste treatment and limitation of noxious discharges in surface waters.
15. Guidelines on the conditions for the water courses' management and land reclamation.
16. Guidelines on the procedures for report and assessment of natural resources and environment state statistical indicators.



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## FROM ENVIRONMENTAL PLANNING TO ENFORCEMENT: A CASE STUDY FROM EGYPT

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Note: The author would like to acknowledge the assistance of Dina El Naggar, Technical Cooperation Office for the Environment, in helping to prepare this paper.

### SUMMARY

This paper presents and discusses the Egyptian experience in preparing a National Environmental Action Plan (NEAP) and a major environmental law. The analysis includes the processes of preparation, its shortcomings and the extent of interlinkages between the plan and the law.

## 1 INTRODUCTION

The Egyptian Environmental Affairs Agency was established under the Cabinet of Ministers by Presidential Decree 631 for 1982. Until 1990, the Agency was a rudimentary body having weak authority and relying on a limited human resource base to perform its functions. The initiatives undertaken by the Agency at the time could be described as being of an ad hoc nature, restricted effectiveness and efficiency.

With the onset of the 1990s, the Government of Egypt embarked on two major initiatives on the way to establish a planning and regulatory framework for environmental management in Egypt. These are:

- the National Environmental Action Plan (NEAP); and
- the Environmental Law (Law 4/1994) and its Executive Regulations.

Following is an overview of the preparatory processes and both outputs.

### 1.1 The National Environmental Action Plan (NEAP)

In 1991, the Government of Egypt "requested" the World Bank for its assistance in the preparation of a National Environmental Action Plan. Basically The World Bank assisted in:

- managing the preparation process;
- management of the input of the international experts;
- refining the outputs of the national experts; and
- production of the final output, i.e., the National Environmental Action Plan.

On the national level, ten working groups were formed comprising experts, researchers and decision makers. Members of the groups were drawn from line ministries, research centers, and universities. The working groups prepared background reports addressing the following environment-related issues:

- air pollution;
- land resource degradation;
- water resource quality and management;
- marine and coastal zones;
- solid waste;
- natural heritage;
- cultural heritage;
- institutions;
- education and awareness; and
- population

World Bank led missions made up of international experts from its member states scrutinized, discussed, refined the outputs and finally produced an action plan document.

The plan focused mainly on policy and institutional actions. In addition, the plan briefly outlined a two-phase investment program, each lasting five years. Table 1 gives the main components of the Action Plan together with the estimated investments for each of the two phases.

**Table 1.**

COMPONENTS	PHASE I (L.E. MILLION)	PHASE II (L.E. MILLION)
Natural Resource Management (land and water)	385	990
Air Quality Improvement (industrial & urban)	435	895
Solid Waste Management (including hazardous waste)	290	905
Protection of Egypt's Heritage (natural/cultural, marine/coastal zones)	365	420
Development of Environmental Institutions	75	110
<b>Total</b>	<b>1550</b>	<b>3320</b>

note: US\$ = 3.391 L.E

## 1.2 The legal framework -- "the environmental law"

The early 1980s witnessed the "birth" of a number of important "environmental" laws and decrees. The most important of these are:

- Law 48 of 1982 for the protection of the River Nile and its waterways.
- Presidential Decree 631 of 1982 establishing the Egyptian Environmental Affairs Agency.

- Law 102 of 1983 concerning natural protectorates.
- Law 101 of 1985 levying a charge on air tickets earmarked for tourist development and environmental protection.

It is worth mentioning that the degrees of enforcement of these laws and compliance with their standards have been very weak. Law 48/1982, for example, addresses the protection of Egypt's most vital natural water resource - the Nile River - from municipal and industrial sources of pollution and yet untreated industrial and municipal wastewater continues to be discharged into the Nile and its waterways. Failure to comply with the law could be partially attributed to the absence of realistic phasing of discharge reductions to meet its standards.

The Governorate, which is a regional administrative area, is responsible for much of the enforcement of statutes in Egypt. While it has been difficult to enforce Law 48 on many larger industrial facilities because of a number of factors including older technologies, depressed economics, and government ownership of large sectors of industry, there has been more activity on the smaller sources of pollution where the solution is less capital intensive but the environmental problems are very pervasive. For example, last year in the Ismailia Governorate, approximately 200 decrees were issued to small discharges to the waterway under the Law 48 authority. As a result of this effort 190 discharges were converted to septic tanks.

In 1990 an integrated environmental bill was presented to the Parliament. It was ratified in January 1994, becoming Law 4 of 1994, the "Law for the Protection of the Environment." In preparing the law an attempt was made to complement and fill gaps in previous legislation related to the environment. The Highlights i.e. particularities of the new law-as compared to previous legislation-are briefly summarized in the following points:

- a. Restructures and strengthens the Agency. The law clearly designates the Egyptian Environmental Affairs Agency as the highest national environmental authority in charge of (in most cases in coordination with other competent authorities) the following:
  - preparing draft legislation and decrees relevant to fulfilling the objectives of the Agency and evaluating proposed legislation that is related to environmental protection;
  - preparing national reports related to the state of the environment and formulation of the national environmental plan;
  - preparing and implementing the National Environmental Information and Monitoring Program;
  - preparing environmental education, training and awareness programs and following up on their implementation;
  - managing of natural protectorates;
  - setting principles and measures for environmental impact assessment of projects;
  - following-up on compliance and undertaking legal procedures against violators;
  - preparing, coordinating and implementing a contingency plan for environmental disasters;
  - preparing and implementing a hazardous material and waste management plan; and

- participating in the preparation of a national integrated coastal zone management plan.
- b. Introduces Environmental Impact Assessment (EIA) as a legal requirement;
- c. Allows operating economic tools and creates an environmental fund to be managed by the Agency; and
- d. Grants a grace period for compliance.

## 2 ANALYSIS AND ASSESSMENT

In an attempt to assess The National Environmental Action Plan and the Law as outputs and analyze the processes of their preparation, the following general and basic conclusions can be drawn:

### 2.1 The plan

- a. A major constraint manifested since the outset of the process has been the difference in perception and vision as to the output itself, i.e., the Plan, between the two key players: the government, represented in the environmental authority, and the World Bank, the leading counterpart. On the national side, the Plan was expected to be project oriented and saleable to the donor community to provide the technical and financial support required for its implementation. Or so was the promise. On the other hand, the World Bank was more focused on proposing policy and institutional actions. An investment program was very briefly outlined based on vague project ideas. Accordingly, the output produced cannot be accurately described as being an action plan. Rather, it is an environmental policy report with a number of annexed project ideas. Nevertheless, it could well serve as a basis for preparing an action plan.
- b. Despite the active participation of researchers and decision makers drawn from the different competent authorities in the National Environmental Action Plan preparation process, the draft plan was not adequately discussed among the various stakeholder groups. Accordingly, there was no actual consensus on the document in general and its proposed policy actions in particular. Consequently, the plan was viewed as one proposing action to be undertaken by the Environmental Agency and not by the government at large, whereas it proposes integrated policy action that the Environmental Agency-individually-can do little about.
- c. The Plan lacked an in-depth assessment of financial resources that are available and/or those that could be mobilized from national and other sources. This resulted in a serious discrepancy between resources needed and those actually available for operationalization of the Plan.
- d. Despite its focus on policy and institutional actions, the Plan fell short of indicating the optimal mix of policy tools required to effectively implement these actions.

## 2.2 The Law: "Law 4/1994 For The Protection Of The Environment"

As mentioned previously, several environmental laws that have been ratified over the past 2 decades have not been enforced such as Law 48/1982 for the protection of the river Nile. Yet in drafting the environmental law, Law 4/1982, due consideration was not given to the same factors that rendered other laws unimplementable, i.e. affordability, practicality, realism, and flexibility. More specifically, the lack of consideration of the following factors may restrict and hamper the enforcement of Law 4/1994:

- high costs of environmental monitoring and testing;
- lack of skilled and trained human resources;
- unclear roles, responsibilities and legal requirements;
- inadequate flexibility (for instance permitting); and
- devising legal tools for promoting changes in environmental perception and behavior when other tools would have been much more cost effective and efficient.

Failure to address these shortcomings may be largely attributed to the following reasons:

- Insufficient experience on the part of the legislators with respect to the high cost and technical implications of the law that would influence the degree of compliance and level of enforcement.
- Indirect pressure from members of the international donor community whose commitment for support and assistance to the environmental sector was tied to the ratification of the law without being "diluted."
- Members of the Parliament who fully supported the Law with a predominant position that it is urgently needed to protect long neglected natural resources and threatened public health. Hence the issues of cost, practicality and affordability were masked and not raised.
- Inadequate participation of and discussions with other concerned authorities.

Nevertheless the grace period granted for compliance and the use of economic instruments as per the law are two of its innovative positive features that could allow for an implementable compliance and enforcement program.

## 2.3 The plan — law interaction

Although the preparation of the National Environmental Action Plan and the Law was initiated more or less, simultaneously, each was developed and prepared independently and in isolation. A dialogue and interaction between the two exercises would have facilitated the desired transition toward rational environmental management. Simply stated: it would have made the Plan more realistic and the Law more enforceable and both harmoniously functioning within the same context.

## 2.4 Compliance and enforcement

As previously stated, the Egyptian experience in compliance and enforcement has been limited and could be described as being non-supportive to the regulating system. Enforcement, occasionally practiced in the past, has been mainly of the legal type. Furthermore, court orders against violating of environmental standards were never carried out.

Hence, the Agency has adopted an innovative approach that is based on creating a demand for compliance and enforcement. First, it allows a grace period of 3 years for establishments to comply with standards of the new law. The grace period is currently used by the Egyptian Environmental Affairs Agency to provide technical and financial support to pollution abatement efforts. An example of such support is the National Industrial Pollution Prevention Program (NIPPP) that has been launched by the Agency in 1994. This program serves as an umbrella for a multitude of projects that are generally characterized by their focus on a low-cost/no-cost interventions for pollution abatement. Indeed, the program, among others, may be considered a positive step in the future of environmental management in Egypt as it demonstrates the transition by a government agency from relying solely on rigid command and control measures to employing a wider range of economic instruments for enhancing enforcement and compliance. The potential success of such instruments has been based on estimates that 50% of industrial pollution in Egypt could be treated at a negative incremental cost.

Secondly, for more aggressive forms of pollution, the Agency is extending its support through establishing credit facilities, of which a major component is the provision of capacity building and technical assistance. All of these are geared toward creating an environment that is conducive to a positive change.

## 3 CONCLUSION

The Egyptian experience as described in this paper shed the light on a number of constraints that could be encountered with respect to environmental planning and law formulation. These constraints could be summarized in the following points:

- varying perception and vision of national vs.. international experts that reflected on the design, structure, efficacy and effectiveness of the output (the Plan);
- inadequate national environmental experience on part of legislators, planners and decision makers likewise;
- external pressure on members of the donor community who linked their commitment to providing financial and technical assistance to the environmental sector with the ratification of the law;
- the absence of rational financial resource planning for environmental interventions; and
- deficiency of a mix of policy tools that is vital to enforcement of the law and compliance with its standards.

For Egypt, the next steps should necessarily aim at formulating environmental strategies that would encompass a mix of policy tools. More importantly these strategies should be the output of a negotiating process ending in actual consensus of line ministries and other concerned authorities.

## **EL SALVADOR'S EXPERIENCE IN THE DESIGN OF ENVIRONMENTAL PROGRAMS**

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### **SUMMARY**

El Salvador is located in Central America, and is the smallest country of the region, with a high demographic pressure and many environmental problems, which are attributed to the lack of environmental education, lack of environmental policies and natural resources use, inadequate practices for profiting of resources, as well as a weak and fragile framework of legislation. Viable instruments for environmental matters are being designed, whose application it is hoped will lead to compliance and citizen participation in harmony with development.

### **1 INSTITUTIONAL FRAMEWORK, AS AN ELEMENT FOR THE ENVIRONMENTAL SUBJECT**

In El Salvador, the manifestations of society and some dissatisfied persons from nongovernmental ecological organizations, gave the impetus for the governmental authorities to start including some actions towards solving the problem of natural resource and environmental degradation. As a first intent of environmental authority, in the mid 1980s the Environmental Recuperation Committee (CREMA) was created.

This committee was made up of governmental, private enterprises, entrepreneurial groups and nongovernmental ecological organizations institutions, what allowed it to have national presence, since it was the first institution created specifically for protection and conservation of natural resources and the environment conservation. It developed informative environmental education programs (TV, radio and press campaigns) and the execution of projects and reforestation campaigns, especially with school children.

Later and as a consequence of the covenant of the Central American Commission of the Environment and Development, where presidents of the central American region seek to assure a better quality of life to Central American peoples and promote respect for the environment within a framework of a sustainable development model. The strengthening of the national agencies in charge of the subject of environment and natural resources is promoted. And to have an organization of greater capabilities in its actions and attributions for the protection, conservation, restoration and profiting from natural resources and the environment. The National Council for the Environment (CONAMA) was created, made up of all ministers and chaired by the minister of agriculture, besides the inclusion of a representative from private enterprise and from the Salvadorean Institute for Municipal development (ISDEM), an autonomous body.

Under the protection of the National Council of the Environment a research process starts, related to the environmental subject, establishing as a first national document "The Environmental Agenda and its Action Plan", which was presented during the Rio Conference

"ECO 92". This document collected basically the environmental problem and guidelines to put to work actions to stop the accelerated degradable process of natural resources and the environment.

As one more action the decree for the formation of National Council of the Environment is revoked and the Executive Secretariat for the Environment (SEMA) is created, a ruling body with the main objective to be the coordination and follow up for environmental matters, understood as the integration within a single focus of all sectorial actions related to the environmental and natural resources, as well as the preparation, development and compliance with the national environmental strategy. Additionally, it is the political authority on environmental matters.

## 2 ENVIRONMENTAL MATTERS ELEMENTS

### 2.1 National environmental strategy

In El Salvador, through a participation process, the national environmental strategy has been developed, containing the directives for increased development towards sustainability.

The strategic objective is to propose solutions for the main environmental problems derived from development and to present a system for environmental matters which promotes the analysis of decisions on development activities and adopt the same as an element of compliance and environmental application. This document has been structured in three important sections:

- Development and Environmental experience, referring to the economic, social and institutional context, serving as reference of the presentation of problems and solution proposals,
- Main problems and strategies of intervention proposed. The main problems identified are described, an estimate of the economic, social and environmental impact are made, as well as an analysis of the causes, to present briefly but as comprehensive as possible, the presentation of the strategies towards solving problems presented.
- Environmental matters and participation mechanisms; instruments designed to develop strategies reviewed in the previous section.

### 2.2 From environmental matters to participation mechanisms

#### 2.2.1 Legal and institutional reforms

Legal and institutional changes are most important to the promotion of the environmental matters. According to the proposal of the national strategy of the environment, are:

- approval of the law for the protection of the environment, congruent with the same strategy (at present in a participation and consultation process with the population);
- approval and reform of sectorial laws related to the management of renewable natural resources, as well as its corresponding regulations; and



- establishment and functioning of the national system of negotiation for the environment and changes in the structure and function of the Executive Secretariat for the environment.

#### 2.2.2 Environmental negotiation instruments

- evaluation system for impacts on the environment;
- ecological-economic ordering;
- national system of environmental information;
- environmental monitoring; and
- environmental fund for El Salvador.

#### 2.2.3 Participation mechanisms

- women's role; and
- promotion of civilian participation.

### 2.3 Legislation

The subject of instruments for environmental matters has already been mentioned, and for this paragraph the proposal of environmental law in El Salvador will be quoted. At present we are developing a participatory consultation process with all social sector to validate that mentioned pre-project, considering in this manner civilian participation mechanisms. This basically strengthens national agencies which have the responsibility of natural resources and the environment, and promotes in the country a participative, democratic and decentralized environmental administration.

#### 2.3.1 On the environmental administration in the proposal of environmental law

The environmental bill in El Salvador is divided in three sections: a) general, containing concepts, principles and rights which would sustain the law and be oriented to seek complete respect for the right of a healthy environment for all inhabitants. This section establishes the standards for environmental administration; b) the special section includes standards and precepts which assure the sustainability and rationality in the use of natural resources; c) section of procedures, the law to be applied requires procedures. In the case of environmental standards regulating highly hazardous processes and trying to prevent contamination, makes necessary that these processes be agile and assure public participation.

#### 2.3.2 From the instruments for environmental administration

According to the environmental bill in El Salvador, the following is proposed:

- the aforementioned law and all environmental standards of sectorial or casual relevance;
- environmental ordering of space and national or regional plans, as well as territorial development;
- the evaluation system of environmental impact;
- citizen participation;

- environmental incentives system;
- national program of environmental science and technology; and
- environmental education.

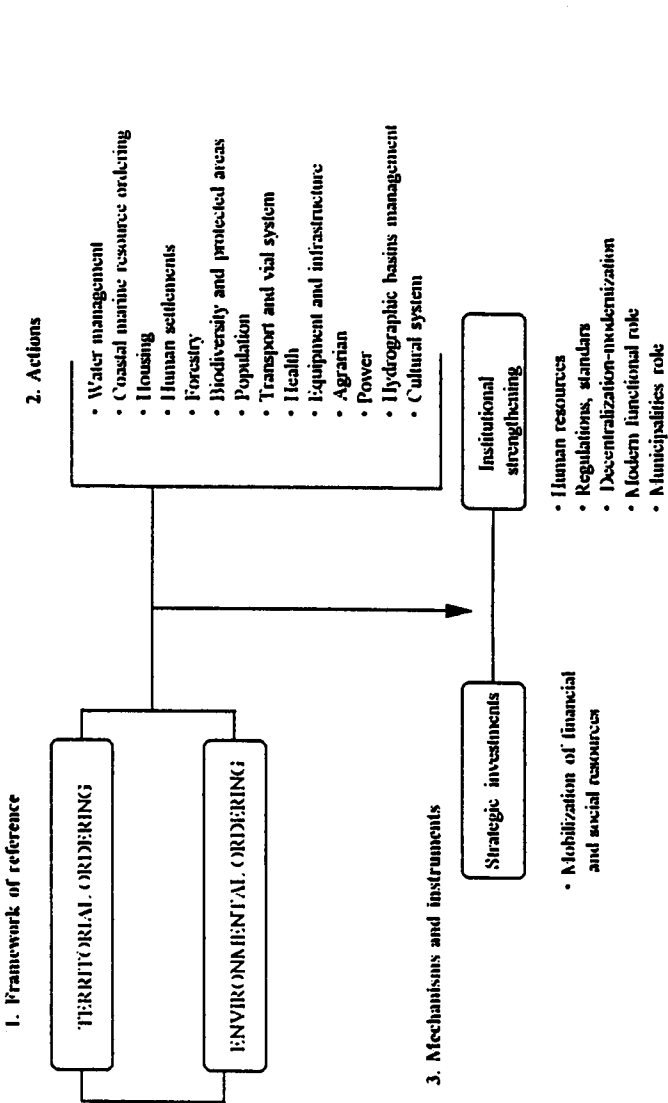
#### 2.4 Policies related to natural resources and environment

In El Salvador there is an incorporation process of environmental dimension in the different sectors, on natural resources and the environment, and these activities are developed under the premise of an institutional coordination and citizen participation and with the basic concept that politics is: A guideline to orient behaviors in the achievement of an objective." As an example of the actions being taken, we have enclosed a proposed scheme for the design of the policy for territorial ordering and similar schemes for the other policies being proposed. (See Chart 1).

After having prepared the specific policy, we proceed to design a general framework which promotes the legislative bill under study, in order to later be able to define standards and regulations according to national reality.

CHART 1

METHODOLOGICAL PROPOSAL TO APPLY IN THE DEVELOPMENT OF AN ENVIRONMENTAL INCORPORATION IN A PROPOSAL FOR DEVELOPMENT POLICY AND TERRITORIAL ORDERING





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## **THE ROLE OF GOALS, STEPS AND CONTENT OF COMPREHENSIVE COMPLIANCE PROGRAMS IN ACHIEVING ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT IN ROMANIA**

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### **SUMMARY**

This paper presents a general analysis of the state of environment in Romania, giving some statistical data. The challenge and obstacle influencing the environmental compliance and enforcement processes are pointed out. Taking account of the lists approach for the major violators the paper offers, besides coercive measures, an overview on innovative compliance and enforcement program actions in respect to violators in order to protect the environment. The results of such actions illustrate an increasing degree of compliance and enforcement actions, which are reflected in environmental quality improvement.

Such achievements, as well as the positive changes taking place in Romania are estimated as encouraging and motivating factors in shifting the actors' behavior in favor of promoting environmental voluntary compliance and enforcement.

### **1 INTRODUCTION**

Pollution in Romania is generated mainly by industrial, energy and urban sources and is severe, but mostly localized.

Before 1989, its real roots were built as elsewhere on the false precept that economic growth and environmental protection are two opposed elements forever, meaning that we could have one or the other, but never both.<sup>1</sup> Due to political and economic systems of that time environmental legislation was largely unenforceable.

After 1989, environmental degradation concerns moved the Romanian authorities to start enacting some new environmental regulations and to set up the Ministry of Environment, actually being the Ministry of Waters, Forests and Environmental Protection.<sup>2</sup> During the transition period toward a market economy and democracy, the impact of the reform process soon started to be felt and with it, a positive impact on the environment.

However, in spite of the fact that, between 1990 and 1994, there have been significant reductions in emissions and discharges due to production cutbacks, industrial restructuring and certain measures to alleviate environmental degradation, pollution levels in some localities are still high. We have many human settlements which have not clean air to breathe, clean water to drink, or which did not eliminate environmental hazards.

Since 1991 to 1992 the Environmental Strategy prepared by the Government of Romania and Americans and other experts as well as the World Bank has identified fourteen localized environmental "hot spots," among which are Baia Mare, Copsa Mica, Zlatna, Ploiesti. However, due to government changes the Strategy and the National Environmental Action Program have not been approved until recently. During this time the Government took a range of measures to alleviate pollution, especially within the "hot spots."

Obviously, the compliance and enforcement processes are influenced by quite a number of factors such as: a certain inadequacy of environmental legislation, lack of incentives, the types of pollution facing certain localities, difficulties with public participation, awareness and education, as well as especially the lack of technology and financial limitations.

Above all such factors, the slow process of privatization and corruption at all levels accounted for negatively influencing the processes of environmental enforcement and compliance.

## **2 A FORGOTTEN DIMENSION**

In Romania the basic environmental legislation currently in force dates from 1960s to 1970s.<sup>3</sup> The most burning questions concerning permitting, environmental impact assessment, fines, as well as, charges and penalties ( the last two only for water) have been regulated by way of secondary legislation. In a short period of time the persistence of such a situation turned out to be an obstacle interfering with the process of compliance and enforcement actions. Generally speaking, in certain cases this situation was invoked as an alternative for not enforcing the laws.

Needless to say, some other matters such as industrial compliance programs are not at all regulated and others, e.g., environmental auditing have not been strongly and directly emphasized, not even properly denominated. It is called environmental analysis and it has tended to be narrow in scope, covering only few environmental aspects. Perhaps the most distressing situation consists in the fact that in practice it is not so much and not enthusiastically used.

The environmental legislative process has been too slow. The proposed environmental framework law was presented to Parliament about three years ago. However, it was only last December (1995) that both the Senate and the Chamber of Deputies agreed to pass that law. On December 29, 1995 the new environmental protection law was promulgated by the President of Romania and on December 30, 1995 the law came into force. We hope the environmental framework law will open the way that many other old laws and regulations which are backward to be as soon as possible repealed by new ones more responsive and anticipatory to new challenges of environmental concern.

In this respect, it might be mentioned that throughout the old laws and regulations the involvement of nongovernmental organizations, both groups and individuals was quite palely reflected in the law, as well as in the real life. Now with the privatization progress other actors will have a role to play.

Moreover, in the old regulatory system there were no clauses dealing with economic incentives or other incentives. The regulatory system was based mainly on fines and less on penalties and charges. All of these payments were so low that they did not compensate society for damage caused to the environment and did not bring environmental results and deterrence as elsewhere.<sup>4</sup>

However, we should point out that a modest recovery in the economy, mainly after 1993, opened opportunities for improvements. The December 1995 move in the legislative process, e.g. passing by Parliament of the new environmental framework law and its coming into force on December 30, 1995, followed by passing within Senate and Chamber of Deputies of the draft law on water and forestry code, as well as, the adoption by Government of the Environmental Strategy and the National Environmental Action Plan, definitely illustrate new developments.

### 3 NEW PREMISE TOWARDS SETTING UP COMPLIANCE AND ENFORCEMENT ACTIONS

#### 3.1 The key legal premise

It is for the first time that the permitting procedure is provided for within the law. That is the new Environmental Protection Law No. 137 of December 1995. In this way the permitting procedure and other related issues will take their proper place by the front door, not as it used to be by back door, or not at all.

The key permitting provisions of the Environmental Protection Law are embodied in Articles 8 para. 3, 10 para. 4, and 14 para. 1 and 2. According to such provisions the following remarks are highlighted.

##### 3.1.1 The distinction between new and existing facilities

Whereas, for the new facilities having an environmental consent (acceptance), the permit application is obligatory at the time of their putting into motion, for the existing ones the permit application is obligatory within a year time from coming in force of the new law.

##### 3.1.2 The gradual actions towards existing facilities which do not meet the permitting requirements

In respect of such facilities the environmental authority establishes the compliance program based on the carrier out of environmental audit; and on the basis of common agreement with the holder of the facility. It is said that elapsing each agreed term, in case of noncompliance, the environmental authority decides closing down the facility, and this is an executory order.

##### 3.1.3 The changing of destination, property or ceasing of facility

In such cases, the former owner of the facility generating an environmental impact is obliged to carry out the environmental audit in order to establish the obligations related to environmental rehabilitation within impacting area. The environmental authority is checking the audit and establishes the compliance program.

As will be seen, at the initiative of the Ministry of Waters, Forests, and Environmental Protection and other factors a number of existing facilities already started taking a range of actions in order to prepare themselves to meet environmental requirements. Also the above provisions underline the importance of the compliance program in bringing the polluting facilities into conformity with the law. Lastly the establishment of the permittee status provides legal justification for procedural requirements which may be imposed and enforced immediately even though substantive compliance is delayed.

A notable remark is that the Environmental Protection Law is paying attention to public participation, education and awareness. In addition, it also introduces incentives, e.g. tax exemption, specific rewards and other similar exemptions, which have already been experienced as attractive methods to influence public behavior in regard to environmental concern.

#### 3.2 The "lists" approach: an open way towards innovative actions

As mentioned earlier, between 1990 and 1994 there has been a significant reduction in emissions and discharges into environment in comparison with 1989, due mainly to production cutback.<sup>5</sup> Partly, this is also the result of actions taken in 'hot spots' to improve technology and reduce pollution with an aim to mitigate the environment.

At an early stage (1993) of the process strategy at the initiative of the Ministry of Waters, Forests, and Environmental Protection lists were made<sup>6</sup> identifying both localities having the major sources of air pollution and other environmental constituents pollution, as well as the major sources of water pollution.<sup>7</sup>

One of the two main lists contained 44 localities, including 14 hot spots focused primarily on items such as: the locality; the kind of pollutants; the annual medium concentration; and the allowable maximum concentration within 24 hours and the frequency of exceeding of allowable maximum concentration.

The other list focused on the hydrographic basins, the kind of industries (activities) and the facilities that were the major violators of the water laws and regulations. It identified over 110 major violators, e.g. different kind of industrial, zootechnical, energy producing, food producing plants.

Towards violators a range of coercive measures were taken such as: inspections, compliance visits, fines authorization withdrawn, few prosecutions, but not even one successful prosecution. What seems worthy of mentioning is that, during 1991 to 1994, the major polluting plants primarily involving metallurgical, chemical, refineries plants were compelled to install water and air polluting control equipment required for initial compliance.

Here, it is interesting to mention among such actions:

- the supplementary catching of the black "snow" of Carbon at CARBOSIN chemical plant in Copsa Mica;
- prevention of air pollution by powders, sulfur dioxide (SO<sub>2</sub>) and Carbon dioxide at SIDEX metallurgical plant in Galati;
- modernization of the treatment water system and of air protection by setting up of an electrofilter at FIBREX chemical plant in Savinesti;
- improvements, including erection of a 350m. chimney at PHOENIX sulfur acid plant in Baia Mare;
- enlarging the acid pitch-pit at PETROTEL in Ploiesti;
- expanding the municipal stations of waste water treatment in Arad and Satu Mare; and
- small particulate control equipment at ARLO nonferrous plant in Slatina.<sup>8</sup>

The results of the above mentioned actions rapidly proved their ameliorative effects on the environment and economically they turn to be profitable and inspiring for more ambitious and innovative actions, moving towards voluntary compliance.

A notable example of a successful specific program is the setting up of the gas filter bags at ROMPLUMB smelter, in Baia Mare. This equipment induced lead recovery instead of holding back (reduction) in such a quantity which is enough to supply the raw material at ROMPLUMB for about 1.5 months per year.<sup>9</sup> It is just one example from which people can learn about others experience.

Moreover, other plants, as for instance, ARLO in Slatina went beyond and took innovative and sensitive actions in respect of health and comfort of inhabitants. In 1995, ARLO experienced a number of initiatives, e.g. supporting a part of heating cost for inhabitants in the area, offering a daily meal for its workers, free of charge medical care, treatment and medicines in case of workers illness. The practice of some facilities to offer a free of charge two weeks vacation for their workers' children is more common.

The general state of the pollutants emitted in the air could be illustrated by pointing out few examples out of those given in the process of Environmental Strategy in Romania.



Such few examples referring to the specific emissions of pollutants in the air (kg. per capita/year) are as follows.<sup>10</sup>

- the Carbon dioxide (CO<sub>2</sub>) decreased from 8563.0 in 1989 to 5299.1 in 1993;
- the Carbon monoxide (CO) decreased from 143.0 in 1989 to 104.9 in 1993; and
- the Sulfur oxide (SO<sub>x</sub>) decreased from 65.1 in 1989 to 40.0 in 1993.

The main contributors to pollutants emissions were the energy generating plants which accounted for 70% of total sulfur oxide, and industries which accounted for 75 to 80% of total Carbon dioxide and monoxide.<sup>11</sup>

Globally, throughout the country the pollution level is about the same as the medium pollution level in Europe, in 1990. In respect to some pollutants, e.g. SO<sub>2</sub>, CO<sub>2</sub>, the pollution levels are even lower in Romania in comparison with other countries.<sup>12</sup>

However the pollution is still severe in the areas of major polluting sources, e. g., Baia Mare, Copsa Mica, Ploiesti due to metallurgical industry, chemical and petrochemical industries, and other industries and activities.

To illustrate this we mention that in 1993 the systematic measurements of pollutant concentrations have been carried out in over 50 cities with areas of major polluting sources. The data obtained reveal that in respect to Nitrogen dioxide (NO<sub>2</sub>), Sulfur dioxide (SO<sub>2</sub>) and Ammonium (NH<sub>3</sub>) the medium annual concentrations exceeded the allowable maximum concentrations in three cities only (Baja Mare, Brasov, Ploiesti), whereas the maximum concentrations on 24 hours exceeded allowable maximum concentrations with a frequency of over 25% in about 20 cities.<sup>13</sup> The situation is similar for other types of pollutants. The pollution is due to either old technology or the absence of gas filter bags or other equipment.

Regarding surface water quality the same factors contributed to improvement in all those four water categories. For instance, in comparison with 1989 to 1991 the water quality has improved in the first and third categories as follows:<sup>14</sup>

- In 1989 the water of first category represented 35% out of 20,500 km, whereas in 1993 it represented 54% out of 20,500 km.
- In 1989 the water of third category represented 18% out of 20,500 km, whereas in 1993 it represented 11%.
- Still we have 15% of the total water courses, which is very polluted, that it is harmful to fish life.

In Romania there are 2770 stations for waste water treatment, but out of this number 300 do not operate, whereas 535 are poorly operating.<sup>15</sup>

The groundwater is also in certain areas polluted with ammonium nitrate and less frequently with phosphates and others.

Waste management constitutes an important issue of the Romanian environmental policy. In spite of this, waste management has not yet been strongly organized. The increasing quantity of industrial wastes and municipal and household wastes has a negative impact on environment and imperil human health. In 1993 the generated wastes have been estimated at 268 million tons (that means 98 tons less than in 1992), out of which 260 million tons represent industrial wastes and 8 million tons municipal and household waste, out of which 92% were wastes generated by treatment of industrial waste waters. The \$8 million cost allocated to the number of inhabitants represent about 0.92 kg per capita/day.<sup>16</sup>

The reuse of wastes is at the very low level, except wastes wood, copper, lead, zinc, paper, and glass. Landfills are the predominant means of disposal, but most of them are operated in a rudimentary manner. There are no incinerators for hazardous wastes.

Therefore, taking account of the great danger the hazardous wastes and other kind of wastes pose for human health and the environment there is an urgent need for specific actions.

#### **4 INCREASING ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT THROUGH PRIORITY OBJECTIVES, MORE TARGETING AND COMBINING CONTENT**

During 1995 the Environmental Strategy and the National Environmental Action Plan were completed. In the September 1995 Report on the National Environmental Action Plan guided by priority criteria, e.g., human health, sustainable development, 21 priority objectives were established such as:<sup>17</sup>

- modernization and technological advances in pollution reduction by means of efficiency of water treatment and emissions recovery;
- waste technology updating;
- solving the 14 "hot spots";
- acid rains by SO<sub>x</sub> NO<sub>x</sub> emissions abatement;
- solid waste management;
- the improvement of production process;
- environmental restoration;
- environmental auditing;
- integrate monitoring and self-monitoring;
- public participation and awareness;
- finalization the investments for environmental protection which are already in line;
- biodiversity conservation (e.g. the Danube River Delta the Black Sea Coast, human settlements); and
- the implementation of international treaties.

These priority objectives are reflected in a quite big number of priority projects with time frames for carrying them out and proposed investments. The National Environmental Action Plan contains a number of 296 priority projects.<sup>18</sup>

Out of these 296 projects 102 (34.3%) are projects, included in a list, on short term, for which the amount of 935 billion lei is allocated (see notes, US\$ =1850 lei). The proposed financing sources are: 418 billions lei from the state budget; 159 billion lei own sources; and 358 billions lei equivalent from external sources. The other 194 (65.7%) are projects on medium term for which the amount of 1780 billion lei is allocated.<sup>19</sup>

The completed form of the National Environmental Action Plan gives priority to the hot spots. Thus, out of 102 projects, 41 projects are considered selected project and included in a special list. The amount of money allocated is provided for per year.

#### 4.1 The projects and their goals

The carrying out of a project might involve many goals such as water, air and waste equipment and installation. That would benefit to all these environmental constituents and might prove economically profitable.

The overwhelming majority of proposed projects are designated to determine the reduction of gas inducing the greenhouse effect and the minimization of gas emissions depleting the ozone layer.<sup>20</sup> To give a few examples of proposed specific goals we mention the reduction by 7.7% of SO<sub>x</sub>, 4% of NO<sub>x</sub>, and 0.23% of CO<sub>2</sub> by the end of year 2000.

As regards sectorial achievements, e.g., air protection in the following 3 to 4 years the industrial priority projects on short term are estimated to contribute to reduce polluting emissions from 2% up to 10% in comparison with 1989.

In respect to surface and underground waters the estimations are that in comparison with 1989, the quality of surface water shall improve diminishing the degraded water, and the third water category by about 8 to 10%. During the same time period the water pollution indicators, inter alia, Biochemical Oxygen Demand will decrease by 15%.<sup>21</sup>

To give an idea about proposed priority projects i.e., their area, goals, the time frame and the allocated investments we selected out of the 41 projects a number of 21, which are presented, according to our own scheme, in annex 1.

## 5 CONCLUSIONS

From the above analysis few remarks could be pointed out. The regulatory framework and its enforcement did not reach the required levels yet, but it is in the process of improvement, especially with the coming into being of the new environmental framework law. Still other obstacles are interfering. However, Romania made her choice to promote compliance and enforcement by means destined to make use of more adequate and profitable mechanisms and to continue to take coercive actions when such actions are justified and needed.

The established objectives aim at pollution reduction and securing human health and sustainable development, introducing incentives and disincentives, enlarging number of actors involved in environmental enforcement will positively influence public behavior towards voluntary compliance.

## REFERENCES

1. Hall, J. In: Gerardu, Jo, Wasserman, Cheryl (Eds), Third International Conference on Environmental Enforcement, Conference Proceedings, vol. I, April 25 to 28, 1994 Oaxaca, Mexico, pp. 505-506. Proceedings, Mexico, 1994.
2. Government Decision no 457/1994
3. Popescu, D. In: Proceedings, Mexico, 1994, Vol. 2, pp. 117-122.
4. Kajura, H.M. In: Proceedings, Mexico, 1994, Vol. I, pp. 517-523.

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5. Romania, Ministry of Waters, Forests, and Environmental Protection, Environmental Protection Strategy, Draft (the Romanian version used), Bucharest, 1994, p. 34. thereafter, Environmental Strategy, 1994.
  6. The method reflects the other experience, Heuvelen, R. and Rosenberg, P. In: proceedings, Mexico, 1994, Vol. I, pp. 164-173.
  7. The Environmental Strategy, 1994, p.30.
  8. Idem, pp. 100;100-103.
  9. Idem, p.34-35.
  10. Idem, p.33.
  11. Idem, p.36.
  12. Idem p. 34.
  13. Idem, p.48.
  14. Idem, 51-58.
  15. Idem, pp. 51-63.
  16. Idem, p., 77; 78.
  17. Romania, Ministry of Waters, Forests, and Environmental Protection, Report on The National Environmental Action Program, Synthesize, Bucharest, 1995, Thereafter, Report.
  18. Idem pp. 12-13.
  19. Report, p.22.
  20. Report, p.24.
  21. Idem, p. 24-25.

Notes: At the time of proposed investments, US \$ =1850 lei. The year 1989 is taken as year of reference in emphasizing the pollution reduction, due to production cutback. The 20,000 km represent the length water of reference.

## Annex 1

**A Selective List of "Hot Spots" Priority Projects  
and Appropriate investments included in the  
NEAP on Short Term**

No	"Hot Spots"	Objecti- ves No	PROJECTS		Short term proposed investments					Total Investments	
			Objective	Projects goals (targets)	1996	1997	1998	1999	2000		
0	1	2	3	4	5	6	7	8	9	10	11
1	BAIA MARE	3	1.1.	Increasing output holding back of SO <sub>2</sub> at PHOENIX S.A. Baia Mare	14400	35000	35000			84400	103709
			1.2.	Ecological rehabilitation of agricultural soil, Baia Mare	1209	1500	1500			4209	
			1.3.	Cleaning up of workplace, modernization of interphasic transport and of metallurgical furnace at S.C. ROMPLUMB Baia Mare.	3775	3775	3775	3775		15100	
2	CODLEA	1	2.1	Waste water treatment at S.C. COLOROM S.A.	13526	13526	13526			40579	40579
3	COPSA MICA	3	3.1	Equipment modernization at nonferrous metallurgical SOMETRA S.A. Copșa Mica	2424	2424	2424			7272	72,742
			3.2	Gradual increasing of SO <sub>2</sub> recovering at SOMETRA S.A. Copșa Mica	8640	8640	8640	8640	8640	43200	
			3.3	Afforestation Copșa Mica	2000	5000	5000	5000	5.000	22000	
4	CRAIOVA	2	4.1	Waste Water treatment Craiova	10,000	10,922				20,922	37,923
			4.2	Modernization of Nitrogen acid installations II and III at DOLJCHIM. S.A. Craiova	5667	5667	5667			17,001	
5	GALATI	2	5.1	Modernization of distilling and despowderization installation and pollution reduction at S.C. SIDEX Galati	10000	10000	10000			30000	62,400
			5.2	Despowderization and recovers of CO out of converter gases OLD1, OLD3, UOR la C.S. SIDEX S.A. Galati	8000	8133	8133	8134		32400	

## Annex 1 (continued)

0	1	2	3	4	5	6	7	8	9	10	11
6	ORADIA	2	6.1	Main household sewer Crisul Repede, Oradea	1500	1000	500			3000	13,540
			6.2	Modernization of waste water treatment of Oradea town	4000	3500	3040			10540	
7	PITESTI	1	7.1	Wastes household management, Pitesti	300	10000	9614			18914	18914
8	PLOIESTI	2	8.1	Modernization of installation DGRS PETROTEL Ploiesti	2000	2000	2000			6000	11,610
			8.2	Modernization of treatment station at S.C. PETROTEL S.A. Ploiesti	1870	1870	1870			5610	
9	TURDA	1	9.1	Installation of electrolysis at S.C. UCT Turda	30000	30000	20410			80410	80410
10	TURNU MAGURELE	1	10.1	Modernization of Nitrogen acid instalation II and III TURNU S.A., Turnu Magurele	17553	17553	17553			52660	52,660
11	VALEA CALUGAREASCA	2	11.1	Modernization of Sulphur acid installation out of pyrites ROMFOSFOCHIM S.A. Valea Calugareasca	24133	24133	24133			72400	83,820
			11.2	Operation improvement of phosphorus acid installation at ROMFOSFOCHIM S.A. Valea Calugareasca.	3807	3807	3807			11420	
12	ZLATNA	2	12.1	Building ecological instalations on the AMPELLUM plant platform, Zlatna.	5400					16400	22,610
			12.2	Ecological rehabilitation work, Zlatna	3,442	3,442	3,442	3,442	3,442	17,210	

## **THAILAND'S ENVIRONMENTAL ENFORCEMENT PROGRAM**

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### **SUMMARY**

Specific enforcement in the area of industrial estate is mentioned. Some integrated strategies of service and enforcement have been applied. Service fee can include penalty cost. Finally, third party (no power) inspection is applied together with efficiently service.

## **1 ENVIRONMENTAL MANAGEMENT OF INDUSTRIAL ESTATE IN THAILAND**

### **1.1 Background**

The Industrial Estate Authority of Thailand (IEAT) was established in 1972, to support the systematic and orderly development of industries.

Thailand has seen a vast explosion of industrial production over the past few years. Strong governmental support has increased the progress of such development and has made possible some outstanding feats of organizational and logistic achievement.

However amongst the success of increased production and the subsequent economic benefits that have been accrued it must be remembered that the costs of production are not only economic but also social and environmental.

### **1.2 Roles and activities**

In 1972 in order to install some kind of brake and control on this problem it was decided to set up the Industrial Estate Authority of Thailand.

The authority is in place for a number of reasons, primarily it functions to ensure that a cohesive industrial development planning and zoning system can be maintained.

The authority is also concerned with the orchestration and evolution of environmental management involved with new industry within the estates. At present there are 23 estates throughout Thailand and will raise up to 54 in the year 2001.

Further, the authority is at liberty to ease problems caused by a malfunctioning infrastructure by installing a central wastewater treatment system, solid waste treatment and disposal facilities, water supply system, electricity distribution line system, telephone and road network within all of the industrial estates

In addition to these tasks the authority is also in a good situation to select the most suitable location where less environmental impact to communities. Industrial estates are in fact self-contained communities complete with their own infrastructure commercial banks, shopping centers and residential area.

The Pollution Control Department has authority to monitor environmental quality, for example, quality of rivers, sea water, ambient air, etc. in industrial estates and surroundings. The monitoring report will be sent forward to Industrial Estate Authority of Thailand as information for pollution control strategies.

### 1.3 Enforcement policy

The authority is a semipublic government agency existing under the Ministry of Industry. The agency is chartered to carry out the government's industrial development policy in harmony with the environment. The Industrial Estate Authority of Thailand seeks to maintain the highest standards at its industrial estates. For this reason, the authority sets very strict regulations over industries located within the boundary of each estates. According to national strategy documents and ministerial speeches, the Thai government has based its environmental policy on the "Polluter-Pays-Principle". The Industrial Estate Authority of Thailand had experience in the application of the Polluter Pays Principle through a system of pollution charges to industries which make use of common waste treatment facilities for many years. The charge formula employed in industrial estates builds from investment cost, operate and maintenance cost, variable cost (depends on the biological oxygen demand -BOD loading) and penalty costs. Extra charges or penalty costs are imposed for industries contributing wastewater exceeding influent standard to the central wastewater treatment facility.

## 2 CENTRAL POLLUTION CONTROL FACILITIES PROVISION

### 2.1 Design criteria for control facilities preparation

#### 2.1.1 Solid waste generation

- |                                    |                |
|------------------------------------|----------------|
| a) Industrial zone                 | 18 kg/rai*/day |
| b) Residential and commercial zone | 0.8 kg/rai*day |

#### 2.1.2 Hazardous generation estimate 5 % of total solid waste

#### 2.1.3 Water use

- |                               |  |
|-------------------------------|--|
| a) Industrial zone            | 7-9 m <sup>3</sup> /rai*/day                                 |
| b) Residential zone           | 8-50 <sup>3</sup> /rai*/day<br>according to type of building |
| c) Office and commercial zone | 20 m <sup>3</sup> /rai*/day                                  |

\* Note: 1 acre = 2.5 rai

#### 2.1.4 Wastewater discharge

Amount of wastewater estimated 80% of water consumption plus 10% of infiltration into collection system.



## 2.2 Operation and maintenance

The Industrial Estate Authority of Thailand dispatches managers and their staff to operate and maintain facilities in good condition as well as to integrate permits and inspect industries. Since 1994 Industrial Estate Authority of Thailand has allocated only the job of operation and maintenance to private professional contractors.

## 3 ENFORCEMENT IMPLEMENTATION

### 3.1 Wastewater pretreatment

Pretreatment process on-site of each industry will be required before discharging to the central unit if quality of influent is beyond acceptable limit of design. This process must be approved before issuing a permit license. The acceptable parameters are shown in Table 1. The expected effluent quality will meet the standards, set forth by government authorities as in Table 2 and must be monitored by other government agencies.

### 3.2 Air pollution

Major source of air pollution comes from exhaust gas of incinerators and stacks. Thereby all factories must conform both the air emission standards as shown in Table 3 and maximum allowable emission rate at different height of stack recommended by the EIA report of the specific estate location. Some examples are shown in Table 4.

### 3.3 Solid waste disposal

#### 3.3.1 General waste

Industrial Estate Authority of Thailand provides either incinerator or sanitary landfill as a central unit for each estate both for industrial zone and residential commercial zone.

#### 3.3.2 Hazardous waste

Since there is no final disposal for hazardous waste in Thailand, all industries must store their own waste at place and report to Industrial Estate Authority of Thailand when need to transport to other places. For new estate, Industrial Estate Authority of Thailand provides central hazardous wastestorage house up to 3,000 square meter to collect waste at least 5 years.

## 4 CONCLUSION

In supplementary of enforcement, Industrial Estate Authority of Thailand promote high standards performance in industry by giving annual awards under the title "Best Factories Awards". A competition which allows the best factory to be acknowledge for their high standards of workmanship, organization and working condition will regularly highlight under criteria, covering all aspect of operations. Efficiency in organizational management, efficiency production process, environment and energy conservation, safety and bio-sanitation, and social responsibilities are concerned topics for judging. Industrial Estate Authority of Thailand do hope that strategies mentioned above will create an effective compliance and enforcement action and also appreciate for recommendation to motivate compliance behavior.

**Table 1. Acceptable Characteristics for Central Wastewater Treatment, Process**

1. Average BOD5	=	500 mg/l
2. Average Suspended Solids	=	200 mg/l
3. pH	=	5.0 - 9.0 l
4. Temperature	=	45 °C
5. Sulfide as hydrogen sulfide	=	5 mg/l
6. Cyanide as hydrogen cyanide	=	2 mg/l
7. Oil and Grease	=	10 mg/l
8. Tar	=	10 mg/l
9. Formaldehyde	=	2 mg/l
10. Phenol and Cresols	=	1 mg/l
11. Free Chlorine	=	5 mg/l
12. Insecticide	=	none
13. Radioactive compound	=	none
14. Fluoride (F)	=	5 mg/l
15. Free Ammonia	=	5 mg/l
16. Total ammonia Nitrogen as N	=	50 mg/l
17. Mercury and Mercury Compound	=	0.005 mg/l
18. Soluble Iron and Manganese	=	10 mg/l
19. Chromium, Arsenic, Silver, Selenium, Lead, Nickel, Barium, Copper, Cadmium, Total or Each	=	1 mg/l
20. Other materials that should not discharge into the waste water pipeline		
- High viscosity material		
- Settleable solids that Cause pipe clogging		
- Calcium Carbide Sludge		
21. Synthetic Detergent	=	30 mg/l
22. Chloride (Cl) as Chlorine	=	2,000 mg/l

**Table 2. Industrial Effluent Standards Ministry of Industry (1982)**

Parameter	Allowable Concentration
1. pH	Between 5.0 and 9.0
2. Permanganate	60 mg/l
3. Dissolved Solids	
– Discharge into Water Course:	2,000 mg/l or more but not exceedin 5,000 mg/l depending upon discharging point
– Discharge into sea or estuaries (Salinity higher than 2,000 mg/l):	5,000 mg/l higher than dissolved sol content in sea or estuary water
4. Sulfide as H <sub>2</sub> S	1.0 mg/l
5. Cyanide as HCN	0.2 mg/l
6. Heavy metals:	
– Zinc	5.0 mg/l
– Chromium	0.5 mg/l
– Arsenic	0.25 mg/l
– Copper	1.0 mg/l
– Mercury	0.005 mg/l
– Cadmium	0.03 mg/l
– Barium	1.0 mg/l
– Selenium	0.2 mg/l
– Lead	0.2 mg/l
– Nickel	0.2 mg/l
– Manganese	5.0 mg/l
7. Tar	Nil
8. Oil & Grease	5.0 mg/l (Except for crude oil refinery and lubricant blending plant: less than 15 mg/l)
9. Formaldehyde	1.0 mg/l
10. Phenols & Cresol	1.0 mg/l
11. Free Chlorine	1.0 mg/l
12. Insecticides and radioactive active substance	Nil

**Table 3. Industrial Emission Standards by Ministry of Industry (B.E. 2536)**

No.	Substances	Sources	Standard Values
1	Particulate	Boiler & Furnace	
		- heavy oil as fuel	300 mg/m <sup>3</sup>
		- Coal as fuel	400 mg/m <sup>3</sup>
		- Other fuel	400 mg/m <sup>3</sup>
		- Steel or Aluminum	300 mg/m <sup>3</sup>
		Manufacturing	
		- Other source	400 mg/m <sup>3</sup>
2	Antimony	any source	20 mg/m <sup>3</sup>
3	Arsenic	any source	20 mg/m <sup>3</sup>
4	Copper	Furnace or smelter	30 mg/m <sup>3</sup>
5	Lead	any source	30 mg/m <sup>3</sup>
6	Chlorine	any source	30 mg/m <sup>3</sup>
7	Hydrogen Chloride	any source	200 mg/m <sup>3</sup>
8	Mercury	any source	3 mg/m <sup>3</sup>
9	Carbon monoxide	any source	1,000 mg/m <sup>3</sup> or 870 ppm
10	Sulfuric acid	any source	100 mg/m <sup>3</sup> or 25 ppm
11	Hydrogen Sulfide	any source	140 mg/m <sup>3</sup> or 100 ppm
12	Sulfur dioxide	H <sub>2</sub> SO <sub>4</sub> production	1,300 mg/m <sup>3</sup> or 500 ppm
13	Oxides of Nitrogen (measure in NO <sub>2</sub> form)	Boiler	
		- Coal as fuel	940 mg/m <sup>3</sup> or 500 ppm
		- Other fuel	470 mg/m <sup>3</sup> or 250 ppm
14	Xylene	any source	870 mg/m <sup>3</sup> or 200 ppm

Remark: Standard Values are measured at 1 atm 25 °C from stack emission.

**Table 4. Emission Loading of Map Ta Phut Air Emission for each industry**

Parameter	Allowable Emission Loading kg/hectare-day
CO	2,579
NO <sub>x</sub>	13
SO <sub>x</sub>	13.5
TSP	7.5

Figure 1

# INDUSTRIAL ESTATE ( PROPOSED ) ( 1995-2001 )

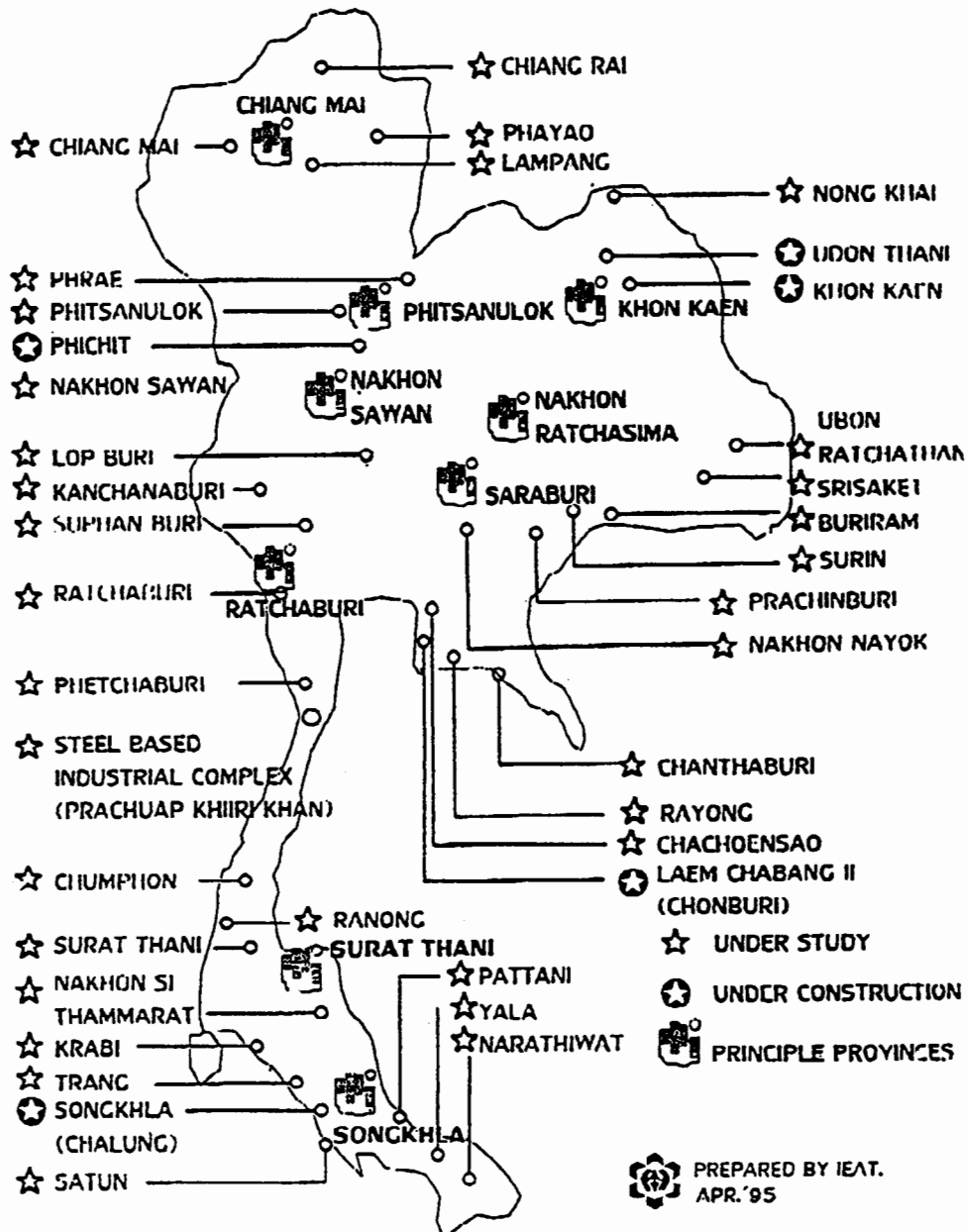
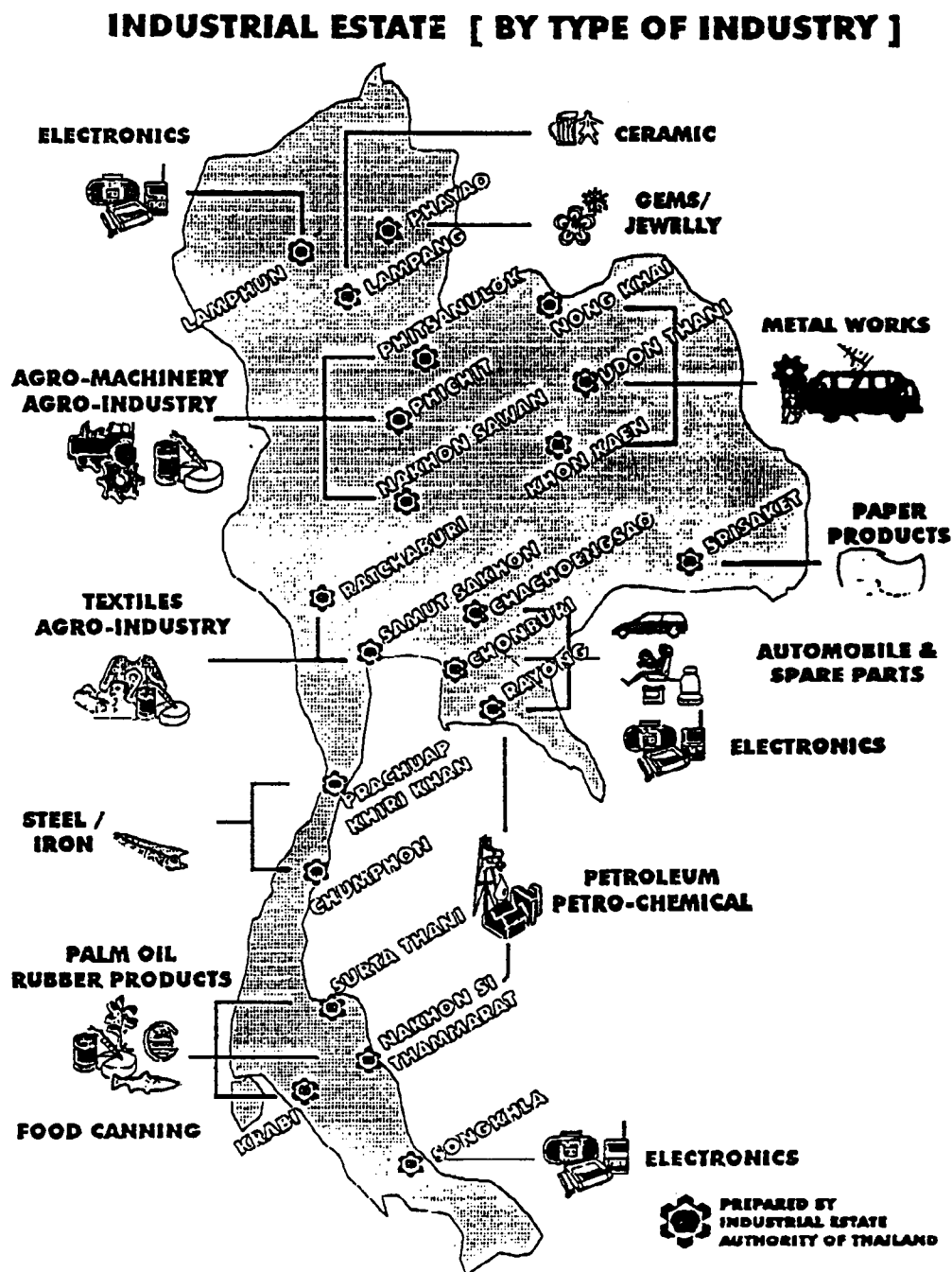


Figure 2



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## THE RANGE OF LEGAL ENFORCEMENT TOOLS IN LITHUANIA AND PROBLEMS

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### SUMMARY

The purpose of this paper is to give an overview of the environment protection history and administration structure in the Republic of Lithuania. It will cover main legislative and normative instruments being used, and environmental protection problems. It will also analyze main causes why legal Instruments not always bring expected results.

## 1 INTRODUCTION

### 1.1 Historical background and administrative framework

Lithuania is a country in Eastern Europe situated on the East Shore of the Baltic sea. The Republic of Lithuania covers an area of approximately 65,300 square kilometers and it has 3.7 million inhabitants. It is divided into 10 regions and 44 districts. The forests cover 30% of area; and water, 1.5%. 11.4% of the total area of the country is protected; and there are 4 reservations, 5 national parks, and 30 regional parks. The national nature framework which consist of all protected areas and natural complexes provides environmental stability in the whole territory. Traditional elements of protection come from ancient ages, but the beginning of official nature protection in Lithuania is considered to be a year of 1957 when the Environmental Protection Committee was established. The functions of this Committee were to regulate and control usage of natural resources and to register and proclaim natural objects protected by state. In 1990 when the independence of Lithuania was restored, the Nature Protection Committee was reorganized into the Nature Protection Department with extended structure and functions. In 1994 the Nature Protection Department which was under Parliamentary control was reorganized into Environment Protection Ministry which is now responsible to the Government. The main functions of this Ministry are preparation of normative documents and laws, implementation of monitoring programs, regulation and control of usage of natural resources. The Ministry has 8 regional departments and 56 Inspection Agencies. There are approximately 1500 people working in the environmental protection system. There Local Environment Protection Departments in all the 56 Local Municipalities, their function is to implement state, regional and local environmental protection programs. Also there are many public environmental organizations which activities made official authorities to change their decisions.

### 1.2 Financing and priorities of the environment protection

At the present time the main priority is construction and renovation of sewage treatment plants, for this purpose 4% of the national budget is allocated. Nowadays about 20% of sewage is released into water basins without any treatment. It is expected that, if state and foreign

institutions continue support for environmental projects, by the year 2000 only 8% of sewage will be released into water basins without any treatment. The second priority is conservation of biological variance and natural biotopes. Also a lot of attention is paid to the preparation of the territorial planning documents and implementation. Ambient air quality in our country is mainly defined by pollution from the neighboring industrial countries. The air quality in the major cities is constantly bad because of increasing number of cars, especially by uncontrolled import from western countries of old used cars. Mainly these old cars and tires come into our country as industrial waste. The environmental laws in our country prohibit such import of industrial waste, but our environmental protection authorities are unable to control this process without international cooperation. Another problem is big amounts of overstocked pesticides, whose utilization (burning in cement plant) is very complex because of protests of local authorities.

## 2 THE RANGE OF LEGAL ENFORCEMENT TOOLS

### 2.1 The laws

There are not many main laws regulating environmental protection. The strictest of them is Criminal code which foresees the possibility to put a person into jail when one constantly trespasses environment protection laws or without permission uses a chemical or radioactive material. In practice such cases are very rare. The Administrative Code is applied more often. Fines are in wide range from 1 US\$ to 100,000 US\$ that depends on the criminal category. Beside a fine, an offender also has to pay compensation for harm to nature. The person who had shot an animal without a license has to pay a fine equal to 120 US\$ and compensation up to 2500 US\$ also hunting weapons could be confiscated. All money collected from fines and compensations come into the Environment Protection Fund account. This fund is controlled by the Environmental Protection Ministry. 40% of funds from this fund are used to compensate damage done to nature, 30% of funds are used for remuneration of employees (inspectors) and the rest of the funds are used for education, social work and other purposes.

The Law On Pollution Taxes regulates relations between the polluter and the environment. There are set standards for acceptable pollution. 70% of these taxes are transferred to environmental protection funds of local municipalities and 30% are transferred into state budgets. The Law On The Taxes For Using Natural Resources sets main taxes for each natural resource used in the Republic of Lithuania. These taxes go to the budget of the Republic. The Law On Protected Areas establishes a system of protected areas, sets objectives and status of each protected area. The Law also regulates the management system, allows types of activities and ownership forms in these areas.

### 2.2 The regulations

When the privatization of land, forests and other natural resources started "Conditions For Use of Land And Forest" were prepared. According to this document when an owner receives a land deed it establishes the compulsory conditions for the usage of owned land or forest. If a prospective owner does not agree with proposed conditions then land or forest is not given to him. If the owner obtained land in a protected area or close to a water basin where economic activity is restricted and started prohibited activities he has to stop doing that and also has to pay fines, compensations set by the law.



The "Order Of Estimating Of Damage Done For Nature" is the document according to which the damage done for nature is estimated and amounts of necessary compensations are calculated. This methodology is quite complex and always has subjective elements. In courts there are a lot of disputes for evaluation of indirect damages with lengthy periods. In order to solve these disputes high naturalist qualifications are required.

### 2.3 Enforcement and problems

We named only principal laws and directives which, in our opinion, are enforced regularly and have the greatest influence on the whole of environmental protection. New environmental standards and regulations are generated constantly, also a harmonization of all legal documents using the same documents the European Union started. The specialists from the European Union are assisting in creation of new laws, but differences in social and economic conditions do not allow us to use their experience in the full scale. If we accept foreign specialists recommendations not adapted to local conditions we can cause more damage to nature. Some standards in our country are and have to be more strict than abroad mostly because of different sensitivity of ecosystems to the anthropogenical influence. The law on pollution taxes is ineffective because it does not encourage local authorities to build new sewage treatment plants. At the present time it is cheaper to release untreated water than to clean it. This is mostly a political problem, politicians do not want to impose new taxes, and in places where water treatment plants are working users have to pay more for clean water.

Land reform and the privatization process are implemented quickly so environmental protection agencies can't follow and control this process. It is clear that when the state puts some restrictions on a land owner it has to pay compensation but now state budgets do not allow us to do that in full scale. Compensation amounts do not satisfy land owners so they go against the law. Taxes for natural resources, which are not big compared with ones in industrial states, promote natural resources export. The State has an interest that local enterprises use these resources and give employees jobs and pay taxes. The current policy does not encourage rational usage of natural resources. Air and water pollution migrate from one country to another is also becoming a very urgent international problem. Interested foreign companies use economic means to pressure Lithuanian authorities to accept huge quantities of waste oil products and other hazardous chemical materials for utilization in our electric power plants which are not designed for this purpose. This time we did not agree with that, but who knows if this lasts for long, if this will not be prohibited by international treaties.

## 3 CONCLUSION

Legal environment protection tools are effective only when they are combined with economic possibilities of a country. Environmental protection nowadays crosses national borders especially in areas of pollution regulation and rational use of natural resources.



## LICENSING AND ENFORCEMENT AT MUNICIPAL AND PROVINCIAL LEVEL IN NORTH BRABANT: DEVELOPMENTS IN RECENT YEARS

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### SUMMARY

This article examines the efforts made in recent years by municipalities in North Brabant (The Netherlands) and by the governing authority of the province itself to overcome the backlog in licensing and enforcement of the Environmental Management Act. Dutch central government has been contributing no less than 500 million guilders since 1990 to the efforts to eliminate these backlogs and to implement environmental responsibilities arising from the National Environmental Policy Plan. The funds are mainly used to recruit additional manpower to discharge these environmental responsibilities.

### 1 INTRODUCTION

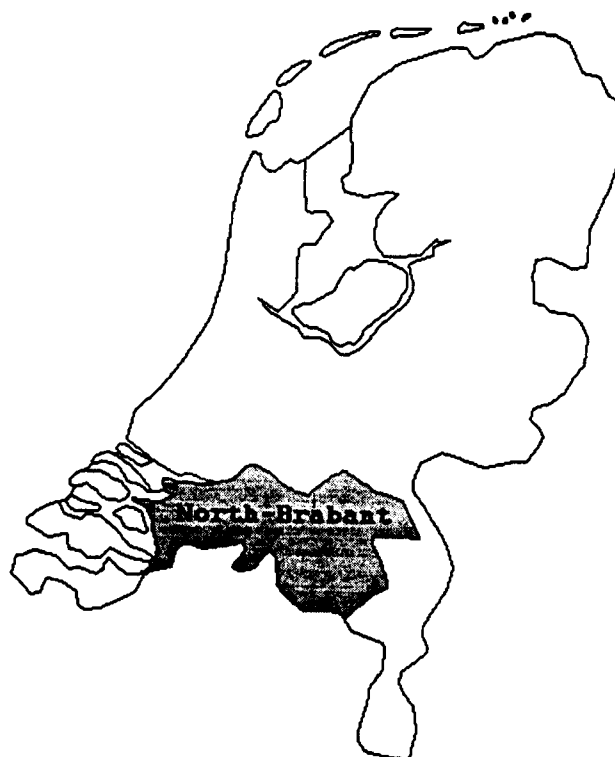
During the mid 1980s, environmental licensing and enforcement of licensing provisions and environmental regulations received increasing attention from municipalities and provinces in the Netherlands.<sup>1</sup> This growing attention was primarily a result of the recognition within political circles and society at large of the severity of the environmental problem in the Netherlands, which is so densely populated. At that moment there were major backlogs in licensing and enforcement by municipalities and provinces. To accelerate the work of eliminating these backlogs, central government is developing financial assistance schemes (see Section 2). These have been found to be of enormous assistance to these authorities in implementing environmental policy in an orderly manner.

The expectation is that virtually all companies subject to licensing in the Netherlands will have an adequate environmental licence by January 1, 1997, and that they will be regularly monitored, in accordance with agreed inspection schedules.

Since the end of the 1980s, municipalities have been working together in what are termed regional cooperative associations in implementing environmental policy. These are clusters of municipalities that work together on the environment and in other areas. The province of North Brabant has six such cooperative associations. One large municipality (central municipality) or a joint regional environmental centre provides support in terms of environmental technology, with licensing and enforcement as its main task. Cooperation plays an important and indispensable part in the implementation of environmental policy by municipalities. Regional cooperation on the environment is now something beyond dispute, and certainly in the province of North Brabant (Figure 1), which accommodates 120 municipalities varying in numbers of inhabitants from 2000 to almost 200,000.

Enforcement was given a major boost in 1991 by the setting-up of enforcement coordination centres, within the regional environmental centers or central municipalities. The task of enforcement against companies placing the heaviest load on the environment within the areas covered by the cooperative associations is implemented and coordinated from within

**Figure 1. The province of North Brabant is situated in the Southern part of the Netherlands**



these coordination centers. The aim is to achieve the greatest possible uniformity in enforcement. These efforts to achieve uniformity are not confined to the cooperative associations but also apply on a provincial and national scale. And when it comes to enforcement of environmental legislation, the centres cooperate with other municipalities, the province, the water quality management agencies, the Department of Public Prosecutions, the Police and the Inspectorate for the Environment.

## **2 A CLOSER ANALYSIS OF THE FINANCIAL ASSISTANCE SCHEMES IN THE NETHERLANDS**

### **2.1 Introduction**

At the end of the 1980s, central government developed financial assistance schemes in close consultation with the provinces and the Association of Netherlands Municipalities, with a view to overcoming the severe backlog in licensing and enforcement in companies. These schemes, the Administrative agreement on licensing and enforcement for provinces and the Contribution decree on the implementation of municipal environmental policy for municipalities, were designed to recruit extra staff for licensing and enforcement. The Contribution scheme

financing implementation of the National Environmental Policy Plan, which covered municipalities as well as provinces, was designed to enable these authorities to recruit extra manpower to implement environmental responsibilities — other than licensing and enforcement — arising from the National Environmental Policy Plans (ref. 1). The financial assistance schemes are discussed in further detail in the following sections.

## 2.2 Administrative agreement on licensing and enforcement (provinces)

The Administrative agreement on licensing and enforcement came into force in 1991. Its aim was to achieve a satisfactory level of licensing and enforcement of the Environmental Management Act by January 1, 1995 at the latest. A satisfactory level of implementation implies that all companies from that date have a licence which is adequate for the purpose and that they are then inspected in accordance with agreed inspection schedules. The financial resources made available in this context by the Ministry of Housing, Spatial Planning and the Environment are designed to strengthen the provinces' manning levels.

Research established at the end of the 1980s that the provinces were short on manpower by 32 million guilders if they were to be able to achieve and sustain a satisfactory level of licensing and enforcement. Central government is reimbursing 25 million guilders annually, by means of the Administrative agreement. The provinces themselves have to make up the shortfall — though not all of them have yet managed to do so.

## 2.3 Contribution decree on the implementation of municipal environmental policy (municipalities)

The Contribution decree on the implementation of municipal environmental policy (BUGM) came into force on January 1, 1990. The main objective of the scheme was to achieve a satisfactory level of licensing and enforcement of the Environmental Management Act by January 1, 1995 at the latest. With a view to achieving this objective, municipalities were able to apply under the provisions of the Contribution scheme for a basic financial contribution in the form of a fixed amount per inhabitant from the Minister of Housing, Spatial Planning and the Environment. The contribution was intended to be used for the recruitment of manpower for licensing and enforcement purposes. It is mandatory for municipalities with fewer than 70,000 inhabitants to cooperate. In return for this cooperation, they received an initial premium of 25% of the basic contribution. Central government made a total of around 50 million guilders per annum available for the scheme. The municipalities themselves were deemed to be contributing an equal amount from their own resources. The structural costs of implementation, excluding the elimination of existing backlogs, were estimated at over 100 million guilders per annum at the end of the 1980s.

## 2.4 Contribution scheme financing implementation of the National Environmental Policy Plan (municipalities and provinces)

The Dutch Government adopted the National Environmental Policy Plan and the National Environmental Policy Plan Plus (ref. 1) in 1989 and 1990 respectively. Those two plans resulted in a number of action points, in some cases quite comprehensive, for municipal environmental policy. The action points for municipalities are described in a framework plan, which sets out a whole range of environmental tasks, such as:

- the application of laws in areas other than licensing and enforcement, such as the provisions in the Housing Act regarding soil investigations and the prevention of construction on contaminated land;
- policy and implementation plans, such as a segregated collection and processing of organic household waste, a municipal sewerage plan and an action plan for energy conservation;
- setting good example, for example in producing environmental (including energy conservation) management systems; and
- the promotion of good communications and information, for example by applying good communication techniques in municipal plans and measures and the active provision of environmental information.

Implementing these action points presented a significant additional workload.

The Contribution scheme financing implementation of the National Environmental Policy Plan (FUN) came into force in 1991 to enhance implementation of the action points by municipalities. The Ministry of Housing, Spatial Planning and the Environment gave municipalities a fixed amount per resident, the total rising from 13 million in 1990 to 43 million in 1994. Municipalities were expected to earmark resources of their own for these environmental responsibilities over and above government funding. As with the Contribution scheme, the Financing scheme aims to foster cooperation between municipalities by financial means. The provinces have also received funds under this scheme to enable them to discharge provincial responsibilities under the National Environmental Policy Plan.

## 2.5 Follow-up contribution scheme for the development of municipal environmental policy (municipalities)

At the end of 1993 the Minister of Housing, Spatial Planning and the Environment decided to continue the two schemes for municipalities- the Contribution decree and the Financing scheme- for three years with effect from January 11, 1995 in the form of the Follow-up contribution scheme for the development of municipal environmental policy (VOGM). This decision was taken after research had revealed stagnation in implementing the Contribution decree and Financing schemes.<sup>2</sup> After this three year period, the municipalities will be free as from 1 January 1998 to deploy the Follow-up funds as they see fit, including purposes other than the environment.

The Follow-up scheme is explicitly designed to add a quality dimension to the discharging of environmental responsibilities by municipalities. In the period covered by the Contribution scheme, the primary goal was to eliminate backlogs in licensing and enforcement (quantity in short). In the Follow-up scheme, implementation of the action points of the National Environmental Policy Plan has been simplified. Municipalities are obliged to make a selection from the action points for the purposes of implementing the responsibilities of the National Environmental Policy Plan. Government funding to the tune of 94 million guilders is available annually for the Follow-up scheme.

Environmental cooperation between municipalities, for example in the form of regional environmental centres, remains a major condition of eligibility for funds during the period of the Follow-up scheme.

### **3 THE INSPECTORATE FOR THE ENVIRONMENT AND ITS ROLE IN ASSISTANCE SCHEMES**

The Inspectorate for the Environment is part of the Directorate-General for Environmental Management at the Ministry of Housing, Spatial Planning and the Environment. The Inspectorate monitors implementation of a large proportion of legislation relating to the environment. In other words, it ensures that all parties abide by the agreements that have been made to protect or enhance the environment. The Inspectorate works throughout the country from nine regional offices, with central control vested in the main branch in The Hague.

The Inspectorate reviews and fosters progress in implementation of environmental policy, including licensing and enforcement via municipalities and provinces. Each year, they have to submit an Environmental Report in order to give account of progress in implementation of environmental policy. On behalf of the Minister, the Inspectorate assesses whether this progress in individual municipalities and provinces is sufficient for continued eligibility for environmental subsidies. Agreements are reached with any municipalities or provinces that are lagging behind, often in the form of action plans, with a view to achieve a satisfactory level of meeting environmental responsibilities within the foreseeable future. Apart from assessing the annual environmental reports, the Inspectorate performs studies on its own account into implementation of the various environmental responsibilities by municipalities and provinces, particularly into the quality of licensing and enforcement in various categories of companies.

### **4 DEVELOPMENTS IN LICENSING AND ENFORCEMENT IN THE MUNICIPALITIES OF NORTH BRABANT**

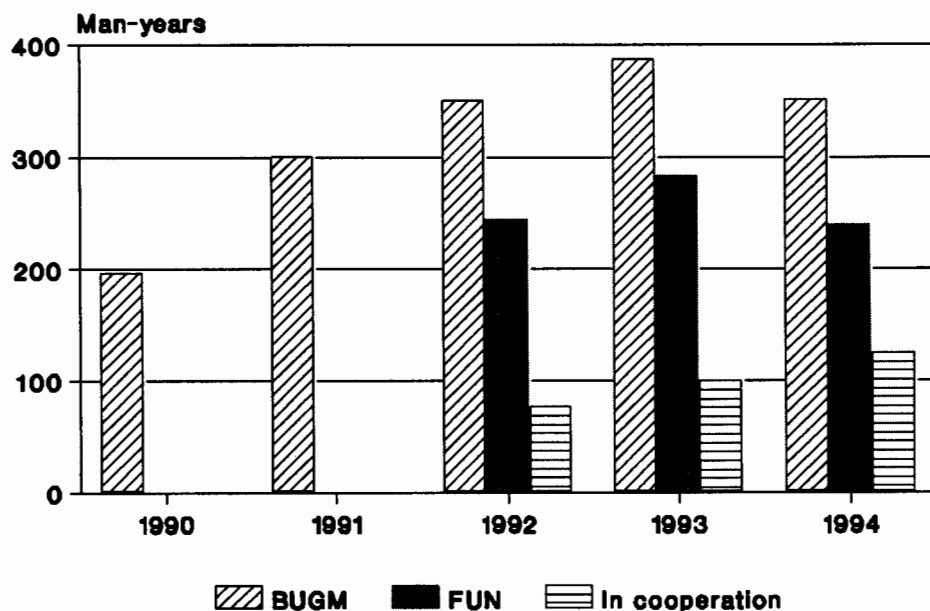
#### **4.1 Staffing levels**

As a result of the Contribution (BUGM) and the Financing (FUN) assistance schemes, the staffing capacity for discharging environmental responsibilities has increased enormously. Figure 2 illustrates this increase in municipalities in the province of North Brabant for licensing and enforcement (BUGM) and for tasks arising from the National Environmental Policy Plan and the National Environmental Policy Plan Plus (FUN). Approximately 75% of total BUGM capacity is deployed on licensing and 25% on enforcement.

The number of municipal civil servants dedicated to the environment in North Brabant has tripled since 1990. At present there are no fewer than 600 staff members working daily on the environment in North Brabant. Approximately 20% (some 120 people) operate from a regional environmental centre or a central municipality. The staffing capacity on a cooperative basis rose somewhat in 1994, whilst there was a slight fall in the deployment of staff on the Contribution scheme (BUGM) and the Financing scheme (FUN). After 1994, a slight rise is forecast in personnel capacity for implementing the Contributory scheme. These additional hands will be used to improve the quality of licensing and enforcement. After the remaining backlogs in licensing and enforcement have been eliminated, the excess capacity is expected to be used in implementing other environmental tasks (compare Section 2.5, the Follow-up - VOGM scheme). Attention will particularly focus on the quality of discharging environmental responsibilities.

In general, manning levels would appear to be sufficient for tackling environmental policy with sufficient vigor. The Inspectorate does still have some concerns about a group of municipalities who are lagging behind, and who have too little capacity to discharge

**Figure 2. Available staffing capacity for implementing municipal environmental policy (BUGM, FUN) in North Brabant(3)**



Source: BUGM and FUN annual reports

environmental responsibilities in terms of quality as well as quantity to an appropriate level. Furthermore, there are a number of cases in which little or too little use is made of the specialists available within the regional environmental centre or central municipality.

#### 4.2 Eliminating backlogs in licensing

In the province of North Brabant there are about 60,000 companies (16% of the total number of companies in the Netherlands) for which the municipalities are the competent authority (responsible for licensing and enforcement). These companies are classified into four categories by environmental load. Examples of this classification are given in Table 1.

Companies in the Categories 2, 3 and 4 need a licence under the Environmental Management Act. The small businesses of Category 1, placing less of a load on the environment, have to fulfil the regulations of an Environmental Management Decree.



Figure 3 shows that the backlog in licensing in North Brabant in 1988 was around 45%, in other words only some 55% of companies subject to licence had a licence of a satisfactory standard. Vigorous efforts have been made since 1990 and the backlog has been

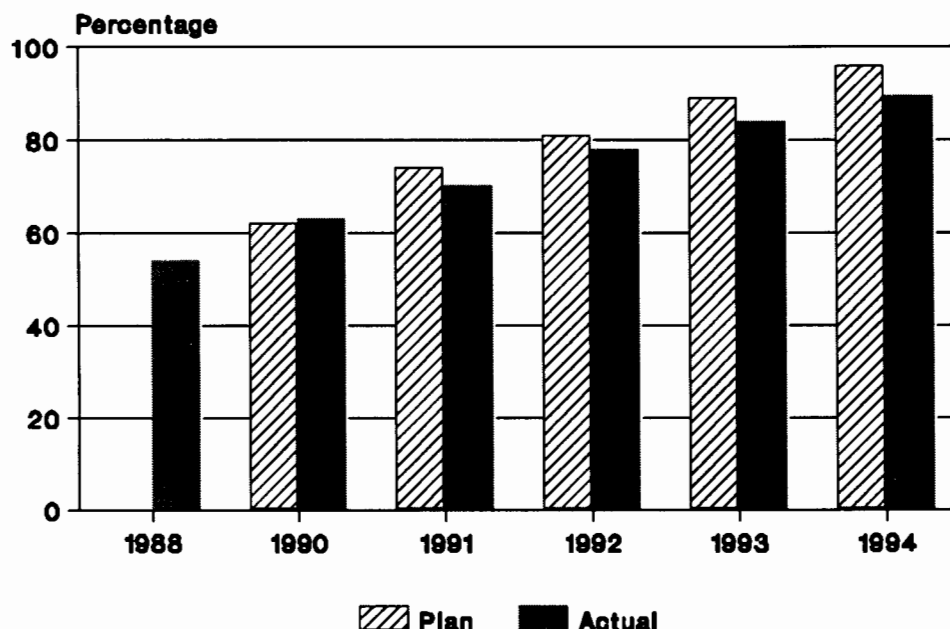
**Table 1. Classification of companies into categories by environmental load**

Categories (number of companies)	Examples of classification
Category 1 (21,000)	bakeries, butcher's shops, office buildings, schools, hairdressers, cemeteries
Category 2 (26,000)	intensive stock-farming, repair shops (garages, etc.), catering industry, cleaning firms, clothing industry, petrol stations
Category 3 (11,000)	wool and cotton mills, printing industry, small metal engineering works, photo and film laboratories, hospitals, swimming pools, crematories, wood preservation industry, transporters
Category 4 (2,000)	abattoirs, breweries, animal fodder industry, chemicals industry, tanneries, paper manufacturing industry, rubber and plastic processing, dairy industry

largely eliminated: at the end of 1994 89% of companies had a satisfactory licence. The municipalities had not succeeded, however, in entirely eliminating the backlog by January 1, 1995, the target date set forth in the Contribution decree (BUGM).

The percentage of satisfactory licences at the end of 1994 does not, however, say much about the quality of licences. For example, a study carried out in 1994 by the Inspectorate for the Environment in North Brabant (ref. 2) indicated that little if anything had been done to put any flesh on the expanded scope of the Environmental Management Act. The Environmental Management Act<sup>4</sup>, which came into force in 1993, offers greater scope for protecting the environment compared to previous environmental legislation. For example, the licence must look at prevention, reuse, storage and disposal of wastes, and to the sparing use of energy and raw materials. The licensing authority is permitted to include logistics measures in the licence in order to restrict car mobility.

**Figure 3. Percentages of satisfactory licenses (planned in advance and subsequently achieved) among municipalities in North Brabant**



**Source: BUGM annual reports**

There was insufficient attention paid to prevention or reuse of wastes in 79% of municipal licences investigated. In 87% of licences there was little or no attention to energy conservation (and no licence refers to the sparing (re-)use of raw materials) and in 91% of licences the traffic-generating impact of the establishment is not included in the picture.

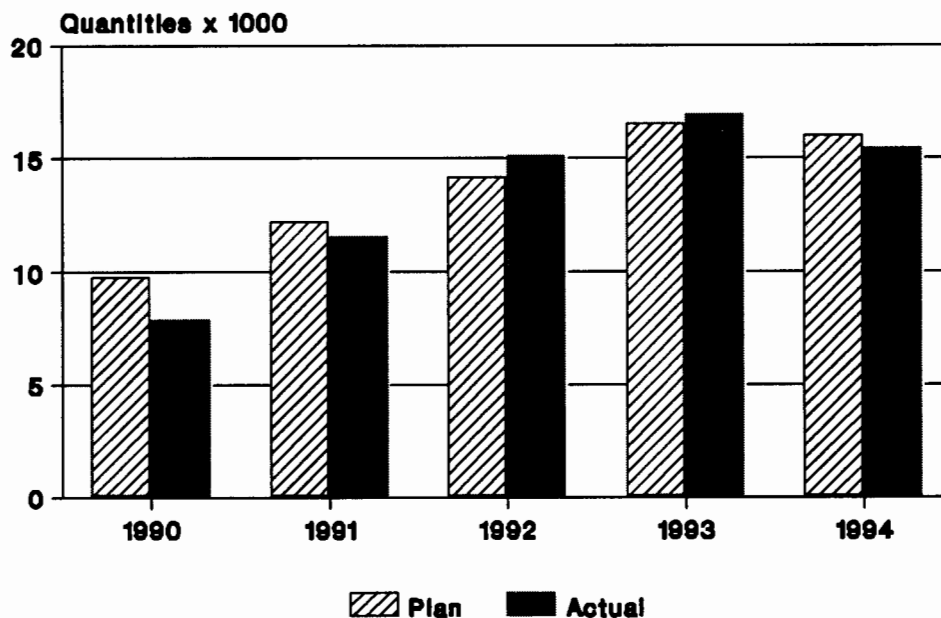
In response to the new opportunities created by the Environmental Management Act, the Inspectorate for the Environment in North Brabant published a brochure (ref. 3) in 1995 with the aim of assisting licensing authorities in applying the expanded scope of the Environmental Management Act. The brochure explained what opportunities now existed.

It can be concluded on the one hand that the municipalities of North Brabant have performed well by granting licences to 89% of companies, but on the other that the environment should be afforded better protection and at a higher quality level.

#### 4.3 Eliminating backlogs in enforcement

The granting of licences is of course important, but equally important is compliance with the licensing regulations by the companies. Compliance is to some extent achieved by regular company checks (preventive enforcement). National reference standards have been set for the frequency of these checks. For example, Category 4 companies (see Table 1) must be checked twice a year, Category 3 companies once every 2 years, Category 2 companies once every 5 years and Category 1 companies once every 10 years.

**Figure 4. Number of multi media company checks (planned in advance and subsequently achieved) in municipalities in North Brabant**



**Source: BUGM annual reports**

Figure 4 shows that the number of company checks by municipalities in North Brabant has doubled since the start of the 1990s.

In 1994, 97% of the checks to be performed on the basis of the reference figure, around 15,000, were actually carried out. In itself this is a good result, but here, too, the number of checks says little about the quality of the checks themselves or the degree of compliance with licensing regulations by companies.

A study carried out by the Inspectorate for the Environment in North Brabant in 1995 showed that the enforcement procedures agreed by municipalities in the province of North Brabant are by no means applied in all cases. It was concluded on the basis of this enforcement study that the deadlines imposed by municipalities for the ending of infringements are frequently exceeded, reinspections are by no means always carried out and the recommendations submitted to municipal executives on the basis of the visits paid were by no means always complete. What is clear is that as a result situations which are undesirable in terms of environmental protection continue to exist for an unnecessarily long period.

In summary, now that municipal enforcement performance would appear to be just about in order in terms of quantity, the quality of this performance must be brought up to the same level. As previously indicated, regional environmental cooperation is an important and necessary instrument here. The forms this could actually take include a knowledge concentration (expertise available to more municipalities), regional coordination of enforcement and availability and exchange of enforcement data.

## 5 DEVELOPMENTS IN LICENSING AND ENFORCEMENT IN THE PROVINCE OF NORTH BRABANT

### 5.1 Developments regarding companies and staffing capacity

As from 1991, the province of North Brabant has received an annual government

**Table 2. Classification of companies for which the province of North Brabant is the competent authority**

Categories (number of companies)	Examples of classification
Category industry (193)	large textile industry, glass-works, ship building yards, electricity producers, heavy chemicals industry, concrete goods plants
Category waste (471)	car wreck dealers, shredders, refuse incinerators, refuse dumps, waste recycling plants
Category sundry (21)	wastewater treatment installations, marshalling-yards

contribution under the Administrative agreement on licensing and enforcement for the purposes of ensuring that a satisfactory level of licensing and enforcement is permanently achieved. At present, this contribution is almost 3 million guilders per annum. The province contributes an annual amount of over 3 million guilders from its own resources. The provincial contribution went up to over 4 million as from 1995.

The companies falling under the jurisdiction of the province can be divided into three categories, namely industry, waste and sundry. Examples of these three categories are given in Table 2. All these companies need a licence under the Environmental Management Act.

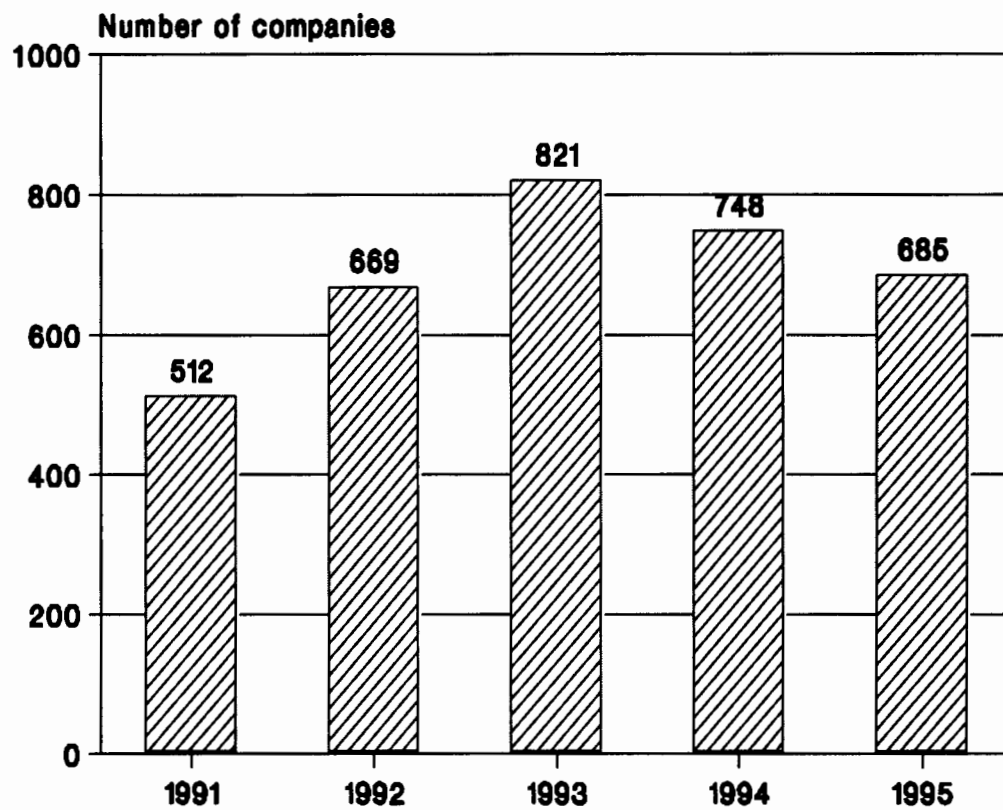
Companies falling under the jurisdiction of the province impose in general a heavier burden on the environment than companies where the municipality is the competent authority.

The number of companies falling under the jurisdiction of the province of North Brabant has experienced tremendous growth since the early 1990s (Figure 5). The major growth in 1991 and 1992 was caused almost exclusively by a sharp rise in the number of companies collecting, treating and processing wastes. As a result of jurisprudence and legislative modifications, many of these companies in those years have changed competent authority, from municipality to province and from central government to province. The decline in the number of companies since 1993 has mainly been caused by company closures within the waste sector.<sup>5</sup>

The trends in manning levels for licensing and enforcement in recent years is shown in Figure 6.

On the basis of the number of companies as at 1 January 1995, the province of North Brabant ought to have 65 licensing officers and 25 preventive enforcement officers. The reality is, however, that in early 1995 the province had 55 licensing officers and 7 preventive enforcement officers. The shortage of enforcement officers can partly be explained by the fact that the province of North Brabant has given priority to licensing in recent years. Apart from

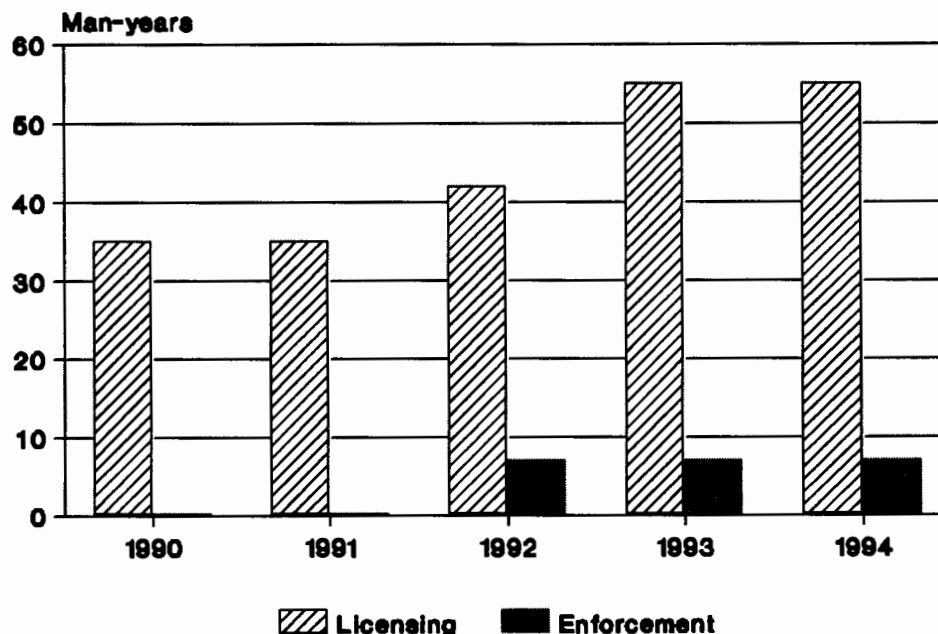
**Figure 5. Developments regarding number of companies in the province of North Brabant**



**Source: Adm. agreement annual reports**

their own staffing capacity, consultancies have been deployed to support licensing activities. Extra licensing and enforcement officers are expected to be recruited at the end of 1995 and early 1996.

**Figure 6. Available staffing capacity for licensing and enforcement in the province of North Brabant**



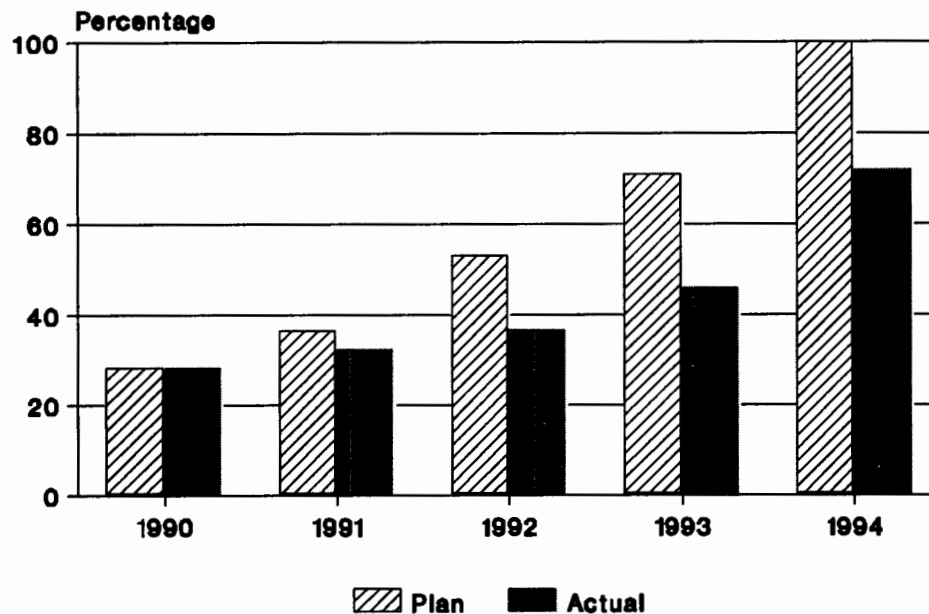
**Source: Adm. agreement annual reports**

## 5.2 Eliminating the licensing backlog

In early 1991, 28% of the former provincial companies had a satisfactory licence (see Figure 7). To achieve the satisfactory level of licensing in time, 72% of the companies (approximately 500) in North Brabant had to acquire a new licence by 1 January 1995.

The province and the Inspectorate for the Environment in North Brabant concluded in early 1995, however, that despite all the efforts, the province had failed to eliminate the backlog in time: at the end of 1994, 72% of all companies had a satisfactory licence.<sup>6</sup> Among the group of industrial companies, the licensing backlog was relatively small (19%) and greatest among the group of waste companies (32%). The province will only be able to eliminate the backlog in its entirety by 1996 at the latest by recruiting additional manpower for licensing in the short term.

**Figure 7. Percentages of satisfactory licences (planned in advance and subsequently achieved) in the province of North Brabant**



Source: Adm. agreement annual reports

Generally speaking, in terms of quality, licences granted by the province of North Brabant in the nineties range between acceptable and good.

### 5.3 Eliminating the enforcement backlog

As a result of the province giving priority in recent years to eliminating the backlog in licensing, little attention has been paid to licence enforcement. To a significant degree, enforcement has been handled by licensing officers by "keeping a finger on the pulse" during their periodical company visits for licensing purposes. This form of monitoring can best be described as "promoting compliance."

The province of North Brabant intends to separate licensing and enforcement more explicitly by entrusting enforcement to the regional cooperative associations. A start was made in 1993 by transferring enforcement of some categories of companies (car wreck dealers, shredders, concrete goods plants and crushing plants).

The route adopted by the province for separating licensing and enforcement in staffing terms is generally endorsed. Here, the licensing officer endeavors to achieve the optimum climate of consultation with the company by adopting the position of a discussion partner. The enforcement officer, on the other hand, is regarded by the company more as an adversary, which may disrupt the climate of consultation. However, effective coordination between regional enforcement and provincial licensing remains vital.

#### 5.4 What next?

The Minister of Housing, Spatial Planning and the Environment indicated at the end of 1995 on the basis of the joint study by the provinces and the Inspectorate for the Environment (ref. 4) that the provinces have made significant progress in improving licensing and enforcement. However, further efforts were needed in a number of provinces, including North Brabant, if they were to achieve a satisfactory level of licensing and enforcement within the foreseeable future (by January 1, 1997 at the latest).

The province of North Brabant gave an undertaking that, in consultation with the Inspectorate for the Environment, it would draw up an action plan in the near future, describing how it proposed to achieve a satisfactory level of enforcement by January 1, 1997.

Not just the quantity but also the quality of implementation are aspects that demand explicit attention in the years ahead. The provinces are currently developing quality criteria for licensing and enforcement in conjunction with the Directorate-General for Environmental Management and the Inspectorate for the Environment.<sup>7</sup>

## 6 CONCLUSIONS

In general, a solid basic position for achieving further improvements in implementing environmental policy, particularly in terms of quality, is now within reach for the municipalities of North Brabant. One point that should be made is that quality improvements will in all probability require greater efforts and more discipline on the part of executive and administrative staff than the quantitative BUGM catchup operation for licensing and enforcement. Sundry recent inspections have revealed that "dotting the i's and crossing the t's" is something that remains to be done but ..... "where there's a will, there's a way."

The province of North Brabant must continue to make solid endeavors in terms of quantity and quality, and in quality in particular when it comes to enforcement. If, however, provincial licensing is in order, and monitoring — separate from licensing — is exercised by regional enforcement officers, the basis exists for paying greater heed to the quality of implementation.

## ENDNOTES

1. There are three tiers of government in the Netherlands: national, provincial (12 provinces) and local (620 municipalities). Each tier has its own powers by virtue of various acts of Parliament, including environmental legislation. The cornerstone of environmental legislation, the Environmental Management Act, makes municipalities the licensing and enforcement authority (in short: the competent authority) for what are generally the lighter categories of companies. The provinces are the competent authority for the heavier categories of companies such as companies that treat or process waste and large complex chemical companies.
2. One of the things to emerge from the study was that several municipalities needed between one and two years longer to achieve a satisfactory level of licensing and enforcement. Furthermore, the quality achieved in discharging the two responsibilities in 1993 left a lot to be desired and it was found that municipalities were lagging behind in implementing their responsibilities under the National Environmental Policy Plan.



3. The "BUGM" and "FUN" bars in the figure show total manning levels. The capacity shown by the "in cooperation" bar indicates the proportion of this total capacity deployed on a cooperation basis.
4. A brief summary of the statutory framework of the Environmental Management Act in relation to licensing is shown in the annex to this article.
5. In the interests of the effective collection, treatment and processing of wastes, it was deliberately decided that these activities should be handled by companies which were healthy in economic terms and in their approach to environmental protection. In practice, many companies are unable to achieve this, which has resulted in company closure in many cases.
6. The national figure for the 12 Dutch provinces at the end of 1994 was 77% for the average percentage of licences granted. The range was 52-91%.
7. A few Acts -which are also to be regarded as environmental legislation — have not been integrated in the Environmental Management Act. This means that companies which carry out activities which fall under said Acts must have a separate licence for these activities. This applies, for example, in the case of the Surface Waters Pollution Act (in respect of the discharge of waste water), the Nuclear Energy Act (in respect of the use of radioactive materials) and the Groundwater Act (with regard to the abstraction of groundwater).

## REFERENCES

References 2 through 4 are only available in the Dutch language.

1. National Environmental Policy Plan, The Hague, May 1989; National Environmental Policy Plan Plus, The Hague, June 1990.
2. Vergunningverlening Wet milieubeheer, praktijkervaringen van de Inspectie Milieuhygiëne Noord-Brabant, Eindhoven, April 1994.
3. Hoe ver reikt de Wm-vergunning? Mogelijkheden voor de toepassing van de verruimde reikwijdte Wet milieubeheer, Regional Inspectorate for the Environment, North Brabant, February 1995.
4. Landelijk Handhavingsproject uitvoering Bestuursovereenkomst vergunningverlening en handhaving door de provincies in 1994, Inspectorate for the Environment, Enforcement of Environmental Laws, 1995/102.

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**ANNEX:       LEGISLATIVE FRAMEWORK OF THE ENVIRONMENTAL  
MANAGEMENT ACT**

The Environmental Management Act came into force in the Netherlands in March 1993. This new environmental Act integrates the former Nuisance Act, the Air Pollution Act, the Noise Abatement Act, the Waste Substances Act and the Chemical Waste Act. Whereas, in the past, some companies had to have three or four environmental licences, a single integrated permit under the Environmental Management Act<sup>7</sup> now suffices.

The Environmental Management Act offers new possibilities for environmental protection (expanded scope), which go beyond those previously available under the former individual acts. Waste prevention, efficient use of energy and raw materials and restriction of traffic to and from the company are all aspects which can be regulated in the licence granted to a company under the Environmental Management Act. The *alara* - as low as reasonably achievable - principle is also new.

The new possibilities under the Environmental Management Act are discussed briefly below.

**Waste prevention**

Companies are obliged to take account of prevention, reuse, storage and disposal of waste and to give substance to these in practice. Measurement and recording of raw materials, ancillary materials and wastes, as well as of the sources where waste originates, give insight into the possibilities for prevention within a company. Prevention must preferably be tackled by measures directed at the source (the production process).

**Raw materials consumption and energy saving**

The Environmental Management Act offers the possibility of making the licence contingent on energy saving and responsible use of raw materials and ancillary materials.

Efficient use of raw materials and energy is of direct commercial economic interest since unnecessary loss of raw materials and energy depresses company profits. In addition, the unnecessary use of raw materials and energy is in conflict with the aim of sustainable use of the environment.

Measurement and recording of raw material and energy consumption are the first steps towards savings. More detailed investigation can then reveal specific economy measures to be taken. The implementation of the measures can be laid down in a plan of approach.

**Traffic-restriction of people and goods**

The authority granting the licence is able to lay down logistics measures and measures to restrict the use of vehicles.

Regulations relating to the transportation of persons or goods can be incorporated only in those cases where the traffic gives rise to a nuisance affecting the immediately surrounding area. A further requirement is that the regulations relate to circumstances over which the company has control. These include, for example, the delivery of goods and materials and the dispatch of products and waste. The company has no direct control over the means of transport used by staff to travel to work. However, the company can offer company transport for employees, in order to restrict the nuisance caused to the surrounding area as far as possible.

### **The alara principle**

Under the Environmental Management Act, first of all an attempt must be made to prevent adverse consequences for the environment by imposing restrictions in the licence. Insofar as the adverse consequences cannot be prevented, regulations must be incorporated which provide the greatest possible protection against said consequences, unless this cannot reasonably be demanded. The greatest possible protection of the environment implies that the licence is made subject to measures (techniques, processes or organizational measures) which are based on what is known as best technical means, i.e. the best techniques or measures which are available.

If regulations or provisions which offer the greatest possible level of protection cannot reasonably be demanded, the Environmental Management Act allows for deviation from these. In such cases, however, the company must clearly demonstrate that said measures are technically not feasible or are not feasible from the standpoint of business economics. The specification of best practicable means, i.e. the techniques which can best be applied, must be regarded as a minimum requirement.

The alara principle is proving to be one of the most difficult aspects in practice. In particular, the interpretation of the concept of reasonably is proving a headache for the authorities responsible for granting the licences. It will be up to jurisprudence in particular to provide more clarity with regard to the interpretation of this term in the years to come.



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## **AN INTEGRATED APPROACH TO ENVIRONMENTAL ENFORCEMENT — A CASE STUDY**

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### **SUMMARY**

This paper presents a review of enforcement difficulties regarding environmental pollution in solid waste landfill sites in Israel, and describes the success achieved through the integrated approach applied to solve this problem.

The integrated approach consists of two focal levels: the first level addresses governmental, public, legal and professional areas of authority; the second concentrates on the employment of various legal instruments including laws, regulations and other enforcement measures.

### **1 INTRODUCTION**

In 1992, there were over 400 solid waste landfill sites in Israel which had been established without the necessary legal permits and were operating without regard for environmental considerations. These sites caused a number of detrimental environmental effects, such as contamination of water sources (especially groundwater), stench, air pollution and aesthetic damage. In addition, the major landfill site of Hiriya, serving the entire greater Tel Aviv metropolitan area and located one kilometer west of Ben Gurion International Airport, posed a threat to flight safety from flocks of birds attracted to the organic waste.

The landfills were established and operated during the past forty years by municipal authorities (cities and villages), independently, through subcontractors or by private individuals. Landfills were established in the "backyard" of every settlement, with little or no attention allotted to environmental criteria or to proper planning procedures.

When the Ministry of the Environment first initiated measures designed to resolve the environmental problems posed by these landfills, it soon became apparent that individual treatment of landfill sites through often drawn-out litigation processes offered symptomatic relief for specific sites, but that these efforts were ultimately wasted as alternative sites were established in their place which once again operated without the necessary permits and environmental criteria. The primary factors hindering the efficiency of these enforcement measures were the Ministry's inability to provide municipal authorities with valid alternative solutions, the high cost of adequate treatment of solid waste, and a general lack of awareness for the environmental pollution caused by the existing sites.

## 2 THE INTEGRATED APPROACH FOR TREATING LANDFILL SITES

An integrated approach for achieving a comprehensive resolution of the environmental hazards caused by landfill sites throughout Israel was adopted by the Ministry of the Environment. This approach consists of two stages: the first stage is addressed within the sphere of governmental, public, legal and professional fields of authority; the second stage includes in-depth appraisal and implementation of various legal instruments.

The first level of enforcement includes:

- raising the issue to top public priority;
- finding alternative solutions for shut-down sites; and
- providing financial incentives.

The second level of action applied through legal measures includes:

- expanding the legal basis for action; and
- conducting investigations and pressing legal charges.

### 2.1 Raising the issue to top public priority

In 1993, a proposal for comprehensive treatment of the landfill problem was presented to the government by the Ministers of Environment, Interior and Finance. The proposal, which received governmental endorsement, called for expediting the establishment of five central landfills to allow for the closure of hundreds of illegal waste dumps throughout the country, and to create an infrastructure for environmentally-safe solid waste disposal both in the short and long terms.

Specifically, the government decision dictated the closure of all illegal landfill sites, and the transfer of waste from these sites to the five authorized landfills. The new sites will operate in accordance with accepted criteria for preventing environmental contamination from solid waste. As of 1995, the Ministry has completed international tenders for the planning and construction of two of the designated sites, and preparations for these sites are presently at an advanced planning stage.

### 2.2 Finding alternative solutions for shut-down sites

As stated above, preliminary conclusions revealed that the key to success of the process was to provide immediate alternatives for the landfills which the Ministry intended to shut down. The Ministry prepared a long-term action plan which defined stages for closure of specific landfills, the number of sites to be closed at each stage of the process, and the alternative sites which would receive the solid waste.

In the final stages of closing a specific site, the site operators are permitted—for a limited period of time—to accept construction waste which assists proper preparation of the closed site for ultimate sealing. Plans for the removal of buried wastes prior to final closure are prepared according to the Ministry's instructions which include provisions for close monitoring of the clean-up process by environmental enforcement officials. In addition, the Ministry provides professional guidance and daily monitoring services for every shut-down landfill.

### 2.3 Providing financial incentives

Waste disposal treatment in municipal authorities is financed by local taxes. The government of Israel devised a formula for compensating local authorities who are obligated to transport their wastes over greater distances due to closure of local landfill sites. These compensatory fees help prevent the opening of new illegal landfill sites in place of the site that was closed. In addition, the State is financially involved in closing the landfill, and in paying for transitory sites which are part of the scheme for transporting wastes to more distant landfills.

### 2.4 Expanding the legal basis for action

Expansion of the legal basis for treatment of environmental pollution created by landfills was negotiated along a number of complementary angles. The primary point of departure held that enforcement needed to be implemented against the managers of the landfills, the disposal companies and the heads of local authorities who hold prestigious positions in society. The persons involved are not viewed as ordinary criminals who aim to contaminate the environment; and the fines and other legal sanctions are too low to constitute significant deterrence. The Ministry uses to its advantage the fact that adverse publicity and the stigma of criminal proceedings are incentives for action.

#### 2.4.1 Regulations for the Abatement of Nuisances (prevention of unreasonable air and odor pollution from solid waste disposal sites), 1990

Within the framework of the Abatement of Nuisances Law, 1961, regulations for the prevention of air and olfactory pollution from solid waste disposal sites were promulgated in 1990. The regulations designate smoke, gas, fumes, dust, and the like, released during the burning of waste in a waste disposal site, as constituting unreasonable air pollution. The regulations obligate operators of solid waste disposal sites to maintain and operate such sites in a manner which will prevent unreasonable air and olfactory pollution, and to undertake steps to prevent such pollution. Operators may not burn waste at landfills, must undertake means to prevent fires, and must extinguish fires in the event of their occurrence.

The requirements specified in the regulations include: daily cover of landfills with at least 15 cm of covering material; possession of appropriate mechanical equipment for extinguishing fires; preparation of procedures for extinguishing fires, including manpower and equipment; establishment of proper work procedures for waste disposal at the site; installation of a gate at the site entrance; and erection of a surrounding fence. The requirements also specify placement of a clearly visible sign at the entrance including the site's name, working hours, the operator's name, address and telephone number; placement of signs in several locations on-site and in the vicinity stating that burning is prohibited, and warning that violators will be penalized.

#### 2.4.2 The Water Law, 1959

The Water Law establishes a comprehensive framework for the control and protection of Israel's water resources. Under this law, all sources of water in Israel are public property. Use of water is ensured for every person, as long as undue salinization or depletion of water resources is avoided.

The Water Commissioner, appointed by the government, is responsible for enforcing the Water Law and Regulations and for maintenance of water quality. For this purpose, the Commissioner is authorized to order personal injunctions against a person not in compliance with the requirements of the law. Furthermore, the law allows for judicial recourse where only "reasonable suspicion" exists regarding possible contamination of water resources. A 1992 amendment to the Water Law

provides that in case of violation, a fine of 150,000 NIS may be imposed—the steepest fine in Israeli environmental legislation today—in addition to an incremental fine which can be imposed for each additional day of violation.

#### 2.4.3 Collection and Disposal of Waste for Recycling Law, 1993

The Recycling Law provides the framework for recycling, and authorizes and obligates local authorities, when required by the Minister of the Environment, to allocate sites for recycling centers and to install recycling facilities which will ensure that a certain percentage of the local authority's waste is recycled annually—thereby reducing the total amount of waste disposed at landfill sites.

#### 2.4.4 The Licensing of Businesses Law, 1968

This law empowers the Minister of the Interior, in consultation with the Ministers of Health and the Environment, to designate businesses which require licenses in order to ensure proper environmental conditions. Special environmental conditions may be imposed within the framework of the license. In 1995, an amendment to the Licensing Law was approved which stipulates that the operation of landfills requires a business license under the law. The Minister of the Environment has the authority to define specific instructions for the operation of the site, to close the site through an administrative procedure, or to appeal to the courts for a judicial injunction.

#### 2.4.5 Amendment of Environmental Legislation (Punitive Measures) Law

A comprehensive law revising the punitive measures in case of environmental crimes is presently being drafted by the Legal Department of the Ministry of the Environment. Among its other provisions, the law establishes that the State is responsible for any environmental pollution caused by State-owned facilities; it defines personal responsibility of corporate managers, imposes stiff punishment against polluting corporations or local authorities, and provides for incremental fines for each day of ongoing violations of environmental laws. The law also establishes wide-ranging investigation and monitoring authority for inspectors authorized by the Ministry, and allows the Minister of the Environment to issue clean-up injunctions.

### 2.5 Conducting investigations and pressing legal charges

#### 2.5.1 The Environmental Patrol Unit

The Environmental Patrol, operated by the Ministry, is authorized by the Ministers of Police and the Environment to conduct formal investigations against suspected violators of environmental laws. The Patrol cooperates closely with the Legal Department of the Ministry in all facets of its daily operations. In regard to solid waste landfills, the unit's officers execute hundreds of monthly inspections at the various disposal sites.

Once a site is found to be operating in contravention of its specific operating conditions and relevant laws, causing environmental damage, a criminal investigation is conducted against the site's managers and the manager of the sanitation department in the relevant local authority. In special circumstances, the mayor or head of the local authority is also investigated under oath. In light of the public implications of such investigations and the unpleasantness they involve, these investigations often facilitate and expedite the implementation of remedial measures. Public employees and elected officials are very sensitive to the stigma of criminal investigations, and the Ministry makes good use of this deterrence effect.



### 2.5.2 Pressing legal charges

When the Environmental Patrol has completed its investigation, the Legal Department reviews the file and decides whether criminal charges should be pressed against the violators. The litigation process is then advanced by private attorneys who have been authorized for this purpose by the State Attorney. These private attorneys operate under the strict supervision of the Ministry's Legal Department. This arrangement relieves the Ministry of dependency on the State Attorney's office which already operates under heavy work loads; and also offers an added dividend of more efficient and expert legal representation. The budget for this "private" litigation comes from the fund established under the Cleanliness Law, 1984, in addition to special moneys allocated for this purpose by the government.

In each individual case, the Legal Department considers the relevant law or laws which should be applied, and the various legal instruments which can be implemented to serve specific goals. One of the characteristic problems in dealing with solid waste landfills is that the polluter or "beneficiary" of the polluting activities is often the municipal authority itself, as this body is also charged with enforcing the environmental conditions issued under the Business Licensing Law.

### 2.5.3 Example of a lawsuit against the managers of a landfill

For many years, the Municipality of Hadera operated its dump site in contravention of the relevant laws and instructions issued by the Ministry. Located on private land and run by a private company on the basis of a commercial contract with the Municipality, the Hadera site caused environmental damage and nuisances, such as air and water pollution and aesthetic degradation.

The Hadera Municipality — although invested with effective legal and administrative authority to enforce the required environmental criteria and regulations relating to licensing of businesses — consistently refused to make use of the powers at their disposal. This reluctance was due to a fear of contractual dispute with the operating company, as well as to the fact that proper management of the dump site would entail additional costs for the Municipality.

On three occasions, the Ministry of the Environment submitted lawsuits against the operating company and its directors for management of the site contrary to the applicable regulations, which led to severe environmental nuisances. Following the amendment to the Licensing of Businesses Law referred to above, the Ministry issued an administrative order closing down the site, and ordering the Hadera Municipality to evacuate the urban waste to an alternative site.

The administrative closure was upheld by the court. The court also ordered that the site's operators were to be permitted to bring construction waste to the landfill for a limited period of six months to enable adequate covering of the wastes before final sealing of the site.

Once the site was finally closed, the Ministry reached a court settlement for the three lawsuits, according to which the company and its directors were convicted and fined US \$15,000 (or, in case of nonpayment, 120 days imprisonment against the directors). In addition, the company and its directors signed a commitment to desist from any similar offense for a period of three years, accompanied by a fine of US \$7,000 in case of further violation.

## **3 ACCOMPLISHMENTS OF THE ENVIRONMENTAL ENFORCEMENT MEASURES AGAINST LANDFILLS**

Approximately two and a half years after the government decision, and thanks to the relentless actions of the Ministry of the Environment, 186 of the solid waste sites which were slated for closure were shut down. The most problematic sites were dealt with first; the additional actions undertaken by the Ministry were carried out according to predetermined priorities and time tables.

Hiriya, the largest domestic waste site in Israel — receiving 2,500 metric tons of refuse per day — will finally be shut down in the coming year when the five designated national landfill sites defined in the governmental decision are opened.

The measures described above are resulting in better management of existing landfills in the time remaining until the designated sites are open. To enhance these measures, the Ministry is currently reviewing the remedial action and authority available to the Environmental Patrol officers. Furthermore, criminal investigation and prosecution are carried out in each case of continued violations or licensing conditions.

Due to intensive efforts by the Environmental Patrol and unrelenting prosecution of violators, the phenomenon of new illegal dumping sites taking the place of landfills closed by the Ministry has almost entirely vanished. Another positive consequence of the new trend are the exemplary sentences imposed by the courts. In recent years, judges have convicted municipalities with severe fines, and have accompanied these fines with commitments to avoid equivalent offenses over two or three years. These judicial measures have greatly contributed to the abatement of environmental nuisances and pollution caused by solid waste landfills.

#### **4 CONCLUSIONS**

The enforcement of environmental norms has various objectives, including: elimination of existing nuisances, prevention of future nuisances, restoration of previous conditions, penalization for existing violations and deterrence. In order to implement these goals, we have various tools which can be employed to bring about the most effective solution in each specific case according to the nature and scope of the nuisance, its causes and, more generally, according to the goals we wish to achieve.

Enforcement tools are not viewed as ends in themselves — the policy of the Ministry of the Environment is to use the enforcement tools at its disposal in such a manner that environmentally acceptable solutions will be attained. The Ministry's aim is to strengthen understanding and awareness of environmental protection; to promote sustainable development through the central government and local authorities, as well as through the private sector and the general public.

The Ministry's strategies are directed towards achieving a future in which potential polluters and decision makers will feel personally committed to reducing the level of nuisances, and to preventing damage to the environment. One of the means for achieving this goal is by imparting a clear message of firm and effective enforcement.

## **COMPLIANCE AND ENFORCEMENT PROGRAMS ON RESIDUAL WATERS, CASE STUDY: COSTA RICA'S GRANDE DE TARCOLES RIVER**

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### **SUMMARY**

Costa Ricans are entering an era of great change. The present government is determined to transform this country into a pilot project for sustainable development.

What we are looking for is a social transformation that involves interactive mechanisms of education for citizen awareness, and real participation of society in decision-making; it strengthens basic necessities and improves the quality of life of present and future generations, but without destroying ecological bases or altering the vital life supports on which environmental quality and overall development depend.

We have to reexamine policies, identify programs, link up with governments and with the civil society in order to bring us all into a collective effort. Costa Rica's principal competitive advantage lies in the quality of its people, and in their capacity for innovation and creativity.

The following is a sample of an updated vision of the actions of the Costa Rican Government and the participation of the civil society in the control and management of agro-industrial wastes and wastewaters in the country, through an analysis of the legal and administrative situation of the entities involved in the protection of water resources, and the compliance and enforcement programs relating to this matter.

Because of its condition, the Grande de Tárcoles Watershed was selected as a pilot-watershed to develop interinstitutional actions and to promote the participation of the civil society in order to rescue this important water resource.

### **1 INTRODUCTION**

#### **1.1 Costa Rica: geographical, social and environmental situation [See Annex 1]**

Costa Rica lies in Central America, 10,429 miles (16,784 kilometers) from Chiang Mai, Thailand. It is bordered to the north by Nicaragua, to the northeast by the Caribbean Sea, to the southeast by Panama, and to the west and southwest by the Pacific Ocean. It lies completely within the tropics.

The average temperature is 72 degrees Fahrenheit in the highlands and temperature vary from the high 70s to the low 90s in the lowlands. We have dry season from December to April, and wet season from May to November.

Costa Rica, a Spanish speaking country, has 3.5 million inhabitants, with a literacy rate of 93% and a life expectancy of 75 years for men and 79 for women. Our major exports are coffee, bananas, tourism, sugar and beef.

Geographically, Costa Rica is an extremely varied country despite its tiny size (51,100 square kilometers). A series of volcanic mountain chains runs from the Nicaraguan border in the northwest to the Panamanian border in the south east, thus splitting the country in two.

Many different microclimates and ecological habitats are found corresponding with altitudinal changes up the mountains.

We have a strong commitment towards preservation of nature. Our wilderness areas provide shelter for almost:

- 1200 varieties of plants.
- 237 species of mammals.
- 848 kinds of birds.
- 361 amphibians and reptiles.

The current use of land is as follows: some 70% of the country is a mosaic of agricultural, forestry and livestock use; 25% is wildlife conserved for nondestructive use of their biodiversity and ecosystem services, and the remaining 5% is for urban life and the community network. [See Annex 2]

## 1.2 Costa Rican water resources: technical diagnosis

The situation concerning treatment of wastewater and river contamination is of great charm. Less than 10% of wastes go into sanitary conduits and most of the cities of the Central Valley decreased the number of the treatment plants that existed in the past.

Agro-industrial wastes, which represent nearly four million metric tons per year, constitute another important focus of contamination for waterways. The Grande de Tárcoles watershed, which has a high energy potential and is also one of the most beautiful, has been reduced to the level of a gutter for the wastes produced by almost half of the Central Valley.

Costa Rica has 34 major rivers, which have not been already deeply studied in relation to their quality, except the Grande de Tárcoles River, that is 2.149 kilometers long and drains a large area of the Central Region of the country.

The most potential sources of pollution in the urban zone (Greater Metropolitan Area) are:

- Solid and liquid wastes from coffee industry as first pollutants of the rivers of the country, providing some 191.500 kilograms of biochemical oxygen demand daily.
- Food, paper, cardboard, textile, tannery, jewelry industry wastes and others, providing approximately 40.485 kilograms of biochemical oxygen demand daily.
- Domestic fecal wastes, providing about 40.485 kilograms of biochemical oxygen demand daily.

These estimations were made during the dry season. No estimations were made for heavy metals, chemicals, and small industry.

90% of the total amount of industries of the country do not have stations for wastewater treatment.

Among the main sources of pollution in the rural zone we find: agro-chemicals, pesticides, herbicides, insecticides and coffee industry waste.

Coffee industry constitutes the main pollutant of the country. It represents 70% of the global river pollution of the national territory. Such industry is seasonal (from November to February), that is, during the dry months, when there is not much volume of water and there is minimal oxidation capacity.

Sixty-one percent of the coffee industry is located in the Central Region of the country, that is also drained by the Grande de Tárcoles River. Most of the population is concentrated in the Central Region of the country (Greater Metropolitan Area), where also the main social and economic activities take place. This situation has caused great damage to the aforementioned river.

The main responsibilities for the pollution of the Grande de Tárcoles River are:

- Coffee industry (68%).
- Other industrial activities (18%).
- Domestic waters (14%). [See Annex 3]

In addition, it has been estimated that the Grande de Tárcoles River collects 33 tons of wastes daily, including hospital, industry and domestic wastes.

It has been determined that industry together with solid wastes, have polluted 40% of the rivers of the country, agro-chemicals, 40% and fecal wastes, 20%.

Even without a constant monitoring program of the aquatic ecosystem parameters, different studies have determined non-quantitative levels of pollution.

- Low polluted rivers — 35%.
- Medium polluted rivers — 25%.
- High polluted rivers — 20%.

The most damaged and contaminated rivers of the country are:

- Grande de Tárcoles River — 67%.
- Reventazón River — 10.8%.
- Grande de Térraba River — 7.7%.

## **2 LEGAL AND ADMINISTRATIVE BACKGROUND: CENTRALIZED MODEL**

The year 1948 became the starting point of new political, economical and social transformations in our country. The well-being of Costa Ricans increased during the four decades which followed and was extended to more and more extensive sectors of society.

The State assured and propitiated advances in education, social and individual rights, health, road services and hydroelectric development. The abolishment of the army and the perfected electoral system has given Costa Rica a completely new social and democratic character over a time period of scarcely five decades. In the next years, the socio-economic improvements in all sectors was not detained. It continued to make our country more recognized, at the close of the 80s, as one of the most advanced countries in terms of human development.

Nevertheless, the general conditions that have altered the world in the recent years, as well as the combination of internal, political and economic factors, have produced troubling signs indicating that the quality of life for Costa Ricans has begun to deteriorate in a way that runs contrary to the development model presented in 1948.

Not only the well-being of the poorest sectors of our society begun to decrease, but even the more sheltered sectors of our society are encountering difficulties in enjoying their advantages.

The development models which have been imposed upon us, and that some internal sectors have chosen to accept without forethought, are reproducing deteriorating circumstances in Costa Rica which are visible in other regions of the world.

In the 1950's and the 1960's, under a centralized model, we experienced an extraordinary economic and social development, however this development mined our natural resources and damaged the environment. In the 1980's and 1990's, we suffered the costs of economic disequilibrium which was followed by a period of economic development without a social dimension.

The application of the laws relating to the contamination of waters (since 1942), propitiated a model of centralized management that restricted the participation of the civil society, and also lacked environmental compliance and enforcement programs. As a consequence, the legal framework was not being implemented in an efficient way; we reached high pollution levels in rivers; there was not knowledge of how to use the water resources, and the pollution problems of surface- and underground waters were worsening.

For these reasons the present administration proposes to change course in order to turn tides of economic growth which proceed together with the highest possible level of environmental sustainability.

Our current interest in environmental compliance and enforcement programs shows the determination to ensure that environmental requirements take us to real improvements. We understand under the concept of environmental enforcement the range of actions governments and others may take to encourage and compel compliance with environmental requirements. This is our new guideline in order to achieve environmental objectives.

## 2.1 Traditional legislation relating to water pollution

During the last fifty years there have been many efforts to implement the legislation of water pollution efficiently, such as the Water Act, N° 276 (August 27, 1942), General Potable Water Act, N° 1634 (September 18, 1953), Aqueducts and Sewerages Law, N° 2726 (April 14, 1961), General Health Law, N° 1634 (October 30, 1973), Organic Law of the Ministry of Health, N° 5412 (November 8, 1973), Industrial Sanitation Regulation, N° 11492 (April 22, 1980), the Forestal Law, N° 7174 (June 28, 1990), and the Municipal Code.

We consider it is important to highlight certain aspects of some of the laws mentioned above that are relevant to our present study.

The Water Act mentions in its Chapter X, article 162-1 punishments from one to twelve months of imprisonment for those who contaminate surface and underground waters.

The General Health Law and its amendments establish controls over the effects and negative impacts on watersheds, as a result of the industrial, agricultural and human activities relating to wastewaters and other wastes.

This Law in its articles 275, 276 and 277 prohibits the pollution of surface, underground and sea waters; the contamination and damage of watersheds; and also, established the licenses required for draining or altering areas.

The General Health Law, the Organic Law of the Ministry of Health and the Industrial Sanitation Regulation establish the entities that are responsible for compliance and enforcement of environmental programs and authorizes the Ministry of Health to supervise the quality of water.

Among other faculties, the Municipalities must promote environmental education and reforestation programs and also must protect the watersheds in order to supply potable water to the communities, among others.

Although there were many attempts to regulate water resources, there were no monitoring and control systems to supervise the maximal permissible concentrations in solid and liquid wastes in receptor waters and rivers, and that caused great damage to the environment. The lack of environmental compliance and enforcement programs was also an obstacle to implement the legislation efficiently.

## 2.2 Costa Rica's traditional water resources administration

The traditional institutional structure for the management and use of water shows a Rector Ministry, a Management Entity and Private and Public User Entities. [See Annex 4]

The Rector Ministry is the Ministry of Environment and Energy. The entity in charge of the management of the water resources is the National Electricity Service, that regulates and authorizes the potable water services rate.

The users are public entities that need the resource to provide a service, and also physical and juridical persons that use the resource for their own interests.

The Ministry of Health is responsible for monitoring the water quality in general, the priority here is for provision of safe water for the public to utilize, and through its Department for Environmental Sanitation, ensures potable water supply, the observance of the public health regulations and the prevention of damage to the environment.

The Costa Rican Aqueduct and Sewage Institute is an autonomous institution created in 1966 to manage, to fix policies, to implement rules, and to promote the planning, financing and development of projects relating to drinking water, sewerage, etc.

In the past years, the Municipal Governments, 82 councils in the whole country, were supposed to control all aspects relating to the rivers and health. As an example, the Municipal Corporation of the Central Canton of San José established in August, 1991, a twenty four-month term for those industries that discharged non-treated wastes in rivers, streams, or sanitary sewers for the installation of treatment plants in production centers otherwise risking cancellation of their operational licenses.

This traditional structure lacked mechanisms to the coordinate activities and for this reason efforts were often duplicated and no one was responsible of following up on the legal actions.

## 2.3 Legal and administrative problems of Costa Rica's water resources

Some legal problems have arisen and weakened the administrative sector relating to our water resources. The Water Act is in force since 1942, which lets us assume that it needs to be brought up-to-date. Basically, this Legislation was billed to regulate the use of waters by private persons. There is no entity that grants water to public institutions. This Legislation lacks new concepts for planning, use and recovery of water resources. There are no monitoring and control systems to determine whether procedures are being respected or not. We can say it is obsolete and incomplete.

There is a great need of agile and effective mechanisms for the solution of water use conflicts. Other laws have been passed which have limited the functions of the National Electricity Service and have granted its competencies to other institutions, which results in duplicity of action.

In the past years the necessity of more production intensified the irrigation culture, which amplified the necessity of water for this activity. The population, together with industry increased and that implied more water supply and more pollution, respectively.

The volume of pollutants increased and there were no treatment systems. The rivers became urban trash deposits and the levels of deforestation were too high. There are no statistical reports of denouncements and punishments relating to water pollution.

There was a lack of governmental interest and of an integrating vision of water management. The National Electricity Service lacked political, economical and technical support to develop its functions and to regulate the big and powerful user institutions.

The Ministry of Health, which performs water quality management functions, did not have the mechanisms to assure compliance with, and enforcement of environmental legislation for the prevention of water pollution.

To conclude, we have to emphasize that three main reasons obstructed the efficient water resources management in the last years:

- Our water resources were not a priority for the last Governments.
- There was a lack of coordination between the institutions relating to water pollution.
- The water legislation was obsolete.

There comes the time to recuperate what we have lost, without stepping back to the past, with a new vision of things, that involves decentralizing the decision-making process through the participation of the civil society.

We have to minimize overlaps and conflicts of functions to make efficient use of existing capacities and local knowledge and to emphasize sustainability.

### **3 SUSTAINABLE DEVELOPMENT MODEL**

Sustainable Development is the yardstick guiding the actions of the Figueres Administration, 1994-98. This is a national objective aimed at improving the quality of life of Costa Rican citizens through the management of production, economy and commercial activity in such a way as to ensure that they are in harmony with natural resources and the environment. [See Annex 5]

The concept of Sustainable Development means "to find a better well-being in the present while sustaining the initial equilibrium that has made our development possible in the long term, combining a strong social investment with macroeconomic equilibrium and an alliance with nature," after our President's words.

The complex social-environmental situation and the existence of an obsolete legal framework propitiated the generation of a new policy related to wastewaters and pollution of the watersheds that includes the new guidelines with the effective collaboration of the civil society, that is:

- The search for a consensus between all parts involved.
- The establishment of voluntary plans.
- An acknowledgment and incentive plan.
- An authorization system.
- The alliance and coordination among governmental entities relating to environmental control.
- An active participation of the civil society in the prevention and solution to pollution of waters.
- Permanent dialogue with the companies or enterprises.



- A Public Service Office with an efficient, quick and non-bureaucratic procedure for attention to the public.

### 3.1 Institutional and legal framework

According to the sustainable development model, new legislation was billed, which makes a great difference between the old patterns and the current ones, and activates the efforts in search of a better use of our water resources through an efficient institutional coordination and the creation of new entities: the Wildlife Preservation Law, N° 7317 (December 7, 1994), the Competence Promotion and Consumer Defense Law, N° 7472, the Environmental Organic Law, N° 7554 (November 13, 1995), and the new Forestal Law, Expedient N° 11.003, recently approved by the National Assembly.

The Wildlife Preservation Law establishes regulations to protect the wildlife of the country. Its article N° 132 prohibits the discharge of wastes or any polluting substance in streams, rivers, etc. This article also confirms that every industry must have treatment systems in order to avoid the destruction of the wildlife. With the implementation of this article, since December 1994, this specific law gains importance by regulating and controlling wastewaters.

On the other hand, the Competence Promotion and Consumer Defense Law establishes the National Quality System, that allows the participation of the civil society through a network of "Authorized Laboratories," and is based upon international regulations to test that industrial activities do not contaminate the environment.

Article N° 8 of this Law establishes the faculty of the Ministry of Economy, Industry and Commerce, and the National Technical Environmental Secretary to authorize those entities that accomplish all technical and regulatory requirements in order to control the results of the laboratory studies and pollutant analysis.

The Ente Nacional de Acreditación is the national entity in charge of the authorization of laboratories, and is also a dependency of the National Commission of Quality. At the same time, the National Office of Standard and Measurement Units, which belongs to the Ministry of Economy, Industry and Commerce, functions as a Technical Secretary for these authorizations.

There are many criteria established by the series EN-4500, that are taken into account when authorizing a laboratory, among others, the technical and professional level of the personnel, the characteristics of the installations, the existing equipment, observation of the good laboratory practices, the quality management policy, the protocols of analysis and standardized operation procedures, the preservation and maintenance of infrastructure, the maintenance of reference patterns and storage of reagents and materials, the validation of methods, and the use of statistical techniques for the validation and control of the methods and procedure analysis.

The Executive Decree N° 24158 - Ministerio Recursos Naturales, Energia Y Minas-S, of April 21, 1995, fixes the residual water disposal norms to the bodies of surface- and groundwaters.

The Executive Decree N° 24662 - Ministry of Economy, Industry, and Commerce, of October 2, 1995, through the ISO-25 Guide and the EN-45000 Series, establishes the criteria for the authorization of national laboratories, being also approved by the National Technical Environmental Secretary. These criteria are:

- EN-45001: establishes general criteria about the functioning of the authorized laboratories.
- EN-45002: establishes the general criteria for the evaluation of the authorized laboratories.

- EN-45003: establishes the general criteria according to the functioning of the authorizing organisms.

The approval of the Law N° 7554, Environmental Organic Law, of November 13, 1995, in its Chapter XV, Articles 59-70, establishes a series of regulations relating to pollution through wastewaters over the national territory, and the obligation to treat wastewaters before disposing them into any watershed.

We have to emphasize again the importance of these new regulations in the establishment of compliance and enforcement programs on wastewaters with the direct participation of the civil society.

### 3.2 Current compliance and enforcement programs on wastewater's and results

Effective domestic environmental compliance and enforcement programs are an important factor in global efforts to reduce international trade barriers and enhance economic development in a way that does not create unfair competition, or pressure to diminish environmental quality of valuable natural resources. [See Annex 6]

Effective enforcement also can provide an element of fairness to the regulatory process, instill credibility to government institutions, and prevent short term economic competition among regions and between facilities from undermining longer-term economic, social and environmental goals for a sustainable future.

As a result of this new vision, the Ministry of Environment and Energy together with the Ministry of Health have joined efforts to implement all aspects relating to enforcement and compliance of environmental actions, as an instance of political will and interinstitutional coordination.

The Government of Costa Rica in its search for sustainability through compliance and enforcement programs on wastewaters has implemented the Authorization System, the Voluntary Plans, Acknowledgments and Incentives, and the Environmental Organic Law.

#### 3.2.1 Authorization system

The authorization system gives the civil society the opportunity to have a direct control of the water resources through the use of the laboratories, where people can identify and pursue violators by testing the quality of water.

Based upon the Executive Decree N° 24158 - Ministerio Recursos Naturales, Energia Y Minas-S and Executive Decree N° 24662 - Ministry of Economy, Industry, and Commerce, the authorization of laboratories was established to offer the services of analysis of wastewaters. These laboratories must be supported by a National Authorization Entity, constituted by experienced professionals, and approved by the Ministry of Environment and Energy and the National Technical Environmental Secretary. In this way, the uniformity of the analysis methodologies will assure the confidence of the results.

The Civil Society will become the main actor in all this process and will support it in a permanent way by:

- Temporarily authorized laboratories to be put to the test.
- If the laboratory does not accomplish the requisites, it can be unauthorized immediately.
- As of January 1996 there are three new authorized laboratories to start functioning. There is already a list of companies which will soon begin the process.

Through the execution of "interlaboratorial studies," that consist in interchanging control samples and comparing analytical results, the reliability of the laboratories and the quality of the results can be assured.

By means of the process of "certifications" through the authorized laboratories and other modalities, not only for goods, but also for services, the Government delegates in the private sector the vigilance for environmental quality, and makes use of the capacity installed and of the existing human resources, permitting the professionalization of the new system in stages of investigation.

### 3.2.2 Voluntary plans

Based upon the legal framework, a tripartite agreement was signed between the Ministry of Environment and Energy, the Municipality of San José and the Chamber of Industry as an alternative to generate "Voluntary Plan Projects," public and transparent, with the compromise of the companies to avoid the use of pollutants, and with the faculty of the civil society to denunciate any irregularity.

This project was thought to solve the pollution problems generated by wastewaters. So far we have:

- One hundred of voluntary plans introduced by industrial or Agro-industrial enterprises.
- The signing of three Agreements of Interinstitutional Cooperation with the productive sectors of the country: coffee, sugar cane and pig farming. These sectors gather some of the most important productive enterprises of the country. [See Annex 7]
  - As a result of these actions, during 1995, 96% of the coffee mills reduced their waste use through the implementation of recirculation mechanisms in every stage of the process, such as the filtering process.
  - Sedimentation tanks, dry extraction of pulp, and non-hydraulic pulp transportation were also installed in 92 of the 129 coffee mills existing in the country.
- An adequate on-site visit plan for each company involved in order to convince the people to protect the environment.
- An "Action Plan" is being elaborated to evaluate on the short and medium terms the firms involved in these voluntary plans for wastewater treatment.

### 3.2.3 Acknowledgments and incentives

As part of the actions of the Chamber of Industry, the Municipality of San José and the Ministry of Environment and Energy, the "Ecological Flag Project" was created in September 1994, through the ratification of the Coordinating Commission of three communities, including the one drained by the Grande de Tárcoles River, Playa Guacalillo.

The "Ecological Flag Project" consists in a distinction that is awarded to those industries, communities and institutions that help protecting the environment and cleaning up the rivers. During 1995 there were 13 ecological flags awarded to industries, and 10 schools were acknowledged because of their support to the protection of watersheds.

This project is divided into three parts — cleaning of rivers, reforestation, and maintenance. The first step incorporates the different communities through their organizations in order to clean up the banks of rivers. The second phase is reforestation based upon a plan elaborated by technicians of the Ministry of Environment and Energy. The third step consists in the application of measures established by the citizens to keep rivers clean and trees protected.

To obtain an "Ecological Flag" the industry, the community or the institution must accomplish the three steps mentioned above. The flag is granted by the respective Coordinating Commission and the Ministry of Environment and Energy.

### 3.2.4 Environmental Organic Law, N° 7554

With the publication of the Law N° 7554, the name of the Ministry of Natural Resources, Energy and Mines (Ministerio Recursos Naturales, Energía Y Minas) changes to that of Ministry of Environment and Energy, increasing its action area on environmental matters. That represents a new challenge in relation to waste management and a change of perspectives with the help of environmental education and the participation of the community in a sustainable development. That is the reason why many agreements have been signed, for instance, with the Spanish Cooperation Agency, the Institute of Municipal Development and Consulting, and the Ministry of Health for the construction of solid waste management systems with 40 municipalities of the country and the construction of sanitary conduits.

## **4 INTEGRAL MANAGEMENT OF THE NATURAL RESOURCES OF THE GRANDE DE TÁRCOLES RIVER PROJECT: A CIVIL SOCIETY INITIATIVE**

### 4.1 Background

In August 1992, the first "Seminary of the Grande de Tárcles River" took place as an incentive of the municipalities and as an example of the interest of the Costa Rican society to implement actions to benefit the environmental quality of the resources of this watershed. Local Governments, private and public institutions, and nongovernmental organizations took part in the event. [See Annex 8]

As a result of this Seminary, the "The Grande de Tárcles River Commission" was created, with the participation of Ministries, Local Governments, Autonomous Institutions, NGO's and Private Enterprises. This Commission will support the Ministry of Environment and Energy by controlling and recuperating the environmental quality of this important watershed.

The Inter-American Development Bank approved a project for the Integral Management of the Natural Resources of the Grande de Tárcles River presented by this Commission in May, 1993.

### 4.2 General objectives

The general objectives of the "Integral Management of the Natural Resources of the Grande de Tárcles River Project" are:

- To reach an integral development through the sustainable use of resources and land use planning program based upon a successive approximation system that propitiates an increase in the agricultural, cattle and Forestal productivity.
- To improve the quality of life and the environmental conditions including the rural and urban communities in these initiatives.

#### 4.3 Duration of the project

The project will last twelve years divided into three consecutive periods of four years each. During the first phase a strategy of land use planning of the watershed must be elaborated, the potable water supply to rural areas must be guaranteed, and there must be an adequate use of soil and training of local organizations, among others. The project starts in April 1996.

#### 4.4 Beneficiaries

In general, the Costa Rican community will benefit through a better environmental quality, public health, recuperation of the water resource with the help of the sub-programs of the project, that include land use planning, natural resources, monitoring and control of pollution, and monitoring and control of potable water.

"The Grande de Tárcoles River Commission," the Ministry of Environment and Energy, and the Chamber of Industry granted "Ecological Flags" in February 1995 to all the new enterprises that joined this pilot project, as an incentive to promote the participation of more sectors of the society to contribute to the preservation of our natural resources. Also were awarded with an "Ecological Flag" those companies that since 1993 have been distinguished with the "Environmental Conservation Prize" granted by the Ministry of Environment and Energy, the Municipality of San José, and the Chamber of Industry because of their new productive process that reduce or eliminate the discharge of pollutants in the environment. These are only few examples of what we have done in order to be in harmony with nature.

### 5 CONCLUSIONS

Based upon the results obtained, the sustainable development model, that propitiates a high level of participation of the civil society, has allowed the introduction of viable actions and practices to give short term solutions to the problem of wastewaters of the country. Such a model could be emulated by other countries that suffer similar limitations.

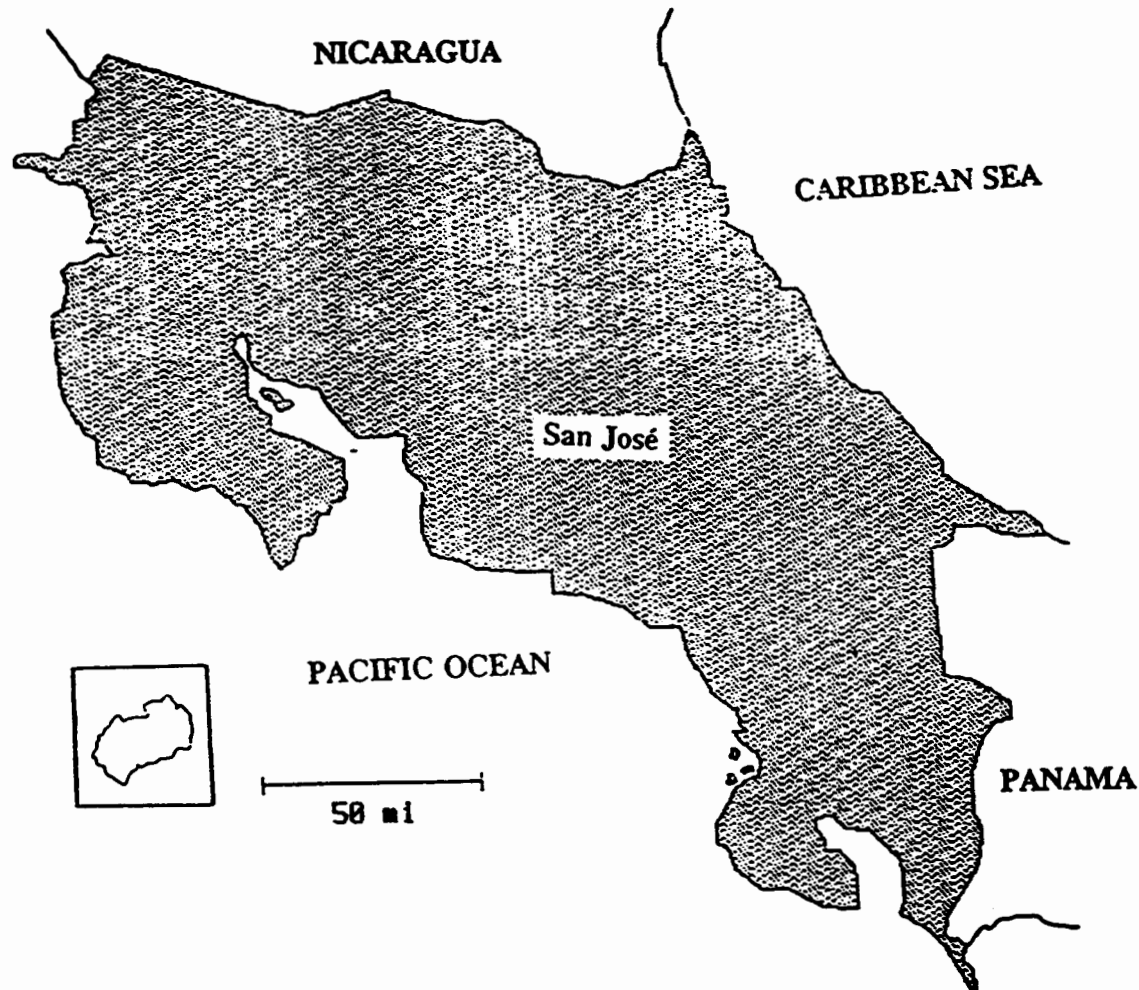
Costa Ricans are taking up their share of the responsibility for long term preservation of our watersheds. This is the case of the Grande de Tárcoles River, which we have analyzed above and that shows that through the real participation of the civil society many valuable experiences can be reached in our journey to sustainability. The Authorization System, the Voluntary Plans, the Acknowledgments and Incentives, and the Environmental Organic Law are only a sample of the new mechanisms our present Government is implementing, whose results have been also very positive in a short term.

As we have seen there are various roles the citizens may play in environmental enforcement and achievement of compliance, that is, their role as an economic and social force for compliance, their role in identifying violations, and their role in pursuing enforcement actions or forcing governments to pursue violators.

In analyzing the causes of environmental destruction, it is evident that we, human beings, need to make fundamental change in how we view the world. We need to see ourselves as part of the natural world, and we need to radically change our relationship to it. We need to be aware of the fact that we are not owners, but in a certain manner, custodians of nature and all the living things that populate the planet. We need to recognize that we have acquired an enormous responsibility for ourselves and for the future generations, as well as for the other beings that inhabit the planet. This is a genesis of a new Costa Rican citizen for this new stage of development in alliance with nature.

**REFERENCES**

1. Asamblea Legislativa de la República de Costa Rica. 1995. Ley Orgánica del Ambiente. La Gaceta, Diario Oficial. 8 págs.
2. Blanco, Rigoberto. 1995. Sistema Nacional de Acreditación para Laboratorios. Comunicación Personal. Oficina Nacional de Normas y Medidas. Ministerio de Economía, Industria y Comercio.
3. Cámara de Industrias de Costa Rica. 1994. Informe a la Municipalidad de San José sobre los resultados obtenidos por las industrias cuestionadas por sus desechos sólidos.
4. Duarte, Asdrúbal. 1995. Informe del Comisionado de la Sociedad Civil. Ministry of Environment and Energy. 8 págs.
5. Informe de la República de Costa Rica sobre gestión de los recursos hídricos (Apéndice B). 1994. Documento presentado en el Seminario Taller sobre la Gestión de los Recursos Hídricos del Istmo Centroamericano. Sede del PARLACEN. Guatemala. pp. 1-69.
6. Ministerio de Planificación y Política Económica. 1995. Plan Nacional de Desarrollo en Marcha: Principales logros de la Administración Figueres Olsen, 1994-1995. Sistema Nacional de Evaluación. pp. 32-38
7. Ministerio del Ambiente y Energía. 1995. Informe de labores: Bandera Ecológica, período 1995. 4 págs.
8. Agreements of Inter-institutional Cooperation among:
  - El Instituto del Café de Costa Rica.
  - Ministerio de Recursos Naturales, Energía y Minas.
  - Ministerio de Salud.
  - Liga Agrícola e Industrial de la Caña.
  - Cámara de Porcicultores.
  - Comité Coordinador Regional de Instituciones de Agua Potable y Saneamiento de Centroamérica, Panamá y República Dominicana.

**COSTA RICA**

Population  
3.5 million

Area (sq km)  
51,100

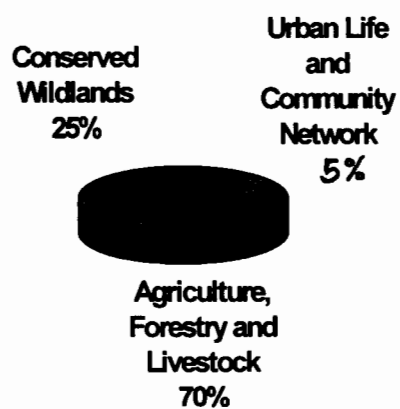
Language  
Spanish

Literacy Rate  
93%

Life Expectancy  
men 75 yrs  
women 79 yrs

Average Temperature  
70°-90° F

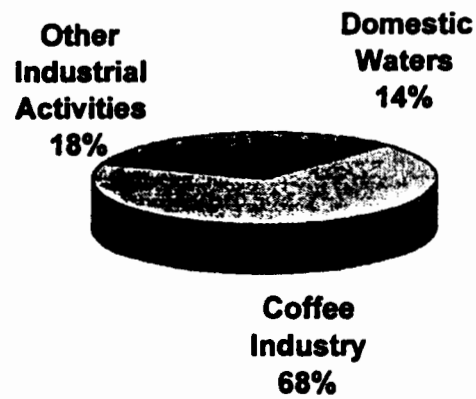
Government  
Executive Branch  
Legislative Branch  
Judicial Branch  
Electoral Tribune

**ANNEX 2****COSTA RICA: CURRENT LAND USE**



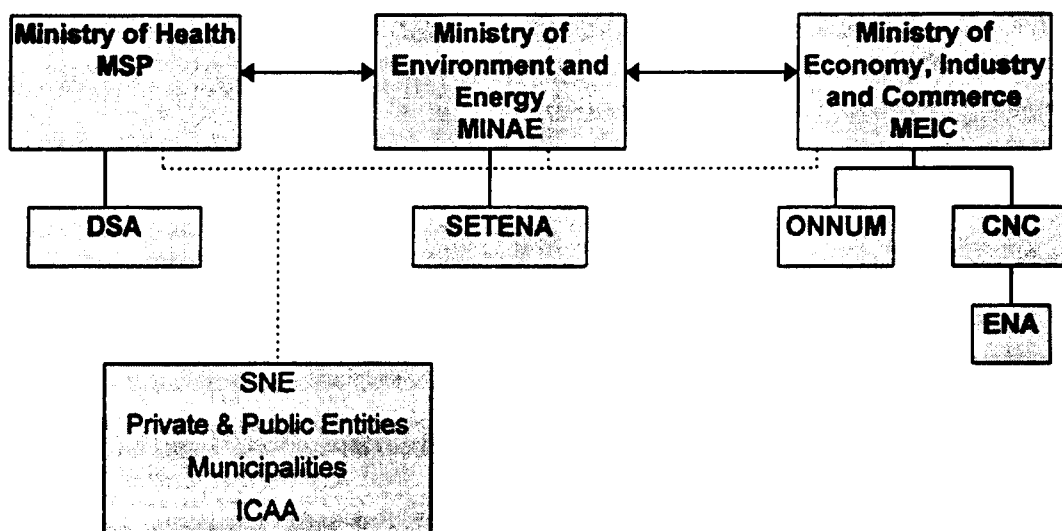
**ANNEX 3**

## **MAIN RESPONSIBLE FOR THE POLLUTION OF THE GRANDE DE TARCOLES WATERSHED**



## ANNEX 4

## ADMINISTRATIVE FRAMEWORK



DSA: Department for Environment Sanitation  
SETENA: National Technical Environmental Secretary  
SNE: National Electricity Service  
ONNUM: National Office of Standard and Measurement Units  
CNC: National Commission of Quality  
ENA: National Equity for Authorization  
ICAA: Costa Rica Aqueduct and Sewerage Institute

**ANNEX 5**

***COSTA RICA - A PILOT PROJECT FOR SUSTAINABLE  
DEVELOPMENT***

What do we understand under the concept of sustainable development?

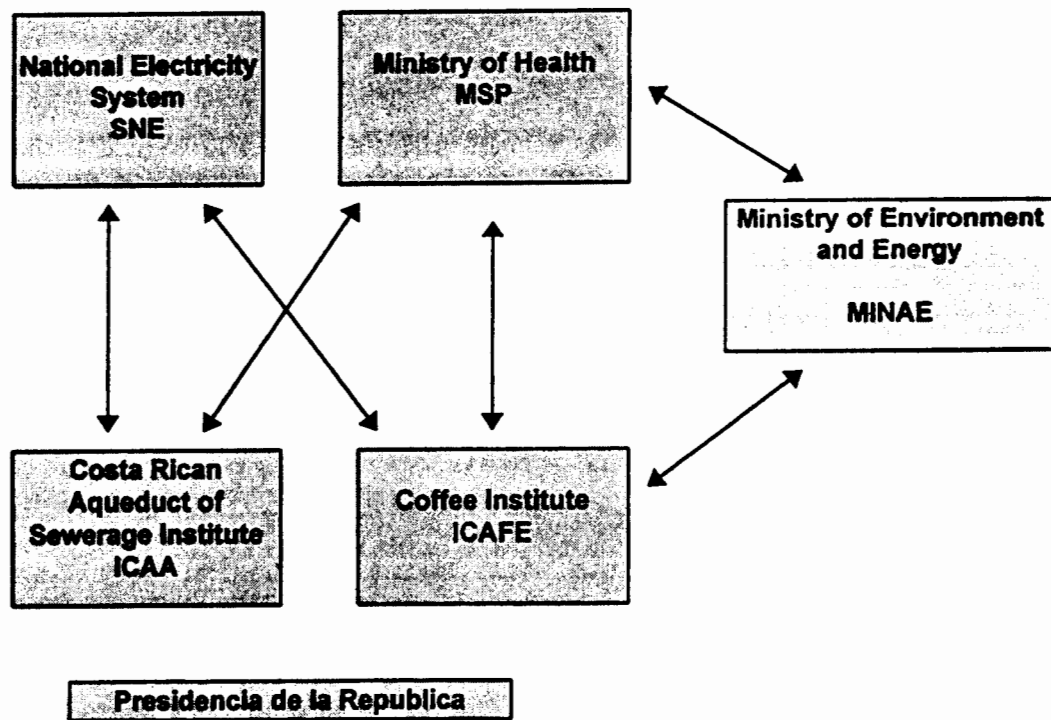
*“To find a better well-being in the present while sustaining the initial equilibrium that has made our development possible in the long-term, combining a strong social investment with macroeconomic equilibrium and an alliance with nature,” as our President, Eng. José María Figueres said, at the First International Forum “From Forest to Society” held at San José, Costa Rica, on May 9, 1994.*

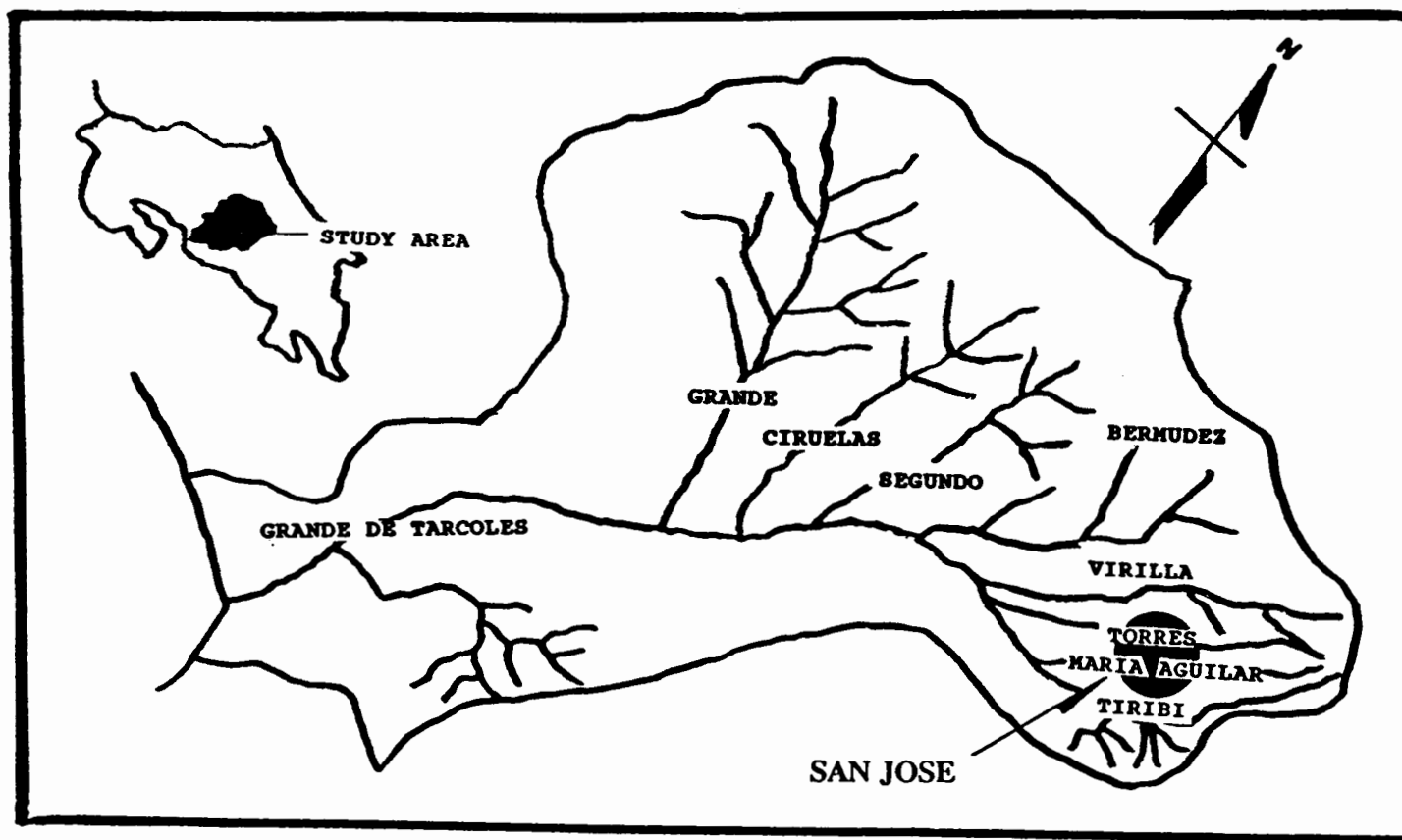
**ANNEX 6****CURRENT ENVIRONMENTAL COMPLIANCE  
AND ENFORCEMENT PROGRAMS**

- Authorization System
- Voluntary Plans
- Acknowledges and Incentives
- Environmental Organic Law, No.7554

ANNEX 7

**COFFEE RESIDUAL WATER TREATMENT  
IN COSTA RICA**





**GRANDE DE TARCOLES WATERSHED**

## **DEVELOPMENT AND IMPLEMENTATION OF INFORMATION EXCHANGE BY ENFORCEMENT OF ENVIRONMENTAL LEGISLATION**

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### **SUMMARY**

This paper gives a brief description of the Environmental Offenses Notification Bureau as a component of the 'Information Exchange Framework' established in one of the provinces of the Netherlands to assist in the enforcement of environmental legislation.

The exchange of information is also discussed, in particular the information involved, the recipients and where the information is stored. This framework makes it possible to compile surveys and management reports, which can be of use, for example, in the evaluation of collaborative projects, and the determination of (cooperative) priorities based on the yield for the environment.

Once a good structure for cooperation and consultation has been realized, this system of information exchange will be a step forward in the direction of increasing the quality of enforcement cooperation.

### **1 DEVELOPMENTS**

In the Netherlands many government authorities are involved in the enforcement of environmental legislation. Enforcement is not only effected under administrative law. The police and the Public Prosecutions Department are responsible for dealing with violations of environmental legislation under criminal law. To achieve good results it is important that there is close cooperation between these various authorities.

All authorities involved in the enforcement of environmental legislation have representatives in the National Coordination Committee for Environmental Law Enforcement, which operates at a national level. This consultative platform stimulates further implementation of the enforcement structure and facilitates the realization of the national enforcement priorities as established by the platform.

In its intermediate position in the administrative structure, it is the statutory duty of the provincial authority to establish consultative bodies, and to implement a consultation structure between all authorities involved in the supervision and the enforcement of environmental legislation within its territory.

An annex to this paper gives an introductory description of the Netherlands as a decentralized unified state and of the enforcement activities at a provincial level.

In October 1990 the enforcement authorities received a letter from the Minister of Housing, Spatial Planning and the Environment (also on behalf of the Minister of Transport, Public Works and Water Management, the Minister of Justice, and the Minister of Home Affairs) in which the outlines of the administrative enforcement structure were given. This letter stipulated that an enforcement organization should be created, in which all authorities involved in the enforcement of the environmental legislation shall cooperate in order to ensure that systematic attention is given to enforcement.

The broad outlines of this structure have now been realized. A Provincial Environmental Forum has now been established in each province. Administrative and judicial enforcement are attuned to each other in this Forum, by the use of scenarios, annual programs, etc.

Consultations are also held to make a joint assessment of the priorities based on the expected environmental yield. A further objective is to practice integral enforcement wherever possible, i.e. supervision and inspection which are not restricted to one compartment (air, water, soil, waste, noise).

The heart of this cooperative enforcement - and of the enforcement structure - is the intermunicipal cooperation in the regions as defined by the Joint Regulations Act of the Netherlands.

## 2 EXCHANGE OF INFORMATION

This cooperation needs a proper mutual exchange of two types of information.

The first type is information about environmental incidents and violations, in particular actions under criminal law, and administrative law from administrative warnings onwards. This information was not previously registered as such, or exchanged.

To this end the Provincial Environmental Forum established the Environmental Offenses Notification Bureau in Groningen a few years ago. This bureau is under the management of the regional police.

The second type is information about environmental licenses, areas and installations within which activities take place which are of relevance to the environment. As a result of the relevant statutory provisions this exchange of information was already operational to a large extent.

A system, a framework, is now needed to facilitate the proper exchange of these two types of information and, where necessary, to store the information. This paper explains which information is stored where, how, and to whom the information is supplied.

### 2.1 The environmental offenses notification bureau

Those responsible for enforcement in the field also need the right information at the right time. This is one of the reasons for establishing the Environmental Offenses Notification Bureau. This bureau is a joint initiative of the provincial enforcement authorities and uses a computer system which is managed by the police. This computer system is fed with information about environmental offenses from all the enforcement authorities involved, so that those responsible for enforcement have the correct information at their disposal.

#### *ENFORCEMENT: A PRACTICAL EXAMPLE (of how not to do it)*

*Somewhere in the province a car breaker isn't too concerned about environmental legislation. There's rubbish far beyond the boundaries of his grounds, the drainage ditches are polluted with oil, and the storage of the car wrecks is certainly not as it should be. This attracts the attention of several enforcement authorities. The water control board sends a registered letter which orders the breaker to remove the bits of cars scattered outside his grounds within four weeks. Then the water quality board sends a demand that the pollution of the drainage ditches be rectified within a period of two months. A week later the police draw up an official report because of immediate critical damage to the environment. Finally, the provincial authorities send a warning that the car breaker is conducting a business illegally. He is granted six weeks to take the necessary measures, and to apply for a license.*



*The breaker is now on the verge of despair. He does not have the faintest idea which authority has demanded what measures be taken within which period of time. So for the time being he does nothing at all.*

This situation could have been avoided by calling in the Environmental Offenses Notification Bureau.

## 2.2 The Environmental Offenses Notification Bureau: a practical aid

An enforcement authority can exchange operational information in consultation with a police environmental inspector. Here the Environmental Offenses Notification Bureau can be a source of information with a clear added value. All police environmental inspectors have direct access to the database. For example, the information from the bureau can show whether another authority is already dealing with the same case. Or it might show that the perpetrator has previously committed a similar offense. The bureau enables the enforcement authority to be fully informed before it takes any action. The information provided by the bureau may lead to the authority deciding to conduct a joint action.

As well as information of a more general nature, the Environmental Offenses Notification Bureau can also supply information which can be traced back to one specific individual. The Data Protection Act requires that two conditions shall be met before such information may be exchanged: the exchange must be necessary for the enforcement and may only be exchanged between two competent persons (for example between supervisory officials from an administrative authority and investigating officers from the police).

## 2.3 Environmental Offenses Notification Bureau: a management tool

The Environmental Offenses Notification Bureau is more than an aid for just those responsible for enforcement in the field. It can also be a tool for the collaborating enforcement authorities when deciding on policy matters. For example, the bureau can show trends in violations, or it can provide information about the results of enforcement actions during a specific period of time. For easy reference this information is presented graphically. On request, members of staff of the bureau can also compile management reports.

## 2.4 Up-to-date information is important

The Environmental Offenses Notification Bureau can assist in ensuring that the right information is available in the right place at the right time. Obviously the extent to which the bureau can do this depends entirely on the entry of up-to-date information. This information must be provided by all the enforcement authorities. The information is indicative information: the relevant information after a specific stage in enforcement.

When the bureau is to be used for project evaluation then it is also necessary to provide it with additional information.

This means that in addition to the information processed by the Environmental Offenses Notification Bureau, the bureau also has to have information at its disposal about environmental licenses, areas and installations within which activities take place which are of relevance to the environment.

### 2.5 Central information and coordination points

It was decided that the municipalities would manage the information about environmental licenses, areas and those installations within which activities take place which are of relevance to the environment. In accordance with the statutory obligations the municipal administration already receives all licenses, both new and modified, in so far as these are for installations within the territory of the municipality concerned. In turn, the municipalities constitute three intermunicipal collaboration groups within the province. The municipalities periodically provide their collaboration group with the latest available relevant information on environmental matters, and in so doing constitute a Coordination and Information Point for environmental enforcement.

## 3 USE IN PRACTICE: THE INFORMATION EXCHANGE FRAMEWORK

Agreement has now been reached about the way in which the municipal administrations and the other enforcement authorities involved receive the requisite information, and how they make the information available to the others. These arrangements have been laid down in a written agreement in order to further compliance with them by all parties involved. This forms the structure of the information exchange framework as established in the province of Groningen.

### 3.1 The added value of information exchange

Information exchange is intended to be a support tool for the enforcement activities; it is not an objective as such. Information exchange should contribute towards a better enforcement of the environmental legislation. The formulation of the general assumptions and the specific agreements for each authority involved provides structure to the agreements on information exchange; this is the added value.

Overlaps in providing information are discontinued; it becomes clear who has what information at his disposal. The intention is that information exchange be at an optimum rather than a maximum.

### 3.2 Just two telephone calls

As a result of the designation of two concentration points for up-to-date information (municipalities and the Environmental Offenses Notification Bureau) just two telephone calls are sufficient to determine the environmental status of any specific installation: one telephone call to the relevant municipality for the administrative status, and one telephone call to the Environmental Offenses Notification Bureau for information about violations (under both administrative law and criminal law). It should be realized that both bodies have only a referral duty. This means that they only state whether, for example, a license has been issued; or that, for example, there is some violation of environmental legislation. More detailed information about the license and the violation should be requested from the relevant enforcement authority. Mutual contacts between enforcement authorities remain essential. An additional advantage of the reinforcement of the municipalities as a concentration point for information is that they now have a much better idea about matters concerning their own territory. This will be of help to them, for example in responding to complaints from their citizens. The additional information can also be used in the execution of the municipality's own enforcement tasks. The Coordination and Information Point plays no part in keeping the information up to date.

### 3.3 Identification of trends and developments

An additional benefit is the identification of trends and developments, which is possible for two reasons. First, the supply of information to the Environmental Offenses Notification Bureau has been improved. Second, information is periodically compiled at the Coordination and Information Point - and the Coordination and Information Point can readily compile the information because the municipalities within each Coordination and Information Point use the same software. Together these advantages allow this information to be combined and processed in order to identify trends and developments. This analysis allows more efficient use of the limited means the cooperating enforcement authorities have at their disposal.

### 3.4 Guarantee and quality control

This information exchange is guaranteed by making and implementing clear agreements, and obtaining firm commitments. Information exchange supports enforcement. It furthers cooperation, and it assists in the execution of the enforcement tasks. This means that information exchange responds to developments in cooperation, and in methods of enforcement. It is necessary to make an annual evaluation of the agreements which have been made, and the extent to which they are being complied with. For this reason the agreements are being integrated in the 'enforcement of environmental legislation' manual. The interests and improvement of this guarantee and quality control should also be borne in mind with regard to both personnel and the organization. All enforcement authorities involved have signed an agreement in which they declare themselves willing to allow a verification of the quality of the information they provide. This has created a framework within which information exchange can further develop.

### 3.5 Usefulness to others

This paper shows that information exchange at a provincial level, in consultations with all involved, can be brought to a higher level. The precise way in which this is achieved in other situations is dependent on the specific conditions within the cooperation.

## 4 EXPECTATIONS FOR THE FUTURE, TOGETHER TOWARDS A BETTER ENVIRONMENT

The Environmental Offenses Notification Bureau was officially launched in September 1994. From that moment on the bureau was available for consultation. Obviously the framework is continually being perfected, with the wishes of the various cooperating enforcement authorities being taken into account. Practice will show that the efficiency of environmental policy and its implementation will be improved by this information exchange - if possible linked to other information systems, together with the consultation of other national and possibly international information exchange networks. This will allow the information needed for individual cases to become available, together with the preparation of surveys for monitoring and for management information.

This is why it is important that information is processed in one standardized manner, that the systems are compatible with each other, and that, where necessary, they can be linked to each other (on-line).

This standardization will make the cooperating enforcement authorities more decisive - and more credible to the general public, and to offenders. And... the environment will be the better for it.

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## **ANNEX      AN INTRODUCTION TO THE NETHERLANDS**

### **1      INTRODUCTION**

A general impression of the duties of the different levels of government in the Netherlands, especially of the province will be given.

It is important to note that the Netherlands has a parliamentary democracy on all three levels of government.

This requires a system of cooperation between the government and parliament for central government, provinces and municipalities.

Since a system of proportional representation is abided by the government needs a parliamentary each time items of policy are charged or produced. The government works under the rule of law, which means that the power of governmental bodies is based on a legal competence.

#### **1.1      Decentralization**

The Kingdom of the Netherlands is a unitary, but decentralized state. The framework of the State and State laws comprises of:

- provinces; and
- municipalities.

On a special level these both consist of a region which is a part of the State's land. The government of the provinces and the municipalities have their own councils of elected representatives. They work in the general interest of the public inhabiting these regions.

#### **1.2      Main responsibility to ministers**

The main duties and aims of policy have been assigned to the ministers of State. Specific planning systems have been set up for most of the fields of policy, both on the national and provincial level. For example:

- environmental plans;
- spatial plans; and
- water management plans.

### **2      PROVINCES**

The situation in the province of Groningen is as follows:

- The Provincial Council or Provincial State. This is the provincial parliament consisting of 55 members, directly chosen by the inhabitants of the province.
- The Executive Committee, comprising of 7 members, chosen from the members of the Provincial Council. Theirs is a full time job, governing the province. As a member of this committee the author is responsible for affairs in the field of the environment, agriculture, nature, landscape and public information.
- The Queens Commissioner, who is appointed by the Queen. He chairs the Council and the Executive Committee.

There is also a provincial administration helping the Executive Committee to prepare and implement policy in all the different fields.

The province consists of seven different departments, including the department of water quality, spatial planning, traffic and transport, welfare and economic affairs and the environment and water management.

## 2.1 Decentralization of the province

Since 1970 there has been a great increase in the amount of legislation in the fields of the environment and water management. Many of the tasks and responsibilities have been decentralized to provinces, municipalities or water boards.

It is important to emphasize that the province has an important strategic role in the field of:

- spatial planning/land use;
- environmental planning; and
- water management planning.

Although there is no formal hierarchy between the national and the provincial environmental policy plans, the provincial government takes account of the main aims of the national environmental policy plan, as well as those of the European Community.

Besides planning the province is responsible for granting and enforcing permits to larger industries and installations, and to large-scale activities in the open field, with the Executive Committee as the competent authority.

## 2.2 Task of municipalities

The municipalities are not obliged to make an environmental policy plan. However they are responsible for granting and enforcing permits for installations, businesses and activities in the open field with less environmental impact.

# 3 ENFORCEMENT ACTIVITIES OF THE PROVINCE

The enforcement activities of the province are:

## 3.1 Inspection and control activities

The province is the competent authority to grant licenses and also carry out inspections to enforce the environmental law for those activities which have the greatest effects on the environment (10%).

The municipalities are responsible for the environmental licenses for the rest of the activities.

The waterboards are the main authorities to grant licenses and also carry out inspections to enforce the Pollution of Surface Water Act.

Therefore several civil servants have been appointed by the province, municipality and waterboard as inspectors. They regularly pay visits to their license-holding industries and firms.

### 3.2 Coordination and enforcement activities

Many authorities are involved in enforcing environmental law in the Netherlands. Enforcement does not only involve administrative enforcement, but also the police and the Public Prosecutor tracing and persecuting criminal activities which break the environmental laws.

Close cooperation is necessary to achieve good results. The provincial administration, as the administrative body on the "middle level" has been given the legal responsibility to organize regular meetings between the representatives of the organizations involved with enforcing the environmental laws. It has done so by instating a consultative body.

### 3.3 Tasks of the provincial policy for environmental law enforcement

- to compare and adjust the enforcement policy of all the authorities involved;
- to set up a network for enforcement and to promote cooperation;
- to exchange all kinds of enforcement information; and
- scenario.

The "scenario enforcement of environmental law for the province of Groningen" discusses the common aspects of enforcement, which are of importance for all the authorities and for the different regulations. Things discussed include general aspects such as:

- publicity;
- exchange of information;
- coordination;
- recommendations concerning the supervision; and
- the choice between a criminal and/or administrative approach.

The scenario also deals with diverse specific subjects as fertilizer and waste products. It also concentrates on what (and at what point in time) is expected from whom with respect to specific issues.

Good administration and official consultation also take place on local level between the municipalities, province, police, Inspectorate for the Environment and Public Prosecutor. These consultations take place regularly (5 to 7 times a year). They also allow the participants to get to know one another better.

## **CLOSING REMARKS FOR THE FOURTH INTERNATIONAL CONFERENCE ON ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT**

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Ladies and Gentlemen, on behalf of the Executive Planning Committee for the Fourth International Conference on Environmental Compliance and Enforcement, we bring this Conference to a close. We want to thank the speakers, the moderators, the facilitators and of course you as participants for your contributions in the plenary sessions, the workshops and the regional meetings. We observed very active participation and lively discussions not only during the formal working sessions but also among you as participants well after the meetings stopped. You went on even after that, during lunch, after dinner and well into the night.

Your energy and enthusiasm was evident and in saying that we feel free to conclude that this conference was a very great success. We took great strides forward in establishing the kind of networking and exchange of experiences the conference organizers hoped to achieve. We look forward to reviewing your evaluation forms.

The conference was sponsored by: the United States Environmental Protection Agency; the Environmental Law Institute of Washington, D.C.; the European Commission in Brussels; the United Nations Environment Program in Paris; Environment Canada; the Pollution Control Department of the Royal Thai Government; and the Ministry of Housing, Spatial Planning and the Environment of The Netherlands. They were assisted in preparing this Conference by the Executive Planning Committee with representatives of the Environment Ministries of Mexico, Chile, Costa Rica, South Africa, Egypt, Nigeria, Poland, Hungary, England and Wales, Malaysia, the Philippines and the Peoples Republic of China as well as representatives of the United Nations Development Program, the World Wildlife Fund and the United Nations Environment Program in Nairobi. Their efforts were in response to the growing demand for a fourth conference in Asia following the Third Conference in Oaxaca, Mexico.

## **OPENING AND WELCOMING REMARKS**

Minister Yingpan, the Environment Minister of Thailand, welcomed participants, establishing the commitment of Thailand to effective environmental enforcement viewed in the context of sustainable development. His country, undergoing such rapid growth as is the rest of Asia, has been working to catch up to the intense pressures on the environment. He recognized that domestic programs contribute to global environmental improvement and this justifies regional and international cooperation. But also in Thailand a new law has been passed with enforcement measures that has already started to enhance the environmental quality in ten designated pollution control areas.

Steve Herman, Assistant Administrator of the US Environmental Protection Agency, opened the conference, reflecting on the strong public support for enforcement and growing awareness that environmental pollution affects economic productivity, health and the quality of life for now and for generations to come. He emphasized, however, that strong enforcement must be

the underpinning of all environmental efforts. Voluntary programs and compliance programs will not work unless they are constructed on a foundation of strong and vigorous enforcement. Strong enforcement guarantees the credibility and integrity of a nation's environmental policy. Since pollution does not respect borders, neither can our enforcement programs. Nations must work together and this conference will strengthen our ability to continue to work together.

Minister Margaretha de Boer of the Netherlands by means of her Inspector General Pieter Verkerk addressed the need for government enforcement programs to work with each other at both the domestic and international levels. In the Netherlands the Environment Ministry has integrated its activities broadly by establishing a National Committee on environmental law enforcement with other ministries, regional authorities such as provinces, municipalities and water boards and the police. The Netherlands strongly supports regional cooperation and has a strong position within the European Union's network for implementation and enforcement of environmental law. Projects on transborder shipments of waste as well as bilateral contact in individual enforcement cases are part of this international networking.

## **1 DRIVING FORCES FOR ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT**

Mr. Reuben Olembo of the United Nations Environment Program delivered the keynote address for Elizabeth Dowdeswell on theme 1, the driving forces behind environmental compliance and enforcement programs.

Ultimately, there is only one driving force: the inescapable need for environmentally sustainable development. Making progress toward sustainable development means making progress in six areas: atmosphere and climate; deforestation and desertification; fresh water and the oceans; toxic chemicals; biodiversity; and energy and natural resource consumption. Chapter 8 of Agenda 21 at the 1992 Earth Summit specifically states the need to build compliance and enforcement capacity as an essential element of environmental management. Further driving forces are: public demand; industry and international trade; and standards and agreements.

Following the keynote address on this theme the panel discussion revealed the importance to industry of certification under emerging international voluntary standards. Industry sees ISO 14000 as a way to make more environmental progress at less costs and an opportunity to sell this to advantage in the marketplace. There is awareness that certification simply means that an environmental management system is in place, but not that the company is in compliance. And, while governments must try to develop appropriate relationships and recognition of industries who subscribe to these standards, they must take these factors into account.

Furthermore, a concept of social acceptability is a driving force. In the Philippines this system of seeking popular approval of environmental actions works and citizen involvement and interest is driving compliance. Privatization can be a driving force as can transformation of economies and desires to join in economic blocks. In Poland privatization turned out to be a driving force several years ago but now the key influence is a desire to join the European Union. In Mexico and Nigeria commerce and international trade and problems in concern with illegal shipments are driving the countries' environmental compliance and enforcement programs.



## **2      APPLYING PRINCIPLES OF ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT TO SOLVE ENVIRONMENTAL PROBLEMS**

We had an excellent overview of the definitions of the terms compliance, enforcement, and compliance and enforcement programs, which provided us with a common frame of reference for discussion and exchange despite our different cultures and legal settings. We all had an opportunity to apply those principles to interesting case studies reflecting shared environmental problems in residential and industrial waste disposal, petroleum refining and petrochemicals, mining, tourism, deforestation, coal burning and processing, and in a new case study on transboundary illegal shipments of hazardous waste, pesticides and ozone depleting substances. These workshops were supported by standalone technical support documents highlighting control and prevention opportunities.

## **3      ESTABLISHING INTERNATIONAL COOPERATION AND REGIONAL NETWORKS**

The Fourth Conference builds upon several networks for enforcement that have grown out of these conferences. Conference participants heard reports on progress from the European Implementation and Enforcement of Environmental Legislation Network, IMPEL. In the Fifth Environmental Action Program for the European Union a strategic plan for sustainable development in Europe was presented in which enforcement is a major subject, augmented by market oriented approaches, such as environmental charges, negotiated agreements, fiscal instruments, and environmental liability. The European enforcement's week-long staff exchanges are a great mechanism and morale builder. Networks deliver information, consistency across programs, and support for problem solving.

The workings of Interpol were explained and achievements cited in networking country police and information and expertise exchange. Interpol maintains a worldwide network of police. The standard of information exchange regarding environmental crime is the "ecomessage." Interpol supports training programs to build environmental expertise.

In Asia, ASEAN represents a potentially strong network for environmental compliance and enforcement. In particular, the ASEAN Senior Environmental Officer forum maintains six working groups on environment: 1) transboundary pollution; 2) environmental management approaches; 3) environment and economy; 4) environmental information; 5) sea water; and 6) environmental conservation. It also establishes bi- and tri-lateral dialogues. South Asia also has a network to explore environmental issues but similarly it does not focus on implementation and enforcement issues.

At the moment there is little regional cooperation in the Middle East on environmental matters but there are possibilities and opportunities which may be realized with high level support, further advances in domestic environmental programs and legal frameworks, support from international organizations and common commitments to international agreements. The first steps will be getting to know each other, exchanging preliminary information and identifying common needs. Then it may be possible to identify national focal points and sketch a possible structure and potential objectives for exchange and appropriate communication mechanisms.

In the Americas, international cooperation is yielding real results. Efforts such as joint training of inspectors and customs officials, targeting, and conducting enforcement actions are showing that regional cooperation works. Additionally, programs to encourage responsible environmental behavior by industry conducting business on both sides of the border are also

promising. Haztracks, a US-Canada-Mexico effort to track transboundary shipments of hazardous waste, has led to identification of international violators. The North American Council on Environmental Cooperation is serving as a neutral forum bringing countries together. In Central America programs for cooperation in sustainable development and harmonization of environmental laws are just beginning to address implementation and enforcement issues.

#### 4 INTERNATIONAL CAPACITY BUILDING

The purpose of this session was to present the kind of international support available to countries and NGOs for building capacity for effective environmental compliance and enforcement in addition to bilateral exchanges.

First, the United Nations Environment Program presented both their environmental law and their industry and environment programs and the support they offer. This presentation opened by establishing sustainable development as the general framework for capacity building post-UNCED. Four steps were cited to capacity building: 1) development of legal and institutional policies; 2) development of national laws; 3) negotiation on environmental programs; and 4) developing institutional capacity for industrial compliance including permitting, compliance monitoring and enforcement. UNEP has taken on the responsibility of coordinating efforts of all UN agencies.

To accomplish these goals, UNEP's environmental law center focuses on use of country experts, not outsiders. Program assistance must be sustained until results are attained. Partnerships are key. UNEP programs must support country enforcement programs, move environmental attention "up the pipe" to prevention, support partnerships with other institutions, encourage technology transfer, and integrate environment and other policies.

The Environmental Law Institute, U.S., a leading NGO, suggested that there are three elements that are necessary to build capacity for effective public involvement in supporting compliance and enforcement: (1) legal rights - i.e. standing; (2) access to information; and (3) clear enforcement standards. Several NGO's offered the fact that they were greatly assisted by ELI and the Alliance for Environmental Law in establishing effective NGO's and in training through their regional and international projects.

The United Nations Development Program, UNDP, was the task master for Chapter 8 of Agenda 21 on capacity building. UNDP is focusing its efforts on desertification, finance (the Global Environment Facility), energy and atmosphere, natural resources management, and sustainable development networking.

The World Bank has a growing portfolio of projects devoted to institutional capacity building usually in association with specific projects and development programs.

Other elements of capacity building mentioned during the general participant discussions included:

- measuring success through reporting;
- joint enforcement efforts among government and NGOs;
- formal training programs to build skills for attorneys;
- use of internet as source of public information on offenders;
- engagement of media in support of program goals;
- grade school education on environmental values; and
- use of citizen lawyers for enforcement actions and prosecution.

## 5 SPECIAL TOPIC AND INSTITUTION BUILDING WORKSHOPS

### 5.1 Strategic Targeting

Participants in two separate workshops from countries with a broad range of existing environmental enforcement programs, including a few who had strategic targeting plans for environmental compliance and enforcement and many who were interested in developing these plans, discussed and made observations on the following:

1. Strategic priority setting requires discussion with others, both within the organization responsible for environmental compliance and enforcement as well as with other ministries or organizations and the public.
2. Strategic targeting requires an overall framework, for example, national action plans to enable priorities to be set.
3. Strategic targeting and priorities often have to be set without complete information. Several criteria for information to consider include:

- compliance history of the industry or particular facility;
- experiences in other countries;
- political agendas;
- public concern;
- quantities of pollutants;
- urgency of problems;
- geography;
- topography; and
- specific pollutants.

### 5.2 Integrated permitting and inspection

Participants from several regions and countries in different stages of development of permit programs attended the session – five countries with developing permit programs and twelve countries with ongoing permit programs.

#### 5.2.1 Defining “integrated permits and integrated permitting”

Integrated permits were defined by the group as one permit related to one facility covering all elements of the environment. The group realized that there were different approaches and goals for integrated permitting systems and integrated permits that existed around the globe, ranging from integration of permitting processes to integration of substance. These different approaches were:

- a. An additive approach (or the big staple) which essentially added together the results of what were essentially separate permitting processes to deliver a single permit.
- b. A coordinated approach in which separate permitting processes are coordinated to ensure that cross-media and cross-program transfers of pollution do not occur and that information about the facility is shared.

- c. Holistic approaches which create new substantive requirements as a result of permit integration at three different levels:
  - best available technology from a multi-media standpoint is applied;
  - pollution prevention and cleaner technology is emphasized in addition to a baseline of compliance including resource; and/or
  - the integrated permit takes into account overall environmental impacts.

### 5.2.2 Implementation issues

In reviewing country experiences, it was clear that they reflected a variety of approaches and that few countries have had actual experience with integrated permitting that is holistic. Among the countries participating in the workshop, only New Zealand had experience with holistic approaches and had carried out integrated permitting to the 3c level by using EIA as an application and including ecological conditions in the single environmental permit. They have only issued 3 to 4 such permits since their laws were changed in 1991. Some U.S. states are experimenting with level 3b integrated permitting but have not yet issued such permits. Many countries in Western, Central and Eastern Europe are preparing to comply with European Union's IPPC requirement for integrated permitting and are facing some very real issues regarding implementation. The participants discussed several issues:

- The relationship between Environmental Impact Assessment (EIA) processes and integrated permitting: In many countries around the world, environmental impact assessment either precedes permitting or can serve as a basis for an integrated permit application. The EIA typically involves an holistic assessment of releases, risks, ecological impacts, resource usage and all other environmental implications. EIA if followed up with operational conditions, brings many of the advantages of integrated permitting even where such permitting is not practiced. If an integrated permit is intended to identify, measure, weigh, and resolve tradeoffs among media, risks, and impacts, difficulties remain as to how this can be accomplished, particularly given the absence of methods, technical skills and discretion not easily exercised by the typical permit writer. Possible solutions involve more guidance, including such judgments in standards for such permits in advance, and getting discussions among teams of experts who can help to address such issues. Additional concerns are the pressures to permit new construction and the potential for delay to address ecological issues related to flora and fauna.
- Organizational issues: Single-medium permitting and inspection is the norm in many countries, and organizational lines are drawn by medium. A move to integrated permitting or inspections raises organizational issues created by organizational autonomy and the need to cut across organizational lines of authority. Solutions included New Zealand's approach of making one person responsible both for a site and a sector to ensure consistency. Related approaches include assigning lead responsibility to one organization to coordinate and integrate permits as is done in Romania, and South Africa's proposed tiered model in which local inspectors serve largely to screen for compliance problems and regional experts, who have sector specific expertise, are brought in less frequently or when necessary, ensuring familiarity with local conditions while maintaining expertise. Romania used audits of permit writers and inspectors to provide integration.

- Multi-media Inspections: The group reviewed the new capacity building support document on integrated multi-media inspection approaches and discussed the distinctions that are similar to those in integrated permitting between different approaches (i.e., screening, teams, consolidated and process based inspections) and their substantive purpose and scope (i.e., compliance only, screening of environmental impacts, technical assistance for prevention and compliance). The group discussed whether the same individuals should write permits and perform inspections. While Austria and South Africa have combined these roles, and New Zealand's site coordinator coordinates both for a site, there was general sympathy for Italy's experience that it works better to separate responsibility for inspection and permitting.
- Programs can have integrated permitting not accompanied by integrated inspections and integrated inspection but not integrated permits: There is insufficient experience to assess whether an integrated permit would assist multimedia inspection.

### 5.3 Compliance Monitoring

Thirteen participants attended two sessions and developed recommendations:

- Representatives from developing countries expressed a need for integrated (multi-media) inspector training. There was considerable interest in the potential for the modified US EPA multi-media screening checklist in the new capacity building document on "Multi-media Inspection Protocols". Indeed one official from a developing country felt that the checklist could serve as a first step for those countries with no inspection program.
- There was considerable interest in working towards the development of a communications network and database for the purpose of exchanging information among countries on multi-national companies operating in several locations as to their compliance history and use of control technology.
- There was need for training in ISO 14000 and therefore requested training, in particular on the relationship between the ISO 14000 provisions and the country's existing legal system.
- A particularly interesting part of the discussion focused on the issue of bribery of inspectors. One of the observations that the group made was that multimedia team inspections can deter the possibility for bribery since it is likely that at least one of the inspectors will be honest.
- The participants had an extensive discussion on self-reporting, self-monitoring, and record keeping. One need that was uniformly expressed was to obtain a reliable quality assurance/quality control system to verify such data. Once again, there was interest in the new capacity building support document on the general subject of source self-monitoring.

### 5.4 Promoting Voluntary Compliance

Participants discussed ways to promote voluntary compliance in two sessions. The participants discussed the notion of "voluntary compliance" for some time since any compliance with requirements was not really considered to be purely voluntary. Efforts to promote voluntary compliance and purely voluntary programs were considered to be important ways to achieve environmental protection and behavior change which can focus on both compliance with

environmental mandates and "prevention" of environmental pollution. Voluntary compliance programs can achieve results by offering positive and negative incentives, information, education, communication, and certification of sound environmental performance for use in domestic and international markets. Nevertheless, participants agreed that there could be no voluntary compliance without a strong enforcement program that is executed. Many factors drive the success of voluntary compliance including: public opinion, global competitiveness, enforcement programs, self-motivation and awareness, improvements in internal accounting systems that identify higher than expected costs of waste management, and requirements of suppliers and buyers.

Some voluntary compliance-oriented programs such as ISO 14000, shift from a regulatory to a market based approach that implies the need for a change in attitude. The common denominator among classical enforcement and new economic and voluntary measures is ensuring some form of accountability. Market based measures for accountability still need to be developed.

## 5.5 Measures of Success

There are many ways to define success for an environmental compliance and enforcement program. Participants in this workshop developed a potential list of measures with dozens of activity and results measures, but agreed on several principles:

- A mix of quantitative measures and qualitative assessments: no single statistic can be made useful in the absence of qualitative information.
- Linkage between objectives and measures that are appropriate: For example, an increasing number of violations is a success in a program seeking to improve detection and a failure in a program trying to reduce the rate of noncompliance. Similarly in programs such as those of Thailand and Malaysia increased numbers of public demonstrations may evidence an increase in desired public involvement whereas it may be considered a negative indicator elsewhere. Purposes may range from seeking to support requests for program resources, to assessing performance, to seeing if actions resulted in desired results, to assessing overall strategy and accomplishments. Measures of success identified by participating countries ranged from counting inspections to measuring concentrations of toxic pollutants in shellfish. They included reductions in government roles, reductions in repeat violators, increases in compliance rates, and increased level of public awareness and participation. They included increased environmental department budgets. Measures also include accomplishing something that gives a feeling of pride and accomplishment, accomplishing something "to feel good about." In addition, different measures are appropriate at different stages of development of environmental programs. This is caused in part by the different program objectives. Enforcement should be considered as instrumental to environmental policy programs, not in isolation, and their successes should be considered in that light.
- The ideal measure of enforcement success is improvement in environmental quality, however, indicators of enforcement or compliance activities such as numbers of inspections or numbers of penalties are necessary to know what we are doing. The U.S. is trying to ensure environmental measures accompany every enforcement action. There appears to be a natural life cycle to a program and what are appropriate measures of success at different stages of the program, such as the case in British Columbia, Canada where shell fish beds needed protection through enforcement but measures

evolved over time from numbers of enforcement actions initiated and inspections undertaken in the early stages to penalties and clean up imposed through enforcement to eventually measure shellfish bed improvements.

- Multiple audiences for measures must be addressed and new sources of creative ideas developed for "evaluating progress"—potentially a preferred concept to that of measuring success. Many measures used for internal management are not sufficient or convincing for our external audiences.
- We should work on the development of environmental indicators. Those are difficult to relate to enforcement activities since so many other factors affect environmental quality. Several leading industries have developed composite measures of their own compliance and environmental performance that might be useful including several shared with the group which weighted number of incidents, their severity and the complexity of the facility's operations.

In short, there is no one magic formula.

## 5.6 Communication Strategies for Enforcement

A new workshop was introduced for the first time at the conference to enable participants to plan communication actions in the process of enforcement in order to enhance the effectiveness of compliance and enforcement activities. The participants engaged in exercises to identify a mix of preferred communication media and activities within limited financial and other resources to assist in accomplishing an enforcement goal. The participants became aware of the need for using communications as a means of getting the results they wanted from enforcement and learned that it was actually possible. While they enjoyed the game and felt it offered valuable lessons, participants recommended that it could be valuable to augment it by role playing and application to an actual enforcement program plan of a country.

## 5.7 Public Role in Enforcement

The two sessions on public role in environmental enforcement focused on different aspects of how citizens can be involved in enforcement. Both groups agreed that public involvement could function both as a supplement to and replacement of governmental enforcement. Both sessions focused on the conditions which facilitate citizen participation, such as access to information, independent judiciary, public awareness of enforcement needs and a public right to enforce. In addition, the groups discussed how public involvement takes place, including citizen monitoring of compliance, citizen complaint systems, and citizen enforcement lawsuits. The morning session developed eight principles for effective public involvement:

1. The public should have the right to a healthy environment.
2. The public should have the right to enforce environmental law against any violator (including the government)
3. The public should have the right to require the government to carry out its mandatory enforcement duties.
4. Government should provide mechanisms for the public to enforce these rights in court. (standing)
5. Government should build an awareness among the public concerning environmental policies, enforcement needs and the role citizens can play.

6. Government should provide support and opportunity for the public to monitor environmental problems and channels to communicate those observations to the government.
7. The public should have timely and affordable access to information necessary for enforcement efforts, including current environmental monitoring data.
8. Government should provide financial incentives for citizen enforcement and remove barriers to citizen enforcement.

#### 5.8 Criminal Enforcement

In two sessions, several topics were addressed. It was a general view that environmental enforcement may take years to develop. It is a long process of training, coordinating efforts and knowledge, draughting laws and regulations, setting up permit systems etc. In countries that seem to be far ahead now it also took years to come to the point where they are now. The problem of getting and keeping environmental cases high on the priority list is worldwide: it always has to compete with murder, rape, drugs etc.

It was evident that a number of countries are in need of good training programs for investigators and prosecutors, and for judges too. Various networks need to be established to provide this service. USEPA and the US regional enforcement project may be able to serve this need to some degree. There is also a very basic need for some countries to have information on what constitutes civil concern or a crime. In some areas a checklist approach has been found valuable in assisting inspectors to identify an environmental crime. Because of other priorities such as murder and drugs it appears that countries need to develop resources for dedicated environmental prosecutors. This would also be beneficial because many times the crimes are so complex it takes a full time prosecutor to learn and apply the laws.

It was also very apparent that the most effective and efficient approach to addressing environmental crimes is a cooperative coordinated approach between affected programs like the police, the environment agency, prosecutors, fire and haz-mat-teams etc. Defining roles, responsibilities, and assigning accountabilities are imperative. It was said that in countries where the police are not involved in environmental enforcement but they should take part, a basic expertise is needed.

There is a great diversity between countries regarding the nature of the sanctions and the use of sanctions. The sanctions vary from fines to jail terms. Six papers were produced to introduce this topic, including one from China, which recovers costs of investigations, imposes costs for repair or clean up, enforcement notice, to preliminary measures (by the prosecutor), external audit and the recovery of profit.

The role of Interpol was explained and the way this network operates. There was much interest to try and coordinate more between the various countries. An additional piece will be produced in which the Interpol-function will be explained. The network covers some 157 countries. In the European region Interpol has a working group established for further concrete information exchange. Until now it was hard to get in contact with Eastern Europe in the Interpol working group, but now there will be extra effort made to involve this region.

Further areas to address:

- lack of investigatory knowledge problem;
- inadequate priority;
- skills or knowledge on how to handle major environmental cases;



- problems with smuggling of endangered species, which are on the brink of extinction; and
- desludging of ships in the waters of Malaysia.

There is action being taken but it could be more effective if there was information exchange about these kinds of criminal activities and the owners of the ships or the agents internationally.

The conclusions of the third conference were supported: civil and criminal sanctions can play an important role in an environmental enforcement program and send a strong deterrent message to industry and public. Effectiveness in enforcement is best reached by cooperation among all agencies involved. Training remains essential to effective enforcement.

#### 5.9 Enforcement of Economic Instruments

Participants first addressed the need to have a regulatory structure in place before governments use economic instruments. A goal of the majority of participants is to begin to shift away from, or to supplement command and control types of regulatory and enforcement systems with systems that incorporate market incentives for pollution control.

Economic instruments can be used to internalize the real costs of pollution, often better than regulatory schemes to encourage behavior changes. The discussions in both sessions attempted to deal with four primary issues associated with implementing market based incentives in the environmental enforcement arena: First, how to establish economic incentives; second, how to administer economic incentives; third, how to ensure compliance with a market based program; and fourth, how to respond to violations. Participants discussed these issues on a country by country basis giving examples of successes in their country and areas where they would like to see improvement. They concluded that what is necessary for effective compliance and enforcement will vary based upon the nature of the economic instruments. For example: an environmental tax is only possible when a country has an appropriate tax system. The importance of economic instruments for environmental purposes will grow in the future as countries explore ways to make it possible to lessen the need for enforcement of regulations by using economic incentives for compliance.

#### 5.10 Creating Enforceable Permit Programs and Requirements: Discussion Focus on Water Pollution and Contamination of Drinking Water Supplies

All participants underline that clean surface water and safe drinking water must be a top priority. Some countries choose a way of using one integral environmental law to realize this. Other countries prefer separate legislation because they do not want solving the clean water problem mixed up in other environmental issues and complex legislation. Also, solving the clean water problem with watershed requirements does not fit neatly into existing responsibilities.

During the discussions it became clear that enforceable environmental requirements are critical for gaining compliance from the regulated community but these requirements cannot be drafted in a vacuum. It is essential that the requirements are developed in the context of the country's social and economic conditions. Adopting requirements that cannot be complied with by the country's industry or population in a timely, reliable and affordable fashion will be difficult if not impossible to enforce and may result in "political" backlash that causes more harm to the environment.

The session began with a summary of some basic concepts regarding developing requirements reinforcing the criteria and approaches set forth in prior conferences.

Participants discussed the need for good data regarding the status of the environment. Many countries are developing information/data by watershed or region. This data, both of a scientific nature and resource availability, is important for helping build understanding and awareness with the public and the entities to be regulated as to the importance of complying with the environmental requirements.

Some participants were just in the first stages of drafting and implementing their country's laws that protect the environment. All participants agreed that you must have good environmental laws as the base from which you build your requirements/regulations. You will not be able to enforce and gain compliance from the regulated community without these underlying laws. Some countries discussed the difficulties with having many different environmental laws and agencies responsible for carrying out these laws. These overlapping responsibilities and roles create confusion and conflict and make compliance of the regulated community more difficult. Some countries have consolidated their environmental laws into one law or are starting out with a comprehensive law that will regulate the environment for the country.

#### 5.11 Transboundary Shipments of Hazardous Waste - Tricks of the Trade

Participants at the special topic workshop on transboundary shipments of hazardous waste developed a list of desired actions to be undertaken by the time of the next international environmental compliance and enforcement conference. Problems related to enforcement and compliance monitoring of international traffic in hazardous waste are still viewed as significant. Recommendations from the Oaxaca conference regarding the need for clear and uniform definitions, clear responsibilities and organization, strong linkages for information exchange and an international network of enforcement agencies remain valid. Also, the group highlighted as an additional goal, the need to enhance communications and relationships between environmental agency enforcement officials and customs officials.

The group's three action items are as follows:

- Create an informal network of contacts (persons and agencies) for the quick transfer of information regarding illegal transboundary shipment of hazardous substances. Members of this informal network will endeavor to share expertise and experiences and, upon request, to seek to provide technical assistance and training.
- Create a library and inventory of training and other technical materials for use in developing effective and cooperative coordination between environmental enforcement and other relevant enforcement agencies (e.g. customs and police) -with participants from the U.S. taking the lead.
- Develop a handbook to guide personnel involved in the enforcement of hazardous waste control legislation. It will include (i) creation of generator, shipper/transporter, transshipper, receiver, disguised material, and disposer profiles; (ii) assembly of relevant case histories and jurisprudence; and (iii) assembly of photographic and other material to aid recognition of non-compliance.

#### 5.12 Montreal Protocol: Enforcement of CFC and Related Requirements

The Special Topic Workshop on the Montreal Protocol: Enforcement of CFC and Related Requirements was attended by several representatives, including both developed and developing countries. During discussions it was agreed that:

- The goal of reducing and phasing out the production and consumption of ozone depleting substances under the Montreal Protocol has been adopted by both developing and developed nations. The developed nations in attendance have met the deadline for banning CFCs; certain developing nations have already phased out some ozone depleting substances ahead of schedule.
- Both developing and developed nations have designed enforcement programs to implement the requirements of the Montreal Protocol. Developing nations have generally relied upon voluntary compliance approaches and are beginning to adopt legal instruments containing specific requirements. The enforcement programs designed by both developing and developed nations have documented successes, but more work needs to be done. The progress made in phasing out and/or banning ODSs has resulted in other enforcement challenges for some nations, such as phasing out the use of ozone depleting substances by consumers and small business and facilities.
- Export flows to developing nations of used equipment and appliances containing ozone depleting substances continue to be a problem. The "dumping" of low costs ozone depleting substances also continues to be a problem for developing nations, and will make it difficult for them to comply with the phase out schedules in the Montreal Protocol.
- Developing countries may need financial and technological assistance to improve and enhance compliance with the Montreal Protocol.
- While problems in illegal importation of banned ozone depleting substances have occurred in countries adopting bans, it did not yet pose a major problem among the majority of nations in attendance.

#### 5.13 Organizing and Financing Environmental Compliance and Enforcement Programs

Participants explored a range of organizational designs. The workshop session opened with a discussion of three generalized phases of environmental compliance and enforcement organizations. No organizational design is necessarily better than another, and organizations must be customized to country circumstances and overcome some of the disadvantages of the organizational arrangements selected. Many variations exist across countries, however a consistent theme in some of the regional meetings is the problem of confusing and overlapping laws and organizational jurisdictions and the lack of attention to implementation and enforcement issues by interministerial committees established to overcome these problems.

The participants reviewed funding options and the mechanisms described in the new capacity building support document on financing and budgeting programs. There may be little sense in central governments providing local governments grants if they lack infrastructure to manage those funds.

Funds derived from polluter payments can be used to finance programs and send messages to reduce environmentally harmful behavior. Yet, they may be less certain in the long run than general revenues. Hence a mix may be appropriate.

NGOs that are just getting started may require training on fund accounting and access to donor agency funds so that they can be more effective in attracting these sources.

#### 5.14 Enforcement Policies and Authorities

Participants discussed the full range of approaches to achieve changes in behavior including not only traditional enforcement approaches such as administrative, civil judicial and criminal enforcement tools and authorities but also compliance promotion and economic incentive schemes. Participants from Asian countries relied heavily on economic incentives and voluntary approaches to augment enforcement. Participants briefly discussed new approaches under development in Central and Eastern European countries to support creative solutions to enforcement of violations to maximize risk reduction and address economic realities while maintaining requirements for compliance.

### **6 MAKING PROGRESS: REGIONAL EXAMPLES, CAPACITY-BUILDING AGENDA, INTERNATIONAL/REGIONAL NETWORKS**

An important conclusion after four conferences is that the participants are on a very steep curve in increasing the level of understanding and practice on environmental enforcement. During these four conferences we have built frameworks of knowledge, documents with a wealth of useful and practical information on enforcement. The principles of environmental compliance and enforcement are clear and understandable to everyone that is interested in environmental enforcement. We must use this momentum to carry the knowledge, expertise, training experience and regional networks to a even more effective level. This will be an important goal for the next conference, as will be the further development and broadening of these networks for both enforcement of domestic and international requirements. At this Conference we had 200 participants and 90 countries and international organizations participated.

Ladies and gentleman, we are at the end of what I have recognized as a very good conference. You as participants were very active in discussions and workshops; so you are part of that success. We want to thank the active participation of the Executive Planning Committee members. A special word of thanks is also going to our host of the Pollution Control Department of the Royal Thai Government for their active participation and their hospitality at the cultural event with the Khan Toke dinner on Tuesday evening. We wish you a very good trip home.

Thank you

## CONFERENCE EVALUATION

Participants were asked at the end of the conference to complete an evaluation form giving their appraisal of the programs and materials presented at the conference as well as their valuation of the experience. This information was solicited to enable the conference organizers to evaluate the conference and respond to participant needs and interests when planning future activities.

Of the evaluation forms distributed, 88.5 percent (177 out of 200) were completed and returned. The regional distribution of the respondents was roughly the same as the regional distribution of the conference (table 1) which makes this evaluation a fair representation of the participants' views. Tables 2 and 3 categorize the respondents by organization type and area of expertise. Eighteen percent of the respondents had attended prior conferences in this series.

**Table 1. Regional Response to the Evaluation**

Region	Respondents		Participants	
	No.	%	No.	%
Asia and the Pacific	46	26	55	27
Africa	19	11	20	10
Central and Eastern Europe	18	10	18	9
Middle East	7	4	8	4
Western Europe	28	16	30	15
North America	22	12	25	12
Central America/Caribbean	8	5	10	5
South America	11	6	13	7
International	18	10	21	11
Total	177	100	200	100

**Table 2. Organizational Type**

Type	Respondents	
	No.	%
International	14	8
National	100	56
State/Province	35	20
Municipal	5	3
Nongovernment	14	8
Industry	1	1
Other	6	3
Unspecified	2	1
Total	177	100

**Table 3. Area of Expertise**

Area	Respondents	
	No.	%
Legal	63	36
Technical	43	24
Policy/Management	57	32
Other	5	3
Unspecified	9	5
Total	177	100

### 1 GENERAL COMMENTS

There was general praise for the conference among the respondents. Many found it informative, well organized and stated that the subject matter was well handled (57 respondents\*). Others found it a valuable forum for exchanging information, expanding their perspectives and networking on a regional and international level (36). The wide diversity of participating countries was remarked upon frequently. Many respondents (16) commented on the benefits derived from

\* Throughout this report we identify in parentheses the number of respondents who commented.

such a diverse group and others suggested that more sessions be structured for regional or like groupings to facilitate discussion(18). Still others brought out the need to be increasingly sensitive to different orientations between developed and developing countries(8). Respondents praised the wealth of information presented, the quality of the materials and the caliber of the participants. It was suggested that future conferences place additional emphasis on presenting specific environmental problems, new strategies and practical tried solutions. Many respondents suggested that the workshop sessions be less structured and present more time for participant exchange and discussion. All respondents supported the idea of a fifth conference.

## 2 CONFERENCE PURPOSE AND GOALS

The participants were asked to evaluate the appropriateness of the Conference purpose and goals. A breakout of their responses is presented in figure 1. Seventy-one percent of the respondents (126) rated the purpose and goals very good to excellent. More specifically, some respondents (17) considered the conference a success of significant value and others (16) commented on the benefits of the range of participant experience and the opportunity for transfer of knowledge. Other respondents (7) suggested that there were differences between developed and developing countries, and between regions and one felt that diversity made specialized, in depth discussions harder.

### Appropriateness of the Conference Purpose and Goals

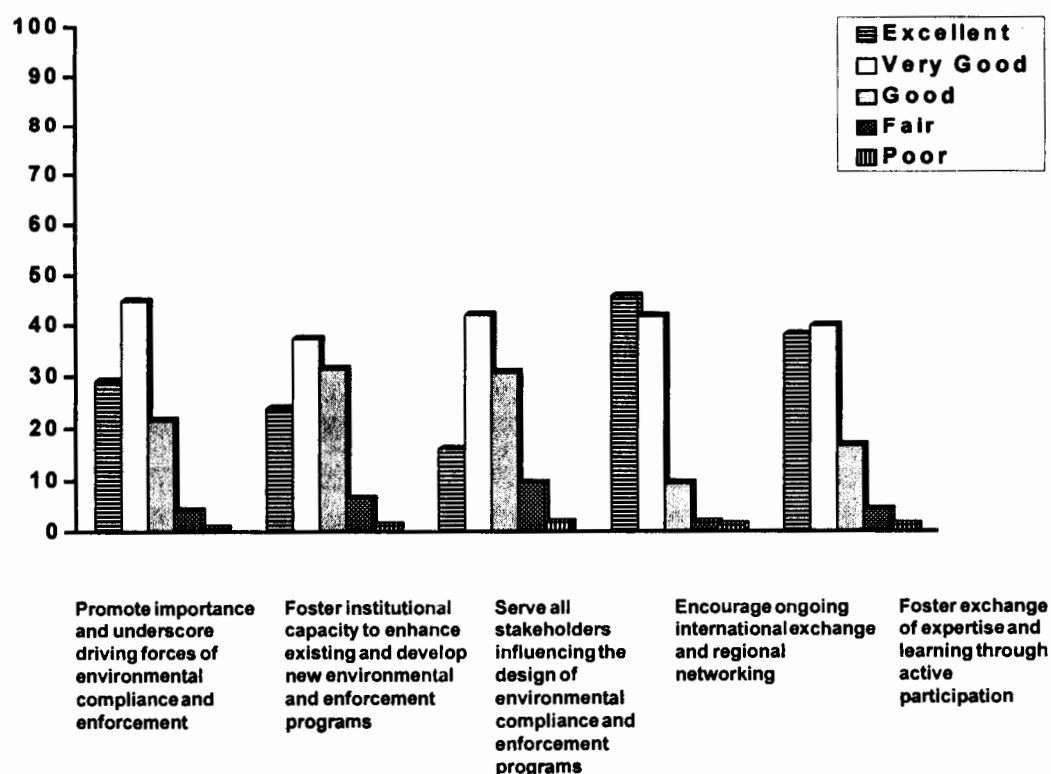


Figure 1. This figure shows the overall percentage ratings given by respondents who evaluated the appropriateness of the conference purpose and goals

The participants were asked how they felt about the conference's focus on the development of domestic compliance and enforcement programs. Sixty-six percent (117) felt it was very good to excellent. Respondents wrote that this subject matter, theme and focus was well handled (12), it provided a good forum for exchange of information and experiences (13), and it was particularly helpful for developing programs (8). Some respondents (3), commenting on the size and depth of the subject, suggested that compliance and enforcement be treated separately, but the majority of respondents felt the emphasis as presented was successful.

### 3 SUCCESS IN ACHIEVING GOALS

Sixty-five percent of participants (115) who responded to the evaluation question concerning the conference's success in achieving its stated purpose gave a rating of very good to excellent. A breakout of the responses is shown in Figure 2. Both the appropriateness and successful achievement of goals relating to the exchange of experience, learning and networking were consistently rated higher than those relating to capacity building and more theoretical exercises. This perception was reflected in various forms and answers throughout the evaluation.

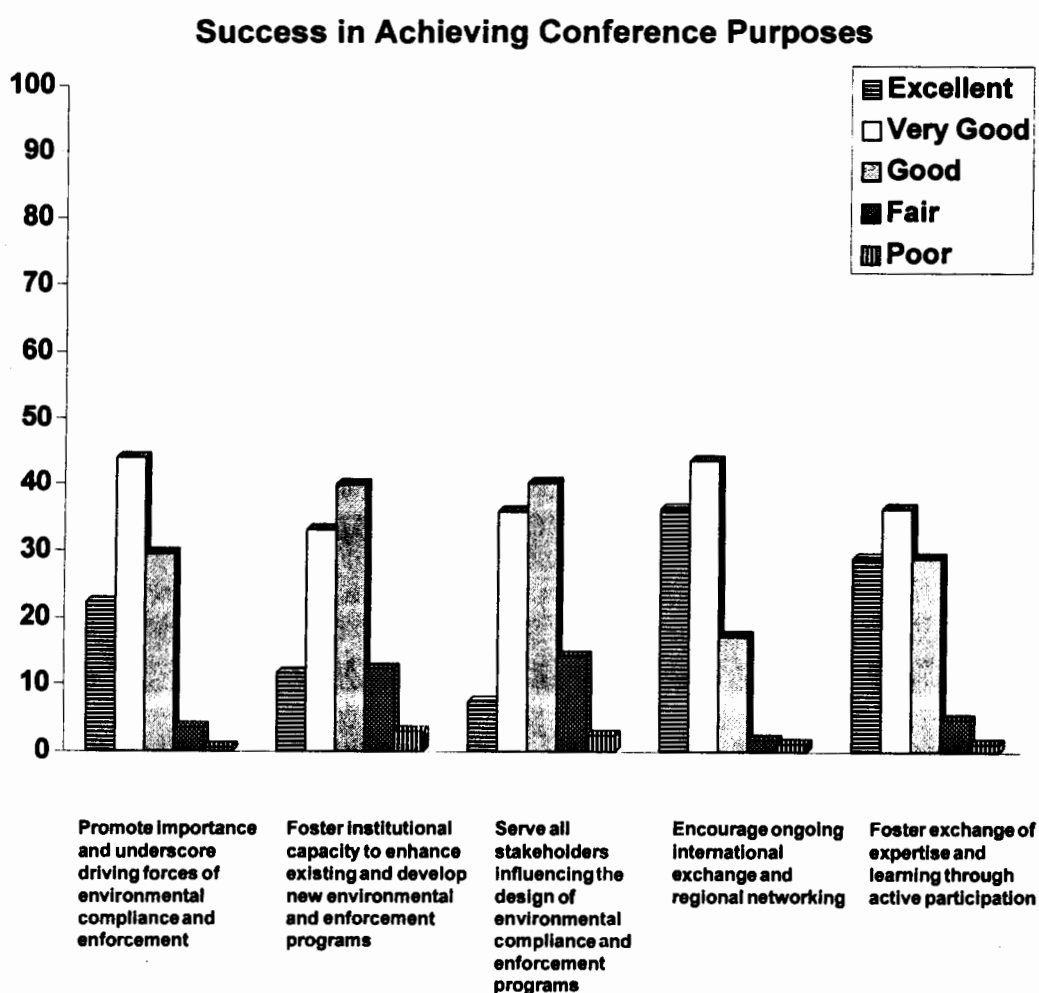


Figure 2. This figure shows the overall percentage ratings given by respondents who evaluated the success in achieving Conference purposes

#### 4 CONFERENCE PARTICIPATION

Seventy-one percent of the respondents (125) rated the number of conference participants and the mix of countries, organizations and experience very good to excellent. Figure 3 represents a breakout of the responses. A number of respondents (10) suggest increasing the number of participating countries and others (22) suggested expanding the nongovernmental and private sector representation. Comments relating to the mix of expertise included the suggestion that there be more enforcement agency participation and fewer representatives from the policy and law disciplines(3), and that more representatives from each country attend so that different sectors within the country could be present (2).

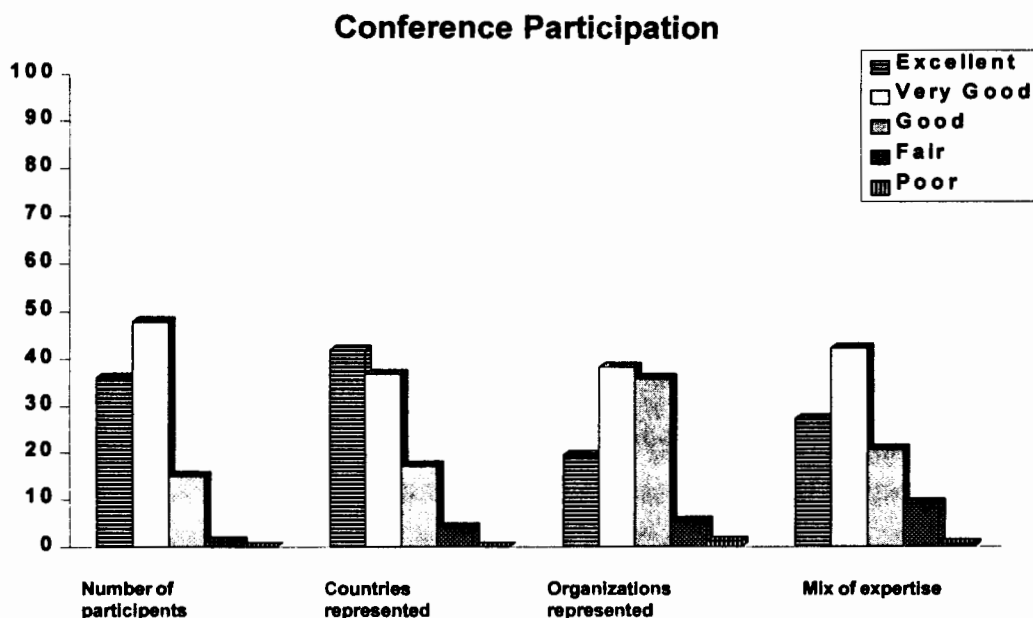


Figure 3. This figure shows the overall percentage ratings given by respondents who evaluated Conference participation

#### 5 STRUCTURE OF CONFERENCE

Fifty-eight percent of those who responded (103) to the question concerning the structure of the Conference gave a rating of very good to excellent. A breakout of responses is shown in Figure 4. Generally respondents found the plenary sessions and workshops useful and informative. Several commented that the sessions covered a lot in the given time and would benefit from a more limited but more detailed approach (16) and some commented that the topic were well handled but would benefit from shorted presentations and more discussion time. A number of respondents advocated more emphasis on the exhibits (9) increasing the counties represented, the materials, and the technology displays with technical staff in attendance (12). Additionally, several participants felt the program was very full and intensive and suggested some time ne scheduled for informal meetings and networking (4).



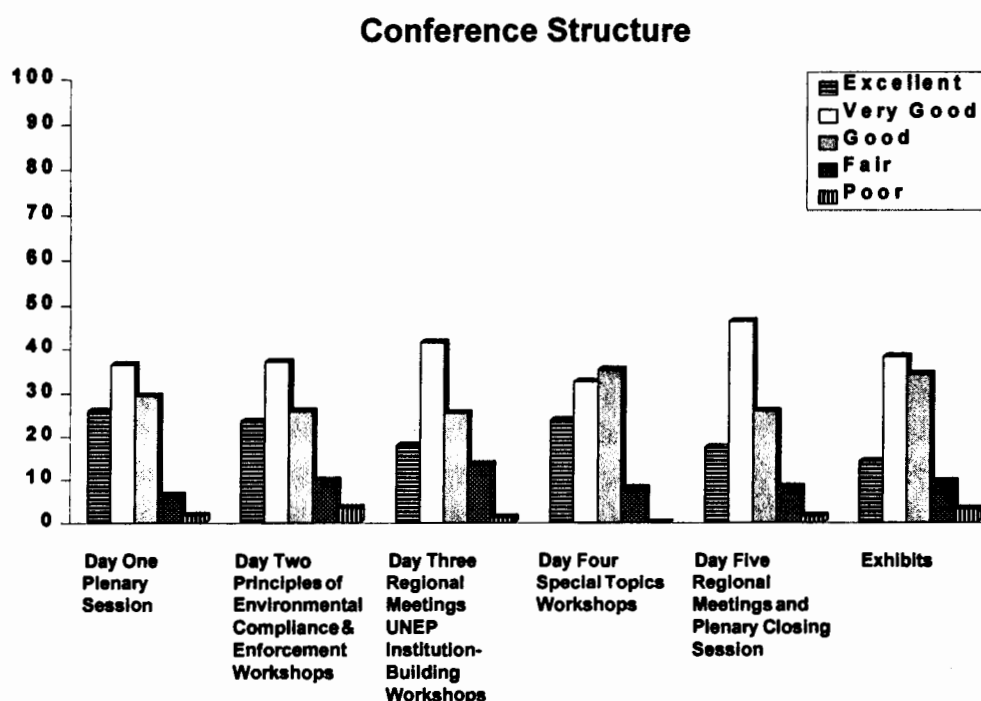


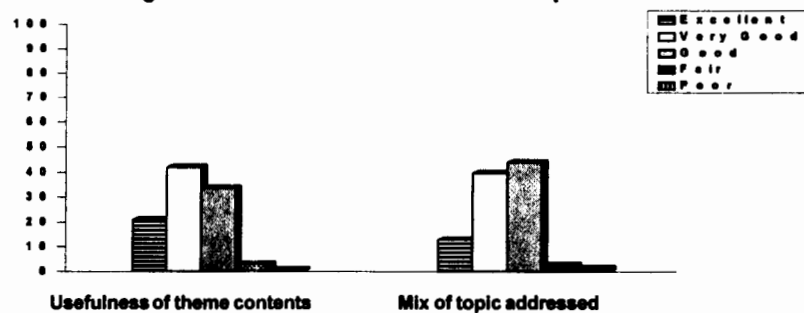
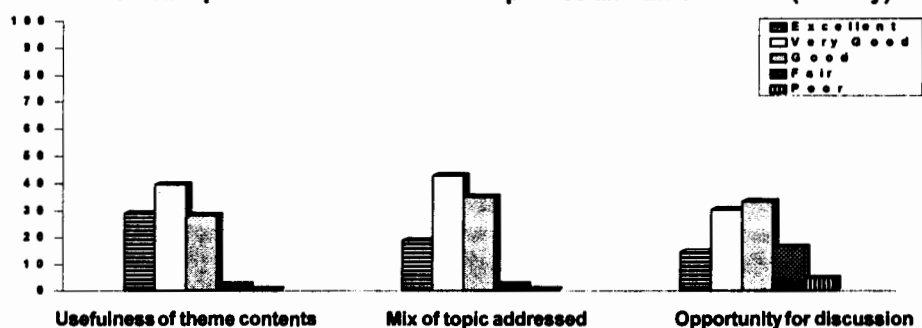
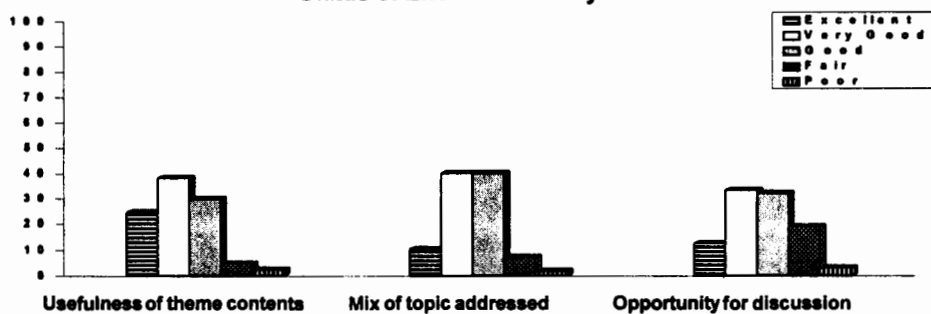
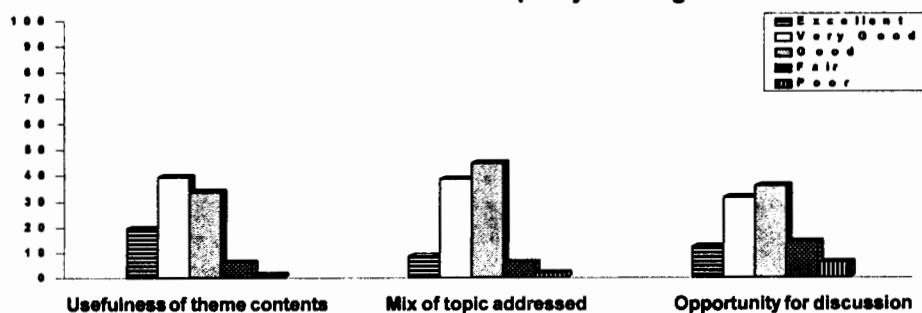
Figure 4. This figure shows the overall percentage ratings given by respondents who evaluated the structure of the Conference

## 6 CONFERENCE TOPICS

Most participants agreed that the topics presented at the Conference were cohesive, well handled and covered a suitably broad range of interests and disciplines within the environmental enforcement community. Additional issues and topics that were recommended for future conferences included: economic incentives in compliance and how to address industry interests to involve them (5); criminal investigations and enforcement, penalty orders and illegal ocean dumping.(4); endangered species and wildlife sustainable utilization (3); and ISO 14000 (4). Several respondents recommended that more real life cases be presented and discussed and specific country or regional problems addressed(12). Many recommended that more emphasis be given to regional topics and issues including inter and inter- regional communication(16).

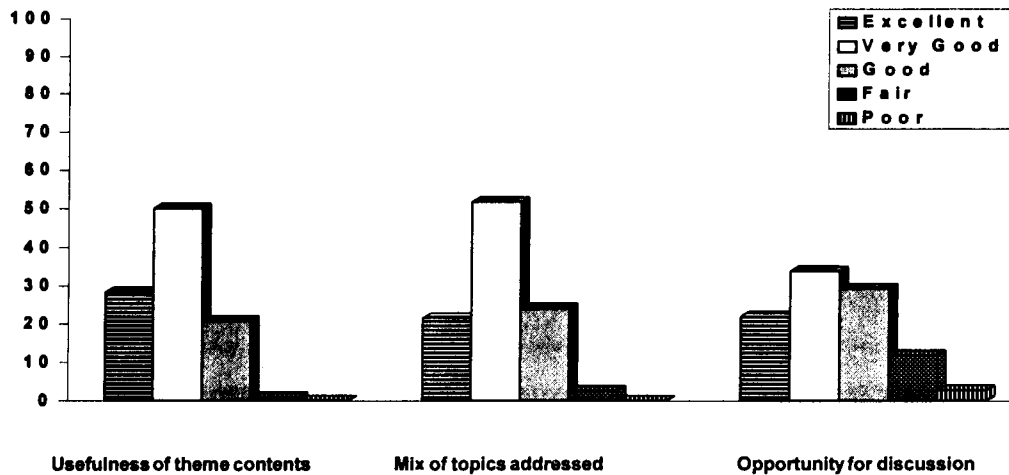
### 6.1 Day One and Day Five Conference Plenary Sessions

For each themes the evaluation included a question regarding the usefulness of the session's theme content, the mix of topic addressed, and the opportunity for discussion. Figures 5 shows the range of ratings given for the Conference themes discussed on Day One and figure 6 shows the ratings for the theme presented during the Day Five plenary session. While the majority of the respondents found both the usefulness of the themes and the mix of topics to be quite good, numerous respondents (24) contended that the presentations attempted to cover too much and as a result were rushed. In relate comments some respondents recommended shorter presentations and more time for discussion during the plenary sessions(9).

**Theme #1: Driving Forces Behind Environmental Compliance and Enforcement****Theme # 2: Principles of Environmental Compliance and Enforcement (Plenary)****Theme # 3: Establishing International Cooperation and Regional Networks: Status of Efforts Underway****Theme # 4: International Capacity Building**

**Figure 5.** This figure shows the overall percentage ratings given by respondents who evaluated the Day One plenary themes

**Theme 7: Making Progress: Regional Examples, Capacity-Building Agenda, International-Regional Networks**



**Figure 6.** This figure shows the overall percentage ratings given by respondents who evaluated the Day five plenary theme

**6.2 Day Two workshops on Principles of Environmental Enforcement**

Eleven workshops were presented on Day Two using seven case studies. Three of the studies were presented in more than one session because of the number of participants interested in those cases. The participants were asked to evaluate each workshop according to the following criteria: Ability to apply principles of environmental enforcement in a realistic setting; quality of the workshop materials; usefulness of contents and usefulness of the technical support package. Table 4 shows the evaluation for each case study. Most respondents found the format of these workshops to be valuable for exploring the principles of environmental enforcement. Although comments varied by workshop and session, there were several observations that were made by respondents from all workshops. A number of respondents (20) commented that the studies were too compressed and too much to handle in one day and others recommended that the facilitated presentation not be as structured and allow more time for discussion and sharing of experiences (14). An additional suggestion was made that the workshops were more beneficial to participants who were attending these conferences for the first time(5).

**6.3 Day Three Regional Workshops and Institution building (UNEP)**

Seven regional meetings were held on Day Three and continued on Day Five. Many respondents felt that these were the most valuable sessions of the conference. Comments on the meetings varied by region. In several of the meetings, a number of the respondents felt initially that the goals were unclear (17) but as the meeting progressed many respondents reported that the discussions were very good and informative (22 ). Also, several respondents reported that the setting and format of the meetings were somewhat restricting (31) but that the participants were able to set a more workable framework and the discussions became successful. Other respondents noted that some of the regions had already established networks while others were just beginning the process and so suggested that the formats and discussions be tailored to the individual region (8). Numerous respondents recommended that the efforts started in the meetings be continued and regional meetings or other networking activities be undertaken before the next Conference (25).

**Table 4 Principles of Environmental Compliance and Enforcement Workshops**

		Excellent		Very Good		Good		Fair		Poor	
		#	%	#	%	#	%	#	%	#	%
<b>Coal</b>											
	Realistic	(5)	36%	(5)	36%	(2)	14%	(2)	14%	0	0%
	Quality of Materials	(5)	36%	(5)	36%	0	0%	(4)	29%	0	0%
	Usefulness of Contents	(2)	14%	(8)	57%	(2)	14%	(1)	7%	(1)	7%
	Usefulness of Package	(1)	7%	(8)	57%	(1)	7%	(3)	21%	(1)	7%
<b>Mining</b>											
	Realistic	(6)	46%	(3)	23%	(3)	23%	(1)	8%	0	0%
	Quality of Materials	(3)	21%	(8)	57%	(3)	21%		0%	0	0%
	Usefulness of Contents	(5)	36%	(5)	36%	(2)	14%	(2)	14%	0	0%
	Usefulness of Package	(4)	31%	(7)	54%	(1)	8%	(1)	8%	0	0%
<b>Petrochemical</b>											
	Realistic	(1)	8%	(7)	58%	(4)	33%	0	0%	0	0%
	Quality of Materials	(1)	8%	(9)	75%	(2)	17%	0	0%	0	0%
	Usefulness of Contents	(1)	8%	(4)	33%	(7)	58%	0	0%	0	0%
	Usefulness of Package	(2)	17%	(3)	25%	(7)	58%	0	0%	0	0%
<b>Deforestation A</b>											
	Realistic	(2)	9%	(7)	32%	(7)	32%	(6)	27%	0	0%
	Quality of Materials	(3)	14%	(8)	36%	(7)	32%	(3)	14%	(1)	4%
	Usefulness of Contents	(2)	9%	(10)	45%	(5)	23%	(4)	18%	(1)	4%
	Usefulness of Package	(4)	19%	(7)	33%	(6)	29%	(3)	14%	(1)	4%
<b>Deforestation B</b>											
	Realistic	(2)	17%	(5)	42%	(3)	25%	(2)	17%	0	0%
	Quality of Materials	(2)	17%	(4)	33%	(5)	42%	(1)	8%	0	0%
	Usefulness of Contents	(2)	17%	(5)	42%	(3)	25%	(2)	17%	0	0%
	Usefulness of Package	(2)	18%	(4)	36%	(4)	36%	(1)	9%	0	0%
<b>Waste A</b>											
	Realistic	(4)	29%	(5)	36%	(2)	14%	(3)	21%	0	0%
	Quality of Materials	(2)	13%	(8)	53%	(3)	20%	(2)	13%	0	0%
	Usefulness of Contents	(1)	7%	(6)	40%	(5)	33%	(3)	20%	0	0%
	Usefulness of Package	(1)	7%	(5)	33%	(8)	53%	(1)	7%	0	0%
<b>Waste B</b>											
	Realistic	(5)	31%	(1)	6%	(6)	38%	(4)	25%	0	0%
	Quality of Materials	(3)	19%	(4)	25%	(5)	31%	(3)	19%	(1)	6%
	Usefulness of Contents	(4)	25%	(2)	13%	(6)	38%	(2)	13%	(2)	13%
	Usefulness of Package	(4)	27%	(2)	13%	(4)	27%	(5)	33%	0	0%
<b>Waste C</b>											
	Realistic	(1)	9%	(5)	45%	(1)	9%	(3)	27%	(1)	9%
	Quality of Materials	(1)	9%	(4)	36%	(4)	36%	(2)	18%	0	0%
	Usefulness of Contents	(1)	9%	(6)	55%	(1)	9%	(2)	18%	(1)	9%
	Usefulness of Package	(1)	11%	(3)	33%	(3)	33%	(2)	22%	0	0%
<b>Tourism</b>											
	Realistic	(6)	32%	(7)	37%	(5)	26%	(1)	5%	0	0%
	Quality of Materials	(2)	11%	(11)	58%	(6)	32%	0	0%	0	0%
	Usefulness of Contents	(5)	26%	(7)	37%	(7)	37%	0	0%	0	0%
	Usefulness of Package	(2)	11%	(8)	44%	(7)	39%	(1)	6%	0	0%
<b>Transboundary A</b>											
	Realistic	(5)	29%	(5)	29%	(4)	24%	(3)	18%	0	0%
	Quality of Materials	(3)	17%	(5)	28%	(8)	44%	(2)	11%	0	0%
	Usefulness of Contents	(3)	18%	(8)	47%	(4)	24%	(2)	12%	0	0%
	Usefulness of Package	(3)	18%	(5)	29%	(9)	53%	0	0%	0	0%
<b>Transboundary B</b>											
	Realistic		0%	(8)	57%	(2)	14%	(2)	14%	(2)	14%
	Quality of Materials	(3)	23%	(7)	54%	(1)	8%	(2)	15%	0	0%
	Usefulness of Contents	(1)	8%	(7)	54%	(3)	23%	(1)	8%	(1)	8%
	Usefulness of Package	(2)	15%	(6)	46%	(3)	23%	(2)	15%	0	0%

Respondents reported that in several meetings the lack of time prevented the inclusion of the UNEP workshops within the regional meetings, however those who did attend the workshops reported favorable reactions. Some respondents commented that, as in the case of the Principles of Environmental Enforcement workshops, these workshops were more beneficial to participants attending the conference for the first time. Figure 7 represents the ratings of those who evaluated the UNEP workshops.

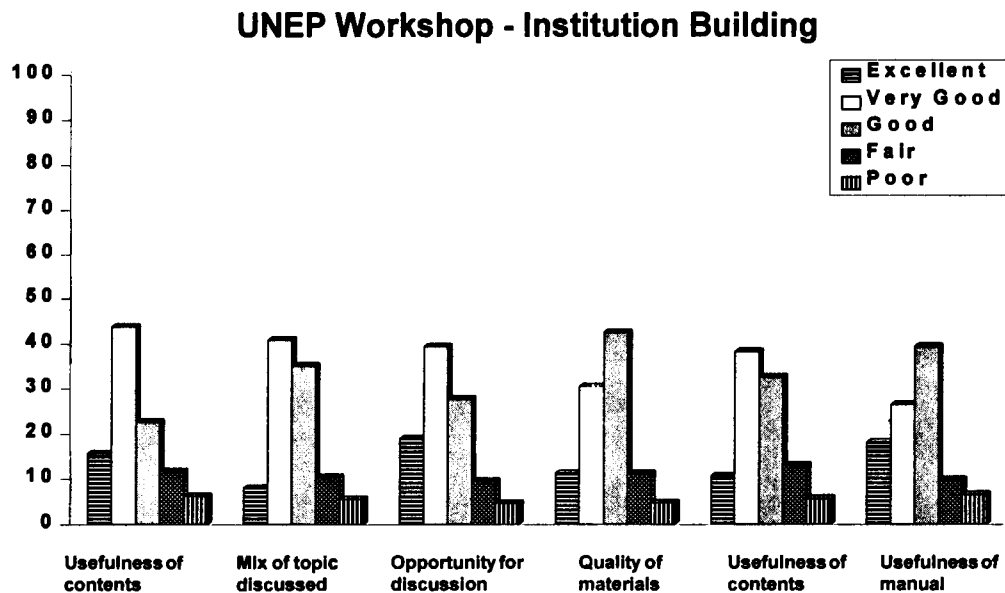


Figure 7. This figure shows the overall percentage ratings given by respondents who evaluated the UNEP workshops

#### 6.4 Day Four Special Topic Workshops

Fourteen Special Topic workshops were presented in two sessions on Day Four. Many respondents who completed this section of the evaluation form noted that the workshops were valuable and discussions were good (12). Figure 8 shows the overall percentage ratings for "very good" to "excellent" given by respondents who evaluated the Workshops. Table 5 gives a breakout of the responses by workshop. Some respondents found the session very good and well directed, while others felt the facilitators could have been more responsive to the individuals in the workshops. Several participants, commenting on the short duration of the workshops suggested that materials could be prepared and handed out in advance (9). Additional comments included the recommendation that the workshops be less general and address more concrete examples (7) and the observation that the diversity of experience and regional make-up of the workshop participants impacted the flow of the workshop and more depth could be achieved with a more homogeneous group (8).

## Special Topic Workshops

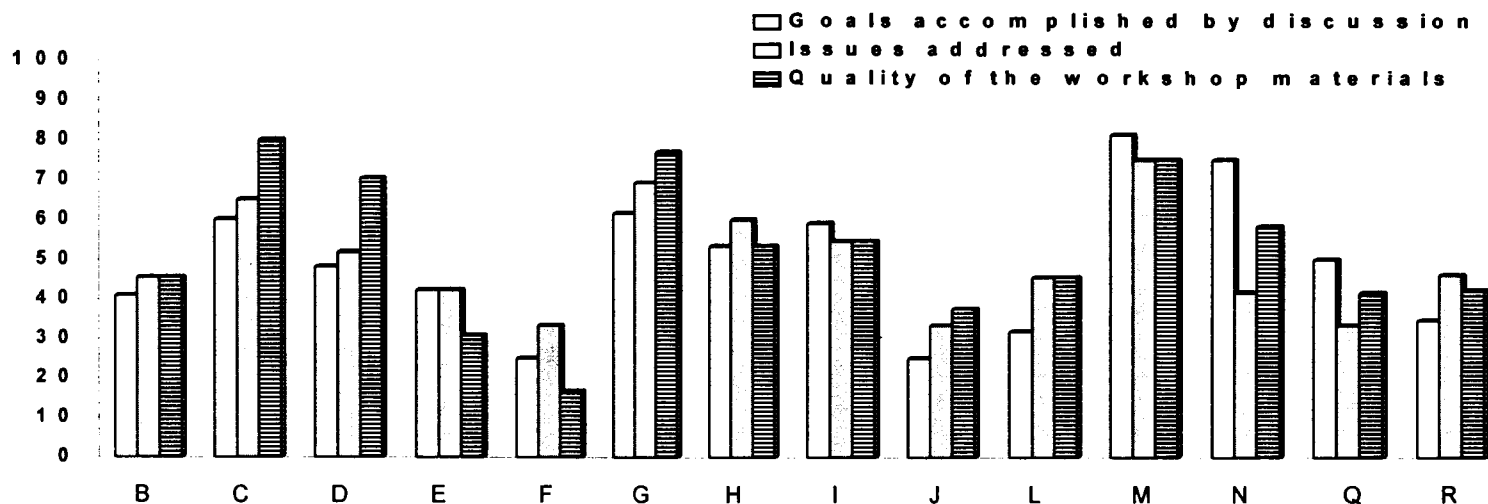


Figure 8. This figure shows the overall percentage ratings for "very good" to "excellent" given by the respondents who evaluated the Special Topic Workshops

Table 5. Special Topic Workshops

Workshop	Were Your Goals Accomplished by the Discussion?					Were the Issues Addressed Adequately?					Quality of the Workshop Materials				
	Excellent	Very Good	Good	Fair	Poor	Excellent	Very Good	Good	Fair	Poor	Excellent	Very Good	Good	Fair	Poor
	# %	# %	# %	# %	# %	# %	# %	# %	# %	# %	# %	# %	# %	# %	# %
B Strategic Targeting	22 (2) 7%	(7) 26%	(10) 37%	(2) 7%	- -	(2) 7%	(8) 30%	(6) 22%	(4) 15%	(1) 4%	(2) 7%	(8) 30%	(8) 30%	(2) 7%	- -
C Integrated Permitting and Inspection	20 (6) 30%	(6) 30%	(5) 25%	(1) 5%	- -	(7) 35%	(6) 30%	(4) 20%	(1) 5%	- -	(6) 30%	(10) 50%	(4) 20%	- -	- -
D Compliance Monitoring	27 (7) 26%	(6) 22%	(10) 37%	(3) 11%	- -	(6) 22%	(8) 30%	(8) 30%	(2) 7%	- -	(3) 11%	(16) 59%	(6) 22%	- -	- -
E Promoting Voluntary compliance	26 (1) 4%	(10) 38%	(8) 31%	(7) 27%	- -	(1) 4%	(10) 38%	(9) 35%	(6) 23%	- -	- -	(8) 31%	(7) 27%	(7) 27%	- -
F Measures of Success	12 (2) 17%	(1) 8%	(4) 33%	(4) 33%	(1) 8%	(2) 17%	(2) 17%	(4) 33%	(4) 33%	- -	- -	(2) 17%	(2) 17%	(4) 33%	- -
G Communications and Enforcement	13 (4) 31%	(4) 31%	(1) 8%	(2) 15%	- -	(5) 38%	(4) 31%	(2) 15%	(1) 8%	- -	(5) 38%	(5) 38%	(1) 8%	(1) 8%	- -
H Public Role	30 (3) 10%	(13) 43%	(10) 33%	(2) 7%	- -	(8) 27%	(10) 33%	(9) 30%	(1) 3%	- -	(4) 13%	(12) 40%	(10) 33%	- -	- -
I Criminal Enforcement	22 (5) 23%	(8) 36%	(3) 14%	(5) 23%	- -	(6) 27%	(6) 27%	(7) 32%	(1) 5%	(1) 5%	(3) 14%	(9) 41%	(5) 23%	(4) 18%	(1) 5%
J Enforcement of Economic Instruments	24 (1) 4%	(5) 21%	(12) 50%	(6) 25%	- -	(1) 4%	(7) 29%	(11) 46%	(5) 21%	- -	(1) 4%	(8) 33%	(10) 42%	(4) 17%	- -
L Creating Enforceable Permit Programs	22 (1) 5%	(6) 27%	(9) 41%	(4) 18%	- -	(2) 9%	(8) 36%	(6) 27%	(4) 18%	- -	(2) 9%	(8) 36%	(6) 27%	(3) 14%	- -
M Transboundary Illegal Shipments	16 (4) 25%	(9) 56%	(2) 13%	- -	- -	(3) 19%	(9) 56%	(2) 13%	(1) 6%	- -	(3) 19%	(9) 56%	(3) 19%	- -	- -
N Montreal Protocol	12 (1) 8%	(8) 67%	(2) 17%	(1) 8%	- -	(1) 8%	(4) 33%	(4) 33%	(2) 17%	(1) 8%	- -	(7) 58%	(2) 17%	(3) 25%	- -
Q Organizing and Financing	12 (1) 8%	(5) 42%	(4) 33%	- -	- -	(1) 8%	(3) 25%	(4) 33%	(1) 8%	- -	(1) 8%	(4) 33%	(3) 25%	(2) 17%	- -
R Enforcement Policy and Authorities	26 (3) 12%	(6) 23%	(9) 35%	(3) 12%	(2) 8%	(3) 12%	(9) 35%	(8) 31%	(3) 12%	(1) 4%	(3) 12%	(8) 31%	(12) 46%	- -	- -

## 7 TECHNICAL AND CAPACITY BUILDING SUPPORT DOCUMENTS

The participants were asked to evaluate the technical and capacity building support documents that had been prepared for this series of conferences. Figure 9 represents the overall ratings of those respondents who evaluated these documents. A number of respondents suggested that the approach presented in the documents favored the Western countries (4). Others felt the documents were valuable and stressed the need for their dissemination (3).

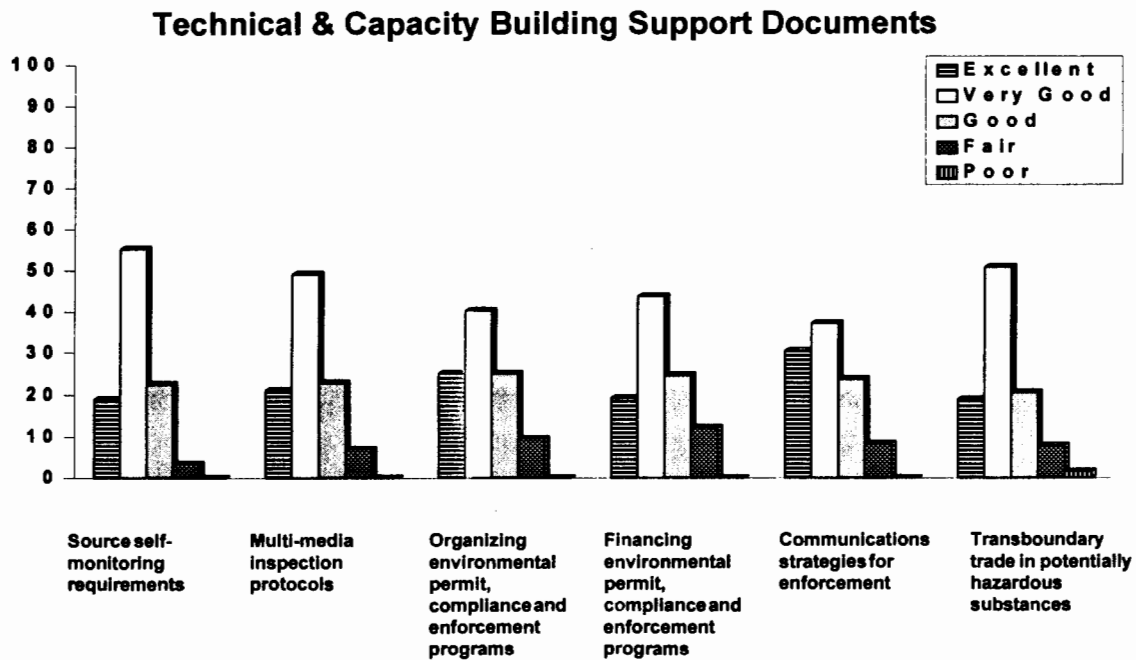


Figure 9. This figure shows the overall percentage ratings given by respondents who evaluated the technical & capacity support documents

## 8 EXHIBITS

The participants were asked to evaluate the displays and exhibits provided at the conference. These included computer exhibits, databanks, videos, and regional country information. Numerous participants felt that the exhibits were both informative and interesting, and they provided a good exchange of information (90). Fifty-six respondents commented favorably about the computer display and forty-four commented favorably about the videos. Seventy-three respondents praised the country information. Some respondents felt that the exhibits were dominated by Europe and the US (8) and others suggested that efforts be made to solicit displays from a greater number of countries. Another suggestion (6) was to assign a staff person to man the exhibits (6) and answer questions.

## 9 ORGANIZATION OF THE CONFERENCE

The majority of the respondents lauded the efforts of the Conference staff, calling the conference extremely well organized (33) and in some cases the best of this size they had attended. The respondents were very pleased with the accommodations and enjoyed the location, cultural events, and the food. Respondents also commented that the program was very intense and would have benefited from an afternoon off for sightseeing, networking or relaxation (18). Additional comments included the recommendation that there be more contact with the Executive Planning Committee and staff (3) and that E-mail access be available (1).

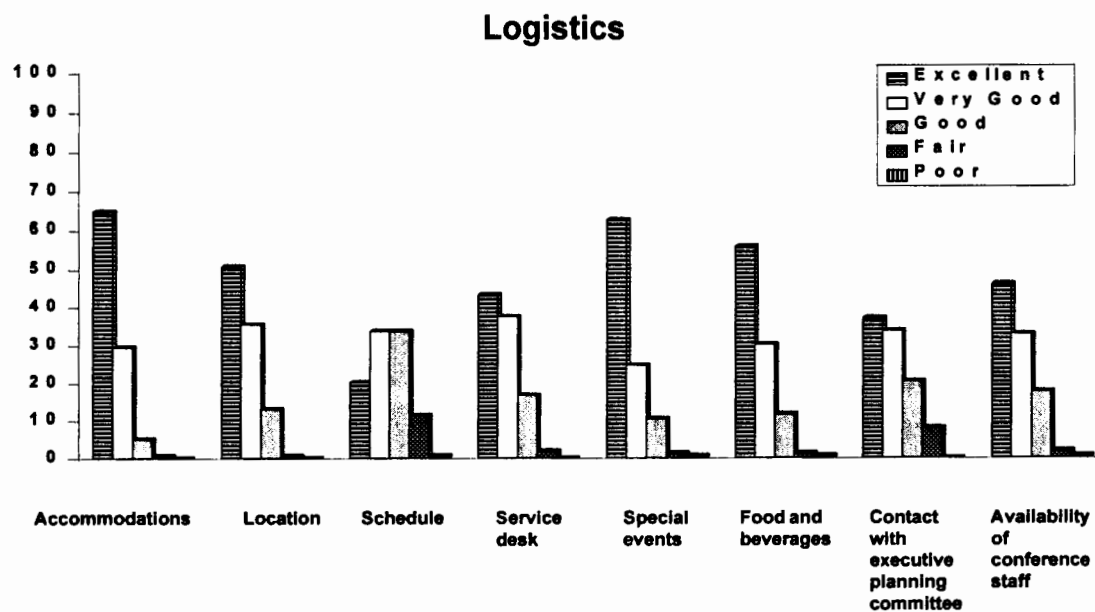


Figure 10. This figure shows the overall percentage ratings given by respondents who evaluated the organization of the Conference

## 10 FOLLOW-UP TO THE CONFERENCE

All participants that responded to the evaluation supported the idea of a fifth conference. Forty-one respondents suggested holding the next conference in the United States, thirty-three suggested Africa, and eight suggested South or Central America. There was a mixed response about when to hold it, and most respondents realized that it would depend on the venue. However, forty-six specifically requested the spring; thirteen, the fall; and fourteen, the summer.



There were several specific requests for subjects to be covered at the next Conference. These included:

- Illegal Ocean dumping (1)
- Criminal investigations (2)
- Implementation of international agreements and treaties(4)
- Endangered Specie(1)
- ISO 14000 (4)

Other suggestions for future conferences were more general. These included the following:

- Working groups for participants with similar problems (not necessarily in the same region) (9).
- Subjects and workshops that are tiered in terms of experience so that participants who have been to the conferences before can attend more specific workshops, while the more basic ones are still available for first time participants (15).
- Programs with a regional focus (33); nine participants suggested that regional meetings be held before the next conference.
- Programs and presentations that are more technical and realistic in nature (rather than theoretical and "teachy") (15).
- Subjects and workshops specifically geared to developing countries (10).
- Workshops that deal with industry problems and how to address industry's interests (7); three respondents suggested that more industry representatives attend the conferences.



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## Fourth International Conference on Environmental Compliance and Enforcement

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