

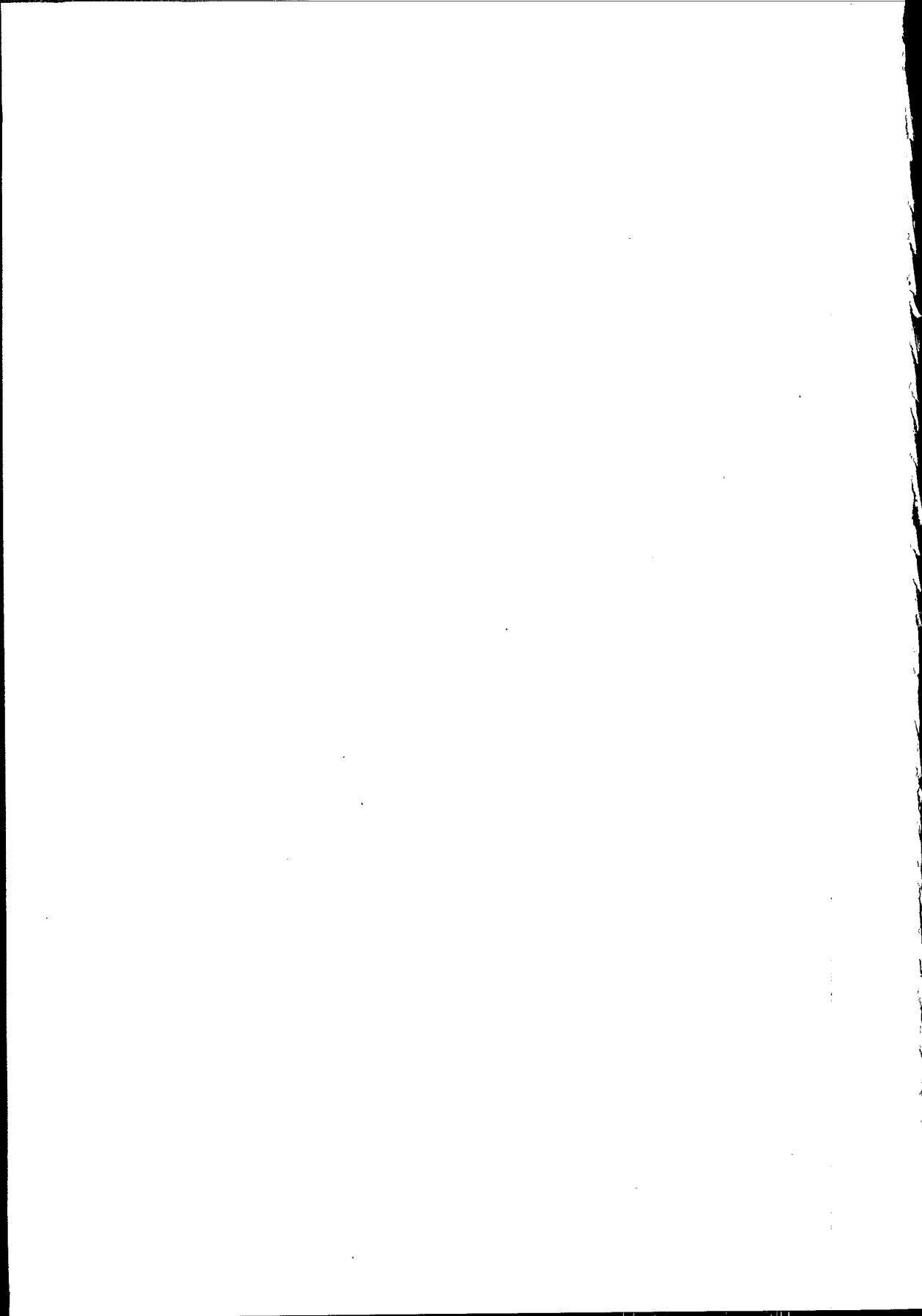
PROCEEDINGS  
VOLUME 2

# THIRD INTERNATIONAL CONFERENCE ON ENVIRONMENTAL ENFORCEMENT

April 25-28, 1994  
Oaxaca, México



Ministry of Housing,  
Spatial Planning,  
and the Environment  
(VROM) The Netherlands



# **THIRD INTERNATIONAL CONFERENCE ON ENVIRONMENTAL ENFORCEMENT**

## **CONFERENCE PROCEEDINGS VOLUME 2**

**April 25-28, 1994  
Oaxaca, México**

### **Editors:**

Mr. Jo Gerardu, VROM, The Netherlands  
Ms. Cheryl Wasserman, U.S. EPA

### **Executive Planning Committee:**

Dr. Adegoke Adegoroye, Nigeria  
Mr. Mariano Palacios Alcocer, PFPA, SEDESOL, México and  
(formerly) Dr. Santiago Oñate Laborde, PFPA, SEDESOL, México  
Mrs. Jacqueline Aloisi de Larderel, UNEP IE/PAC  
Mr. William M. Eichbaum, WWF, U.S.  
Mr. Steven A. Herman, U.S. EPA  
Ms. Nadine Levin, Canada  
Dr. Jorge Litvak, Chile  
Dr. Winston McCalla, Jamaica  
Mr. Pak Moestadji, Indonesia  
Mr. Luis R. Padrón, Venezuela  
Ms. Sandra Urbina Mohs, Costa Rica  
Mr. Pieter J. Verkerk, VROM, The Netherlands

### **Sponsors:**

U.S. Environmental Protection Agency, United States  
Ministry of Housing, Spatial Planning and the Environment, The Netherlands  
United Nations Environment Programme, IE/PAC  
World Wildlife Fund, United States  
Procuraduría Federal de Protección al Ambiente, SEDESOL, México

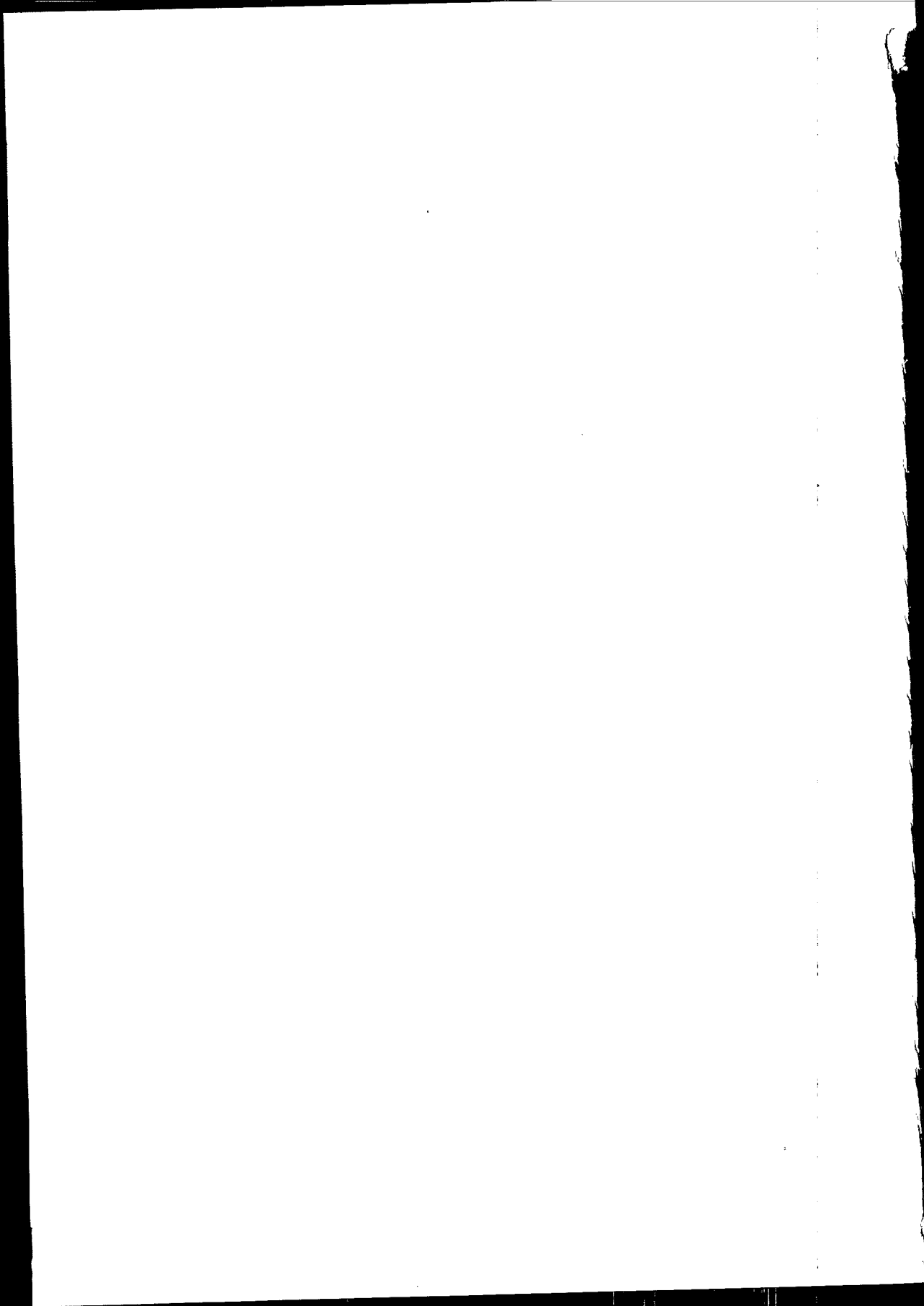
These Proceedings, Volume 2, include opening and closing remarks, additional papers, summaries of theme and special topic discussions, results of the participant evaluations, and a list of participants at the Third International Conference on Environmental Enforcement, held April 25-28, 1994, in Oaxaca, México. Volume 1 of these Proceedings was distributed during the Conference and contains papers prepared by speakers, topic experts, and several participants and other interested parties.

Copyright © 1994 by the Conference, sponsors: U.S. Environmental Protection Agency, United States; Ministry of Housing, Spatial Planning and the Environment, The Netherlands; United Nations Environment Programme, IE/PAC; World Wildlife Fund, United States; Procuraduría Federal de Protección al Ambiente, SEDESOL, México. No part of this book may be reproduced in any form or by any means without the prior permission of the authors and attribution to the Third International Conference on Environmental Enforcement, April 25-28, 1994, held in Oaxaca, México. Use of these materials is strongly encouraged for training and further dissemination.

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



*This proceedings document is dedicated to the memory of Paul G. Keough, Regional Administrator, Region 1, U.S. Environmental Protection Agency, who passed away January 17, 1994.*



**TABLE OF CONTENTS—VOLUME 2**

PREFACE .....	1
CONFERENCE PURPOSE AND GOALS .....	3
CONFERENCE THEMES .....	5
CONFERENCE WORKSHOPS.....	9
CONFERENCE PROGRAM.....	13
OPENING SPEECHES	
1. Welcome and Introduction to the Conference, <i>Day Chair: P. Verkerk,</i> <i>Co-Chair: S.A. Herman</i> .....	23
2. The Environmental Enforcement Challenge in Developing Nations, <i>C.R. Rojas (delivered by J. Carabias)</i> .....	25
3. Sustainable Development Goals and the Need To Form Effective Environmental Enforcement: Efforts To Build Institutional Capacity Through an Integrated Approach to Enforcement, <i>A. Rodriguez Mercado</i> .....	29
4. Evolution of Environmental Enforcement Within the United States: Strategic Approach to Enforcement and Its Growing Role in International Trade, <i>S. Herman</i> .....	33
5. Evolution of Environmental Enforcement Within The Netherlands—Achieving a National Consensus, <i>J.G.M Alders</i> .....	39
ADDITIONAL CONFERENCE PAPERS AND DISCUSSION SUMMARIES	
<i>Theme #1: Principles of Environmental Enforcement</i> .....	43
Editor's Note .....	43
No additional papers	
<i>Theme #2: Environmental Enforcement Challenges</i> .....	45
4. Summary of Theme Discussion, <i>Moderator: A. Adegoroye, Rapporteur: A. DeLong</i> .....	47
5. A South American Country Example: Environmental Legislation Enforcement in Mendoza, Experience and Challenges, <i>J.L. Puliafito</i> .....	51
6. Social-Economic Problems Experienced in Compliance and Enforcement in Tanzania, <i>W.M.K. Masilingi</i> .....	63
7. 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, <i>M.V. Tolkachev</i> .....	75
<i>Theme #3: Country Experiences in Designing Elements of an Enforcement Program</i> .....	87
12. Summary of Theme Discussion, <i>Moderator: A. Alcocer Lujambio,</i> <i>Rapporteurs: C. Wasserman, J. Bergin</i> .....	89
13. The Challenge of Environmental Enforcement in Developing Nations, <i>A. Alcocer Lujambio</i> .....	93

14. Country Experiences in Designing Elements of an Environmental Enforcement Program—Case of El Salvador, <i>G. Navarrete Lopez</i> .....	97
<i>Theme #4: Experiences in Compliance and Enforcement</i> .....	107
18. Summary of Theme Discussion, <i>Moderator: R. van Heuvelen, Rapporteur: D. Bronkema</i> .....	109
19. Results From Monitoring Compliance and Enforcement, Norway 1993, <i>G. Rødland, A. Miller</i> .....	111
20. General Remarks on Environmental Enforcement in Romania, <i>D. Popescu</i> .....	117
21. Compliance Monitoring in Nigeria's Industries, <i>M.T. Odubela, I.I. Omoniyi</i> .....	123
22. A Leading Case for the Ensenada Petrochemical District Industries Transformation, Buenos Aires Province, Argentine Republic, <i>C.E. Maiztegui</i> .....	129
<i>Theme #5: The Role of Communication in an Enforcement Program</i> .....	135
6. Summary of Theme Discussion, <i>Moderator: P. Verkerk, Rapporteur: D. Bronkema</i> .....	137
7. The Mexican Experience on the Enforcement of Environmental Normativity, <i>F. Bahamonde Torres</i> .....	139
<i>Theme #6: Establishing International Networks</i> .....	149
6. Summary of Theme Discussion, <i>Moderator: D. Slater, Rapporteur: D. Bronkema</i> .....	151
7. Establishing International Networks—UNEP IE/PAC Experience, <i>J.H. Skinner</i> .....	155
UNEP WORKSHOPS: INSTITUTION-BUILDING FOR ENFORCING REGULATIONS RELATED TO INDUSTRIAL ACTIVITIES.....	161
1. Instructions for UNEP Institution-Building Workshops, <i>R. Glaser</i> .....	163
SPECIAL TOPIC WORKSHOPS.....	169
<i>Export/Import of Illegal Shipments of Hazardous Waste, Toxic Chemicals, or Contaminated Products</i>	
3. Summary of Workshop, <i>Facilitator: W. Klein, Rapporteur: R. Sturgess</i> .....	171
<i>Field Citations as an Approach to Enforcement</i>	
4. Summary of Workshop, <i>Facilitator: M. Alushin, Rapporteur: K. Rubin</i> .....	177
<i>CFC Control Program Enforcement: Implementing the Montreal Protocol</i>	
3. Summary of Workshop, <i>Facilitator: H. Kesselaar, Rapporteur: M. Mayo</i> .....	181
<i>Criminal Enforcement Role in Environment</i>	
5. Summary of Workshop, <i>Facilitator: G. van Zeven, Rapporteurs: A. DeLong, T. Shewmake</i> .....	185

*Enforcement at Government-Owned or -Operated Facilities*

2. Summary of Workshop, *Facilitator: M. Stahl, Rapporteur: A. DeLong* ..... 189

*Enforcement of Economic Instruments*

3. Summary of Workshop, *Facilitator: J. Peters, Rapporteur: E. Cowan* ..... 193
4. Enforcement of Economic Instruments in Russia, *M.M. Brinchuk* ..... 199

*Promoting Voluntary Compliance: Environmental Auditing, Outreach, and Incentive Programs*

5. Summary of Workshop, *Facilitator: S. Bromm, Rapporteur: D. Bronkema* ..... 205
6. Promoting Voluntary Compliance: Linking Competitiveness, Corporate Quality, and Self-Auditing, *J.R. Olha, A. Mastrandonas* ..... 209
7. Voluntary Environmental Initiatives and Environmental Policy: Environmental Management Systems, Auditing, and Enforcement, *N. Kennedy, A. Greene* ..... 241

*Role of Police*

3. Summary of Workshop, *Facilitator: J. Peters, Rapporteurs: M. Low, T. Shewmake* ..... 249

## CLOSING REMARKS

1. Closing Remarks for the Third International Conference on Environmental Enforcement, *Day Chair: S.A. Herman, Co-Chair: P. Verkerk* ..... 253

CONFERENCE EVALUATION ..... 259

PARTICIPANT LIST ..... 275

PARTICIPANTS BY COUNTRY ..... 287

MEMBERS OF THE EXECUTIVE PLANNING COMMITTEE ..... 295

ACKNOWLEDGMENTS ..... 300



## PREFACE

These Conference Proceedings, Volume 2, contain additional papers that were not available at the time Volume 1 was printed. In addition, the full text of the opening and closing speeches, summaries of theme and special topic discussions, results of the participant evaluations, and a list of participants are included. Volume 1 of these Proceedings, which was distributed at the Conference, contained papers presented by speakers and topic experts and additional papers from participants and other interested parties. Both Volumes of the Proceedings will be widely disseminated to country environmental officials and NGOs throughout the world.

The Third International Conference was organized as part of an ongoing international collaboration to develop domestic environmental enforcement programs in different settings that can effectively achieve widespread compliance with each nation's environmental requirements.

The third Conference focused on building institutional capacity for environmental enforcement either to enhance existing domestic environmental enforcement programs or to develop new ones—a challenge for all nations. The Conference built upon the frameworks and resource materials developed at the previous Conferences. It differed in format from previous Conferences in its emphasis on hands-on workshops and special staffed exhibits. These new features offered practical applications in fundamental principles of environmental enforcement and in designing enforcement and compliance programs. The Conference further contributed to the growing body of literature on environmental enforcement by focusing on several new themes and special topics, around which papers had been solicited from experts in the field. Results of workshop sessions reflected current thinking on these topics.

The Executive Planning Committee for the Conference devoted much time and effort to designing a Conference that offered the greatest opportunity for useful exchange and practical information for individuals both within and outside government who could influence the successful design and implementation of enforcement programs. Additional information about the Conference and resource materials may be obtained by contacting the Staff or members of the Executive Planning Committee.

On behalf of the Executive Planning Committee, we look forward to continued progress in developing effective compliance and enforcement programs and to ongoing networking among participants and others to help develop this institutional capacity so necessary for achieving goals for sustainable development and free trade.

### Editors:

Mr. Jo Gerardu  
Inspector  
Inspectorate for the Environment  
VROM  
The Netherlands

Ms. Cheryl Wasserman  
Associate Director for Policy Analysis  
Office of Enforcement and  
Compliance Assurance  
U.S. EPA





## **CONFERENCE PURPOSE AND GOALS**

The Third International Conference on Environmental Enforcement, held in Oaxaca, México, April 25-28, 1994, built upon the work of the first International Enforcement Workshop, held in Utrecht, The Netherlands, in May 1990, and the second International Conference on Environmental Enforcement, held in Budapest, Hungary, in September 1992. Each Conference has, in turn, expanded its sponsorship, participation, and scope to reach an ever-broadening audience and to develop more extensive and useful materials and frameworks for exchange.

### **Promote Recognition of the Importance of Environmental Enforcement**

These Conferences responded to the urgency of addressing environmental concerns both domestically and on a global scale and to the increasing recognition by government and nongovernment officials of the critical role that environmental enforcement plays in ensuring an effective response to environmental problems. Growing interest in environmental enforcement stems from a desire to ensure that environmental requirements lead to real improvements in environmental quality. Environmental enforcement—broadly defined as the range of actions governments and others may take to encourage and compel compliance with environmental requirements—is critical to achieving this objective.

Effective enforcement can provide an element of fairness to the regulatory process; instill credibility to government institutions; and prevent short-term economic competition among regions and among facilities from undermining longer-term economic and environmental goals. Effective domestic environmental enforcement is an important factor in global efforts to reduce trade barriers and enhance economic development in a manner that does not create unfair competition or pressure to diminish environmental quality and stewardship of valuable natural resources.

### **Develop Institutional Capacity To Enhance Existing and Develop New Environmental Enforcement Programs**

The Third International Conference on Environmental Enforcement focused on building the institutional capacity for enhancing existing and developing new domestic environmental enforcement programs—a challenge for all nations. The United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro in June 1992, produced an international agenda that firmly states that effective environmental enforcement programs are a key element of environmental management, and that recognizes the need to build institutional capacity for effective enforcement in each nation's environmental program. The Third International Conference on Environmental Enforcement was designed to help all nations achieve the objectives of this international agenda.

### **Serve Those Influencing the Design of Environmental Enforcement Programs**

The Conference was designed to serve enforcement officials and policymakers both within and outside government who are in a position to influence the design or enhancement of environmental enforcement programs. Within government the Conference sought representation from national, regional, and local governmental units responsible for both the legal and technical aspects of environmental enforcement at the mid- to senior-management levels. It also involved selected nongovernmental organizations (NGOs) and industry representatives.

### **Foster Broad International Exchange and Regional Networking**

Conference participants were drawn from *all* regions of the globe, with a special emphasis on Latin America to take advantage of the Conference's location and the opportunities it presented to promote greater international exchange and regional networking among Latin American countries.

### **Foster Exchange of Expertise and Learning Through Active Participation**

The Conference was structured to provide ample opportunity for participants to form networks and to learn through active participation. In addition to open discussion during plenary sessions, and workshops of no more than 20 participants on the second and third days, the entire morning of the fourth day consisted of open poster sessions at which participants were able to roam freely to review results of all of the workshop sessions, to talk informally with individuals who prepared expert papers, and to continue discussions with other participants on the special topics.

## CONFERENCE THEMES

The Conference addressed the following themes:

### Theme #1: Principles of Environmental Enforcement

This presentation at the Third International Conference provided the participants with a common point of reference for subsequent workshops and discussions. The Principles of Environmental Enforcement text was designed for international use and developed for the international course "Principles of Environmental Compliance and Enforcement." A synopsis of the text was presented at the second International Conference on Environmental Enforcement, held in Budapest, and has subsequently been adopted as a general framework for international exchange. It covers definitions of compliance and enforcement, elements and principles, and sets forth a general framework and range of options for addressing each element of the framework. The text explores the importance of compliance and enforcement concerns, the range of motivations affecting compliance behaviors and the need to tailor compliance and enforcement strategies to the specific circumstances and problems presented. Specifically, it covers:

- Defining Compliance and Enforcement
  - The need to consider compliance and enforcement at every stage in the development and implementation of environmental laws and programs; and
  - Philosophy of compliance, enforcement theories, whether and how culture makes a difference, etc.
- General Framework for Compliance and Enforcement
  - Designing enforceable requirements;
  - Identifying the regulated universe and setting priorities;
  - Promoting compliance through enforceable requirements, technical assistance, and outreach;
  - Monitoring compliance;
  - Establishing and using enforcement authorities;
  - Defining intergovernmental roles; and
  - Establishing accountability and measuring results.

The text is printed in its entirety in the Proceedings from the second International Conference on Environmental Enforcement and is summarized in Proceedings, Volume 1 of the Third International Conference on Environmental Enforcement along with the history of international Conference Workshops and other exchanges on environmental enforcement.

### Theme #2: Environmental Enforcement Challenges

Papers and presentations addressed the following issues:

- The circumstances that gave rise to the decision to create an environmental enforcement program: what were the impetus and/or impediments?
- Issues that arose in organizing a program, what options were considered and selected, and why.

- Particular challenges facing developing nations and others trying to establish effective environmental enforcement programs, including issues such as economic and political uncertainty, level of support for environment, tradition of enforcement and compliance, and limitations on availability of human resources with necessary skills and experience in the field.
- Where appropriate, how these challenges were met in determining where to begin, what resources would be brought to bear, how to establish priorities, how to follow through effectively on problems found, and what human and financial resources were needed. What were some of the considerations made in deciding how to develop or acquire those resources?

### **Theme #3: Country Experiences in Designing Elements of an Enforcement Program**

Papers and presentations addressed a specific aspect of developing the institutional capacity for an environmental enforcement program. The papers served to introduce the topics covered in the Institution-Building (UNEP) Workshops on Day Three and offered specific examples of how each country has solved an organizational or human resource problem in designing a compliance and enforcement program. The papers addressed each aspect of the enforcement program being discussed:

- How the approach was selected, how the approach evolved over time, and what other approaches were considered; and
- Whether the program represents a minimum resource expense for the benefits it delivers.

### **Theme #4: Experiences in Compliance and Enforcement**

Papers and presentations were solicited from all the participants for publication in the proceedings, and several were selected for short presentations during the plenary session. These papers ideally presented an environmental problem; a comprehensive enforcement approach and its development and implementation history; and statistics and other information on environmental and enforcement successes in terms of cost to implement, cost to industry, and compliance and environmental results. Presentations analyzed factors that lead to successful results and explored implications for using the same approach in other settings.

### **Theme #5: The Role of Communication in an Enforcement Program**

- Papers and presentations addressed how effective communication is used to enhance enforcement program deterrence. For example, communication can be used to stimulate enforcers, provide the necessary political support for enforcement to take place, provide confidence to and support decisions by judges, and spur the regulated community to comply. Communication may also be used to create public interest.
- Papers also addressed the importance and use of public outreach and statistics to gain support for compliance and enforcement both in the public at large and within the regulated community, as well as some of the problems and difficulties in gaining public attention and support. The grouping of several enforcement actions to enhance communication and attention to enforcement and focus on environmental results was also evaluated in terms of what makes for success or failure.

---

**Theme #6: Establishing International Networks**

Papers and presentations described current efforts to develop international support networks for enforcement, including:

- What was the genesis of the network?
- What was/is involved in developing and maintaining the network?
- Who is asked to participate and at what levels in the organizations?
- What subjects does the network cover?
- What vehicles are used for exchange?
- On what topics is exchange taking place?
- What future directions and changes are anticipated for the network?



## CONFERENCE WORKSHOPS

### • Principles of Environmental Enforcement Workshops

These workshops provided hands-on experience for participants in applying the principles of environmental enforcement to develop a management approach, establish enforceable requirements where appropriate, and create effective compliance and enforcement strategies for environmental problems, including mining, deforestation, petrochemicals/petroleum refining, tourism, and residential and industrial waste disposal. The workshop participants also attempted to resolve enforcement problems involving tough economic and social issues using role playing and negotiation. An executive summary of the text "Principles of Environmental Enforcement" is included in Proceedings Volume I. Participants received case study materials on the selected subject matter in advance to prepare for the workshops. Technical support packages on the nature of the environmental problem and pollution control or prevention options were available at the Conference.

### • UNEP Workshops: Institution-Building for Enforcing Regulations Related to Industrial Activities<sup>1</sup>

A draft workshop text, case studies, and discussion guide were available for participants to use at the Conference UNEP workshops and to review for further improvement before they are finalized. The workshop discussions explored the applicability of the specific case studies, design issues, and options for organizing an enforcement program for regulations related to industrial activities; implementing a compliance monitoring and inspection program; developing human, information, and financial resources; and processing permits.

### • Special Topic Workshops

Expert papers were solicited on the following topics and issues, and were addressed during facilitated discussion at the workshops.

### Export/Import of Illegal Shipments of Hazardous Waste, Toxic Chemicals, or Contaminated Products

This topic addressed the following issues:

- How are nations ensuring they know of shipments with potential environmental hazards?
- How well understood are procedures and other requirements?
- How are illegal activities identified?
- What responses have been taken and why, and how effective have they been?
- What types of international cooperation have been useful?
- What are particular problem areas in enforcing these types of requirements, and how can they be overcome?

<sup>1</sup>For these workshops an Advisory Group has been formed to assist in developing the workshop materials. Advisory Group members who assisted in the development of UNEP, IE/PAC training materials, "Building Institutional Capacity to Ensure Industry Compliance," include Dr. René Altamirano, SEDESOL, México; Dr. Ossama El-Kholy, Egypt; Mme. Odile Gauthier Natta, Ministère de L'Environnement, France; Mr. Jo Gerardu, VROM, The Netherlands; Mr. Rob Glaser, VROM, The Netherlands; Mr. Zbigniew Kamiński, State Inspectorate for Environmental Protection, Poland; Mrs. Jacqueline Aloisi de Lardere, UNEP, IE/PAC; Mr. Sun Li, Environmental Law Institute/PAC and Ms. Cheryl Wasserman, U.S. EPA.

### **Field Citations as an Approach to Enforcement**

This topic addressed the following issues:

- What are field citation programs? They are generally understood to include enforcement actions that may be undertaken by an administrative agency—rather than the court or judicial system—that can legally impose a sanction or fine in the field, much as police issue traffic tickets for automobile-related violations. A proposed definition was discussed, reviewed, and amended during the discussion. For example, what are the definitions of traffic tickets? Would the definition include in-field notices of violations? Issued by an inspector, by other?
- For what kinds of violations are field citations useful? For what kinds of violations might they be inappropriate or ineffective?
- What are the program design elements and different approaches to organizing a field citation program (e.g., who issues field citations)? What authorities are needed?
- What factors are important to successful implementation? For example, what is the importance of training? What kind of follow-up is needed in the issuance of a field citation?
- What kind of training materials are available for field citation programs? Are different communication skills needed for inspectors who issue field citations to avoid or handle potential conflict?

### **CFC Control Program Enforcement: Implementing the Montreal Protocol Workshop**

This topic addressed the following issues:

- What are the goals of chlorofluorohydrocarbons (CFC) reduction, and what particular challenges do control and reduction of CFCs in the marketplace pose to domestic programs, given the nature of the market and regulated community?
- What types of programs have countries adopted to control CFCs in the marketplace?
- How effective have these programs been in achieving compliance? What successes and problems have resulted?
- What lessons can be learned for the design of requirements to ensure enforceability, promotion of compliance, compliance monitoring and inspection activities, enforcement response, and levels of government involvement?

### **Criminal Enforcement Role in Environment**

This topic addressed the following issues:

- What kinds of sanctions and other consequences are made available through criminal enforcement, and how effective are they in achieving compliance?
- What is the proper role of criminal authorities and sanctions in environmental enforcement? What should the relationship be between criminal and civil enforcement? For what types of violations is criminal enforcement (rather than civil enforcement) particularly well suited?
- What government entities might be involved in making criminal enforcement successful? How can these different groups be encouraged to work together?
- What training is required to support criminal enforcement, and what training materials are available?



**Enforcement at Government-Owned or -Operated Facilities**

This topic addressed the following issues:

- How are governments made accountable for environmental requirements?
- What enforcement responses are effective in achieving compliance?
- What enforcement instruments/authorities are particularly effective?
- Intergovernmental relationships: How important is the independence of the enforcement official? What relationships and organizational linkages are useful for success?

**Enforcement of Economic Instruments**

This topic addressed the following issues:

- What are economic instruments and how are they defined (e.g., emission taxes, marketable permits)?
- What are the particular challenges or problems posed by designing effective compliance strategies and enforcement responses?
- What institutional requirements and design requirements for the program would help in enforcement?
- What particular training or inspection approaches are most useful in trying to detect violations and compliance problems?
- How might those challenges be overcome?

**Promoting Voluntary Compliance:****Environmental Auditing, Outreach, and Incentive Programs**

This topic addressed the following issues:

- What is the role of compliance promotion in an enforcement program? What is success for a program to promote compliance? What should its goals be?
- What successes have programs designed to promote compliance had in achieving compliance independently and in relation to inspection and enforcement response?
- What is the proper relationship between technical assistance, inspections, and enforcement response?
- How might enforcement response policies be designed to promote compliance as well as deter violations?

**Role of Police**

This topic addressed the following issues:

- What roles can police play in environmental enforcement?
- Why might police be called upon to play those roles?
- What contributes to the success of having police carry out that role?
- What are particular challenges and problems in calling upon police to assist in environmental enforcement?
- How can these challenges be overcome?



**CONFERENCE PROGRAM****APRIL 24, 1994**

17.00-18.00 Welcome Reception and Early Registration in the Laurel Tree Courtyard

**DAY ONE  
APRIL 25, 1994****PLENARY SESSION**

08.00-09.00 Registration

08.00-18.00 **Exhibits** (throughout the Conference)

- Inspector Training Materials and Monitoring Equipment
- Communications to Deter Violations and Gain Public Support
- The Role of Citizens in Compliance and Enforcement
- International Networks Workshops and Support Materials
- Environmental Videos (shown during breaks and lunch)

**Introduction and Welcome to the Conference**

09.00-09.10 Day Chair—Mr. Pieter J. Verkerk, Inspector General, VROM, The Netherlands

Co-Chair—Mr. Steven A. Herman, Assistant Administrator, Office of Enforcement and Compliance Assurance, U.S. EPA

09.10-10.45 Opening Speeches

09.10-09.25 Mr. Carlos Sada, Mayor, Oaxaca, México

- Welcome

09.25-09.40 Mr. Carlos Rojas Gutiérrez, Secretary of Social Development, México  
(delivered by: Ms. Julia Carabias, President, Ecology National Institute, México)

- The Environmental Enforcement Challenge in Developing Nations

09.45-10.00 Mr. Arsenio Rodriguez, Director, Regional Office for Latin America and the Caribbean, México (UNEP)

- Sustainable Development Goals and the Need for Effective Environmental Enforcement: Efforts to Build Institutional Capacity for Environmental Enforcement—An Integrated Approach

10.00-10.20 Mr. Steven A. Herman, Assistant Administrator, Office of Enforcement and Compliance Assurance, U.S. EPA

- Evolution of Environmental Enforcement Within the United States: Strategic Approach to Enforcement and its Growing Role in International Trade

10.20-10.45 Mr. Hans Alders, Environment Minister, The Netherlands

- Evolution of Environmental Enforcement Within The Netherlands—Achieving a National Consensus

10.45-11.15 Break

<b>Theme #1: Principles of Environmental Enforcement</b>	
11.15-11.45	<p>Speaker #1: Ms. Cheryl Wasserman, Associate Director for Policy Analysis, Office of Enforcement and Compliance Assurance, U.S. EPA</p> <ul style="list-style-type: none"> <li>• What Is Compliance and Enforcement?</li> <li>• General Framework and Principles</li> </ul>
11.45-12.00	Discussion Session
12.00-13.30	Lunch
<b>Theme #2: Environmental Enforcement Challenges</b>	
13.30-13.45	<p>Speaker #2: Dr. Adegoke Adegoroye, Head of Enforcement and Inspectorate Department, Nigeria (Moderator)</p> <ul style="list-style-type: none"> <li>• The Challenges of Environmental Enforcement in a Developing Country: The Nigerian Experience</li> </ul>
13.45-14.00	<p>Speaker #3: Mr. Jose Luis Puliafito, Director of Environmental Sanitation and Supervision, Ministry of Environment, Argentina</p> <ul style="list-style-type: none"> <li>• A South American Country Example</li> </ul>
14.00-14.15	<p>Speaker #4: Mr. Zbigniew Kamienski, State Inspectorate for Environmental Protection, Poland</p> <ul style="list-style-type: none"> <li>• Process of Upgrading the Polish Environmental Enforcement Procedures</li> </ul>
14.15-15.00	Discussion Session
15.00-15.30	Break
<b>Theme #3: Country Experiences in Designing Elements of an Enforcement Program</b>	
15.30-15.45	<p>Speaker #5: Mr. Mariano Palacios Alcocer, Federal Attorney, PFFA, SEDESOL, México (delivered by Mr. Arturo Alcocer Lujambio (Moderator))</p> <ul style="list-style-type: none"> <li>• México's Experience—Governmental Relationships, Training Inspectors and Linkages with Standard Setting and Permits</li> </ul>
15.45-16.00	<p>Speaker #6: Ms. Gro Rødland, State Pollution Agency, Norway</p> <ul style="list-style-type: none"> <li>• Norway's Experience in Building an Inspector Corps: Education and Financing</li> </ul>
16.00-16.15	<p>Speaker #7: Mr. Jaap van Dijk, Member Executive Committee, Provincial Council, Province of Groningen, The Netherlands</p> <ul style="list-style-type: none"> <li>• The Interest of Cooperation between Police, Public Prosecutors and Governmental Authorities in the Field of Environmental Enforcement</li> </ul>
16.15-16.30	<p>Speaker #8: Mr. Daniel Hugo Llermanos, Judge, Criminal and Correctional Court #10, Judicial Department of Lomas de Zamora, Argentina (partially delivered by Mr. Jose Luis Puliafito)</p> <ul style="list-style-type: none"> <li>• Environmental Agony: My Experience as an Argentinian Judge</li> </ul>
16.30-17.00	Discussion Session

- 17.00-18.00 Instructions for Day Two and Day Three Workshops  
Ms. Cheryl Wasserman: Principles of Environmental Enforcement Workshops and Special Topic Workshops/Poster Sessions  
Mr. Rob Glaser: UNEP Institution-Building Workshops
- 19.00 Dinner Hosted by the Conference Sponsors in the La Pergola Dining Room at Misión de los Angeles

**DAY TWO**  
**APRIL 26, 1994**

**WORKSHOPS ON PRINCIPLES OF ENVIRONMENTAL ENFORCEMENT**

Day Chair—Mr. Steven A. Herman, Assistant Administrator, Office of Enforcement and Compliance Assurance, U.S. EPA

In small groups, workshop participants used case studies to explore the principles of environmental enforcement. Participants chose preferred case study subject matter:

**Mining**

*Group A Facilitators:* Mr. John Rothman, United States and Mr. Stanislaw Wajda, Poland

**Petrochemical/Refining**

*Group A Facilitators:* Mr. Thomas Maslany, United States and Mr. Robert Glaser, The Netherlands

*Group B Facilitators:* Mr. John Rasnic, United States and Prof. Gyula Bándi, Hungary

**Deforestation**

*Group A Facilitators:* Ms. Cheryl Wasserman, United States and Dr. Winston McCalla, Jamaica

*Group B Facilitators:* Mr. LeRoy Paddock, United States and Ms. Sandra Urbina Mohs, Costa Rica

**Residential and Industrial Waste Disposal**

*Group A Facilitators:* Ms. Susan Bromm, United States; Mr. Menno Olman, The Netherlands and Mr. Paul Gavrel, Canada

*Group B Facilitators:* Mr. John Wise, United States and Dr. Adegoké Adegoroye, Nigeria

*Group C Facilitators:* Mr. Michael Alushin, United States and Dr. Dumitra Popescu, Romania

*Group D Facilitators:* Ms. Lynn Peterson, United States and Mr. Huub Kesselaar, The Netherlands

**Tourism**

*Group A Facilitators:* Ms. Ann DeLong, United States and Mr. Jalaluddin Bin Ismail, Malaysia

Using facilitated discussion and exercises, each workshop covered: designing a management approach; designing enforceable requirements; setting priorities; balancing compliance promotion and enforcement response; inspection strategies; defining enforcement response and evaluating results and responding to change. Also, each workshop included a role-playing exercise to demonstrate a process for resolving alleged violations involving

complex economic, social and technical issues and uncertainties. Roles included enforcement officials, industry representatives, community activists, employees and others. Case study materials also provided information on environmental problems, pollution controls and prevention approaches and their cost-effectiveness and sources of information.

- 08.00-18.00 **Exhibits** (throughout the Conference)
- Inspector Training Materials and Monitoring Equipment
  - Communications to Deter Violations and Gain Public Support
  - The Role of Citizens in Compliance and Enforcement
  - International Networks Workshops and Support Materials
  - Environmental Videos (shown during breaks and lunch)
- 08.30-10.40 **Concurrent Workshops: Designing Management Approaches, Enforceable Requirements and Effective Compliance and Enforcement Strategies**
- 10.45-11.00 Break
- 11.00-12.30 Concurrent Workshops (continued)
- 12.30-14.00 Lunch
- 14.00-15.55 **Concurrent Workshops: Resolving a Complex Enforcement Problem**
- 15.55-16.10 Break
- 16.10-17.30 Concurrent Workshops (continued)
- 19.00 Guelaguetza Dinner and Show Hosted by SEDESOL México and the Municipality of Oaxaca at La Ciudad de las Canteras

**DAY THREE  
APRIL 27, 1994**

**WORKSHOPS ON INSTITUTION-BUILDING (UNEP)  
AND ON SPECIAL TOPICS**

Day Chair—Mr. Pieter J. Verkerk, Inspector General, VROM, The Netherlands

Participants had the opportunity to choose up to four of 12 workshop offerings. These workshops included a series of four UNEP workshops on designing compliance/ enforcement programs to achieve industrial compliance with regulatory requirements. Facilitators ensured that workshops provided opportunities for active discussions with contributions by all workshop participants and for exploration of a range of issues defined for the topic. Participants in each workshop discussed these issues and contributed to the development of a paper reflecting discussions and consensus that was available during informal poster sessions on the morning of the fourth day. The Executive Planning Committee solicited papers from participants with experience on these subjects and these individuals provided background information when needed during the workshop sessions.

The sequencing and assignment of workshops reflected demand. The number of workshop offerings was expanded in response to the preferences of participants which kept the size of individual workshops small.

- 08.00-18.00    **Exhibits** (throughout the Conference)
- Inspector Training Materials and Monitoring Equipment
  - Communications to Deter Violations and Gain Public Support
  - The Role of Citizens in Compliance and Enforcement
  - International Networks Workshops and Support Materials
  - Environmental Videos (shown during breaks and lunch)
- 08.30-10.30    Concurrent Workshops:
- **Enforcing Regulations Related to Industrial Activities: Developing and Organizing the Enforcement Programme.** Case Study 1. Use of Modules 1 and 2—UNEP  
Facilitators: Mr. Robert Glaser, The Netherlands and Mr. Leo Heileman, UNEP, México
  - **Human, Information and Financial Resources.** Case Study 2. Use of Module 2—UNEP  
Facilitators: Mr. John Skinner, UNEP, IE/PAC and Dr. Ossama El-Kholy, Egypt
  - **Compliance Monitoring and Inspections of Industrial Facilities.** Case Study 3. Use of Module 3—UNEP  
Facilitators: Ms. Clare Delbridge, UNEP, IE/PAC and Mr. William Eichbaum, World Wildlife Fund
  - **Export/Import of Illegal Shipments of Hazardous Waste, Toxic Chemicals, or Contaminated Products**  
Facilitator: Mr. Wout Klein, The Netherlands; Rapporteur: Mr. Rick Sturgess, Apogee Research, Inc.
  - **Field Citations as an Approach to Enforcement**  
Facilitator: Mr. Michael Alushin, United States; Rapporteur: Mr. Ken Rubin, Apogee Research, Inc.
  - **Enforcement at Government-Owned or -Operated Facilities**  
Facilitator: Mr. Michael Stahl, United States; Rapporteur: Ms. Ann DeLong, United States
  - **Enforcement of Economic Instruments**  
Facilitator: Mr. Jelis Peters, The Netherlands; Rapporteur: Mr. Mark Cowan, Apogee Research, Inc.
  - **Promoting Voluntary Compliance: Environmental Auditing, Outreach and Incentive Programs**  
Facilitator: Ms. Susan Bromm, United States; Rapporteur: Mr. David Bronkema, Eastern Research Group, Inc.
  - **Role of Police**  
Facilitator: Mr. Jan Peters, The Netherlands; Rapporteurs: Mr. Matt Low and Ms. Tiffen Shewmake, TLI Systems, Inc.
- 10.45-12.45    Concurrent Workshops:
- **Enforcing Regulations Related to Industrial Activities: Developing and Organizing the Enforcement Programme.** Case Study 1. Use of Modules 1 and 2—UNEP  
Facilitators: Mr. Robert Glaser and Ms. Clare Delbridge
  - **Human, Information and Financial Resources.** Case Study 2. Use of Module 2—UNEP  
Facilitators: Mr. John Skinner and Mr. Leo Heileman

- **Export/Import of Illegal Shipments of Hazardous Waste, Toxic Chemicals, or Contaminated Products**  
Facilitator: Mr. Wout Klein; Rapporteur: Mr. Rick Sturgess
- **Field Citations as an Approach to Enforcement**  
Facilitator: Mr. Michael Alushin; Rapporteur: Mr. Ken Rubin
- **CFC Control Program Enforcement: Implementing the Montreal Protocol**  
Facilitator: Mr. Huub Kesselaar; Rapporteur: Ms. Marda Mayo, TLI Systems, Inc.
- **Criminal Enforcement Role in Environment**  
Facilitator: Ms. Gisele van Zeben, The Netherlands; Rapporteur: Ms. Tiffen Shewmake
- **Enforcement at Government-Owned or -Operated Facilities**  
Facilitator: Mr. Michael Stahl; Rapporteur: Ms. Ann DeLong
- **Enforcement of Economic Instruments**  
Facilitator: Mr. Jelis Peters; Rapporteur: Mr. Mark Cowan
- **Promoting Voluntary Compliance: Environmental Auditing, Outreach and Incentive Programs**  
Facilitator: Ms. Susan Bromm; Rapporteur: Mr. David Bronkema

12.00-14.00 Lunch served continuously throughout this period.

13.45-15.45 Concurrent Workshops:

- **Enforcing Regulations Related to Industrial Activities: Developing and Organizing the Enforcement Programme.** Case Study 1. Use of Modules 1 and 2—UNEP  
Facilitators: Mr. Leo Heileman and Mr. John Skinner
- **Human, Information and Financial Resources.** Case Study 2. Use of Module 2—UNEP  
Facilitators: Mr. Robert Glaser and Dr. Ossama El-Kholy
- **Compliance Monitoring and Inspections of Industrial Facilities.** Case Study 3. Use of Module 3—UNEP  
Facilitators: Mr. William Eichbaum and Ms. Cheryl Wasserman
- **Processing Permits.** Case Study 4. Use of Module 4—UNEP  
Facilitators: Ms. Clare Delbridge and Prof. Guyla Bándi
- **Export/Import of Illegal Shipments of Hazardous Waste, Toxic Chemicals, or Contaminated Products**  
Facilitator: Mr. Huub Kesselaar; Rapporteur: Mr. Rick Sturgess
- **CFC Control Program Enforcement: Implementing the Montreal Protocol**  
Facilitator: Mr. Wout Klein; Rapporteur: Ms. Marda Mayo
- **Criminal Enforcement Role in Environment**  
Facilitator: Ms. Gisele van Zeben; Rapporteur: Ms. Tiffen Shewmake
- **Enforcement at Government-Owned or -Operated Facilities**  
Facilitator: Mr. Michael Stahl; Rapporteur: Ms. Ann DeLong
- **Enforcement of Economic Instruments**  
Facilitator: Mr. Jelis Peters; Rapporteur: Mr. Mark Cowan
- **Promoting Voluntary Compliance: Environmental Auditing, Outreach and Incentive Programs**  
Facilitator: Ms. Susan Bromm; Rapporteur: Mr. David Bronkema



16.00-18.00

Concurrent Workshops:

- **Enforcing Regulations Related to Industrial Activities: Developing and Organizing the Enforcement Programme.** Case Study 1. Use of Modules 1 and 2—UNEP  
Facilitators: Mr. Robert Glaser and Mr. William Eichbaum
- **Compliance Monitoring and Inspections of Industrial Facilities.** Case Study 3. Use of Module 3—UNEP  
Facilitators: Mr. John Skinner and Dr. Ossama El-Kholy
- **Processing Permits.** Case Study 4. Use of Module 4—UNEP  
Facilitators: Mr. Mark Evans and Ms. Clare Delbridge
- **Export/Import of Illegal Shipments of Hazardous Waste, Toxic Chemicals, or Contaminated Products**  
Facilitator: Mr. Huub Kesselaar; Rapporteur: Mr. Rick Sturgess
- **CFC Control Program Enforcement: Implementing the Montreal Protocol**  
Facilitator: Mr. Wout Klein; Rapporteur: Ms. Marda Mayo
- **Criminal Enforcement Role in Environment**  
Facilitator: Ms. Gisele van Zeven; Rapporteur: Ms. Ann DeLong
- **Enforcement of Economic Instruments**  
Facilitator: Mr. Jan J.M. Tindemans, The Netherlands; Rapporteur: Mr. Mark Cowan
- **Promoting Voluntary Compliance: Environmental Auditing, Outreach and Incentive Programs**  
Facilitator: Ms. Susan Bromm; Rapporteur: Mr. David Bronkema
- **Role of Police**  
Facilitator: Mr. Jan Peters; Rapporteur: Ms. Tiffen Shewmake

18.00

No scheduled evening event

**DAY FOUR**  
**APRIL 28, 1994**

**POSTER SESSIONS AND**  
**CLOSING PLENARY SESSIONS**

Day Chair—Mr. Steven A. Herman, Assistant Administrator, Office of Enforcement and Compliance Assurance, U.S. EPA

08.00-18.00

**Exhibits** (throughout the Conference)

- Inspector Training Materials and Monitoring Equipment
- Communications to Deter Violations and Gain Public Support
- The Role of Citizens in Compliance and Enforcement
- International Networks Workshops and Support Materials
- Environmental Videos (shown during breaks and lunch)

09.00-12.00

**Poster Sessions**

In an open setting, participants roamed from table to table to obtain summaries from the 8 Day-Three special topic workshop discussions, met with individuals who prepared expert papers on the workshop topics and/or took the opportunity for further informal discussion among themselves to exchange ideas and approaches. Additional information and materials on the topics also was available.

12.00-13.30

Lunch

---

**Theme #4: Experiences in Compliance and Enforcement**


---

- 13.30-13.40 Speaker #9: Mr. Robert van Heuvelen, Director, Office of Regulatory Enforcement, Office of Enforcement and Compliance Assurance, U.S. EPA (Moderator)
- Successful Compliance and Enforcement Approaches
- 13.40-13.50 Speaker #10: Mr. Arthur Archer, Head of Sewage and Solid Waste Department, Ministry of Health, Barbados
- Response to Regulations for Disposal of Offensive Matter in Barbados, West Indies
- 13.50-14.00 Speaker #11: Mr. Kwesi Nkofi, Director of Environment, Guyana Agency for Health, Education and Environment, Guyana
- Enforcement of Compliance Requirements at Omai Gold Mines Limited - Guyana
- 14.00-14.10 Speakers #12: Mr. Jo Gerardu, VROM, The Netherlands
- Control of Licence-Holders for the Disposal of Chemical Waste by the Inspectorate for the Environment in the Netherlands
- 14.10-14.30 Discussion Session

---

**Theme #5: The Role of Communication in an Enforcement Program**


---

- 14.30-14.35 Mr. Pieter J. Verkerk, Inspector General, VROM, The Netherlands (Moderator)
- 14.35-14.40 Speaker #13: Mr. Michael Stahl, Deputy Assistant Administrator, Office of Enforcement and Compliance Assurance, U.S. EPA (delivered for: Mr. Paul G. Keough, Regional Administrator, Region I, U.S. EPA)
- Changing Environmental Behavior in the United States Through the Use of Public Disclosure of Information
- 14.40-14.50 Speaker #14: Mr. Oritsetimeyin Omagbemi Uwejamomere, Housing and Environment Correspondent, Guardian Newspapers, Ltd., Nigeria
- Media Challenges in Environmental Enforcement: The Case in Nigeria
- 14.50-15.00 Speaker #15: Mr. Francisco Bahamonde Torres, Assistant Federal Attorney for Verification of Normativity, PFFA, SEDESOL, México (delivered by Alfred David Gidi, SEDESOL, México)
- PFFA Experience in Enforcement in México
- 15.00-15.10 Speaker #16: Mr. Jan C.M. Veenman, VROM, The Netherlands
- The Role of Communication for Implementing Environmental Policy
- 15.10-15.20 Discussion Session—Participants were welcome to contribute exhibit materials on this theme and were encouraged to describe their approaches to enforcement and compliance communication.
- 15.20-15.45 Break

---

**Theme #6: Establishing International Networks**

---

- 15.45-15.55 Speaker #17: Mr. David Slater, Director and Chief Inspector, Her Majesty's Inspectorate for Pollution, United Kingdom (Moderator)
- 15.55-16.05 Speaker #18: Mr. Ludwig Krämer, Attorney, Commission of the European Communities Directorate, General Environment, Nuclear Safety and Civil Protection
- The European Union Network of Environmental Enforcement Authorities
- 16.05-16.15 Speaker #19: Ms. Maria Teresa Szauer Umana, Deputy Director of the Environmental Department of the National Institute for the Environment and Natural Resources, Colombia
- The Caribbean Environmental Programme as a Network for the Caribbean Region
- 16.15-16.25 Speaker #20: Mr. Soren Harald Klem, Specialized Officer, INTERPOL
- Environmental Crime and the Role of ICPO-INTERPOL
- 16.25-16.35 Speaker #21: Mr. Michael Alushin, Director, International Enforcement Program, Office of Enforcement, U.S. EPA
- North American Trading Partners: Canada, United States and México as an Enforcement Network
- 16.35-16.45 Speaker #22: Mr. John Skinner, Director, UNEP, IE/PAC
- Role of the Industry and Environment Programme Activity Centre of the United Nations Environment Programme
- 16.45-17.00 Discussion Session: The Need and Potential for Regional and Global International Networking
- 17.00-17.30 Closing Remarks
- Day Chair—Mr. Steven A. Herman, Assistant Administrator, Office of Enforcement and Compliance Assurance, U.S. EPA
- Co-Chair—Mr. Pieter J. Verkerk, Inspector General, VROM, The Netherlands
- 17.30-18.15 Press Conference
- 18.00-19.00 Closing Reception in the Laurel Tree Courtyard



## WELCOME AND INTRODUCTION TO THE CONFERENCE

VERKERK, PIETER

Inspector General, Inspectorate for the Environment/IPC 680, Ministry of Housing, Spatial Planning and the Environment, Rijnstraat 8, 2515 XP Den Haag, The Netherlands

Ladies and Gentlemen, Minister Alders and other respected opening speakers.

On behalf of my co-chair, Steven Herman, I would like to welcome you to the Third International Conference on Environmental Enforcement.

We have had two Conferences before. One in Utrecht, The Netherlands 1990; another one in Budapest, Hungary 1992. Both Conferences took place within the framework of the Memorandum of Understanding between the United States Environmental Protection Agency and The Netherlands Ministry of Housing, Spatial Planning and the Environment. Because of the successes of both Conferences there was a call for a third conference. UNEP was very much interested and Mexico made the offer to host the third conference. So the ideas and conditions were there. And now, here we are to make the Third Conference a success as well.

We also learned from our previous conferences in terms of setting up a conference and how to make the program more effective for the benefit of the participants. So this conference will not be a copy or repetition of the two other conferences. No, it will build on the results of the other conferences and—that will be unique for a conference like this—there are a lot of workshops to make it possible for all the participants to choose his or her preference. And above all, it creates ample room for discussion among the participants themselves.

What we are trying to achieve with this conference is an exchange of views; to learn from each other about successes, but also about failures. Don't reinvent the wheel again, but use the experience gained by your colleagues from other countries. We will talk about principles of enforcement. However the implementation may differ from one country to another; depending on the type and culture of the administration and the people.

Steven Herman, my colleague from the United States, and I will be your chairmen during this conference. Today it is my turn. There are some changes in the program; pleasant ones. Because it is a pleasure and an honor for this conference to welcome:

- Mr. Carlos Sada, Mayor of the City of Oaxaca and
- Mr. Walter Burger, representing the Governor of the State of Oaxaca.

The next speakers will present an opening address:

- Mr. Carlos Sada, Mayor of the City of Oaxaca.
- Mrs. Julia Carabias, President of the Mexican Ecology National Institute.
- Mr. Arsenio Rodriguez, director of the Regional Office for Latin America and Caribbean of UNEP.
- Mr. Steven Herman, Assistant Administrator USA/EPA.
- Mr. Hans Alders, Minister of the Ministry of Housing, Spatial Planning and the Environment, The Netherlands.

I would like to thank all the speakers and wish you a good conference.



**THE ENVIRONMENTAL ENFORCEMENT CHALLENGE IN DEVELOPING NATIONS**

ROJAS GUTIÉRREZ, CARLOS<sup>1</sup> (delivered by CARABIAS, JULIA<sup>2</sup>)

<sup>1</sup> Secretary of Social Development, La Secretaría de Desarrollo Social (SEDESOL), Av. Constituyentes No. 947, Belen de las Flores, Del. Alvaro Obregon, 01110 México City, DF, México

<sup>2</sup> President, Ecology National Institute, Rio Elba 20, 16o. piso, Cuauhtemoc, México City 06500, México

First of all, let me convey the greetings from Mr. Carlos Rojas, Secretary of Social Development, SEDESOL; he apologizes for not being here this morning, but he was instructed by President Salinas to attend another important meeting today; he asked me to present his paper. He thanks the Executive Organizing Committee for having chosen México, in particular the city of Oaxaca, to host this meeting.

Oaxaca, as its Municipal President explained to us, is a beautiful city with a large traditional culture, in which several meetings have been held to analyze environmental topics, both at the local and international level; this is an indication of the interest of its people and its Governor, Mr. Diodoro Carrasco.

We hope that this particular event will contribute in the capacity building of our people and our country; we welcome you all and wish you the best success in this Conference.

In the last years, discussion and incorporation of environmental topics on national policies has been strengthened. One of the significant results of the world's Conference on Environment and Development is the deepening of the analysis of the effects of development on the environment; there is practically no country in the world that has not considered, in some way or another, deep thoughts on how to achieve what until now has not been: how to reconcile the objectives of social and economic development with the conservation of natural resources.

In global processes, environmental topics increasingly play a protagonist, and consequently, are the subject of a number of binational and international meetings. In México we are involved in deep reflection and analysis in the context of the North American Free Trade Agreement and the incorporation of our country to the OECD.

How to solve the challenges that we face? How to consolidate economic and social development? How to increase production in order to increase economic growth and, at the same time, reduce social inequalities; how to make it sustainable without affecting natural resources as source of development, without imperil future generations? These questions are not only of academic or intellectual interest; they are included in the debate for policy formulation.

Until recently, economic growth had not taken into account social and environmental effects, with the result of increased poverty and environmental degradation. The challenge is to accelerate a fair increase of income and promote access to financial resources and clean technologies, to join economic growth with improvement of the environment and social well-being. At the same time, we cannot forget that natural resources are finite and could become non renewable if we do not use them properly. The challenge is more complicated when we take into account the fast rate of population growth and the need to resolve past social inequalities. To us, rational economic growth and social justice are the objectives of planning and implementation of different stages in the process of sustainable development.

Policies and strategies for improvement of the environment require continuous strengthening of an institutional and legal framework in nations. In México, advances have been important, we have strengthened the legal framework with official environmental standards, and we have subscribed to important international cooperation agreements. Nevertheless, there is much to be done to enact

codes of regulations, as a basis to define secondary standards; this will facilitate its permanent revision to update and improve its content, as well as its enforcement.

In the last twenty years, there have been important changes in Mexican institutions; the Environmental Protection law of 1971, highlighted the effects of pollution on human health, without considering causes of pollution. The General Law on the Ecological Equilibrium and Environmental Protection, in effect since 1988, is a modern, comprehensive statute on the environment, that gives priority to preventive aspects for conservation of natural resources, rather than corrective. This law considers several instruments, that include prevention of environmental damage by development activities, for planning environmental policies; we can mention, among others, the ecological ordering of the territory based on features of land and natural resources, the environmental impact assessment to prevent negative impacts of production activities and construction works, and the management plans for protected areas. More importance is given to preventive than to corrective actions, as correction, if it is possible, has a higher social cost than prevention.

The law also points out that environmental protection is not a topic exclusively for the public sector, but a matter that requires full social participation to assure successful results. Today we are promoting active participation of different groups of society, universities, associations of entrepreneurs, farmers, citizens and environmentalists, in order to, together, propose better concerted solutions to the environmental problems that we face. The law requires concurrence of the three levels of government—municipal, state and federal—in prevention of pollution and restoration of the environment; this points out to a radical change in environmental management, as before, states and municipalities were not empowered to deal with environmental problems even when they affected their population and natural resources.

Today every state in the country has enacted its respective environmental law, and the municipalities have some sort of institutional structure to deal with the ecology. Another change in terms of environmental law is that ecological standards have evolved towards standards of a sectorial nature: several laws have been updated in the last two years, like those that regulate forestry, fisheries, tourism, water, human settlements and the rural law. Even though the main reason for change was not updating to the new environmental context, some new elements in that direction have been included, though we recognize those changes are not sufficient; it is not an accomplished task, yet.

As a complement to federal laws, there are codes of regulations on environmental impact assessment, on hazardous waste, atmospheric pollution, water, noise and on waste disposal on seas, as well as regulations on forestry and fisheries; there are also some 71 Mexican official standards related to the environment.

Inclusion of the environmental dimension in the development of the country has been favored with the changes in institutions, that took effect two years ago. SEDESOL, Secretary of Social Development, is the government office in charge of social and regional development, as well as housing and urban development. It has two agencies, the National Institute of Ecology, in charge of the definition of environmental policies and regulations, and the Office of the Federal Attorney for Environmental Protection, in charge of the strict enforcement of regulations. The conception of this Secretary improves the planning of development, as it includes environmental criteria, but we still have to strengthen some weak links, improve coordination of actions and find suitable tools, to better decentralize environmental management to the different levels of government.

This institutional and legal framework represents an important advance in the country. Regulations attempt to solve very old problems and transform production processes in clean processes; enactment of standards have to take into consideration the different factors and actors involved, and the possibilities of compliance for large and for small industries. Enactment of standards is a complex process, has to be concerted and has to establish compromises.

What is most significant is not the number but the comprehensiveness of standards. The ideal scheme is to combine regulations with what I call a decentralized or coparticipative management, that does not rely only in the compulsory compliance of a number of regulations; this system allows application of other set of instruments, such as economic incentives or disincentives, and different forms of sectorial participation to improve the environment.



The objective, in other words, is to define an environmental policy, that is complied with not only by force of law, but also through adoption of different mechanisms, that operate as part of the economic performance of the enterprises and as part of a code of social responsibility.

We have some advances in this direction too, but there are some compromises we need to fulfill. We are conscious of the need to improve regulations, to adapt them to the attainment of sustainable development, but we have to be aware of the risk of establishing a regulatory framework as a result of external pressures. Those pressures appear when a country is open to external surveillance and when governments are pressured by a society that openly demands standards to counter environmental problems; in such conditions, states have to equalize laws or regulations to those of a certain country or, at least, eliminate those standards not compatible with a regime of free market, and introduce specific standards, similar to those to be complied by some economic activities in their country of origin.

There is a risk if we adopt in a very short time a number of regulations; this will have as one of its consequences, an accelerated transformation of the legal framework that defines policies, in this case environmental policies. We realize that other countries have gone through a long way to create a legal framework to regulate relations between human activities and the environment. But we must be aware of the risk that the indiscriminate adoption of standards could prevail in front of the definition of our priorities and our environmental policy, that may be different from those existing in a complex framework of environmental standards and regulations.

In other words, we have to avoid the risk that the environmental policy, if it evolves from specific standards and regulations, be limited by them; with this, I do not mean that we have to delay the process of legislative modernization we are involved in with many countries, but to accelerate the process of redefining the strategies for development to approach sustainability. This will be the guide for the regulatory framework.

The challenges are not simple at all: that is why we meet together, to thoroughly analyze problems and search for solutions; our commitment is great.



**SUSTAINABLE DEVELOPMENT GOALS AND THE NEED TO FORM EFFECTIVE ENVIRONMENTAL ENFORCEMENT: EFFORTS TO BUILD INSTITUTIONAL CAPACITY THROUGH AN INTEGRATED APPROACH**

RODRIGUEZ MERCADO, ARSENIO

Regional Representative, United Nations Environmental Programme for Latin America and the Caribbean, Boulevard de los Virreyes No. 155, Col. Lomas Virreyes 11000, México D.F. 11000, México

Honorable members of the head table, distinguished participants, I would first like to thank our partners and co-sponsors of this event, the Secretariat of Social Development of México, the Ministry of Housing, Spatial Planning, and the Environment of The Netherlands, the World Wildlife Fund, and the United States Environmental Protection Agency, for giving me the opportunity to address you this morning.

Elizabeth Dowdeswell, the executive director of UNEP, and my colleagues from the industry and environment and environmental law centres have asked me to address you on their behalf, on the goals of sustainable development and the need to build institutional capacity for environmental enforcement.

The work of this conference is eminently practical: it focuses on hands-on workshops to familiarize participants with the fundamental principles of environmental enforcement and the design of compliance programmes. Therefore I would not like to burden you with too many words.

Much has been said in the past years about the emerging paradigm of sustainable development. At the earth summit in Rio, more than 100 heads of state and government, and representatives of industry and the world's non-governmental community, recognized the need to adopt a different development strategy to ensure a more equitable and viable world for future generations.

However, as we now try to define the sustainable development creature, we seem to be faced with the same dilemma as the blind men in the indian fable when they were trying to describe an elephant. Perhaps in our efforts to adopt the new paradigm we are falling prey to a new fad called sustainability, without really understanding what it is all really about.

And we are in danger of believing that because we have changed our rhetoric (giving it a little green coat) we are changing the objective conditions that have brought humanity to one of its most profound crisis in history.

And one thing is certain. We are a world in crisis. The economic development models of the past have failed to deliver a fair and sustainable society. The natural resource base continues to be degraded at an accelerated pace and social inequality has reached today its height. The poor are becoming poorer. In 1960, as stated recently by the Secretary General of the United Nations, 20% of the world's population had 5% of the world's income, whereas the richest had 63%. In the 1990's the share of the poorest had fallen to an abysmal 1.3%. Our house is much smaller today, as we have become many. And in less than sixty years our scientific oracles are predicting a world population doubling the present one. We know that our national and international institutions—engineered in the eighteenth and nineteenth century—are not capable of responding to the multidimensional challenges of the post-industrial, post-technological civilization.

We need new thinking to reshape our institutions, our economic theories, our social ethics. We have to move, on a global scale, to a state of law, which recognizes not only the rights of the existing members of society but also those of future generations.

As stated in 1992 by Dr. Mostafa K. Tolba, "sustainable development is not a ready made policy menu. It is a demanding series of concrete, costed and draconian measures which confront failed economic programmes and instigate new structural reforms of the world's institutions and governance." These reforms must aim to bring about the alleviation of poverty and the rational utilization of natural resources through the construction of a more equitable society.

Ladies and gentlemen, sustainable development does not really represent a new paradigm, it is the re-statement of the ancient longing of mankind for a world of peace based on true respect for the rights of others, including the next generations.

If sustainable development is to be achieved, the social environmental costs and benefits of any development process must be evaluated, and laws and regulations must be enacted to ensure the protection of the community rights.

Khalil Gibran tells us about the answer given by the prophet to the question "but what about our laws, Master?" posed by an orphalese lawyer.

The prophet replied:

"You delight in laying down laws, yet you delight more in breaking them. Like children playing by the ocean who build sand-towers with constancy and then destroy them with laughter."

We have to move into a global and national state of law in order to regulate the multidimensional interactions that shape-up the human and natural environment and enable the protection of society's well-being. Laws have to be efficient but also effective. To enact lofty legislation that cannot be enforced is like building sand-towers by the sea side. To subscribe international treaties for the protection of the world resources, without a real political will, or the technical or financial capacity to undertake their implementation, create the dangerous illusion that the problem has been tackled while it is still rampant.

Since the environmental awakening of the 1970's many governments have established legislative and regulatory frameworks for the implementation of their environmental policies. There has, however, been a notable dislocation, in most countries, between the promulgation of laws and regulations and compliance with and enforcement of such laws and regulations. This is particularly true of developing countries where existing economic constraints, social priorities, and inadequacies in institutional and technical resources have largely impeded the effective implementation of environmental laws and regulations.

There is need to evolve strategies that will promote compliance and ensure effective enforcement. To enhance the capacity of many countries enforcement agencies to inspect and monitor, to investigate violations, and to compel compliance.

Political democracy is an essential ingredient for environmental enforcement. Public participation at all stages of development actions is the only way to guarantee that the rights of the community are protected. Compliance with laws and regulations, on environment and in other areas, is in effect a measure of the democratic maturity and the ethics of a society.

The subjects of legal regulation need to be sensitized to the demands of laws and regulations through the dissemination of information and the provision of advisory services. Industry needs to be encouraged towards compliance through technical assistance and technology development and transfer.

This is one of the reasons why this conference is of great significance. It will help to enhance public awareness; provide information to governments, the private sector and non-governmental organizations; and sensitize the international community to the imperative of environmental enforcement.

Agenda 21, mandated international organizations to promote environmental compliance by helping to provide an adequate institutional capacity for monitoring and enforcement.

But how to achieve this capacity building. Is it by funnelling additional financial resources to aging governmental institutions? By creating new bureaucratic structures? An out of tune engine does not respond better by adding more gasoline nor a higher octane grade.

We feel that the way the international system must proceed is by providing, on a step by step basis, the information that governments require to develop efficient and effective legislation, and its implementation mechanisms, and the information that the private sector requires to comply.

This is a major task. One that requires action based in partnerships of the public and private sectors with an active participation of citizen groups. For the international system to effectively abide

by the mandate of Agenda 21 it must act in a coordinated fashion. Let us not however forget that international institutions are also undergoing a crisis of purpose and structure. We still have to learn to work together around the common agenda of sustainable development. The effervescence generated after the Rio summit has yet to settle in well thought international assistance programmes which offer a coherent response to the multitudinous problems associated with enforcing sustainable development.

We are beginning to move in that direction. In the case of UNEP its capacity-building activities in the field of environmental legislation and machinery are being re-oriented. This re-orientation emphasizes the integration of the programme within the general framework of endogenous capacity-building for sustainable development established by Agenda 21; a regional approach to programme design and implementation in order to respond to geographical specificities; a result orientation in programme design, delivery and implementation; and partnership with relevant international organizations in the implementation of projects.

Building the institutional capacity of governments is to help them define policy and set the regulatory framework for sound and sustainable development. Chapter 8 of Agenda 21 on "Integrating Environment and Development in Decision Making" indicates in detail the needs for providing an effective legal and regulatory framework including provision of mechanisms for promoting compliance, as well as utilizing economic and market incentives should be used to encourage industries, for example, to voluntarily comply with standards and regulations. If such standards regulations and laws are not applied fairly, systematically and effectively then the governments run the risks of losing their credibility and the same time rendering the laws useless.

Ladies and gentlemen, the whole process of development, implementation, monitoring, enforcement and revision of environmental policy and legislative framework is an evolutionary process. A step by step approach should be taken. It is better to set long term goals with intermediary measures which can be complied with, that to set immediate stringent standards which will not or cannot be complied with (as a result of one limiting factor or another, be it technical, financial or otherwise).

The UNEP Workshops which will take place on Wednesday, are organized with the support of the Ministry of Housing, Spatial Planning and the Environment of the Kingdom of The Netherlands and the United States Environmental Protection Agency, and will go in depth into the above mentioned points. The general areas to be covered include: development of a compliance and enforcement programme; determination of human and financial resource requirements; permitting; and inspection, self-compliance monitoring and enforcement response. I cannot omit mentioning the 8 other excellent workshops which will also be held on the same day.

UNEP, with the support of the government of The Netherlands, intends to organize additional workshops on industry compliance and enforcement in various parts of the world and is looking forward to further cooperation with the United States Environmental Protection Agency and other organizations in this endeavor.

The search for sustainability in our social and economic actions is the only path to follow. It is a long road, we know, but as stated by a wise man from the east, a hundred mile journey starts with the first step.

Let us walk. Let us build sand-towers that last, so that our childrens' children might also be able to enjoy.

I wish you a pleasant and productive conference. Many thanks.



## **EVOLUTION OF ENVIRONMENTAL ENFORCEMENT WITHIN THE UNITED STATES: STRATEGIC APPROACH TO ENFORCEMENT AND ITS GROWING ROLE IN INTERNATIONAL TRADE**

HERMAN, STEVEN A.

Assistant Administrator, Office of Enforcement and Compliance Assurance, U.S. Environmental Protection Agency, 401 M Street, SW (LE-133), Washington, DC 20460, USA

Good Morning.

It is my great pleasure to join my co-Chair Pieter Verkerk in welcoming you to Oaxaca, México, for our Third International Conference on Environmental Enforcement. As I begin, I want to extend my personal appreciation to Governor Diodoro Carrasco of Oaxaca, Mayor Carlos Sada, and Mrs. Julia Carabias who is here representing Minister Carlos Rojas, and for México's gracious hospitality in hosting the Conference. We could not have found a more beautiful and hospitable place for this Conference. I also would like to thank my fellow sponsors Minister Alders, Mr. Arsenio Rodriguez representing UNEP and Mr. William Eichbaum of World Wildlife Fund, and the members of the Executive Planning Committee who helped shape a program that we hope will be inspiring and practical to everyone here.

We are at a remarkable time for environmental enforcement both within the U.S. and around the world. Through our dialogues surrounding the NAFTA, the GATT and other international agreements, we are realizing more and more that economic well-being goes hand in hand with environmental well-being. Environmental enforcement is an integral component of achieving environmental well being and sustainable development—something for which we all are striving.

The United States is privileged to be a part of this week's international dialogue. President Clinton, Vice President Gore, and EPA Administrator Carol Browner, are firmly committed to a healthy environment, and the U.S. Environmental Protection Agency is leading the effort to make the United States a world leader in environmental protection. I am pleased to have this opportunity to share with you the environmental priorities that the EPA, under Administrator Browner, is working to achieve. But, like all of us, I am also here to learn, especially at a time when the EPA is taking a fresh look at its own enforcement program. I look forward this week to hearing your views and reactions to EPA's enforcement program, and also to hearing about your goals, and the ways you are using enforcement to reach those goals.

### **1 ENVIRONMENTAL PROTECTION PRIORITIES IN THE UNITED STATES**

In the United States, Administrator Browner has established five key priorities to protect human health and the environment:

- First, pollution prevention—prevent pollution before it happens.
- Second, environmental justice—provide equal protection from environmental harms to all.
- Third, protect whole ecosystems.
- Fourth, base our actions on good, quality science.
- Fifth, promote new environmental technologies that can get the job done cheaper and better.

While we are uncompromising about our commitment to these goals, we will be flexible while working to achieve them. To make these priorities work, EPA is moving toward tailoring environmental protection to the specific characteristics of different communities, ecosystems and industrial sectors. We want to avoid "one size fits all" approaches. My job at EPA is to make sure that our civil and criminal enforcement program is strong and effective. Enforcement must be the backbone of all of EPA's other efforts. Enforcement makes the regulated community and the public take environmental laws seriously, it gives credibility to all of our agency's activities.

## **2 THE REORGANIZATION OF EPA'S ENFORCEMENT PROGRAM**

I was very fortunate to have been chosen by President and the Administrator to head EPA's enforcement program at this very exciting time. Last July, Administrator Browner decided to reorganize the enforcement program. This bold action of her's, bold because she acted decisively where others had only talked for more than 10 years—provides a unique opportunity to incorporate the Agency's new directions into an improved and streamlined enforcement organization.

Our new Office, known as the Office of Enforcement and Compliance Assurance, will bring together the many enforcement-related activities that for several years were scattered throughout the Agency. Our Headquarters Office will double in size from 400 to 800. But our enforcement reorganization is about much more than building a new structure and increasing staff. It is mainly about building a new approach to enforcement. That new approach has five key features:

First, we will maintain an imposing enforcement presence to deter noncompliance. Tough criminal sanctions, monetary penalties that recoup the economic gains of violations and punish violators, and injunctive relief that forces violators to correct environmental wrongs are all essential parts of the strong enforcement program which is ongoing at EPA.

Second, while enforcement actions will remain a primary means for achieving compliance, it will not be the only one. We will also use compliance assistance and other innovative tools to promote compliance in the regulated community. For example, by offering technical advice, teaching compliance seminars, or doing on-site compliance assessments, we can help the regulated community avoid breaking the law in the first place.

Third, we will organize our compliance strategies, and often our traditional enforcement activity as well, around sectors of the economy, and ecosystems. By focusing our resources, we will understand better how a particular sector or ecosystem functions as a whole, and we will know better when, where, and what action is needed to achieve compliance or make environmental improvements. With this targeted approach, we will remain true to the need to be consistent in how we enforce environmental laws, and recognize that "one-size-does-not-fit-all."

Fourth, we will take multi-media, whole-facility approaches wherever possible. When we provide technical assistance, inspect facilities or plan and bring enforcement actions, we will more and more base our actions on all of our environmental statutes, and not simply look at only the air, water, solid waste or toxics. We will aim to reach comprehensive solutions to pollution problems, and avoid approaches that fix a problem in one medium only to have a problem in a different medium worse or unaddressed or create a new problem.

Fifth, we will measure the success of our program by improvements in compliance rates and environmental quality, not just by the number of cases we bring or the amount of the penalties we collect. Instead of looking only at the quantity of cases, we will highlight the quality of our cases.

## **3 FEDERAL FACILITIES**

I also want to emphasize that in enforcing the law, we treat other agencies of the federal government the same way we treat other members of the regulated community. Federal agencies are routinely involved in activities within the scope of our environmental laws. By complying with the



law, the Government leads by example and increases the credibility of the law in the eyes of the public. Our Office of Federal Facilities Enforcement is committed to holding the federal government accountable to the public for its environmental record. Where appropriate, EPA levies fines and penalties against agencies of the federal government.

#### **4 USING ENFORCEMENT TO REACH OUR GOALS**

Our new approach will also advance Administrator Browner's five main priorities.

First, we will constantly seek creative ways to use enforcement to promote pollution prevention. Pollution prevention is the opposite of end-of-the-pipe controls—by preventing pollution in the first place, the regulated community avoids the cost of control technologies and waste cleanups or does society as a whole. Administrator Browner has called pollution prevention "the central ethic" and "guiding principle" in everything we do at EPA. Enforcement will be no exception.

A strong enforcement program that the regulated community takes seriously prevents pollution in and of itself by deterring violations of the law. And in individual cases, violators are agreeing more and more to perform pollution prevention projects, often in exchange for penalty reductions. To illustrate, a company might agree to eliminate the use of a toxic chemical, or to conduct a pollution prevention audit of its operations. These projects change the way violators do business and prevent or reduce pollution long after an enforcement action is over.

Another benefit of these projects is that they often also end up saving companies money. For example, the Dupont Company recently completed a Waste Minimization Study as part of an EPA enforcement settlement agreement. Dupont found that for a one time \$6 million investment, it will reduce its production of hazardous waste by 9 million pounds per year and reap back an astounding \$15 million in savings per year. Best of all, Dupont will share its study with other companies so that they, too, can save money by preventing pollution in the first place.

Our compliance assistance activities will also help prevent pollution by giving companies the information they need to comply with the law. We intend to focus compliance assistance on specific industries and other economic sectors and improve their ability to get the resources they need to comply with environmental laws.

Second, our improved enforcement program will promote the Agency's goal to provide equal environmental protection to all people. Minority, low-income and other historically disadvantaged communities must not bear an unfair burden of environmental risk. In February of this year, President Clinton signed an Executive Order that directed all federal agencies to address environmental justice concerns. At EPA, we will be the lead federal agency in this effort and we will make environmental justice concerns a part of every decision we make.

Third, we will use enforcement to protect whole ecosystems. To ensure a healthy and productive environment, all the interdependent parts of an ecosystem must be healthy. We will work to identify ecosystems of special concern, and locate areas where enforcement is the best tool for protecting against environmental harms. Our emphasis on multi-media approaches wherever possible will be an important component of protecting ecosystems. EPA has already conducted several "pilot" multi-media initiatives targeting sensitive areas, including the Great Lakes, the Gulf of Mexico and the Chesapeake Bay. We will continue to build our program to protect these sensitive ecosystems and expand our efforts to others.

Fourth, we will base our enforcement and compliance assurance actions on good, quality science and data. EPA typically relies upon and needs complete and accurate data in order to do its job. We intend to standardize compliance and enforcement information to improve our ability to track our progress and plan for the future. We will rely on "good science" and "good data" to assess the impact of compliance and enforcement efforts. To see whether we are truly succeeding, we need to improve our collection of data on pollution emissions, as well as on compliance rates. And we will look for ways to see whether, ultimately, our enforcement activities are improving the quality of the environment—the air we breathe, the water we drink.

Finally, we will look for opportunities to promote new environmental technologies. Through our compliance assistance program, we will improve our understanding of specific industries and help them find new environmental technologies that will make the most sense for them—both economically and environmentally. Our federal facilities program is a leader in this area. We are cooperating with other federal agencies such as the Energy Department and the Defense Department to develop, experiment and test new environmental technologies. In our enforcement actions, we will continue to enter into agreements where violators commit to develop environmental technologies that reduce or prevent pollution.

## 5 WORKING WITH OUR INTERNATIONAL PARTNERS

Whatever goals we have at EPA, our chances of success are much better when we develop partnerships both domestically and internationally. In particular, our international partnerships are becoming ever more important. In the environmental enforcement arena, partnership is especially essential in view of the rapid evolution of the global marketplace. A number of international developments, both regional and multinational, have highlighted the role of environmental enforcement in ensuring sustainable economic development across the globe.

The historic North American Free Trade Agreement—NAFTA—along with its side agreements, is a leading example. The parties to the NAFTA recognized the need for strong environmental enforcement and agreed on three key elements that provide for a strong enforcement program. First, Mexico, Canada, and the United States committed to effective environmental enforcement in each of their own countries. Second, an innovative dispute resolution process allows each signatory to hold the others accountable for ineffective enforcement of domestic environmental laws. Third, and even more importantly, the countries are creating a new trilateral enforcement network that will promote opportunities for cooperation well into the future. Strong trilateral and bilateral cooperation on environmental enforcement will be essential to the sustainable regional development that the NAFTA promises.

Increased cooperation in environmental enforcement in North America parallels other developments around the globe:

- The entry into force of the Basel Convention on Transboundary Movement of Hazardous Wastes—including the Parties' recent decision to ban exports of hazardous waste to developing countries—underscores international recognition of the need for tough enforcement against illegal waste traffickers.
- Interpol's Working Group on Environmental Crime is working to improve international cooperation in investigating illegal shipments of hazardous waste.
- The U.N. Commission on Crime Prevention and Criminal Justice is also promoting cooperation in criminal enforcement. The Commission is working to develop international consensus on the nature of environmental crime and helping national governments develop effective environmental criminal laws.
- The world community's shared concern with global climate change and ozone depletion has also led to international partnerships. New restrictions on ozone-depleting chemicals in amendments to the Montreal Protocol on Substances that Deplete the Ozone Layer, and implementation of the Global Convention on Climate Change, will present new challenges to the architects of domestic environmental enforcement programs and policy.
- Similarly, international agreement on the need to protect the fragile and pristine ecosystem of Antarctica has included recognition of the need for effective enforcement. The U.S. and other parties to the Antarctic Treaty are setting up domestic programs to implement the new environmental protocol to the treaty. Enforcement will be an essential element to preserving the unique Antarctic environment for future generations.

- GATT Parties have recently decided to create a Committee on Trade and the Environment and an environmental work program of the new World Trade Organization, which will replace the GATT. The Committee and work program will provide an important new opportunity to address the relationship between trade and the environment, including issues of enforcement. More and more, we are all realizing that one nation's failure to enact and enforce good environmental laws may be unfair to the rest of the global community. Hopefully, the Trade and Environment Committee's work program will promote the need for strong domestic enforcement of environmental laws, as well as new opportunities for cooperation. Together, the international community can create a level playing field for freer world trade.

## 6 CONCLUSION

In closing, I cannot help but mention this Conference as yet another important opportunity to build international partnerships and promote international cooperation in environmental enforcement. Our world is getting smaller and smaller. Everything we do, or do not do, especially with regard to our precious and fragile environment, affects us all. Thus, our efforts must get closer and closer. We must work together. I am very excited about Administrator Browner's environmental agenda for the United States. I hope EPA's program for protecting the environment, including its strong role for enforcement, will give this group some food for thought as we begin this Conference. This gathering is especially timely for EPA's enforcement organization — I know I will emerge from this Conference with new ideas from all of you, on how to develop our revitalized enforcement program. By sharing our ideas and experiences this week, we can, together, take another step toward ensuring the healthy global environment that is essential to a healthy global economy.



## **EVOLUTION OF ENVIRONMENTAL ENFORCEMENT WITHIN THE NETHERLANDS—ACHIEVING A NATIONAL CONSENSUS**

ALDERS, J.G.M.

Environment Minister, Ministry of Housing, Spatial Planning and the Environment, Rijnstraat 8, 2515 XP DEN HAAG, The Netherlands

Mr. Chairman, distinguished guests,

First of all, I should like to thank the Mexican environment minister for his hospitality and the effort he has put in to organizing this conference in Oaxaca. He and his staff have done a lot of work to organize this important third Enforcement Conference at such short notice. The Dutch motto is 'Je maintiendrai' which means I shall uphold or enforce. Enforcement is very important for the Netherlands and hence for the Dutch government. It is no coincidence that the cabinet has placed emphasis in its environmental policy on implementation and enforcement. There are plenty of splendid plans and policies; what it is now all about is implementing them.

The first international enforcement conference took place in May 1990 in Utrecht, the Netherlands. The second took place in September 1992 in Budapest, in Hungary. And now we are here in Oaxaca, Mexico. The first two conferences were highly successful and I am firmly convinced that the conference here in Oaxaca will continue in the same manner and will demonstrate that paying attention to enforcement alone is not enough but that you have to exchange information as well and be open to each other's experiences. Twenty years of experience have learned us that there are no frontiers to environmental pollution, and that must also apply to environmental enforcement.

International cooperation is getting underway better and better. I only need to remind you of the UNCED meeting in Rio de Janeiro in 1992, the fifth environmental action plan of the European Union and the on-going cooperation with the United Nations Environment Programme (UNEP). In organizing the enforcement conferences we try to respond to these initiatives. While the first conference confined itself above all to the longer standing cooperation between the Netherlands and the United States, the second conference in Budapest ensured that concern about enforcement was extended to Eastern Europe. Now this conference is taking place in Mexico, shortly after the concluding of the NAFTA accord between Mexico, Canada and the United States of America.

The aim of this conference is not to express as many splendid words as possible, or to present a proud account of our successes. But to exchange experiences on enforcement in practical situations at the national and at the international level. Then environmental legislation will really have the intended effect and sustainable development, the aim we all endorsed in Rio de Janeiro, will come within our grasp. Only then will environmental policy become realistic and credible and not just a paper tiger.

But for this we have to agree together on a sound enforcement infrastructure, to put this down in writing and adhere to it. Nationally and internationally. By means of enforcement workshops we can use examples from daily practice to gain new experiences and to come to agreements on implementation. These agreements are necessary to prevent inadequate or unequal enforcement resulting in economic injustice, at the national but perhaps even more so at the international level. Otherwise, infringement of environmental legislation will take place where sanctions and enforcement are weakest. Such arrangements are of additional importance where agreements have already been made to abolish frontiers. This is one of the reasons that the Netherlands is paying a lot of attention to the enforcement of environmental legislation within the European Union. If we are aiming at the same goal together, sustainable development, then we are equally responsible for achieving it, including the enforcement!

Concern for the environment does already exist in the Netherlands for some time, due to the geographical location of the Netherlands and the configuration of the Dutch economy. As a small country at the delta of three major rivers, we end up with a certain quantity of environmental pollution.

On the other hand we make such intense use of our small country, that we have an extremely high density of chemical industry, agriculture and traffic. So we have been preoccupied a little longer with the problem of how we can transform our economic development into sustainable development. It is precisely in our densely-populated and physically-vulnerable country that we need an active environmental care policy to maintain an adequate quality of the environment in which we live. But that active environmental care cannot be achieved by environmental legislation alone. For that, every individual must be bold enough to accept his own responsibility: industry, traffic, agriculture, but also the public at large.

To give shape to that individual responsibility, the environment has to become a part of all kinds of policy areas. Government concern for the environment in the Netherlands therefore is a matter which is given shape by more than one ministry. The Minister of Housing, Spatial Planning and the Environment coordinates government concern for the environment among the other ministries, but there are major interfaces with agriculture, nature conservation, traffic policy, energy policy, economic policy and also incomes policy. To really achieve sustainable development, sound cooperation between the ministries covering these policy areas is indispensable. This is the reason why the National Environmental Policy Plan is not drawn up solely by the environment minister, but also by the ministers of the other departments. The second Environmental Policy Plan was recently sent to parliament, signed by no less than five ministers.

An important point of departure of the environmental policy plan is the focus on implementation and, thus, on enforcement. In the Netherlands we are now introducing a check to see whether environmental legislation can be implemented and enforced. All the ministries in question make this check for new legislation and regulations in the Netherlands. In this way we prevent environmental policy being just a paper policy. After all, you can draft as much environmental legislation as you like, but if you cannot implement in practice, the environment will not benefit at all and may indeed sometimes even suffer from it. Checking for enforceability prevents environmental implementors having to despair at some point because the situation is so hopeless. And lastly, the enforceability of environmental legislation ensures that the ordinary man or woman in the street can see the results of environmental policy and knows what he or she is doing it all for. In short: the enforceability of environmental legislation enhances the support for a strict but clear environmental policy.

To give structured shape to the enforcement of environmental legislation, in the Netherlands a committee has been set up at the national level, headed by the inspector general of the Inspectorate for the Environment, to promote enforcement and to steer developments on this front where necessary. The National Coordinating Committee for Environmental Law Enforcement comprises not only ministries involved in environmental enforcement but also the public prosecution department, the police, the provincial authorities, the water quality managers and the local authorities. It is a task of the committee to coordinate all the enforcement activities of the participating partners at three levels: national, provincial and regional, on the basis of an annual plan.

To get this structured approach to national enforcement off the ground, the Ministry of Housing, Spatial Planning and the Environment has made a financial contribution to reinforcing the staffing levels of the police, the public prosecution department, the provincial authorities and the local authorities. This has been an integral part of the national environmental policy, and is introduced in the first National Environmental Policy Plan. With the aid of these grants, backlogs in the field of permits and enforcement can be caught up. Investigations by the Inspectorate of the Environment can help to ascertain the results achieved with regard to the creation of the enforcement structure and in terms of actual enforcement.

The Coordination and information centers, which have been set up by the regional cooperating municipalities, are an important part of the enforcement structure. These centers are the heart of the structure. They see not only to coordination of all enforcement activities in the region, they also are the first to spot bottlenecks between central government and the regions in the field of enforcement. Consequently, strengthening of these Coordination and information centers is above all important for an integrated approach to enforcement.

Fortunately the Netherlands is not the only country which is paying attention to environmental enforcement. And that is logical too, because through the growing number of international agreements in all kinds of fields, environmental agreements and their enforcement also need coordinating. This is certainly the case now that international organizations are paying a growing amount of attention to the environment, as for example the item of Trade and Environment and the Montreal Protocol. All these agreements need enforcement, and if possible: coordinated enforcement. This is why the Netherlands, during its chairmanship of the European Community, took the initiative to place the enforcement of environmental legislation high on the agenda in what is now called the European Union. It was an initiative that was well received by the member-states and has been taken up by successive chairmen. It is now on the agenda again of the Greek chairman.

In 1992 a start was made on setting up a network of enforcement agencies in the European Community. That has meanwhile resulted in a training week which took place in March 1994 in the Netherlands. Enforcers from practically all the member-states took part. Besides being given an account of Dutch environmental and enforcement policy, participants took an active part in enforcement visits to Dutch companies. The training week will be followed up in the autumn of 1994, since Denmark will be taking over the organization.

Second, the enforcement network is evolving through a joint enforcement project, carried out by the Netherlands, Belgium, Luxembourg, the United Kingdom and Germany. This project is related to the transfrontier shipment of hazardous waste, a problem with which the Netherlands is frequently confronted because of the amount of traffic passing through the country. The joint enforcement project was a success and will be followed up with the number of participating countries increasing to include Italy and Spain.

Enforcement is also one of the permanent subjects in the Memoranda of Understanding, which we have entered into with a number of other countries, and item number one in the Memorandum of Understanding which the Netherlands and the U.S. Environmental Protection Agency concluded. This conference is part of the elaboration of these agreements, and thus a good example of international cooperation in the enforcement field and the unprecedented opportunities for this. Dutch enforcement practice has learned a lot in the recent past from American experiences and, by the reverse token, EPA always says that they too have learnt from us, which I take as a great compliment.

Ladies and gentlemen,

We must be bold enough to look beyond the successful cooperation between two countries, both of which are capable of conducting a far-reaching environmental policy. We also have to deploy our cooperation and our experiences for other countries, which are just taking the initial steps on the enforcement path, to encourage and support them. And that is why we are here together today, to hear of each other's experiences and to get down to grass roots level. This conference is not intended to prescribe exactly how you should do it, how you should enforce and what instruments you should use. After all, every country is different, not only in terms of the stages of environmental policy but also in terms of bottlenecks and stages of development. This conference specifically aims at giving you ideas for an approach which may lead to good results in the field of environmental enforcement in the specific circumstances pertaining in your country.

We are all continually preoccupied with learning more and learning from each other in the enforcement field. Because we really do not all need to rediscover the wheel. People become wise from experience and the environment stands to gain most if we can avoid making the same mistakes over and over again. If we are prepared to do this we are half-way along the enforcement path. Until then we will still need meetings like these to arrive at the necessary exchange of experiences. I know that expectations of this conference are high, partly because of the successes achieved at the earlier conferences in Utrecht and Budapest. But I am convinced that you will be able to live up to expectations with each other. I am keenly interested in the follow-up to this conference, certainly because this will focus specifically on the cooperation with international organizations such as UNCED and UNEP. I wish you every success in the days ahead and I hope that the success will not only be noticeable in this hall here, but also in the environment outside!





## **THEME 1:**

### **PRINCIPLES OF ENVIRONMENTAL ENFORCEMENT**

Editor's Note: To avoid duplication, Ms. Wasserman's instructions for the Day 2 Principles of Environmental Enforcement Workshops are not reprinted here. Volume 1 contains an overview of the Principles of Environmental Enforcement and the 3-day training course, materials on which the Principles Workshops offered at the Conference were based. As noted in that paper, five additional case studies were developed for use at and following the Conference as well as stand alone technical support documents which summarize the environmental problems, pollution prevention and control alternatives, selected institutional approaches and an annotated bibliography on the topics of:

- Mining
- Petroleum refining and petrochemicals
- Residential and industrial waste disposal
- Tourism
- Deforestation

These technical support documents are available on request from the editors.

---

Paper 1 in Proceedings Volume 1.



---

## THEME 2:

### ENVIRONMENTAL ENFORCEMENT CHALLENGES

4. Summary of Theme Discussion, *Moderator: A. Adegoroye, Rapporteur: A. DeLong*..... 47
5. A South American Country Example: Environmental Legislation Enforcement in  
Mendoza, Experience and Challenges, *J.L. Pullafito* ..... 51
6. Social-Economic Problems Experienced in Compliance and Enforcement in  
Tanzania, *W.M.K. Masilingi*..... 63
7. 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* ..... 75

---

Papers 1 through 3 in Proceedings Volume 1.



---

**SUMMARY OF THEME #2: ENVIRONMENTAL ENFORCEMENT CHALLENGES**

Moderator: Adegoke Adegoroye  
Rapporteur: Ann DeLong

**GOALS**

Presentation of country-specific circumstances which gave rise to the development of an environmental enforcement program. Discussion of the issues that arose in organizing and designing the program, what options were selected, and why. Issues of particular relevance to developing countries, including economic and political uncertainty, level of support for environment, tradition of enforcement and compliance, and limited human resources, were addressed along with ways to overcome these obstacles.

**1 PRESENTATIONS**

Dr. Adegoke Adegoroye, Head of Enforcement and Inspectorate Department, Federal Environmental Agency, Nigeria, presented an overview of the evolution of Nigeria's environmental enforcement program to date. In the past, the government's efforts at environmental protection focused on the protection of natural resources. However, with the highly publicized dumping of hazardous waste in Nigeria in 1988, the government created a federal Environmental Protection Agency and, the following year, instituted a national policy on environmental protection. Several separate and distinct legislative acts were passed including the Harmful Waste Criminal Provisions Act, pollution abatement regulations, and an Environmental Impact Assessment Act. An inspectorate and enforcement department were formed with the following responsibilities: inspection; compliance monitoring; chemicals and pesticide registration; toxic waste dump watch; permitting, licensing and accreditation; and enforcement and litigation. Personnel were recruited and trained and technical assistance has been provided by other countries and international organization including the United States, Japan, Germany, The Netherlands, England, UNEP and the World Bank.

Ongoing challenges faced by Nigeria's enforcement program include limited funding, lobbying from powerful groups and individuals, interagency conflicts and political instability. In conclusion, Mr. Adegoroye stated that government commitment for funding and support, stable leadership, clear environmental mandates, requests for technical assistance, cooperation with line agencies, and employing strategies that will earn respect from industry are all necessary for their enforcement effort to be effective.

Mr. Jose Luis Puliafito, Director of Environmental Sanitation and Supervision, Ministry of Environment, Argentina, presented a chronology and summary of the development of environmental legislation in Mendoza province. Argentina's federal Ministry of Environment was established in 1985 and Mendoza province established its own department in 1990. The main issues the department deals with include stationary and mobile source air pollution, domestic solid waste, dangerous residues, industrial water pollution, oil production and mining exploitation. An approach was developed which included providing both a legal framework and an implementation strategy to deal with these problems. An environmental control plan, which outlines requirements for the administration, sanitation and decontamination, development and operation of business was developed. A monitoring and inspections program was also put in place. Continuing challenges include resolving conflicts concerning interjurisdictional relations, conflicts of authority between municipalities and provincial decentralized agencies, and providing effective environmental control via legislative enforcement.

Mr. Zbigniew Kamienski, Director of the Control Department, State Inspectorate for Environmental Protection, Poland, presented a summary of their enforcement task force's ongoing

process to upgrade Poland's environmental enforcement procedures. His paper focused on the current mechanisms for enforcement response, the drawbacks of those mechanisms, and recommendations for solution. The task force began by analyzing foreign environmental protection laws, including those from the United States and the EC, to determine what might be adapted to the Polish situation to provide for more effective environmental enforcement. Changes have been proposed in the system for imposition and collection of fines, and to include negotiation between government and industry in the enforcement process. The proposal includes the introduction of compliance schedules, however, the task force wants to proceed carefully to avoid problems. A procedure for establishing who can request a compliance schedule needs to be devised, along with the compliance period, criteria for determining what activities must take place during that timeframe, the method of enforcement when the obligations are not met, and what type of sanctions should be imposed. Environmental fees need to be more flexible (currently they all go to the environmental fund) so they can also be sued for injunctive relief. Using the process of negotiation for implementing compliance schedules is controversial in Poland and is one of the most significant changes being proposed. These proposed changes are currently under discussion in the Ministry of Environmental Protection and Natural Resources.

## 2 OPEN DISCUSSION

In response to a question, Mr. Puliafito stated that the laws in Mendoza province primarily address the allocation and preservation of natural resources and that disease epidemics and adverse public health effects were one of the catalysts for the formation of the environmental department in Mendoza.

A representative from an NGO in Colombia stated that citizen suits are allowed under their civil code and that citizens can request damages and injunctions.

A participant from Curaçao asked Mr. Adegoroye what enforcement efforts were taken in the hazardous waste dumping case and how it was discovered. Mr. Adegoroye responded that several waste problems had been brought to the attention of the military government and that hazardous waste had already been accepted into Nigeria through a false construction company.

Ed Lowry from the United States asked all the panelists to discuss how they have resolved conflicts with their agency's authorities for environmental problems, and how to persuade industry, the courts, and citizens to impose penalties that are high enough to have a deterrent effect. Mr. Puliafito responded that in Argentina, the national consciousness of environmental problems is not high enough to support a wide scale national enforcement program. In Mendoza, however, high penalties and fees have been imposed because many industries had significant environmental problems. He estimated that it will take more than 5 years to get an overall, national enforcement program in place. Mr. Adegoroye replied that in Nigeria, the initial penalties were very stiff and imprisonment was allowed for owners and operators. He also stated that the environment agency was initially parastatal to the Ministry, and that it did not have enough authority over other Ministries who also had jurisdiction over environmental problems. The agency was then elevated to the level of the President's office and, therefore, had jurisdiction over all affected Ministries. An interministerial group was then formed to let them know about the new environmental act and to get other Ministries to send all new laws through them for review.

Liliana Maslarova from Bulgaria asked Mr. Kamienski how environmental user fees are determined. Mr. Kamienski replied that in Poland, all users are required to pay fees and that the rates are established in their environmental law. Higher rates of pollution means they must pay higher fees. The fees are calculated by an administrative office, and are recalculated for each business each year.

In response to a question, Mr. Puliafito explained that, at the federal level, Argentina has a department of environment within the Ministry of Health. The weakness of this approach is that many issues (i.e. mining) are not able to be addressed within this organizational structure. Fines are used

to change industry behavior and each type of industry was studied to see what type of environmental improvements would be necessary to achieve ambient standards.

A participant from Tanzania asked how to deal with the question of fines and fees particularly where you have local and multinational corporations in the same place. The panel responded that the issue should not be local industry vs. multinationals, but who is polluting the most, and fees should be in relation to the amount of pollution generated.

### **3 CONCLUSIONS**

In order to effectively carry out an environmental enforcement program, stable leadership with a strong commitment to providing funding and support and clear environmental mandates is necessary. It is also necessary to have an environmental policy to achieve results. Elevating environmental organizations to the level of a Ministry to get better visibility and better emphasis on environmental issues and to avoid interagency conflicts is helpful, however, each country needs to seek its own solution to this problem.





## A SOUTH AMERICAN COUNTRY EXAMPLE: ENVIRONMENTAL LEGISLATION ENFORCEMENT IN MENDOZA, EXPERIENCE AND CHALLENGES

PULIAFITO, JOSÉ LUIS

Director of Environmental Control of the Province of Mendoza IEMA-Universidad de Mendoza,  
Aristides Villanueva 775- (5500) Mendoza, Argentina

### SUMMARY

In the present paper both the state of development of environmental protection in the Province of Mendoza, Argentine Republic, and efforts towards enforcement of legislation on the subject are discussed. To that end, there are first described the geographic-cultural circumstances of mendocinian society, thus historically justifying the evolution leading to the creation of the Ministry of Environment in 1989. This administrative structure is analyzed in light of the process for its development and of present experience, from the legal institutional point of view and its associated problems as well as from the formulations, progresses and difficulties encountered in the enforcement program of the new environmental legislation. Finally, the challenges to be borne in mind in the environmental protection consolidation process for the provincial territory are posed.

### 1 INTRODUCTION

The Province of Mendoza, located west of the national territory, and adjoining the Andes Mountain Range, is one of 23 provinces making up the Argentine Republic. Its most distinctive feature is that most of its territory—about some 250.000 Km<sup>2</sup>—is either arid or semiarid, with annual rainfalls in the range of 220mm., the main exception being the man-made oases (Northern Oasis, Central Oasis and Southern Oasis) which have developed through the exploitation for irrigation and potability of its main five rivers, all of them with annual modules lower than 50m<sup>3</sup> where almost the totality of mendocinians live. The total irrigated oases area does not exceed 3% of the provincial territory and is equivalent to that of the Great Buenos Aires Metropolitan Area. Almost 70% of Mendoza's population is located in the Northern Oasis—the largest of them—a region where Mendoza Metropolitan Area is situated with its 815,000 inhabitants, a population concentration ranking fourth amongst the Argentine cities.

#### 1.1 Mendocinian culture and environment

In spite of the fact that one of the main productive activities of the Oases is agroindustry—wine, oils, vegetables and fruits amongst other products—it is not possible to distinguish, as it is for example in the Argentine Humid Pampa (Pampa Húmeda), a clear transition between rural and metropolitan areas, but instead urban and quasi-urban scale human interactions, making it more similar to European regions. Mendocinian culture is then an oasis culture, forged in the need for managing limited resources—fundamentally space and water—thus preserving and developing a propitious habitat based over a steady effort. *Therefore, environment preservation as a political objective of the Province of Mendoza, is not an occasional phenomenon, an accidental fact, but instead is the consequence of a long cultural, Provincial history, truly based process.* (1)

The 1884 General Water Law—still in force—and the creation of the General Irrigation Department through the 1916 Provincial Constitution as extrapowers body and responsible for irrigation water resource management subjects, are a clear example of the aforesaid, and probably, together with the settling of part of the large immigratory flow coming from Europe, are to a great extent the cause of the productive development held the end of last century to date. Likewise, urban

development of its principal district acknowledges through sanitary—environmental measures fostered by *Emilio Coni*, *Carlos Thays* and *Emilio Civi*—as representatives of the visionary end of the century's generation—the genesis of an environmental-civic culture, being the creation of General San Martín Park Law 19, 1896—and public trees fostering—two milestones strongly projecting onto our days. Mendocinian culture is also identified, with its trees and green spaces, as a biotechnological way of moderating climatic harshness and improving urban life quality. The success of the beginning of the century's environmental model is certainly based upon having arranged reasonable, economically viable measures which met great acceptance within the population. However, it is essential to point out that launching of such model responds to a crisis-catharsis mechanism, that is, a set of reactions to great eco-catastrophes being characterized by productive deterioration and emigration and mortality caused by the 1861 earthquake and great end of the century epidemics.

### 1.2 The beginning of the century environmental crisis model

During the second half of the century, and while productive and socio-cultural complexity in our Province was growing, new legislation and administrative measures were incorporated, as was sectorwise protection of natural resources. They were attempts to stop increasing conflicts which were beginning to appear in the urban, industrial, rural and natural ecosystems spheres interfaces. Environmental action is characterized during this stage by some features which are typical from the increasing crisis: a fragile financial situation, lack of information, capacity and technological investment, explosive development of urban districts due, to a great extent, to rural emigration, etc. and, on the other hand, excessive expansion of state intervention as unique means of counteracting increasing problems.

Take, as an example, water contamination: grounds on which Law 4479 as of 1980 stipulated that Obras Sanitarias (Sanitary Works State Company) would exercise sanitary police together with the Welfare Ministry, the Ministry of Economics, General Irrigation Department and Municipalities, notwithstanding whatever 1884 General Water Law has established and the police corresponding to each practice (2). Such a dispersion of responsibility and authority goes with the increasing complexity of environmental topics and with the increase in cases of unfulfillment of established rules, the latter due to either police power weakening or else to associated economic matters.

### 1.3 A century later

With the increasing deterioration in quality of life, and progressive natural environment degradation, both the initial model and sectorwise and by natural resource protection criterion reach an evident exhaustion stage. Initially some ecologist groups, to which researchers and academic units join later, alert to the problem thus finding a strong enough reason to impel to the restatement of the course. The political ambit quickly incorporates environmental discussion into their action guidelines and reacts in 1989 with the creation by Law 5.487 of the Ministry of Environment, City Planning and Housing, at the request of the Provincial Executive Power headed by then by Governor Bordón. A century later, mendocinian society retakes environmental conception and begins to develop an ecosystemic action modern concept where Provincial State bears the responsibility of "Environmental Policy Formulation" (3).

The Ministry of Environment is the first of its kind in the country and it is an attempt to homogenize efforts towards a *unique and coordinated conception* of State action about environment protection (4). Unlike other Argentine Provinces which have incorporated environmental references into their constitutional texts as amendments initiated around 1985, Mendoza Constitution remains unchanged since 1916 and it does not expressly provide either the right to a healthy and balanced environment or state and private responsibility for its preservation. For that reason, since the Ministry is born more out of a real necessity than out of a declaration of principles—again the crisis-catharsis mechanism is impelling to practical decision making—concrete results can possibly be expected from such a foundation. To that respect it should be pointed out that notwithstanding international

influence on the adopted political decisions, the Ministry fundamentally arises as a local response to local problems, what is projected onto policy design and execution in their early years.

## 2 ENVIRONMENTAL MANAGEMENT AFTER MINISTRY CREATION

Per se creation of a Ministry of Environment does not either guarantee the existence of an environmental policy or would answer for its execution. It should be born in mind, that as in the case of Mendoza, new structure—not only administrative functional, but also legal and even political conception—cohabits during a considerable transition period with the old one, there occurring several conflicts whose solution, almost one by one, ends up molding the institutional identity. For this it can be clearly distinguished a founding stage, which does not exhaust but starts with the formal creation of the Ministry, which is followed by a consolidation stage demanding a general rearrangement; at the beginning of the latter is where the present stage of the still brief-ministry history can be placed. (Four annual administrative fiscal years).

Presently, the Ministry of Environment, City Planning and Housing specifically concerns an actually wide particular range of objectives, which could be basically grouped into the following fields:

1. Environmental Information
2. Development and up-dating of legal, institutional and techno-economic instruments for environmental protection.
3. Development of public environmental awareness.
4. Natural Flora and Fauna Preservation.
5. Environment Control and Sanitation.
6. Urban Regulation and Environmental Development.
7. Urban Services with direct environmental incidence (drinkable water, sewers, parks and public transportation)
8. Housing

While the ministry has a direct jurisdiction (including the related policy power) over some of these areas, over most of them it has instead a promotion and coordination political responsibility, thus sharing the specific jurisdiction with other provincial, decentralized or municipal bodies.

Several types of conflicts had to be faced. Among them, legal voids and incompatibilities, jurisdictional coordination and competence (within the same provincial government, with self sufficient bodies, with the National State and finally with the Municipalities), a poor environmental state of control (with a deterioration of public awareness and a certain degree of general disbelief in state control mechanisms) and, of course, resources limitations.

### 2.1 Legal rearrangement

From the very start of the Ministry, an arduous evaluation process of the existing legal system and of the design of new and up-dating of existing legal instruments for compatibility took place. Necessary unity and coherence of the environmental legislative system is achieved through three principles of provincial environmental policy...

- a. Prevention: in the past legislation used to act mainly on consequences of environmental deterioration and contamination. At present, it tries to act upon the causes of such deterioration...

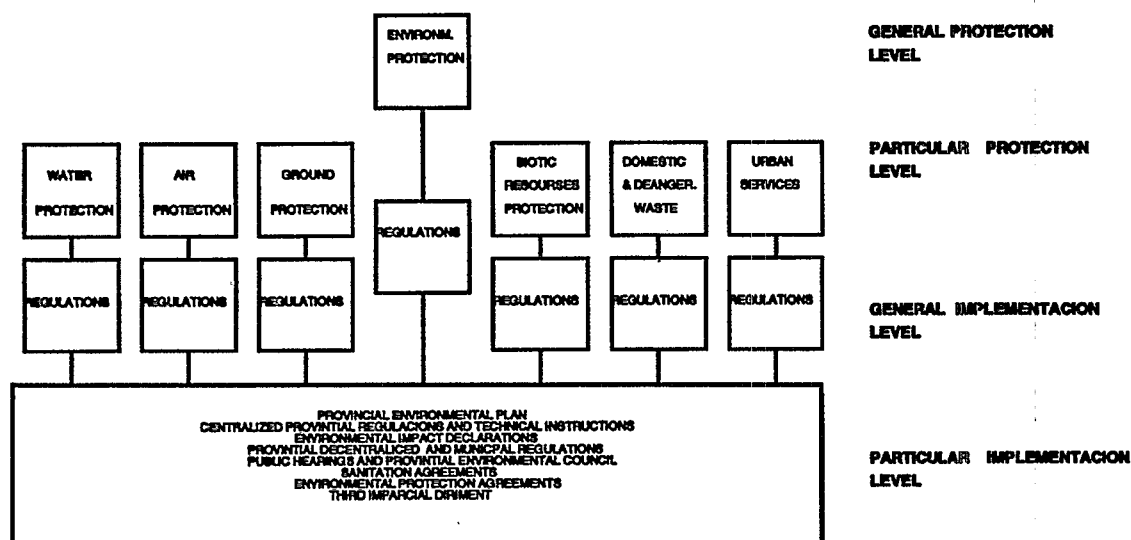


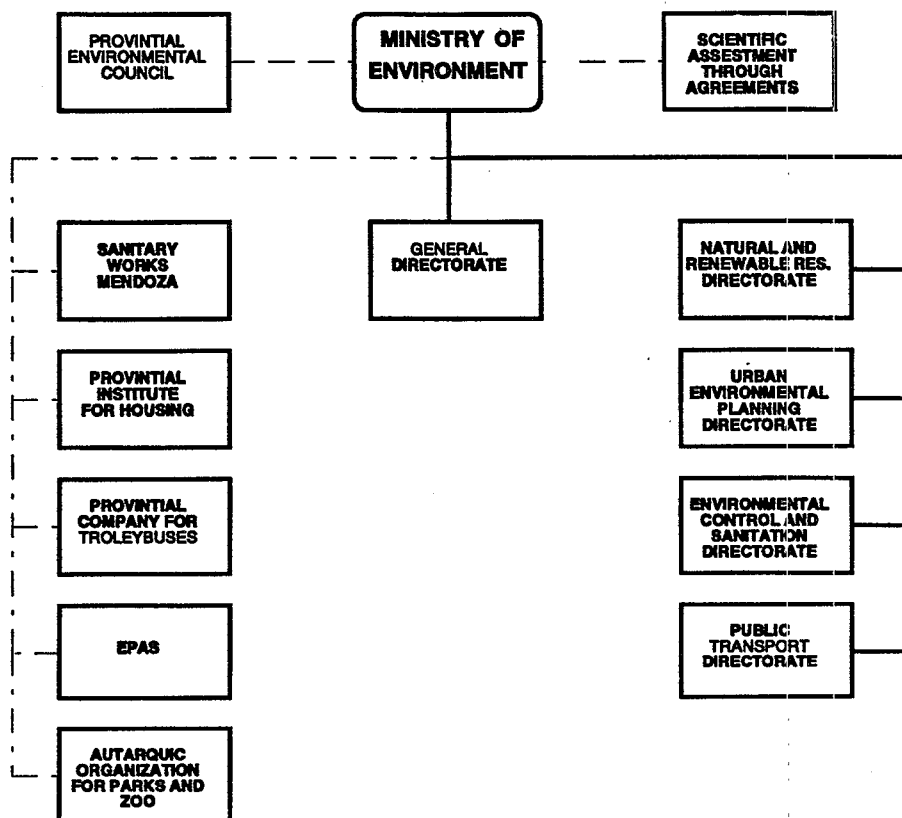
Figure 1. Environmental juridic structure.

- b. Participation: quality of life is both objective and subjective. Its concept is thus integrated by historical, cultural and social considerations typical of each people. For this, both its protection and improvement do require permanent consultation with population so as to know their hopes and experiences.
- c. Political and technical cooperation: technical cooperation is substantial in environmental problem solving. This new insight into the need for interdependence demands an interdisciplinary effort to search for solutions to environmental problems drawing upon different scientific specialities contributions (5).

Under this conception the sanction of important acts during the 1991-1993 period was achieved. Environment Preservation Law N°5961 unifies the new system through different legal institutes, such as Principles of Environmental Policy, Environmental Report and Plan, Environment Provincial Council, Jurisdictional Protection of Diffuse Interests and Environmental Impact Evaluation. It should be added: Law 5.917 in agreement with Dangerous Residues National Law N° 24.051, Institutional Rearrangement of Sanitation Services and Drinkable Water and Water Quality Protection Law N° 6.044, and the Law 6.045 institutionalizing a System for Natural Protected Areas, adopting the International Union Classification for Nature Conservation (6). The practice of new environmental legislation and re-interpretation of existing laws shapes a framework whose structure tends to consolidate according to chart in Fig. 1.

## 2.2 Institutional rearrangement

A second topic that demanded a practically parallel effort to that of legal rearrangement has been Provincial State administrative reorganization under the new Ministry to facilitate environmental policy coordination. Added to its initial four Directorates, and one dependent autarchic entity structure (Parks, Renewable Natural Resources, Environmental Urban Planning and Environmental Control, on the one hand), (and Provincial Housing Institute on the other hand), was a fifth Directorate (Public



**Figure 2.** Funcional and organic structure of the Ministry of Environment.

Transportation) and two decentralized entities more (Sanitary Works Mendoza: Obras Sanitarias Mendoza (OSM) and the Provincial Trolleybuses Company). An up-dated organic- functional representation of the Ministry can be seen in Fig. 2.

Reorganization is to be understood, on the other hand, from a wider criterion comprising State reform in general; thus during 1993 sanctions were enacted towards Obras Sanitarias transformation was achieved (aiming at private capital participation), and that of Parks Directorate (Dirección de Parques) (the same turned into a self sufficient entity). In the same transformation of OSM (Obras Sanitarias Mendoza) is comprised the creation of EPAS (Water and Sanitation Provincial Entity = WSPE) whose task is both to regulate new, fixed capital OSM operation as well as to become water quality regulating entity, when taken as drinking water source. The latter may lead to design, still pending, of both a legal as well as functional organization of hydrid management. Likewise, a decentralization tendency is consolidated through specialized organizations (governmental, non-governmental, mixed and even private) there reserving the political role for a reduced, centralized, ministerial and very executive structure. Within the foreseen reform projects, the Provincial Trolleybuses Company privatization can be found together with the transformation into a self sufficient entity of the Transportation Directorate (in charge of public transportation control and regulation).

### 2.3 Interjurisdictional relations

Institutional and legal rearrangement brought about substantial change which would show itself as a rearrangement of jurisdictional relationships between Provincial State and Municipalities, National Autarchic Entities and the very National State. These rearrangements are now fully developed and influencing the rest of the Ministry's relationships. A brief description may serve as an illustration:

#### 2.3.1 With national or other provinces' jurisdictions

A broadly accepted interpretation, strongly supported by our Province, is that Art. 104 of the National Constitution makes environmental regulation province-dependent. Such interpretation also comprises Art. 128. Paragraph 19 of 1916 Mendoza Provincial Constitution. Likewise, if the potential or effective reduction in the individual or collective right to a healthy environment arises from territories exceeding one province, conflicts would be solved, either by the economic treaties stipulated by Art. 107 or else by the diplomatic jurisdiction ascribed to the Nation Supreme Court according to Art. 109, both from the National Constitution (7). So, a first treaty was subscribed in La Rioja Province during 1990. During 1993, 17 provincial governments founded the Environment Federal Council (COFEMA), approved by Mendoza by Law 5803. The evidence that the present discussion issue is not closed can be found by the Nation's sanction, issue or enforcement of acts or legal provisions which would either partially or totally invade provincial jurisdiction. Mentioning three cases will be enough:

1. Dangerous Residues National Law 24051: according to the aforesaid, it should only regulate upon the interprovincial transportation of the same, or upon their exportation and importation to the National territory. Instead, the same unduly absorbs civil and penal competences both legalizing and penalizing dangerous residues generation and final disposal.
2. Resolution 105 from Nation Energy Secretariat: technical rules are issued by the same regulating "up-stream" oil production environmental impact, being the Secretariat the control body.
3. National Decree-law 22477/56 and its modification by National Law 22246 creating Atomic Energy National Commission (CNEA): By the same it is established that the regulation and control authority regarding radioactive material throughout the national territory is the CNEA. Apart from the above said, the main producer, manipulator and user of such materials is the very CNEA, which is in charge of nuclear energy generation and uranium minerals exploitation.

At the request of the Environment Ministry, Mendoza Province has attempted to solve these conflicts either supporting national legislation (case 1) or incorporating national regulations (case 2) or establishing special agreements under penalty of denouncing the existing ones (case 3). The support or national ruling incorporation however, is not necessarily wholly performed, with the Province's reservation of specific locally conditioned regulations.

It should be mentioned, however, that the counterpart of the above mentioned position takes place when the Provinces, making use of their autonomous powers, do not regulate or apply their proper equivalent legislations so as to prevent their own or interprovincial resources degradation. COFEMA mechanism and that of the interprovincial basins agreements (as in the case of Colorado River, where Mendoza, together with other four provinces—Buenos Aires, Neuquén, La Pampa y Río Negro—constitutes the Interprovincial Committee for the Colorado River- COIRCO), should solve in Mendoza Province's criterion at least an important part of potential conflicts.

The case may be quoted of an important oil company located in Neuquén Province limiting with the south of Mendoza through Colorado River, which requested saline waters overturn permit in the mendocinian provincial territory. Said waters were a product of oil exploitation of a field shared with Mendoza but mostly neuquenian

(almost in a 90%) so as to prevent Río Colorado contamination to which Mendoza is jointly obliged together with the other provinces of the COIRCO. In spite of the pressures from the Basin Committee and from national authorities towards Mendoza's acceptance for such proposal, Province Government, through Ministry recommendation denied such permit and indirectly forced the oil company to begin reinjection works on the Neuquenian side, the same demanding a very strong investment. Upon establishment of a foreign residues non-importation principle, the Province also indirectly strengthened a much more rigid monitoring and control mechanism of the oil companies' either systematic or accidental overturns in said river. This question, on the other hand, forces the Province to carry to an extreme the means for the companies—this time located on the own border or on affluents of the interprovincial hydric resource originating in Mendoza- to prevent overturns and be subject to an early warning monitoring system permanently reporting to the COIRCO.

An important limitation upon such mechanisms, however, arises if a potential laxity upon application-in some provinces-of rules agreed upon within COFEMA, generates differential costs delaying the others's development-which do apply such rules-in the long term. Towards compensation of these last effects, Mendoza has additionally impelled the establishment of general regional agreements, as for example with neighboring provinces (San Juan, San Luis and La Rioja) through Nuevo Cuyo Covenant (Pacto del Nuevo Cuyo).

### 2.3.2 With municipalities and provincial decentralized entities

Municipalities are regulated in Mendoza through the Municipal Organic Law N° 1079, where among other things competences and powers are set. Unlike other provinces (especially those having lately amended their Provincial Constitutions), Mendocinian Municipalities are not autonomous but instead are self sufficient entities, which theoretically implies that objectives and responsibilities related to environmental action, remain subject to what the Province may suggest, through constitutional powers deals with environment preservation and protection. However, due to different practical reasons but also to a great extent due to historical municipal claims, there is in fact a tendency towards greater decentralization. The positive effects decentralization may have are opposed to the potential jurisdiction conflicts that are beginning to turn up, and are increased due to incongruence amongst territorial divisions and commonly accepted ecosystemic regions. That is why it is not risky to think that a great deal of urban environmental problems -new wrongly located industrial settlements, poor facilities environmental control, traffic congestions, etc., may have precisely originated in political and policy power "diffusion" within the different municipalities and provincial decentralized entities. Thus, and from its very creation, the Environment Ministry has faced the urgent need for reacquiring the scattered environmental political power for the Province, without weakening the decentralization objective. This has normally implied that in general terms the Ministry induces coordination, either through (1) multijurisdictional covenants formalization (implying either technical or financial support by means of specific purpose subsidies or else establishing joint legal actions against control object) or (2) by means of summoning provincial authority to make them exercise their specific policy power for every particular case, within the technical instructions framework issued by the corresponding ministerial bureau. In the particular case of the General Department of Irrigation—a special self sufficient body—it is likewise: thus regularly implying a partial agreements complex process while establishing joint issues coordination.

## 3 ENVIRONMENTAL CONTROL AND ENVIRONMENTAL LEGISLATION ENFORCEMENT

Within the above described framework, tasks carried out by the Ministry have also undergone an equivalent evolution. A first stage is characterized by promotion, control and correction actions to

strengthen institutional presence, both at the citizen level as well as in the same government there followed another type where objectives are restated under a more strategical and integral concept. In spite of the fact that these actions have dealt with basic structural deficit and public demand on the subject, keeping initiative in new fields has been searched for, using it not only on preventive basis, but also and fundamentally, as a ministerial policy governing principles establishment tool. Each Ministry area has been shaping through its own action a part of this layout, thus defining in practice the basis of a provincial environmental plan. The definitive institutionalization, foreseen by Environment Preservation Act, is a recently initiated process and which will surely take the whole 1994 year.

That basically implies formulation of a preliminary document, a wide consultation process, including the Environment Council, sectorwise scientific and academic groups and even citizens in particular through public hearing, until a final documentation after political consensus which only then may be raised to Provincial Congress. Its approval generates the obligation to the Ministry of annually raising the Provincial Environmental Report, an instrument on which all government actions must be based, and to which the private ones must refer.

Even though the different Ministry agencies are to a certain extent differentiable on a task organization basis, environment preservation is complementary for equivalent functions—according to whatever the primary interest area may be. It has been the responsibility of the Environmental Control and Sanitation Directorate, in the widest sense, to coordinate efforts towards reduction and control of every type of produced contamination. The set of policies and action programs in that respect, shape in practice an Environmental Control Plan which horizontally cuts across general ministerial plan areas.

Environmental control policies implementation requires periodical planning evidenced by action management (the Administration Program), direct or indirect intervention in the environment (the Sanitation and Decontamination Program), promotion and development of new methods to prevent contamination (Development Program), or else as vigilance so as to keep contamination restricted (the Operations Program).

Since it is a matter of supervision aiming at the past, present and future of the environmental situation, only the continuous and joint execution of such programs within a predefined political framework can fulfill environmental legislation. Thus, each environmental control policy requires not only the corresponding legal framework but also actions which, to become viable, must be methodically executed through such programs.

It is the Operations Program in particular comprising monitoring, facilities inspections, analysis and penalization actions, which concentrates on the present environmental situation. It directly applies to ones own jurisdiction, or indirectly through the policy effecting corresponding institutions.

Regional environmental control started out from relatively low levels as of ministerial action. It has been a challenge, how to raise such levels within the framework of the evolving legal-institutional situation having such a wide range of problems to attack. The economic situation has been influential in preventing abrupt and generalized application of the new rules or of the ones already in force. Only recently since national economic rearrangement have negative economic pressures seem to have weakened to a certain extent. Thus, consideration of the relative importance of the environmental problem, the degree of the attainable public impact and finally, the possibilities of success. It should be mentioned, however that the decisions to open more than one parallel track, has been based not as much on available means in the organization—either legal, institutional, human or financial-technical—but instead on the need for establishing the soonest possible action at a public level from the ministerial group, as well as in distributing the official pressures to act.

As a consequence, enforcement of environmental legislation and environmental control itself, in its widest sense is not always present in a transition process like the one the Province is living. Even when it is obvious that they cannot oppose or that



sooner or later the second one should include the first one. Maybe this is the main reason why the environmental legislation general implementation level (regulations) is comparatively less developed than the laws it derives from, or than the same particular implementation level. (See Fig.1). They are then two currents of convergent actions, the one setting the legal framework and the other generating the particular implementation framework and only then is the individual subject to control affected. This movement leads, if successful, to bi or multipartite covenants whose fulfillment should be surveyed. The sum of resolved cases in time, either by their amount or by their importance or both makes the general application of law and its particular regulations viable.

A discussion follows about the state of evolution of the main current topics and policies related to environmental control in the Province.

### 3.1 Main environmental control issues and policies in the province

Among the eleven major environmental control policies adopted, it is important to briefly describe—how environmental legislation enforcement evolves—the following seven mainly related to pollution reduction and control.

#### 3.1.1 Atmospheric pollution by mobile sources

Due to meteorological conditions and to pollution concentration, air pollution is a problem confined to Great Mendoza Metropolitan Area. Its main pollutant is suspension particles originating mainly in diesel engine vehicles emissions. Emissions originating in gasoline engine vehicles are increasing levels of hydrocarbons and oxides of nitrogen, and consequently, occurrence frequency of photochemical smog, but these for the moment still are a lesser concern than the first one. Reduction and control policy comprise strategies such as public transportation reorganization (increase in electrified portion, natural compressed gas conversion and emissions post-treatment, journeys rationalization, etc.), urban traffic arrangement and green spaces enlargement in the city. Other strategies include lead free gasoline use promotion, catalytic agents use by gasoline engine vehicles and compulsory periodical technical supervision of vehicles, beginning with public and cargo transportation. Unification of municipal rules (which up to date are responsible for private vehicles emissions control in public thoroughfare), and for adoption of international emission rules for new vehicles and fuel quality (EURO I y II) are central problems to solve in the very short term. Coordination with national and municipal jurisdictions represents the main present drawback.

#### 3.1.2 Pollution by urban solid domestic residues

Once again the Metropolitan Area is the main focus of attention (with nearly 200,000 annual tons), though not exclusive since there are another two population concentrations in the Province of about 200,000 inhabitants, and several ones of a lesser scale. The problem is the incorrect final residue disposal, which generates an increasing hybrid pollution of underground layers of water and occurrence of clandestine dumping places. Reduction and corresponding control policy is concentrated on the immediate problem solving, from garbage adequate treatment and recycling of the same, thus promoting differentiated collecting methods. For this, all Metropolitan Area Municipalities have been integrated into a Integral Managing System by means of a multijurisdictional covenant amongst the same and the Ministry, meanwhile promoting the creation of other similar though smaller or monomunicipal systems. Amongst other things, such covenants grant important subsidies and set specific guidelines for collection, concentration and treatment and final disposal of residues. In particular, an effort is made towards control and deactivation of clandestine or unauthorized municipal dumping places. Covenants fulfillment control and municipal and police vigilance of clandestine overturns in unauthorized places is at the moment the main ministry concern,

there being foreseen in the medium term issue of rules reducing difficult treatment residues generation or promoting recycled material use.

### 3.1.3 Contamination by dangerous and special residues

It is an issue that only recently has acquired its true central magnitude. Service, industrial and hospital activities—amongst others—generate an amount close to 100,000 annual tons of special and dangerous residues in the provincial ambit, which in general either lack a safe treatment or directly are incorrectly arranged for through urban solid residues managing system, sewer system or directly contaminate irrigation channel beds. As of sanction of Provincial Act on the subject matter supporting national regulations, the Province has adopted a specific reduction and control policy consisting in opening a compulsory record of generators, carriers and operators and granting each generator condition a regularization term either by means of an situ treatment or else through said operators treatment. Since it essential to generate an adequate operators offer for the foreseen objective, and this offer depends on an exhaustive generators survey, the process has initiated by means of a compulsory provisional record, which after this first phase becomes definitive, beginning from this moment on, to be computed the regularization term. The call for enrollment has not met the expected response, in spite of the public diffution, perhaps because few of them feel they are comprised by that Act. Consequently, it was decided to summon and individually send forms to each of the 10,000 main facilities, preclassifying them within a set generator category. In the event of noncompliance, there officially proceeds definitive record, the same authorizing, after pertaining term, to adopt measures towards transitory or definitive closing if its residues arrangement is inadequate. A plan of parallel supervisions is executed so as to guarantee gathered information to be true.

### 3.1.4 Atmospheric pollution by fixed sources

It is a problem that may be considered for the moment practically restricted to industrial areas adjacencies, in particular in the Metropolitan Area and very localized cases in other positions, except under very unfavorable atmospheric conditions. The kind of pollution is basically related to particles, smells and to a lesser extent to other compounds like sulphur. Control task has been mainly based on environmental auditing produced by the Environmental Control Directorate and aiming at main cases amongst which calcium carbide, ferromanganese, metallic silicium and cement factories. The auditing consists in one or more surrounding air quality monitoring campaigns, emission correlation and modelling, an analysis of emission producing factors and finally a technical recommendation for treatment of the same. If the facility accepts the result and establishes a sanitation plan, a quasi-agreement is de facto created, which, depending on the case importance may acquire or not the form of an express covenant. Otherwise, a summon takes place through the corresponding Municipality which holds the policy power to close the facility. Followed up cases evolution, including legal conflicts, would evidence that this process is viable. Parallel, Environment Ministry has decided to regulate emissions after Federal Rep. of Germany model, and establishing partial objectives in time.

### 3.1.5 Industrial water pollution

Water pollution is extended to the three mendocinian oases, affecting rivers and irrigation channels. It mainly comes from small and medium companies. Among the most numerous food product factories (mainly wineries and preserved food factories), alcohol factories, tannery and textile factories. So far control and reduction policy has essentially based on two lines: enforcement by the General Department of Irrigation and by Sanitation Special Projects for important facilities. Notwithstanding the progress of these two lines, Ministry policy aims in the short term at operating on special and dangerous residues, thus forcing separation and independent action of water effluents total flow of dangerous substances. This is one of the most difficult problems to give a correct course to and where results seem more uncertain. Reformulation of Waters Act in this sense is an issue that

will demand special attention from environmental management in the very short term if policy does not go ahead.

### 3.1.6 Contamination by oil exploitation

Mendoza is the main oil producer in Argentina with about 5,000,000 m<sup>3</sup> per year. Fields comprise a good share of provincial west, from north to southern boundary. Main contamination is due to saline effluents whose volume is in some cases three times oil production. These effluents contaminate both surface and subsurface hydric resources. Likewise, accidental oil spilling, as well as exploration and exploitation tasks cause impacts on the surrounding environment, on wild animal life or on cattle. Main factors are basically three: water-oil separation in large open sky water lagoons, saline waters arrangement in poorly situated dams with high risks of breakage and infiltration, and lack of oil pipelines proper maintenance. These factors make exploitation in northern fields specially conflictive in relation to agricultural production and in those in the south that can affect the Colorado River affluents (interprovincial hydric resource). In addition, inadequate exploration and exploitation tasks practice and facilities abandonment increase the risk of local flora and fauna affectation. The latter is of special importance in natural reservations frontier areas (Llancanelo and Payunia). Reduction and control policy has been generating in two stages. The first stage has meant both a complete survey and pertaining control supervisions. Starting as from there sanitation sites were advised notwithstanding local legislation application. The end of this stage has coincided with exploitation privatization. Companies are more receptive and concerned about environmental problem as of privatization. A second inspection stage has begun with new regulations (under the Environment Preservation and the Dangerous Residues Acts) which incorporated recently sanctioned national rules. There, an oil situation record is created and a initial status report is demanded, from where sanitation plans are drawn on the basis of existing regulations and ministerial technical instructions. A periodical supervision plan by the Environmental Control Directorate, and the obligation from the Company to report any accident within 24 hours as well as to submit the particular situation annual report, shape the drawn control layout. In the case of southern fields with Colorado River potential affectation, there exists a particularized mechanics including an early warning monitoring system and contingency plans elaboration before any overturn accident. Explorations and new exploitations must submit a previous environmental impact study and subject to a Public Hearing. This second stage is in an advanced state of development and it includes a close cooperation between the General Department of Irrigation and the Ministry. Infringements against sanitation or improver overturns are sanctionable by one or the other jurisdiction as it may concern. The drawn application plan has good possibilities of success.

### 3.1.7 Contamination by mining exploitation

There exist two main cases related to uranium minerals exploitation in charge of Atomic Energy National Commission. The first one is given by inadequate facilities abandonment where 500,000 tn of mineral tales are arranged (Malargüe) and the second one related to an open sky mine exploitation (the main in the country) (Sierra Pintada). The Directorate has officially carried out auditings in both cases and technically advised to adequately dispose in the first case and to carry caution measures to an extreme in the second one. Conflicts occurring have produced as a consequence a new exploitation covenant, after which there is progress in both senses. This includes more strict control mechanisms, sanitation project elaboration in Malargüe, and initiation of the first stage of Environmental Impact Study in Sierra Pintada by means of an international advisory office, with a very vast experience in the subject matter, and selected by both parties. Other cases involve new mining exploitations such as potassium salts (also in Malargüe and perhaps the main mining project in the country), which must subject to environmental impact evaluation. So far, mechanics adopted in both types of cases have produced positive results.

#### 4 CONCLUSIONS: CHALLENGES FOR THE FUTURE

Four years after its official initiation—through the creation of the Environment Ministry—the second environmentalist wave in provincial history would seem to have reached an inflection point, from which and with the expertise gained—can a notable development of public as well as private actions be reasonably expected towards improvement and preservation of our provincial ecosystems. For that it has been necessary not only to generate new legislation on the subject matter but also to try different types of practical mechanisms—institutionally and tactically—which make application of the same viable. The consolidation process of the environmental management legal-institutional building will develop more and more in parallel with the greater or lesser capacity to achieve concrete environmental results besides compatible with the Province economic development. The principal challenges occurring in this sense ranges from interjurisdictions efforts and rules compatibilization (towards the interior and exterior of our Province), passing on technical capacity increase (operative and informative) typical of the State and of links with academic and scientific bodies, establishment of a strong international cooperation, highly trained supervision network maintenance, etc., up to substantial modifications both in state action structure as well as on the private one which permit to foresee and react more quickly and with a better coordination before environmental challenges, promoting in turn new financing ways to face the tasks it may demand. Probably a milestone in the incoming stage be the Provincial Environmental Plan institutionalization, which, based on a deep, sectorwise debate and reaching necessary public and political consensus, be suitable both for idearium as well as for practical recipe to reach the expected concrete results. The necessary seriousness and reliability will be achieved by supporting environmental control programs coherent in terms of time and space.

#### REFERENCES

1. Rodríguez Salas et al, "Environmental Legislation in Mendoza" Ed. Idearium- Mendoza 1993 ISBN 950-624-053-1.
2. Moyano, Amílcar- The Law (La Ley)- year LVII N°115 ISSN 0024-1636, Buenos Aires, June 1993.
3. Act 5.487.
4. A speech from Gov. Bordón to Provincial Legislature on 8-22-89.
5. Lafalla, Arturo, Minister of Environment 1992-1993, on "Environmental Legislation in Mendoza".
6. Source: Environmental Legislation in Mendoza).
7. Moyano, Amílcar, "Legal-Environmental Structure of Mendoza (Argentina) under Oil Industry Risk", 1993, unpublished, reserved for "La Ley" publications.

## **SOCIAL - ECONOMIC PROBLEMS EXPERIENCED IN COMPLIANCE AND ENFORCEMENT IN TANZANIA**

MASILINGI, WILSON M.K.

Head Legal Division, National Environment Management Council, P.O. Box 63154,  
Dar es Salaam, Tanzania

### **SUMMARY**

A general view of the socio-economic situation of Tanzania is given. Some statistical data on the economy are provided. The illustrative prohibitive provisions of the Wildlife Conservation Act, 1974 are provided and their practical application discussed in the socio-economic context. The enforcement machinery is analyzed and its capacity discussed in the light of some of the statistical data available. Finally, the conclusion is offered together with recommendations.

### **1 ECONOMIC SITUATION IN TANZANIA**

#### **1.1 Introduction**

For the law to succeed in achieving its objectives there must exist the necessary pre-conditions: an economic, political and legal environment which allows the rules to be enforced and obeyed; a clear government policy about the objectives pursued and the means of achieving them; a social structure which is flexible enough to allow the regulations to operate such as common economic and social interest or an equal access to opportunities; and, especially in the case of protected areas, financial resources, an adequate infrastructure, including an education system, means of communication and transportation which facilitates optimum benefit.

It is important, therefore, to have a sufficient understanding of the socio-economic formation of the society in question prior to developing the relevant law. Also the effective compliance and enforcement depend heavily on the development of socio-economic capabilities of the people in the society and implementing institutions which usually determine the success of the relevant piece of legislation. The question of people participation, therefore, assumes immense significance in the development of legislation which directly affect them. My analysis of socio-economic problems experienced in compliance and enforcement in Tanzania (1) proceed from the fore stated premises.

Tanzania is in the process of developing a framework or comprehensive legislation on environmental protection. Currently, there are several sectoral pieces of legislation related to environmental conservation. (2) But this paper analyses the socio-economic problems experienced in compliance and enforcement of the Wildlife Conservation Act (3). It should be stressed however, we did not analyze all the problems experienced in compliance and enforcement of all environmental related legislation. There was not enough time to achieve that. Nonetheless, it is our hope a consideration of the Wildlife Conservation Act specifically, will serve as a concrete example to show more clearly that social-economic factors influence environmental law compliance and enforcement than making observations of a large number of legislation generally.

#### **1.2 The economy**

The country's economy is generally speaking very weak. Tanzania has a total area of 942,600 sq km and inland waters account for a significant 7% of the area. The preliminary analysis of 1988 census shows that population has increased from 17.5 million in 1978 to 22.5 million in 1988. In 1990 Tanzania's Gross Domestic Product (GDP) was equivalent to (US Dollars) \$2,112 million, or only about

\$90 (US Dollars) per capita. Agriculture is the most significant sector and presently accounts for almost 50% of GDP and engages nearly 80% of the Country's workforce (4).

### 1.2.1 External trade

The external trade and balance of payments between Tanzania and the rest of the world in 1991/92 was not encouraging at all. By the end of June 1992 export earnings were about US \$422.2 Million. Whereas for imports, goods worth about US \$1,437.4 Million were imported. Therefore, Government expenditure continues to exceed its revenue. For instance in 1991/92 recurrent revenue was estimated to reach (Shillings) 153,930 million and expenditure (Shillings) 186,785 Millions. (5)

Agriculture is the most important sector in Tanzania's economy. It employs almost 80 per cent of the Work force and accounts for about 50 per cent of the GDP and 75 per cent of foreign exchange earnings. Hence, agricultural development continues to be the key determinant of Tanzania's socio-economic development goals.

Tanzania's agriculture, however, is dominated by smallholders organized in some 8,000 villages, with an average holding of less than two hectares per family. A decline in yield per hectare has been common to both food crops and cash crops. This dismal performance has led to the inability of the country as a whole to achieve sectoral long term objectives of food security, sustainable food self-sufficiency and increased foreign exchange earnings (6).

Livestock contributes about 10 per cent of GDP though it has the potential of contributing more. This is made up of beef (4 percent); milk (3 percent); poultry and small livestock (3 percent). The 1984 livestock census revealed that there were 13 Million cattle, 10 Million sheep and goats. The major part of this herd is from the traditional sector while commercial sector accounted for about 7 percent of the milk, 1 percent red meat, 5 percent poultry meat and 80 percent of egg production. In spite of the size of this national resource, ranking third in Africa, productivity is low. Consequently, per capita consumption of animal protein in Tanzania is also low. Furthermore, levels of consumption of red meat are declining as a result of increasing human population, increase in price of meat of domesticated animals, a static livestock population, and declining animal productivity. Available statistics indicate that the cattle population increased by 2.7 per cent per year from 1965 to 1978, but only 0.7 per cent from 1978 to 1984. Overall there is believed to be little growth in numbers at present but un-even regional distribution causes severe pressure on grazing resources in some areas and, as a result, uncontrolled migrations from the over - grazed parts of the northern regions to the south west continue (7).

Minerals and Industries do not contribute significantly to the national economy although pollution problems arising from these sectors are on the increase (8).

### 1.2.2 Health

Tanzania has made fair progress in providing health facilities and services as well as training various health personnel. The specific programmes and projects launched to enhance improved health among the population are: The Maternal and Child Health and Family Planning; The Extended Immunization, National Tuberculosis and Leprosy Control; The Diarrhoea Control; The Village Health Water; The National AID Control; and the Malaria Control Programmes. Implementation of these programmes is continuing. About 80 per cent of all children under five have been immunized against six diseases (polio, measles, tetanus, diphtheria, tuberculosis and whooping cough) under two programmes (9).

There are four major endemic nutritional deficiencies in Tanzania: Protein Energy Undernutrition; Nutritional Anaemia; Iodine Deficiency Disorders; and Vitamin A Deficiency. One nation-wide survey showed that 25 per cent of the population suffered from protein energy under nutrition, whilst the incidence of this deficiency was estimated at 52 per cent amongst children under five. Around 90 per cent of pregnant and lactating women are estimated to suffer from nutritional anemia (10).

The combination of poverty and increasing population concentrations contribute significantly to the depletion of natural resources.

### 1.2.3 Biodiversity

The most threatened is biodiversity. Tanzania is one of the richest countries in Africa in biodiversity. In terms of the number of mammal species, Tanzania ranks 4th out of the 48 countries in the Afrotropical Realm; for birds it ranks 3rd; for Swallowtail butterflies 4th; and for plants it is 2nd (11). The country is also very important for endemic species, that is species which are known not to exist any where else. Forest resources comprise forests, Woodlands, grassland or savannah and account for about 50% of total land area in Tanzania. The total forested area in Tanzania mainland is distributed by type as follows:

Type of forest	(ha Million)	Proportion %
Grassland or savannah	1.4	3.2
Mangrove forests	0.1	0.3
Woodlands	42.9	96.5
Total	44.4	100.0

Source: Ministry of Tourism, Natural Resources and Environment.

According to the economic survey of 1989 the pattern of energy consumption reflects a high dependence on woodfuel which accounts for 90% of calories of primary energy use.

### 1.2.4 Wildlife resource and tourism sector

The gazetted protected area network covers 25 per cent of Tanzania's total area and is comprised of National Parks, Game Reserves, game controlled areas and the Ngorongoro conservation area. Wildlife resources have been used for consumptive and non-consumptive purposes. The latter includes tourism, education and research. These resources generate income from game ranching, tourist hunting and the export of wildlife products. However, most communities living in close proximity to these protected areas, who actually ought to have directly benefitted from this resource, have not benefitted much from the wildlife industry. Wildlife Conservation area in Tanzania fall into five major categories, these are:

Management Categories	No. of Units	Area Million ha	% Total Land Use
National parks	12	3.8	4.1
Ngorongoro conservation area	1	0.8	0.9
Game reserves	18	9.7	10.4
Game controlled areas (where wildlife co-habits with the people)	55	9.0	9.6
Total	86	23.3	25.0

Source: Ministry of Tourism, Natural Resources and Environment.

In addition, the following areas have been earmarked to become game reserves after the government's sanction: Grummeti/Korongo in Mara, Swagaswaga and Mkungunero in Dodoma, Muhesi in Singida, Handeni in Tanga, Rudi in Dodoma and Kijereshi in Mwanza.

### 1.2.5 Tourism

It is estimated that gross revenue earnings from wildlife in Tanzania is in the order of US \$ 120 Million per year. This includes revenues earned from illegal offtake which is estimated to be US \$ 50 Million per year. Total legal trade earnings are estimated to be US \$ 70 Million per year and accrue from formal industries such as consumptive tourism, live animal trade and the sale of ivory and other trophies (12).

## 2 PROTECTED AREAS LEGAL REGIME

### 2.1 A brief historical perspective of protected areas

For Tanzania, then Tanganyika, the first legislation on protected areas, the *Game Preservation Ordinance Cap. 86* was promulgated on 16th December 1921. It declared certain areas to be partial Game Reserves (Section 4 of Cap. 86). The difference being on the kind of restrictions imposed in the management of the area concerned.

The Colonial Governor by order could declare any Area in Tanganyika territory to be a closed Reserve in which except as otherwise might be prescribed, all persons were prohibited from hunting any animal and into which no person might enter except for such purposes and on such conditions as might be prescribed in the order of declaration or in the regulations made under the Ordinance (Sub-section 4 of Section 4 of Cap 86). Many orders and regulations were proclaimed by the Governor to ensure the conservation of protected areas. Just to give a few examples, on 25th September 1929, the Governor through his powers under Section 4 of cap 86 declared by order a large area marking western Serengeti as a complete Reserve area (Government Notice No. 177 of 1929). Hunting and photographing was prohibited except under the Provincial Commissioner's written permit in addition to any other license or permit required by the Ordinance. In early 1936, Ngorongoro Crater was made a complete Reserve, extending further the limits of the Reserve so as to include the area bounded by a line drawn round the rim of the Crater and distant one mile therefrom (G.N. No. 10 of 1936). In August 1940, another colonial legislation namely the Game Ordinance (Cap. 159) came into operation. The Ordinance authorized the Governor with the consent of the legislative Council to declare any area to be a National Park and in the like manner define or alter its limits. Under this Ordinance it was unlawful to enter or reside in a Park except for public officers on duty, persons travelling through the park along a public highway; and the dependant and servant of such a person (Section 6 of Cap. 159). No person was allowed to hunt in a national park and it was unlawful to cause any bush or grass fire in a national park (Section 9, 10 and 11).

### 2.2 The Wildlife Conservation Act

The Wildlife Conservation Act, 1974 repealed and replaced the Fauna Conservation Ordinance Cap. 302 also a colonial legislation and made provisions for the protection, conservation, development regulation and control the utilization of Fauna and Fauna products.

The Act defines the Conservation area (Section 2i) as including a game reserve established under the same Act, a national park established under the National Parks Ordinance; the Ngorongoro Conservation Area established by the Ngorongoro Conservation Area Ordinance and a forest reserve established under Forest Ordinance. Under the Wildlife Conservation Act, 1974 the President, as was the Colonial Governor, is empowered to declare any area of Tanzania to be a game reserve (Section 5). No legal duty is imposed on the President to consult any body including the Parliament.



The Act provides that no person other than a person whose place of ordinary residence is within the reserve; or a person travelling through the reserve along a highway shall enter a game reserve except by and in accordance with the written authority of the Director previously sought and obtained. Any person who contravenes the said provision or contravenes any condition attached to any authority granted thereunder is liable on conviction to a fine not exceeding five thousand shillings or to imprisonment for a term not exceeding six months or to both such fine and such imprisonment (Section 7).

The Act further provides that no person shall be in possession of a firearm or bow or arrow in a game reserve without the written permission of the Director previously sought and obtained. Any person who contravenes this provision is guilty of an offence and is liable on conviction to a fine not exceeding five thousand shillings or to imprisonment for a term not exceeding twelve months or to both such fine and such imprisonment (Section 8). It is also an offence to hunt or wilfully or negligently cause any bush or grass fire, or fell cut, burn, injure or remove any standing trees, shrub, bush, sapling, seedling or any part thereof in a game reserve except by and in accordance with the written permission previously sought and obtained of the Director as well as if any part of the game reserve is included in a forest reserve, the due approval of Director for of Forestry or his duly authorized representative. (Section 9 and 10.) The Act further, inter alia, provides that no person shall, save with the written permission of the Director previously sought and obtained hunt or graze any livestock in any game reserve.

The spirit of the Act fails in a great measure to recognize the traditional essential uses of resources in protected areas. Hence the Act which was passed by post independence parliament in 1974 maintained the colonial attitude of considering the traditional hunting rights as illegal. Baldus, a researcher in the field underscored the point saying:

"Colonial legislation labelled hunting rights as illegal. But for a tribesman it was difficult to understand why his hunting for meat was poaching, whereas town people were hunting for a full bag of trophy and meat in his communal area. This, could be called conservation against the people" (Baldus, 1987) (13).

A Senior Game Officer Kamara, B identifies more than ten important traditional uses of wildlife parts and derivative, namely, food, medicinal, ornamental, dances and arts, religious ceremonies, fishing and hunting charms (Kamara 1987) (14). The demand for such uses exhibits itself in many tribes neighboring protected areas, to the extent that enforcing the law against entry into protected areas without permission from the Director becomes absurd to them.

The strict liability imposed in the Act is explained clearly by the High Court decision in the case of Selerin Mfiringi V. Republic where the accused was charged for being found in the game reserve without permission. The High Court Judge on appeal held that

"The appellant is clearly not a person who has wilfully violated the game law (if indeed any violation has been proved) but any act which he performed, I am satisfied, was done in complete innocence. That however is not a question in this appeal, for I view the matter as one of complete prohibition and no question of *mens rea* affects the issue".

Therefore under the game law one commits an offence even if his presence in the game reserve is an innocent one, such as, not understanding the boundaries of the same.

Hence, the anti-poaching campaign covers 'poachers' (traditional hunters) and "poachers" (illegal commercial hunters.) Yet the anti-poaching offensives have included a shoot to kill policy for game wardens, police and special army units when they came into contact with poachers. Many wardens have been killed or wounded in pitched battles with groups of poachers, who often have automatic weapons or submachine - guns compared to the bolt - action rifles of the Game Wardens. (15).

The anti-poaching campaigns had both social and economic problems as the then Director of Wildlife was reported to have appealed to the International Community to assist Tanzania to fight

poachers because efforts by the Government could not work effectively. He said that between June 1989 and July 1990 Tanzania used Tshs. 789,250,000/= in fighting poachers during "Operation uhai", 'uhai' is a swahili word which means life (16).

Nonetheless, neither "poaching" nor "a poacher" is defined under the Wildlife Conservation Act. But "trophy" which is the target of poachers is defined to mean "ivory, rhinoceros horn, hippopotamus, animal tusks, animal horns and skin of any game animal and; "manufactured trophy" means any article made from any of the foregoing trophies or from any tooth, tusk, horn, bone, claw, hoof, hair, feather, egg or other durable portion whatsoever of any animal" (Section 58). But killing a wild animal in defence of human life or property is allowed. However, this permission does not cover cases where the behaviour of the animal necessitating such killing is the result of molestation or defended provocation by or with the knowledge of the person killing such animal; or the person killing such animal or the person whose life or property is being defended was, when such defense became necessary, committing an act which constitutes an offence under this Act (Section 50).

This can be interpreted to mean that a person who defends himself in the game reserved is likely not to be covered by the permission to kill in self defense or defense of another.

According to reports 49 people died in Mtwara (29 people) and Morogoro (20 people) regions after being attacked by wild animals between June, 1989 and June 1990. According to reports submitted, most of the victims were killed by lions, elephants, crocodiles and snakes (17). The reports, however, do not disclose the number of people killed in game reserves and those killed outside game reserves.

During the period between 1st July 1992 - 30th June 1993, 60 people were killed by wild animals and 64 people were seriously injured. Regions reporting many deaths are Arusha, Mtwara, Kilimanjaro and Kagera Regions. The report further states that 71 cows, 140 goods, 45 sheep and 17 pigs were killed by wild animals as well as 451 acres of plantations were destroyed by wild animals. On the other hand wild animal killed in defence of human life or property according to the same report, were 70 elephants, 36 lions, 75 crocodiles, 100 hippopotamus and 13 leopards. It states that 15 elephants were wounded (18).

Hunting permitted under the law do not recognize traditional weapons such as spears, arrows and bows, yet local people cannot afford to acquire guns. Furthermore walking in National Parks is not allowed, only motor vehicles are permitted. But many local people cannot afford to buy cars to visit National Parks. Therefore compliance with the law becomes very difficult because local people are mainly hunters who use dogs and traditional weapons for hunting which is prohibited under the law.

The Act further requires that any person who by any means obtains possession of a Government trophy or who sees any Government trophy in the possession of any other person shall forthwith report such possession to the nearest Game Officer and shall, if required, deliver the trophy to the Game officer or give particulars of the person in possession thereof (Section 68 (i)).

To comply with or enforce the aforesaid provision creates social problems. In some areas wildlife remains (Government trophies) are used as medicine. In Mara Region for example people believe that if you eat wild meat you live longer. Hence, any restriction to hunting cannot be supported by the people there. Another example, is the Ikoma Tribe in Serengeti, Northern Tanzania's who possess two Ivory Tusks of unknown age used for cultural praise locally known as (ZAO). The Ikoma people are not prepared to surrender the said Ivory Tusks under any circumstances.

Likewise complying with or enforcement of restrictions as to entering a game reserve creates big problems. Game reserves are rich in vegetation which is used by the people for medicine. It is practically difficult if not impossible to ensure that any body wishing to enter the protected area for herbs should seek and obtain a written permission from the Director. Traditional healers work with complicated beliefs which include secrecy. Therefore, seeking for permission to go for medicine, in the belief of others affects the potency of the medicine. Local people continue to depend on folk medicine and other alternative healing practices, that is to say, the traditional healers and traditional birth attendants who use herbs largely obtained from protected areas. All categories of traditional healers, namely herbalists, ritualists or spiritualists use protected areas for purposes of their business. Almost all healers require a fee or receive a donation from their patients. There are many reasons

why people continue to seek the help of traditional rather than more "Western" or "Modern" health services. One of them is cultural or traditional healers on the belief that they have the ability to handle a variety of physical, psycho-social and spiritual problems. Another is the inadequacy of essential drugs. Of course, it is also significant that healers are members of their patients' communities and, therefore, have intimate knowledge of their lives and their cultural milieu. Hence, enforcement of Section 9 of the Act is very difficult.

Again some of the areas in the protected areas are grave yards of ancestors of people leaving nearby and special places for worshipping. To control or regulate the entering into these areas for purposes of worship cannot be accepted by the people.

In Tanzania, in Ngorongoro conservation Area, the Barabaig, to date

"still visit the bung'ed (a grave yard) of Gitangda in the Ngorongoro Crater, that remains from the time they occupied the area before they were dislodged by the Maasai over 100 year ago (Lane 1990) (19).

The law also creates problems for the people, for instance villagers of two villages separated by a kilometre or so of a national park or game reserve, are forced to get around the boundary of a national park or game reserve for several kilometres to reach each other. In Arusha National Park for instance, the villages of Leguruki in the North - East of the Park and Kilinga in the South are separated by less than five kilometres of the national park strip. However, since gazettelement of the Park in 1960, the inhabitants of the two villages have to cover about 85 kilometres around the park in order to reach each other (NKO, 1992) (20).

Another instance, crossing the Selous Game Reserve from Mkuliro to Ilonga village in Luombebe which is 80 kilometres long is permitted once a month. So people at times are forced to travelling long distance by getting to Ilonga Village via Dar-es-Salaam which is more than 460 kilometres away from Mkuliro. According to the Game officer in Selous Game Reserve, crossing the Game Reserve is in many cases done for ritual purposes.

As correctly pointed out by Martin,

"A far better way to justify such protected areas to local communities is the argument that they are baseline control areas, set aside for future generations which provide a permanent record of original flora and fauna in the face of surrounding land use changes. Tourism is totally a secondary function in the area. Peasant communities will accept this argument for better than that which promises tourism revenue to a central Government of which little ever percolates back to them in their remoteness" (Martin, 1984) (21).

Another quote full of wisdom is from Dr. Vandana Shiva which states as follows:

"Biodiversity Conservation cannot be ensured by world views, legal systems and technologies which are on trampling the rights of other species/cultures. It will not be achieved by an unrestrained urge to own, control, manipulate and exploit life forms. Action to protect life's diversity can only come from the spirit of sharing and compassion from a larger vision and values". (Vandana Shiva 1993. (22).

For instance, the Conservation regime has resulted in the pastoralist of Northern Tanzania to experience a steady shrinkage of their grazing land. Several prime grazing grounds in the conservation area were chosen for grazing and settlement, including the Ngorongoro, Empakaai and Olmoti Craters, the Northern Highland Forest Reserve, the Cemakarot and Olosirwa mountain slopes, Oldivai Gorge and the Laitola archaeological site. Enforcement of the ban on grass burning has resulted in the expansion of unpalatable grasses like *Eleusine Jaegeri* in the highlands. Therefore, unpalatable grass have expanded over the entire highland plateau suppressing the palatable grasses radically reducing the dry season pastures. The spread of the fall, coarse grasses in the highlands, according to experts, also led to an increase in the incidence of tick-borne diseases as ticks thrive in the fall, moist highland grasses. This consequently affects cattle yields and the income of the pastoral people.

As agriculture is prohibited in the conservation Area, the Ngorongoro Maasai are entirely dependent on the purchase of grain the pastoralist are force to sell their livestock, thus further reducing the productive capacities of their stock.

### 2.3 Budgetary constraints on enforcement

#### 2.3.1 Personnel problem

The "Law enforcement and Anti-poaching Unit" in Wildlife Division does not have adequate manpower due to budgetary constraints. The total manpower available at the moment is 1438 personnel who have the task of manning 186,000 square kilometres of protected areas excluding Biharamulo and Rumanyika game reserves in Kagera Region. According to experts from the Wildlife Division it requires one Game scout per 5 square kilometres in order to effectively protect the same. Therefore, at least 36,000 Game Scouts are needed but due to economic problems facing the country no more employment is allowed and transfers are strictly controlled. For the whole country, there are 122 professional game officers.

#### 2.3.2 Equipment

The unit does not have adequate equipment due to lack of funds. No motor vehicles in the Districts and there is one motor vehicle per region. This is not enough considering the fact that the areas to be protected are enormous and roads are very poor.

The budgetary allocations for the Unit from 1991 to 1994 for example, is as follows (in Tanzanian shillings):

July 1991 - June 1992	37,000,000
July 1993 - June 1994	37,000,000
July 1993 - June 1994	20,620,000

Money assigned for the job have continued to decrease both in figures and value in the light of the national currency devaluation which have taken place.

However, in spite of all these problems the unit worked and continue to work very hard as per their report on the patrols for the period between 1st July, 1992 to 30th June 1993.

Arrested poachers	662
Number of cases opened	270
Cases decided	120
Pending cases in court	71
Jailed poachers	95
Fined poachers	205
Acquitted poachers	44
Poachers who escaped	32
Total fine collected from cases (in Tanzanian shillings)	1,007,060
Total value of government trophies saved by the patrols (in Tanzanian shillings)	97,988,556

---

**Confiscated Equipment/Weapons**

Motor vehicles	4
Bicycles	17
Guns	9
Bullets	7
Locally made guns (gobore)	32
Wires used to catch animals	5236
Bows	127
Arrows	538
Machete (panga)	96
Spears	24
Timber logs	3021
Boats	63
Knives	44
Axe	1

---

The kind of weapons confiscated from poachers tells much about the type of poachers which were arrested. These are local people who use traditional tools for hunting. The commercial poachers who use sophisticated weapons and who cause much harm to the wildlife always escape the Game scouts and therefore the arm of law.

At a recent workshop on "Community Conservation" which was held in Dar-es-Salaam with participants which included a few members of Parliament, experts with the Wildlife Department, the Ngorongoro Conservation Area and the Tanzania National Park Authority (TANAPA) it was recommended, inter alia, that Wildlife Conservation Programmes should lead to improve living standards of people near reserved areas. It was observed during the workshop that people living near or within protected areas would approach positively the concept of wildlife conservation a factor that was likely to reduce the costs of protecting the game by enhancing communal responsibility (23).

### 3 CONCLUSION/RECOMMENDATION

The current legal regime on conservation areas or protected areas is focusing on the protection of wildlife (game) and spectacular scenery for commercial recreational purposes. The development of the law neglected the socio-economic dynamics underlying the phenomena of compliance and enforcement. People living near or within protected areas were never involved in the development of the law to enlist their cooperation in the conservation of the same. Of course, today, wildlife conservation in Tanzania puts more emphasis on sustainable utilization and management of wildlife resources, for example, the Selous Village - Based Conservation Programme which is a pilot programme with the objective of enhancing conservation by broadening the participation of local people in the exploitation of their wildlife resources. Also in the North - West buffer Zone of the Serengeti National Park, In Ikorongo Grumeti Game Controlled area, plans are under way to allow local people in those areas to hunt by using traditional hunting methods. A quota has been assigned on trial basis (SRCS 1991) (24). This is likely to reduce the cost of protecting the Conservation Areas and increase direct benefit to local people by reducing the problem of protein deficiency and increasing their monetary income. But these endeavors need legal backing by reviewing the current

regime in order to effectively protect people's right and implement the sound participatory policy in conservation. The amendments to the law should effect the departure from the traditional legal inclination of relying heavily on sanctions including penal. Administrative and penal sanctions should be resorted to as the ultimate weapon. The necessary mechanisms to enable the people benefit from the national heritage in protected areas need to be legally established. People should have a say in the affairs and activities of conservation authorities. Therefore, a machinery through which the decisions of the conservators can be reviewed, challenged or appealed against by dissatisfied individuals is necessary.

The experience has shown that inadequate capacity on the part of the governments, particularly in developing countries, in terms of financial resources, manpower and equipment contribute to unsuccessful enforcement of environment protection related legislation.

The International Community, therefore, should contribute adequately in terms of financial resources and technology to enable governments in developing countries to enact and effectively implement legislation which impose a high degree of responsibility on implementing authorities rather than merely listing their responsibilities. The law should for instance, if financial resources and equipment are available, provide that the implementing authority or institution should ensure that they are equipped with highly competent environmental management capacities. The law should also stipulate legal norms providing rights, duties and penalties to enforce efficient environmental management. The implementing authorities should, for instance, bear responsibility for non-compliance with the environmental legislation. This will compel constant follow up, evaluation and monitoring of compliance bringing into reality the enforcement of sustainable development.

#### ENDNOTES AND REFERENCES

1. The United Republic of Tanzania is a union between mainland Tanzania, formerly Tanganyika, and Zanzibar. The partners in the Union share a common foreign policy, defence policy and common currency, the Tanzanian shilling, as well as a common governing party, Chama cha Mapinduzi (CCM). However, 'internal' affairs, including strategies for economic development, management of natural resources and the environment as well as legal affairs, are dealt with independently by two parallel sets of government institutions. For purposes of this papers, therefore, the name Tanzania is used to refer to Tanzania mainland only.
2. A few major legislation related to Environmental Protection
  - a. The Forests Ordinance Cap. 389.
  - b. The Wildlife Conservation Act, 1974.
  - c. The Water Utilization (Control and Regulation) Act, 1974.
  - d. The Fisheries Act, 1970.
  - e. The Mining Act, 1979.
  - f. The Petroleum (Exploration and Production) Act, 1980.
  - g. The Factory Ordinance Cap. 297.
  - h. The Public Health (Sewerage and Drainage) Ordinance Cap. 336.
  - i. The Town and Country Planning Ordinance Cap 378.
  - j. The Territorial Sea and Exclusive Economic Zone Act, 1989.
  - k. The Natural Resources Ordinance Cap. 259.
  - l. The Merchant Shipping Act, 1967.
  - m. The Food Control of Quality Act. 1978.
  - n. The Penal Code (Cap. 16) of the Revised Laws.

3. Act No. 12 of 1974.
4. National Report to the United Nations Conference on Environment and Development. (UNCED) held in Rio de Janeiro, Brazil 1992.
5. The Economic Survey, 1991, Produced by: THE PLANNING COMMISSION, Dar-es-Salaam, November 1992.
6. National Report to UNCED, 1992
7. Ibid.
8. Proposals for the National Conservation Strategy for Sustainable Development (NCSSD), National Environment Management Council (NEMC), Dar-es-Salaam, 1994 (To be published reference)
9. National Report to UNCED, 1992
10. Ibid.
11. Ibid.
12. Ibid.
13. Dr. Rolf D. Baldus, Village Participation in Wildlife Management, Selous Game Reserve Conservation Programme, Discussion Paper No. 4 Dar-es-Salaam, 1959.
14. Kamara B. A. 1989. The Integration of Wildlife Conservation and Village Land Use in Tanzania. A paper presented at the National Workshop on Village Land Use Planning in Tanzania, 6 - 9 March, Dodoma, Tanzania.
15. Daily News Paper of 21st August 1989.
16. Daily News Paper of 1st October 1990.
17. Ibid.
18. Department of Wildlife, Ministry of Tourism, Natural Resources and Environment, 1993
19. Lane, C. 1990 "Barabaig National Resource Management: Sustainable Land Use Under Threat of Destruction" United Nations Research Institute for Social Development - Discussion Paper 12. Geneva: UNRISD.
20. P. Nko Personal Communications, Member of Parliament for Arumeru East (unpublished reference).
21. Martin, R.B. 1984 "Wildlife Human Interactions" In Conservation and Wildlife management in Africa, Edited by Bell, R.H.V. and Mcshanecaluz. Washington, DC US Peace Corps.
22. Dr. Vandana Shiva, Cultivating Biodiversity, From Reports to Action, Paper Presented at Norway/UNEP Expert Conference on Biodiversity, Trondheim Norway 24-28 May 1993.
23. Daily News Paper of 14th February, 1994.
24. Serengeti Region Conservation Strategy (SRCS) 1991. A plan for Conservation and Development in the Serengeti Region: Phase II Final Report; Phase III Action Plan. Dar-es-Salaam: Ministry of Tourism, Natural Resources and Environment.





## **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**

TOLKACHEV, MIKHAIL V.

Deputy Minister, Russian Federation Ministry of Environmental Protection and Natural Resources,  
123812, GSP, Russia, Moscow, B. Gruzinskaya ul., 4/6

### **SUMMARY**

The following is a brief overview of the current economic and ecological peculiarities of Russia. Data on the structure of Russian Federation Ministry of Ecology and Natural Resources and its activities are also provided.

Geological and Economic Expertise for Explored Resources is viewed as an enforcement means for ecologically applicable subsurface development by the relevant users.

### **1 INTRODUCTION**

For about 60 years preceding the mid-'80s the economy of Russia (as an integral part of the economy of the USSR) was ruthlessly planned by central government.

In the mid-'80s the economic system began to show signs of slow and piece-meal reconstruction.

The economic disproportion, which had been building up for years, surfaced early in the current decade as an economic slump characterized by unmistakable hallmarks, such as:

- Reduced growth rate in the manufacturing industries.
- Pricing distortions and inflation.
- Fewer reliable sources of financing.
- Social distortions.
- Grave environmental problems.

The transition to a democratic form of government and to a market-driven economy paved the way to eliminating the above negative trends. The foregoing is a backdrop against which the current environmental problems should be viewed and some forward-looking environmental strategies should be formulated by Russia.

### **2 BRIEF OVERVIEW OF ENVIRONMENTAL CONDITIONS**

The Ministry of Environmental Protection and Natural Resources of the Russian Federation (Attachment 1) and its 89 local divisions are government agencies duly authorized to deal with environmental issues.

The Russian Ministry of the Environmental Protection and the local environmental protection agencies representing Russia's administrative territories are working to implement the following objectives:

- To integrate management and control processes while recognizing the environmental and economic concerns of the people, to prudently use available natural resources; to develop and enforce norms and standards for load levels on the environment.

- To coordinate efforts in the area of environmental protection and conservation of mineral and other resources.
- To conduct an integrated policy in science and technology.
- To improve the economic, legal, and administrative mechanisms.
- To assess commercial projects for environmental safety on behalf of the government, to maintain environmental security and ecological monitoring.
- To manage Russia's natural reserves (a total of 76 reserves, sanctuaries, and parks), to keep the "Red Book" - the Russian roster of endangered species.
- To assess and predict the quality of the environment, the availability of natural and mineral resources, and biosphere processes.
- To develop, improve, and prudently use monitoring facilities, such as 1,200 monitoring stations in more than 330 cities - to monitor atmospheric pollution.
- International cooperation.

No economic or social reform can do without compliance with a definite set of ideas and values.

For the Russian Federation as a whole the most urgent problem is to clean up the environment and the human habitat from gaseous, liquid, and solid waste discharged by the industries, transport, agriculture, and utilities.

The one overwhelming priority is to clean up the areas suffering from radioactive pollution (Chernobyl, the southern part of the Ural Mountains, Altai, the Yenisei river, and 17 northern territories in European Russia, where Cesium<sub>137</sub> pollution covers an area of nearly 60,000 km<sup>2</sup>, with the pollution density in excess of 1 curie/km<sup>2</sup>. A similar radioactivity level can be observed in the areas of "peaceful" subterranean nuclear blasts, some of which were made for the purposes of exploring for oil and gas, as well as in the burial sites of radioactive wastes.

Another priority is the pollution of sources of fresh surface and ground water; one third of all fresh water samples drawn from Russia's water basins (used for portable water supply) fail to meet sanitary standards.

Almost one third of Russia's population inhabit areas where atmospheric pollution exceeds safe standards. Add to that the depletion of forests and parks - our planet's lungs.

Other environmental concerns include the pollution, depletion, and erosion of soil, decertification, and bogging of large areas.

Environmental safety is a significant component of national security, which principle is inscribed in the law "On The Protection Of The Natural Environment".

### 3 ECOLOGY CONTAMINATION DURING PRODUCTION

Atmospheric and surface pollution associated with the production of oil, gas, and other materials is one of the subjects being discussed by this Conference. Wasteful production technologies result in huge annual losses of associated gas (flared at a rate of 10 billion cubic meters per year), oil, and condensate (in case of pipeline or well accidents).

Mining industries and related industries that process minerals are among the worst destroyers of the environment, they tear up the landscape, cause considerable land sites to be allocated for use as mines, quarries, development fields, production sites, dumps for barren and substandard rock, storage facilities for slime and tailings, and other structures, they pollute air, soil, surface and ground water, upset hydrogeological balance.

With the volume of mined minerals steadily growing, and doubling every 10-15 years, the need to minimize or eliminate its negative impact on the environment becomes increasingly acute, assuming global proportions and calling for emergency measures even now.

Therefore, the designing and construction of new facilities to mine and process minerals should involve environmental protection measures.

As is known, exploration of mineral deposits, approval of reserves therein and the procedure for assessing the readiness of a deposit for commercial development have been regulated by many generations of normative documents issued by the Reserve Committee and the Russian Federation Ministry of Environmental Protection and Natural Resources. Requirements for the scope of information about the deposit include data which have a direct or indirect bearing upon environmental protection, such as requirements for an integrated study of mineral resources, the study of hydrogeological and geological engineering conditions underlying the development of a deposit, the need to consider the environmental impact of deposit development, and a few other factors.

For the purposes of engineering a state-of-the-art mining facility, exploration programs should furnish sufficient information to set up a system of effective environmental safeguards, of comprehensive deposit development and integrated processing of minerals.

At present, geological and economic feasibility studies for mineral deposits, and all operations incident to their commercial development should take into consideration the following factors. The stereotype notion of strip mining being by far the best and preferred mode of mineral extraction should be re-assessed. The proportion of strip mining in all mining operations is already considerable and tends to increase. In the last 30 years it has grown from 56% to 86.6% for ferrous metal ores and from 40% to 55% for non-ferrous metal ores.

At the same time, studies have shown that strip mining, particularly the kind that uses external dumping, represents the worst impact on the environment.

The total environmental damage caused by strip mining is many times that of deep mining. However, as a result of a narrow-minded departmental approach to planning environmental programs and of biased-down budget outlays incapable of meeting real environmental needs, the above consideration is partially or totally ignored. Upon closer scrutiny the economic "benefit" (low cost) of strip mining turns out to be non-existent or inflated out of proportion, since even such biased-down environmental outlays as are factored into the design estimates are either excluded from product cost or only partially included therein.

Frequently the actual area affected by environmental impact created by a mining operation (mine, quarry) is considerably larger than the area of the deposit.

The area of the deposit under development covered by the above changes can be provisionally divided into two zones: the inner zone dominated by the processed ore and ground water extraction, and the outer zone towards which mine water and eolian transfer tend to move.

Within the INNER ZONE the tension of massive rock changes, slides and slumps occur, river run-off decreases. It is this zone that should determine the shape and size of the site allocation.

The OUTER ZONE functions as a receptacle for substances mined from the subsurface, soil and surface water get contaminated by dust and mine waste water, underground water balance gets upset, swamping takes place, with a result that bogged areas become unfit for commercial use, forest productivity deteriorates as a result of swamping, "burns" by acid mine water, dust pollution of air, transport of fine mineral dust from the surface of dumps. All chemicals from the inner zone settle down on landscape features.

Some of the more important factors include the production technology, waste disposal patterns, the physical and geographical situation, hydrogeological conditions, etc. The size and configuration of the above zones should be established at the time of deposit exploration and taken into consideration in drafting mining and land allocation protocols, as well as at the time of drafting environmental programs and budgeting their implementation.

Usually, the construction and operation of mining facilities entail major disruptions in the natural hydrodynamic balance, and occasionally, in the composition of the ground water of the adjacent areas. Disturbances of this kind are caused primarily by such major water discharge systems as the drainage systems of quarries and mines. For example, ferrous ore mining facilities alone pump topside about 0.470 cubic kilometer of ground water. In the Ural basin 1564.87 thousand cubic meters of ground water per day is pumped topside to bring down the ground water table. The above figure represents 41% of the entire registered ground water extraction. 85% of the water is dumped, which often pollutes surface and ground water. Mining water is usually dumped into nearly small rivers,

many of which have become sewage dumps. Disturbances in the hydrodynamic balance involve major changes in the water table, filtration rate and direction of ground water over large areas. Around mining facilities the water table drops by dozens or hundreds of meters, while the area covered by the cones of depression may stretch over hundreds of square kilometers. In the Ural the drop in the ground water table as a result of deposit drainage stands at 700 meters and covers an area of hundreds of square kilometers (500-600 square kilometers of the North-Ural Boxite Mine).

#### 4 STATE EVALUATION OF DISCOVERED RESERVES

This official expert examination is performed in the territory of Russia by the State Commission for Mineral Reserves (GKZ).

The State Commission for Mineral Reserves was set up in Russia (the former USSR) in 1927. The Commission has made geological and economic evaluation of more than 25,000 fields and deposits of minerals in the USSR and in friendly countries.

In its 67 years the Commission has operated as part of the USSR Planning Commission, the USSR Ministry of Geology, the Ministry of Heavy Industry and has worked for more than 35 years as an independent body under the USSR Council of Ministers.

In 1992 the Commission became part of the Ministry for Ecology and Natural Resources of the Russian Federation (1). The Ministry is headed by Prof. V.I. Danilov-Danilian.

On February 21, 1992, the Russian Federation enacted its Law on the Subsurface, which in its Article 29 contemplates a new procedure for state expert examination of mineral reserves (Attachment 2). The article provides, *inter alia*, that "allocation of the subsurface to users for the purpose of extraction of minerals shall only be permitted upon state expert examination of the reserves of such minerals". The report on the state expert examination is sufficient for formal registration of explored reserves.

The Russian Federation's Minister for Ecology and Natural Resources issued regulations on the purposes, objectives and functions of the State Commission for Mineral Reserves.

The principal objectives of the State Commission for Mineral Reserves shall be as follows:

- To conduct state expert examination of geological information covering explored deposits of minerals and fossil fuel for the purpose of objective estimation of the quantity and quality of mineral deposits, their importance for national economy, mining, technological, environmental and other conditions of their development.
- To conduct state expert examination of geological information pertaining to portions of the subsurface unrelated to field development but suitable for the construction and operation of underground structures.
- To develop and regularly update classifications of mineral reserves and instruction for their application.
- To elaborate quality requirements and standards for subsurface mineral resources, which would ensure the utmost utilization of minerals and raw materials in the Russian Federation, with due consideration given to the environmental and economic factors thereof.
- To verify the design philosophy and check the actual performance of mining facilities which develop explored reserves of minerals.
- To participate in elaborating federal and regional programs for the geological study of the subsurface for minerals and raw materials, to offer recommendations for investment policies and foreign economic operations related to meeting the needs of Russia's market for minerals and fossil fuel.

The activities of the State Reserve Commission shall be governed by the laws of the Russian Federation, Presidential Decrees, decision and executive orders of the government, other by-laws

and these Regulations. The State Reserve Commission shall draw conclusions from the application of appropriate legislation to issues within its competence and shall submit such conclusions to the state authority in charge of the subsurface and to the government of the Russian Federation.

In implementing its mandate, the State Reserve Commission shall:

- Arrange for expert examination of feasibility studies for permanent and provisional quality standards for mineral raw materials for estimates of the net worth (value) of the fields and shall approve such estimates (except quality standards for minerals whose reserves shall be examined and approved by territorial commissions for mineral reserves - TCRs).
- Determine recovery rates for oil and gas condensate.
- Arrange for state expert examination of subsurface reserve estimates produced from geological field study completed to date, and determine the quantity and quality of explored reserves while establishing, pursuant to the applicable classifications of mineral reserves, the depth of the analysis and verifiability of the explored reserves estimates (2), the commercial potential of the field (or parts thereof), their readiness for commercial development, possible utility of continued exploration.
- If so requested by organizations exploring and producing minerals, it shall examine the materials obtained from field prospecting and exploration (at any stage of their analysis), advise such organizations on the ways to slash cost and minimize time for future exploration.
- Participate in expert examination of feasibility studies and field development plans, of modernization of the existing mining-and enrichment, mining-and-metallurgical, mining-and-chemical combines in the Russian Federation.
- Pass expert judgement on the feasibility of exploitation and development of oil and oil-and-gas fields assuming express estimates of oil and fuel gas, as well as on their commitment to commercial development.
- Compile and analyze the results of consideration by the Commission of reserve estimates for different types of minerals and develop recommendations to upgrade exploitation work and to slash time required for mineral exploration.
- Draft, in conjunction with organizations concerned, classifications of mineral deposits and submit them for approval following the procedure established by the government of the Russian Federation.
- Improve and update the existing instructions, improve new instructions for the application of mineral reserves classifications to different mineral resources, approve instructions governing the delivery procedure, the contents, the format of materials submitted to the Commission in support of provisional and permanent quality standards for mineral raw materials and estimated mineral reserves in the subsurface, it shall also formulate other methodological instructions.
- Participate, through expert judgement, in compiling state balance sheets for minerals.
- Pass expert judgement on writing off from the state balance sheets of certain minerals (except commonly available varieties), decide on their economic and quantitative re-estimation.
- Extend methodological guidance to territorial mineral reserves commissions and monitor their work.
- Participate in developing and financing of mission-oriented research and development programs to improve methods for exploration of fields and their geological and economic assessment.

- Collect and systemize information pertaining to Russian and world market.
- Prepare materials for sessions of the interdepartmental commission which disburses bonuses for discoveries of mineral deposits.
- Participate in drafting proposals for quotas for the development of prime minerals (specially listed), in expert examination of materials prior to licensing of production and export of minerals.
- Maintain direct academic contacts with foreign counterpart organizations on issues delegated to the commission.

Under the Law of the Russian Federation on the Subsurface the State Reserve Commission shall have the right:

- To contract on the part-time basis the services of skilled professionals from ministries, agencies, production facilities, research centers, engineering organizations to participate in expert examination of draft quality standards for minerals, of reserve estimates and of information supporting particular recovery rates for oil and condensate, to enlist the assistance of R&D centers, engineering and other organizations.
- To insist that the ministries, agencies, exploration organizations and exploitation facilities submit as appropriate:

Feasibility studies of quality standards for minerals and reserve estimates, updated estimates of reserves in explored fields under development, where changes have occurred since the last state expert examination of reserves as a result of exploration and production activities, quality standard changes and other factors.

Annual schedules for submitting for expert examination by the commission of feasibility studies of quality standards for minerals and mineral reserve estimates for fields under exploration or under development.

Geological and other materials required to confirm technical and economic considerations underlying quality standards for minerals, oil and condensate recovery rates, estimation of minerals in the subsurface.

- To pronounce null and void decisions by territorial commissions for mineral reserves whenever such decisions contravene field reserve classifications or instructions by the State Reserve Commission for application of such classifications.
- To contract such enterprises, organizations and agencies as submit for expert examination by the Commission feasibility studies for draft quality standards for minerals, estimates of minerals in the subsurface and their economic evaluation, feasibility studies for the construction and modernization of mining facilities, etc.
- To determine, according to applicable procedure, remuneration rates for expert examination of reserve estimates, draft quality standards, feasibility studies in support of oil and condensate recovery rates, advice on the exploration methods and other problems within the Commission's competence.
- To determine the cost of the Commission's business trips and travel, and the amount of money to support its social programs, which will be a factor of its revenue.
- To contract other enterprises, organizations and physical persons for the purposes of transportation, leasing and security of offices and other services in support of the Commission's normal activity, the purchase of office equipment and supplies, copiers and printers, their maintenance and servicing.
- To engage in academic, consultant and publishing activities, to draft and publish prescriptive documents on issues within the Commission's competence.

Any decisions and instructions by the State Mineral Reserve Commission on issues within its competence are binding on all enterprises and organizations, agencies, concerns, associations, cooperatives, foreign companies and joint ventures which perform in the Russian Federation exploration, engineering and construction of mining facilities, the mining of minerals, irrespective of their departmental chain of command.

Evaluation of mineral resources by government experts is both the subject of Article 29 of the Law on the Subsurface and a fundamental provision of another article of the same Law which deals with rational use and protection of mineral resources (para 4, Article 23).

The accuracy of geologic information on the explored resources of any field is a major economic factor to be considered when the authorities concerned are reviewing an application for a development license and determine the rate of payments for the use of mineral resources.

Pursuant to para. 4 of Article 41 of the Law on the Subsurface the rate of royalties for the commercial production shall be set with due account of:

- The type of the mineral concerned.
- the amount and quality of its resources (finalized in the evaluation process by the State Commission for Mineral Reserves.
- Natural, geographic, geologic, mining and economic conditions for the development and exploration of the field (to be determined in the evaluation process by the State Commission for Mineral Reserves).
- Risks.

The State Commission for Mineral Reserves also assists in determining the rate of payments for the use of the subsurface for purposes other than mining (for construction, storage, etc.). The amount of such lump sum or regular payments is related to the size of the development area and the expected environmental impact as well as to the return on the subsurface area in question, such return to be evaluated at the national or territorial level (para. 7 of Article 41 of the Law on the Subsurface). As evaluated by the field geologists, the data on any field discovered and explored through a network of boreholes, may be biased and the amount and quality of the minerals explored are typically overstated. The evaluation process usually reduces the original estimation of the field concerned, and provides a more balanced assessment of the required process technology and the economic profile of the project. In 1990 the original estimates of recoverable hydrocarbons for every oil field were reduced by 10-25%. However, on several occasions the resources were found to be underestimated.

The fact that the state experts are not controlled by any governmental agency, and the possibility to draw on the expertise and experience of the best professionals in specific areas help develop a descriptive field model close to its real-life counterpart. The discussion and examples above confirm the importance of such evaluation to define the economic profile of each feasibility study and project the economics of prospective field development programs.

In this sense the evaluation process is not only prescribed by law; it is a practical requirement to make the body of available geologic information usable for planning at a later stage. The State Commission for Mineral Reserves has another important function; it is responsible for the evaluation of geologic and economic data used to determine the current market value of the minerals involved (such evaluation must be based on methods acceptable to western investors and presented to convertible currency terms):

- The actual costs incurred by Russian companies (whatever their form of ownership) to support exploration and prospecting of mineral resources, such costs to be reimbursed by foreign investors or contributed as capitalization by the Russian party concerned to the authorized fund of the joint venture.
- The actual costs incurred by the foreign party to explore any field discovered under a production sharing agreement, such costs to be reimbursed through deliveries of hydrocarbons.

There is much to be said for the idea to use the potential of the State Commission for Mineral Reserves whose main strength is the experience of hundreds of experts and whose database covers specific geologic features of Russia's mineral resources as well as those of other countries.

The Commission's oil and gas experts alone include 280 highly skilled engineers and researchers from all major areas of prospecting and exploration (seismic prospecting, well logging, cable, and drilling stem tests, core drilling and examination, oil gas condensate and subsurface water sampling and examination, lithogeochemical, petrographic and other methods to study reservoir and country rocks, flow enhancement methods, volumetric and variables to estimate hydrocarbon resources, field development plans, evaluation of the economic profiles of field development projects, transportation of crude and processed products; and marketing).

The main evaluation objective for any submitted information is to finalize the geologic model of the field and the mining potential of commercial deposits (reservoirs), to provide an objective estimate of the amount and quality of explored primary and associated minerals and fuels, assess their economic potential and evaluate mining, hydrogeological, environmental and other conditions for commercial production.

If any mineral resources are made available to any user for the purposes of geologic exploration and production such user may (as envisaged in the license) begin production of minerals or fuel prior to the evaluation of the mineral reserves by state experts (para. 4 of Article 29 of the Law on the Subsurface). In this event the license for the use of mineral resources shall define the time when the relevant material resources shall be submitted for evaluation by the government agencies concerned. The findings of such evaluation determine the final (revised) terms for the use of the resources including payments.

## **5 REQUIREMENTS FOR MINERAL DEPOSITS ECOLOGICAL INFORMATION**

The State Reserve Committee of the Russian Federation Ministry of Environmental Protection and Natural Resources has formulated "Provisional Requirements for the Scope of Ecological Information about a Mineral Deposit", which serve as guidelines for exploration organizations. The "Requirements" emphasize that environmental studies should be conducted at an early stage of deposit exploration, which will help identify priority areas.

The document contains an important provision, which will help arrange for consistent monitoring of environmental parameters in and around the deposit - it spells out the need to determine the background characteristics of the area, including its geochemical background, and to identify the most sensitive components of the ecosystem.

The geological input used to compile technological regulations should include data on chemical and mineralogical characteristics of the product and tailings (ash), grain size distribution, the amount and composition of by-products and waste of metallurgical plants. In this context it is important to record the behavior of toxic components (arsenic, sulfur, selenium, cadmium and others) in the course of production and processing of minerals.

Besides, the "Requirements" contain a number of principles, which, when implemented, will help minimize the environmental damage and support the needs of the national economy for minerals:

- To refrain from committing a deposit to commercial development if the existing needs for a particular mineral can be met by alternative sources - secondary resources, wastes from existing facilities, imports. This recommendation should be included in the feasibility study for analysis following preliminary exploration.
- The choice of mining mode (strip mining, deep mining, combination mining, the use of special geotechniques) should be based on the least-environmental-damage principle, even if the mode selected is less effective economically.



- Development of any deposit should be designed to extract and utilize all available minerals, since frequently the mining of incident minerals could nullify the need for their extraction in dedicated development programs.
- If the need for a new source of mineral is not questioned development should start of a minable deposit which would involve minimal expenditure of power and metal (loose or bulk minerals rather than compacted minerals).

## 6 GOVERNMENT REGULATION'S POLICY

No economic or social reform can do without compliance with a definite set of ideas and values.

During the transition period in Russia such a set of ideas and values can be best served by checking the unbridled plundering of natural resources, enforcement means included.

Environmental protection, and the prudent and waste-free utilization of natural resources call for a more efficient government regulation of the use of natural resources.

Stable economic development must exclude or reduce the use of wasteful, ecology-unfriendly and "environment-intensive" projects, technologies, and equipment.

What is required is a balance between a system of government regulation and market self-regulation. This philosophy is now being implemented by the government of the Russian Federation, which seeks to institute government regulation through government budget allocations, legislation, by-laws, as well as through the use of diverse financial mechanisms, such as quotas, licensing, tax regulation, tax privileges, accelerated amortization, and interest rate adjustments, on one hand, and market regulation, on the other.

An important aspect of the government's selective structural policies lies in the stabilization and continued improvements of the fuel and energy complex, which comprises production, refining, oil chemistry, trunk pipe lines, etc.

Government regulation of nature utilization includes not only rigid direct control of hazardous plants of governmental enterprises, but more importantly, the setting up of norms and standards, of economic stimuli and incentives (royalties, pollution and discharge fees, compensation for any damage to health or property of the people).

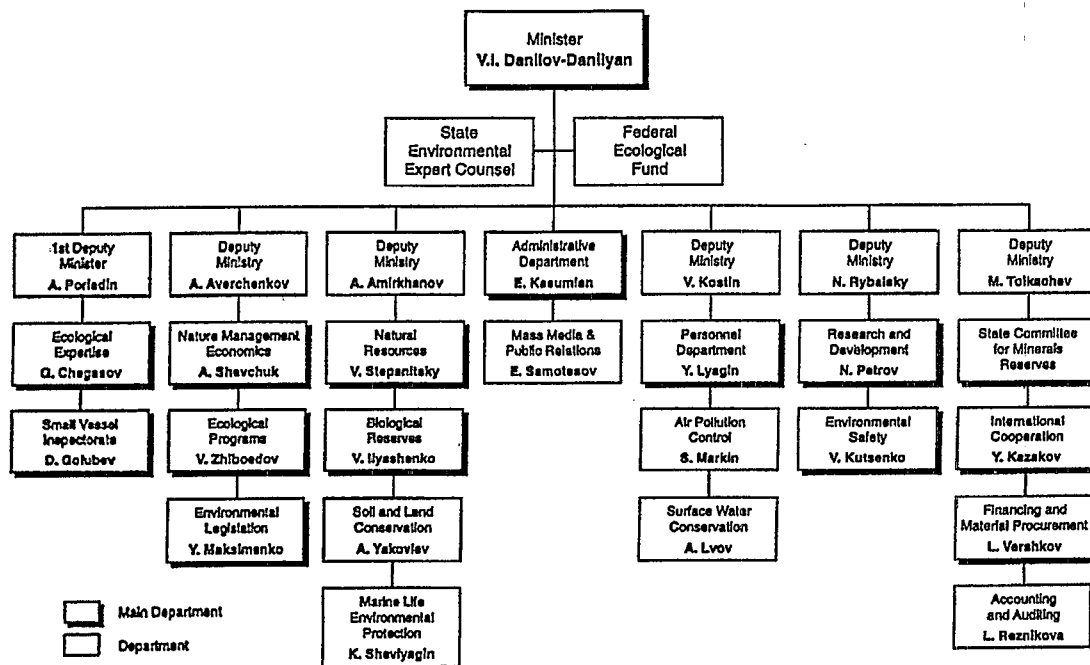
The quality of the environment will also be improved by the new policies in foreign investment and joint projects in Russia. The new policies will place a fresh emphasis on modernization and retrofitting of old or environmentally unsafe facilities for the production of oil and gas, chemical plants, metal works, agricultural enterprises, and the construction business.

## ENDNOTES

1. Recently renamed as the Ministry of Environmental Protection and Natural Resources of the Russian Federation.
2. Expert examination of common minerals (except deposits of building stone for facilities with a capacity exceeding 400,000 m<sup>3</sup> or per year), great, small deposits of fresh water shall be conducted by territorial commissions for mineral reserves.

## ATTACHMENT 1

# RUSSIAN FEDERATION MINISTRY OF ENVIRONMENTAL PROTECTION AND NATURAL RESOURCES



**ATTACHMENT 2****THE LAW OF THE RUSSIAN FEDERATION ON "THE SUBSURFACE"  
(adopted by the Russian Supreme Soviet on 21st February, 1992)****Article 29 (State expertise on users of natural resources deposits and raw materials)**

Orientated at creating conditions for rational complex exploitation of natural resources deposits (Article 3, Item 2,3); the definition of payment for exploiting natural resources deposits (Articles 39, 40, 41, 42); defining borders of the areas of natural resources deposits given for exploitation: amount of natural resources of investigated deposits are to undergo state expertise.

Permission to exploit natural resources deposits is given only after conducting state expertise of the amount of natural resources available.

Conclusion of state expertise is a foundation of state inventory (Articles 28, 30).

State expertise may be conducted at any stage of geological research of a deposit, on condition that the geologic matter submitted for expertise allow to give objective estimates of the amount and quality of natural resources, their importance to national economy, mining, hydrogeological, ecological and other conditions of their extraction.

On condition of giving deposits to exploitation simultaneously with geologic research of them (Article 11), users of deposits are able according to license (Article 12) to start exploitation before state expertise of natural resources deposits.

The dates of next submission of materials to state expertise with further defining of conditions of exploiting deposits including payment are stipulated in the license for the right of exploiting deposits.

State expertise is to evaluate geologic information concerning the natural deposits areas where erection and maintenance of underground complexes is possible and which are not connected with exploiting natural resources deposits (Article 6, Items 3, 4; Article 25).

Giving such areas of natural resources deposits for exploitation is allowed only after conducting state expertise of geologic information.

State expertise of natural resources deposits, geologic information about areas of natural resources deposits are realized by management body of the state fund (Article 2) or its territorial branch.



---

### THEME 3:

## COUNTRY EXPERIENCES IN DESIGNING ELEMENTS OF AN ENFORCEMENT PROGRAM

12. Summary of Theme Discussion, <i>Moderator: A. Alcocer Lujambio,</i> <i>Rapporteurs: C. Wasserman, J. Bergin</i> .....	89
13. The Challenge of Environmental Enforcement in Developing Nations, <i>A. Alcocer Lujambio</i> .....	93
14. Country Experiences in Designing Elements of an Environmental Enforcement Program—Case of El Salvador, <i>G. Navarrete Lopez</i> .....	97

---

Papers 1 through 11 in Proceedings Volume 1.



### **SUMMARY OF THEME #3: COUNTRY EXPERIENCES IN DESIGNING ELEMENTS OF AN ENFORCEMENT PROGRAM**

Moderator: Arturo Alcocer Lujambio

Rapporteurs: Cheryl Wasserman and John Bergin (ERG)

#### **GOALS**

Presentation of specific aspects of developing the institutional capacity for an environmental enforcement program. The papers offer specific examples of how each country has solved an organizational or human resource problem in designing a compliance and enforcement program. How the approach was selected, how the approach evolved over time, what other approaches were considered, and whether the program represents a minimum resources expense for the benefits it delivers are addressed.

#### **1 PRESENTATIONS**

Mr. Carlos Rojas Gutiérrez, Secretary of Social Development, La Secretaría de Desarrollo Social (SEDESOL) prepared a paper which was delivered and summarized by Ms. Julia Carabias, President, Ecology National Institute. Mr. Rojas reviewed the public pressures and progression of laws and policies developed over the past several years in Mexico to integrate and incorporate environmental concerns into social and economic development policies. He reviewed overriding concerns about social and economic inequities and the need for rational economic growth and social justice in search of sustainable development goals. He cautioned that other pressures for harmonizing the environmental laws of Mexico with those of other nations must be paced to respect the scope of needed change in Mexico, and a well developed set of plans and priorities and cannot substitute for other non-legal approaches to gaining progress in environmental and economic developments. Mexico is also building upon a highly decentralized governmental structure to develop stronger compliance and enforcement capabilities.

Ms. Gro Rødland, Head of Department, State Pollution Control Agency, Norway, presented a review of the development of the inspection corps at the Norwegian State Pollution Control Authority. The current organization of this corps and the financing of activities is described as well as the training program for the education of inspectors. Particular emphasis is also given to the evolution of an independent inspection function from that of permitting.

Mr. Jaap van Dijk, Member of the Executive Committee, Provincial Council, Province of Groningen, the Netherlands, discussed the cooperation between police public prosecutors and governmental authorities in the field of environmental enforcement. Through a series of cooperative agreements and intergovernmental councils, the Netherlands has been able to capitalize on the expertise of various groups and levels of government to create an effective compliance and enforcement response program with limited resources.

Mr. Daniel Hugo Llermanos, Judge for criminal and correctional court in Zamora, Argentina delivered a presentation with a strong message of the potential role of an activist judiciary to creatively apply existing laws and legal protections to address compelling environmental health concerns to the public. He presented some radical possibilities, such as confiscating property of those who put the public health in peril and applying a host of laws that are not traditionally used in the environmental arena.

## 2 OPEN DISCUSSION

Discussion concerning the Theme #3 presentations began with Mr. Branimir Natov, Deputy Minister of the Bulgarian Ministry of Environment, asking Ms. Rødland about fees charged to industrial operations by Norway's Pollution Control Agency. Ms. Rødland responded that fees have been reduced to about \$2,500 or less to make the cost less burdensome. She added that all fees collected from violators of environmental laws go directly to the state. None of the money collected as fees can be used as part of the pollution control agency's budget.

Ms. Rødland was also asked to further explain the difference between environmental inspections and audits in Norway's enforcement program. Ms. Rødland explained that an environmental audit is far more comprehensive than an inspection. An inspection typically involves a single pollution control agent visiting a company for one day, after which the inspector spends another day or two writing up a report. In contrast, for an audit a team of inspectors might remain on site gathering information for several weeks. The audit team's objectives are to determine (1) if the company is currently in compliance and (2) whether the management structure is capable of complying with environmental regulations over time. Because the audits are quite intensive, the agency must carefully select which companies to visit. Companies chosen for an audit are usually large, complex operations with a high risk of environmental accident.

Concerning the frequency of inspections, Ms. Rødland said that, depending on which control class a company is in, agency officials might visit a site as often as every year or only as needed. Moreover, inspections can be conducted without giving advance notice to officials of the target company. In contrast, because audits are more comprehensive and require the cooperation of company officials, notification must be given well in advance. While Norway's pollution control law specifies the types of information company officials must provide to environmental auditors, establishing the frequency of inspections and audits is left to the pollution control agency.

Next, another participant, after noting that the Province of Gronigen, the Netherlands, was the first public authority to consider cumulative risk to human health and the environment when making decisions about industrial projects, asked Mr. van Dijk if the province still uses such criteria when establishing enforcement priorities. Mr. van Dijk explained that representatives of the municipality, the police, and the public prosecutor's office meet every year to develop an enforcement plan. Assessments of risk to human health and the environment continue to weigh heavily at these meetings as an aspect of pollution control enforcement.

Then, Mr. Joseph Govinda Singh, Brigadier of the Guyana Defense Forces, was asked to address the group about the important role that the military can play in an environmental enforcement program. He explained that as the military establishments in several South American countries undergo significant change, they are developing cooperative efforts to protect the environment. For example, the Guyana military is working with military establishments in the bordering countries of Brazil, Venezuela, and Suriname to protect the vast resources of the Amazon region. At the same time, Guyana's military establishment is networking with various agencies of the Guyanese government concerning environmental issues specific to the coastal nation.

Mr. Llermanos was then asked how the courts can enforce environmental laws when the party responsible for environmental damage is a group or entity rather than an individual. Mr. Llermanos said that on occasion the responsible individual or group of individuals within a company can be charged with breaking environmental laws. On the other hand, in the same sense that the justice system might confiscate the physical agent of a crime, such as a gun or an automobile, the courts might also "confiscate" a company that is instrumental to the perpetration of an environmental violation.



---

### **3 CONCLUSIONS**

In response to various social and economic pressures, countries have designed compliance and enforcement responses within existing financial, institutional and legal constraints by using creative techniques to train and develop inspectors, fund programs, use existing laws, and develop cooperative intergovernmental relationships. The clear messages are that where there is a will countries have found a way to start to build the necessary capacity for compliance and enforcement. There are as many ways to begin as there are circumstances around the world. The important message is to begin whether it is beginning to develop credible inspector capability with no experience or funding as Norway did using facility funding through a fee system and third parties to supplement their inspection program, or the creative application of laws, as has been done in Argentina, or building a coalition of interests and new institutional arrangements as has been done in the Netherlands, or the intergovernmental networks and citizen involvement in Mexico.



## THE CHALLENGE OF ENVIRONMENTAL ENFORCEMENT IN DEVELOPING NATIONS

ALCOCER LUJAMBIO, ARTURO

Assistant Federal Attorney for Social Participation and Complaints, Procuraduría Federal de Protección al Ambiente, SEDESOL, Insurgentes Sur 1480, 7o. piso, Barrio Actipan, Del. Benito Juárez, 03230, Distrito Federal, México

C. Lic. Diodoro Carrasco Altamirano, Constitutional Governor of the State of Oaxaca

Mr. Hans Alders, Minister of the Environment of The Netherlands

Distinguished Members of the Presidium

Ladies and Gentlemen:

The event which gathers us together today is a very important one for the achieving of consensus and the acceptance of new strategies for improved environmental conditions which will persist for the present and future generations. Because of this, the economic process and the improvement of the environment constitute primary elements in the development of today's nations, and must be an inseparable dual element in the projects of social welfare.

It is well known that economic growth is one of the premises of the progress of peoples. This is true, but it must fully guarantee the conservation of the natural surroundings: nothing must affect our most precious treasure, nature, and through that life itself.

The solution appears to be found in the sustainability of development, understood as the way of making compatible the realization of economic activities while conserving the environment, and remembering that an appropriate economic increase is not only to produce more, but rather to do it in a different and continuous way. The environmental degradation of the past is a clear example of the errors which must not be repeated.

However, the policies and strategies of environmental improvement cannot advance towards their legitimate purposes except through a strengthening of the legal framework from which they flow.

Therefore, the inexistence or lack of compliance with legal norms gives rise to the irrational use of natural resources. Because of the latter, the priority is, on the one hand, to analyze and bring up to date the legal ordinances, but on the other hand, and even more important, efforts must be deepened to prevent violations to environmental legislation.

However, there are different difficulties which must be faced in the application of environmental standards. First of all, it is necessary to bring ecological law up to date based on changing realities. It must be recognized that environmental laws need to have an ever increasing universal character, since their integral essence comes from the fact that natural resources are the patrimony of mankind. However, taking into account historical, economic and cultural differences of each people, it is necessary to modernize the sum of the legal ordinances which, starting from their constitutional precepts, give rise to secondary norms which facilitate their permanent observance, application and revision, in order to correct the omissions or inconsistencies which the ordinances contain.

Secondly, it is necessary to be able to put these ordinances into practice. In this we face various difficulties which we must solve, and aspects of the present model of development of our peoples which we must recognize:

- At the present the world population is growing at an approximate rate of 1.7% per year, with the probability that during the period of 1990-2030 it will grow by 3.7 billion people. Of this increase, 90% will take place in developing countries. This vertiginous population growth exacerbates the causes and effects of poverty and environmental deterioration.

- Deficient agricultural productivity in developing countries generates soil degradation and deforestation, which limits their socioeconomic development.
- The concentration of population in the large cities contributes to the diminishing of some environmental pressures, but brings with it different problems associated with industrial growth, emissions, and wastes.

The solution to these problems resides in a skillful and effective application of policies of public and international cooperation, which together help to integrally attack the origins of underdevelopment, checking and reversing the overexploitation of natural resources and what that represents in the degradation of the environment and social welfare.

However, for environmental prevention, it is indispensable to work in a committed manner for environmental education. Towards this end, the authorities responsible for the application of environmental norms promote actions of Social Participation, Verification of Norms and Environmental Auditing, promoting the collaboration of the Public, Social and Private Sectors in favor of the environment.

In the same way, the educational institutions perform a function of vital importance because of the activities they carry out. They are the nerve center for inculcating and promoting a new culture of man and his environment; a culture whose nucleus has to be a more jointly responsible and participative social conscience, which needs to stimulate models of development committed to the preservation of the ecosystems.

Lastly, we must intensify efforts to diminish violations to environmental standards. In summary, coordination and prevention before sanctioning.

Mexico is immersed in a process of transformation, which has intensified in the last few years. The Trilateral Agreement of Free Trade signed by Canada, United States and Mexico has placed our country at a juncture which will accelerate the process of linkage between economic and environmental policies and will strengthen its capacity for environmental management, through technical cooperation with its neighboring countries and commercial partners.

The dynamic of the changes, promoted by the Government of President Carlos Salinas de Gortari, covers consistent programs of economic adjustments; a solid social policy which has its main roots in the National Program of Solidarity; added to these is a process of perfecting the democratic institutions, which is also reflected in issues concerning public administration. Such is the case of the creation of the Agency for Social Development and of its decentralized offices: the National Institute of Ecology, responsible for delineating environmental policy and keeping environmental standards up to date, and the Federal Prosecutors' Office of Environmental Protection, the body which applies and supervises the laws.

In Mexico, an integral system of coordination has been established between the Federation, the States, and Municipalities, which defines the general ecological policies and regulates the instruments for their application. It established dispositions in matters of ecological ordinances, impact and environmental risk assessments, social participation, ecological education and control and security measures.

In our country we know that an adequate environmental policy requires an integral concept of development, whose fundamental objective cannot be an economic growth characterized by a process of accumulation for particular sectors, but rather must be oriented to the benefit of the least favored population.

Distinguished participants in this Third International Conference on Environmental Enforcement:

The Political Constitution of the Mexican United States gives the state the trusteeship of natural resources, since it considers the soils, waters, flora, and mineral resources to be the property of the nation. The juridical bases of environmental legislation are established in the Constitution; therefore, without modifying its articles or regulatory laws, transformations to the supposed laws are introduced for the conservation of natural resources.

The social policy of President Carlos Salinas de Gortari is fully geared towards public action. It explains and justifies what we are doing in economic, political and international matters. It is committed to a new way of doing things, to promoting the democratic participation of the population in its definition and operations and, above all, to convoking the solidarity of all Mexicans.

However, it is no secret that Mexico has regions and communities which suffer from a serious ancestral poverty, clearly unacceptable. In this sense the government of the republic assumes its task responsibly, and works intensely to achieve more justice and social welfare. We Mexicans advance along the paths of law and dialogue, we reject all signs of violence, and fight impunity. The times through which our country is living encourage us to search for more elevated and dignified forms of social and political coexistence. The rich Mexican history shows us that the character and spirit of the nation is strengthened by difficult times. It has fallen to our generation to structure the bases of a sustainable development in which the eternal laws of nature and the values of civilization and human culture become integrated, rather than competing. Hopefully this meeting will contribute to these purposes.



## **COUNTRY EXPERIENCES IN DESIGNING ELEMENTS OF AN ENVIRONMENTAL ENFORCEMENT PROGRAM: CASE OF EL SALVADOR**

NAVARRETE LOPEZ, GUILLERMO

Coordinator of the National System of Environmental Complaints, Secretaria Ejecutiva del Medio Ambiente (SEMA), Final 91 Avenida Norte Colonia Escalón, San Salvador, El Salvador, C.A.

### **SUMMARY**

A general picture is presented of the process followed in El Salvador to optimize the efforts of environmental improvement through the formulation of a National Environmental Strategy which includes the establishment of a System of Environmental Management containing several instruments. The most notable is the National System of Environmental Complaints (Denouncements), which ties together the environmental administrative institutions, the Public Prosecutor's Office of the Republic, and the National Civil Police through the Division of Environment, which will act in a coordinated and sustained way with a Law of Environmental Protection. This unique and modern model has successful characteristics.

### **1 THE IMPORTANCE OF THE NATIONAL SYSTEM OF ENVIRONMENTAL COMPLAINTS (DENOUNCEMENTS)**

The task of preparing and coordinating actions to solve the problems that affect the environment is a difficult one, and it is under the shared responsibility of the people and the government. The latter carries it out through institutions whose purposes are to conserve and protect the natural resources and the environment.

The draft of a bill called "Protection of the Environment" establishes the creation of the "environmental management system," and identifies the need of readjusting the institutional structures, sketching out the functions, responsibilities and fields of action according to the role which each institution and members of institutions are to play.

One of the several functions which characterize the system is that of achieving an adequate coordination of intersectoral activities.

The Executive Directorship of the National Environmental Council (CCNAMA), led by the Executive Secretariat of Environment (SEMA), has believed that it is of great importance to establish a system of complaints (denouncements) of an environmental nature, which has as its objective the promotion of actions which will lead to the knowledge, evaluation, and treatment of environmental problems which affect the community.

The creation of the national system of complaints is justified by the immediate need to give an answer to the petitions of the population. The population is worried by the observable deterioration of natural resources and of the environment of the country and the growing pollution, but has not had a place to which to address its petitions. This would fill that need. This does not mean there is a lack of institutional attention, but only a lack of orientation to the user.

The complaints are a tool of great importance, since they define public opinion and are converted into a type of permanent consultation, which also enriches the work carried out by institutions related to the environment. In this same way, the complaints are taken as the basis of the elaboration of national strategies to be carried out in the conservation and protection of natural resources.

Due to the complexity and diversity of the environmental problems of the country, it is important to coordinate the technical cooperation between the institutions who are responsible for conserving and protecting the natural resources and environment, trying, in this way, to achieve effectiveness

and rapidity in setting forth solutions. This coordination will be more effective if the complaints are channeled through the dedicated units given this responsibility.

In the context established by SEMA, purposes are set forth which contribute to the strengthening of environmental management, and especially for this project with the sectors where a Sectoral Environmental Unit (UAS) exists or should exist, which strives for integral development.

## **2 OBJECTIVES OF THE NATIONAL SYSTEM OF ENVIRONMENTAL COMPLAINTS**

- To take advantage of the experience of the institutions that work with natural resources and environment, and try to give immediate attention to the complaints through institutional coordination, without interfering in the work areas of proper competence.
- To apply sanctions of several types established in environmental legislation.
- To let the population know of the existence of the National System of Environmental Complaints through the media.

## **3 INSTITUTIONAL ROLES**

The proposal for the definition and organization of the System of Environmental Management makes reference to the levels of interaction of the participants in the System. It is structured into: a) the level of counseling and consulting, b) the level of coordination, c) the operational level.

It is important to point out that at the level of coordination the field of surveillance and environmental monitoring stands out, since in this field and through SEMA (as the catalyst of the relations between sectoral environmental activities) the relationships of coordination are established between the rest of the institutions of the System, the corresponding bodies of the Public Ministry (the Environmental Units of the Attorney General's and the Public Prosecutor's Office), and the Environmental Division of the National Police.

The responsibilities of the Public Ministry in the System of Environmental Management are: (i) represent administratively and legally the interests of the state and society in environmental matters; (ii) receive complaints concerning violations to the legislation in effect and typifying environmental crimes; (iii) acting as plaintiffs in the courts of justice in representation of the interests of society through the prosecutors of the national courts, (iv) carry out civil and penal suits in environmental matters; and (v) apply corresponding sanctions when environmental laws, regulations and environmental norms, or the contents of the same in sectoral laws, are not complied with.

SEMA will ask these bodies for their participation when the operational mechanisms of environmental quality control have not achieved success in enforcing the corresponding laws and regulations.

The Environmental Division of the National Police will act on two levels; (a) as a support to the system of monitoring environmental quality in investigating environmental crimes; and (b) as an authority with responsibility for making operational the sanctions established by the corresponding judicial bodies.

The complaints of environmental crimes will be made by the sectoral agencies themselves, by individuals, by the NGOs, or will be generated in SEMA itself through the monitoring, evaluation, and control network. The sanctions established will be of an administrative, pecuniary, or penal type, according to the corresponding norms. In the cases which warrant it, the means for the reparation of damage will be established.

The results of a survey of different institutions carried out by SEMA reflect that all of the environmental areas identified have a unit for the reception of complaints, which facilitates the work required for the installation of the system and for the joining of efforts in coordination by areas, without falling into duplication of efforts.



It was shown that the institutions which make up the system have environmental protection mechanisms and tools. However, several inconveniences were manifested, such as:

- The lack of effective application of the laws.
- The lack of trained personnel in environmental issues.
- The lack of equipment: transportation, communication and furniture, among others.
- Bureaucratic procedures (institutional coordination).

With the objective of working intersectorally, since it is one of the characteristics identified with environmental problems, four types of institutions were classified that monitor the protection and conservation of the natural resources and environment. They are the following: a) Implementors, b) Services in Support of Integral Defense, c) Norm Sanctioning, d) Norm Regulating.

**Table 1. Institutional Identification of the Different Legal Instruments Used To Give Attention to Environmental Problems**

Institution	Instruments
Center for Fishing Development	Law of fishing activities. Article 11. The center for fishing development is a dependency of the Ministry of Agriculture, in charge of the administration of fishing activities.
Direction of Environmental Health	Health Code. Has as its objective the development of constitutional principles related to the health of all inhabitants of the Republic. Also: Decree 50 and its regulations. Others: Municipal Police Law, municipal ordinances in coordination with the towns.
National Council for Culture and Art	Transitional law in cultural resources. The Law of Cultural Patrimony has not yet been passed.
National Park and Wildlife Service	International agreement on the commerce of flora and fauna -CITES- and its regulations. Decree of forest seasons (management of reduction zones).
Forestry Service	Forestry Law.
National Navy of El Salvador	Marine and Navigation Law, Organic Law of National Defense, Regulatory Marine Law, General Law of Fishing Activities.
Municipality of San Salvador -Urban Development Control	Municipal ordinance and regulation of urban development control and of the construction of OPAMSS.
National Administration of Acqueducts and Sewers (ANDA) -Specialized Water Unit (UEDA) -Division of Urban Development	Law of ANDA and technical norms. Decree 50, regulation on water quality, sewers, and protected areas. Articles 100 and 101 of the law of irrigation and drainage, water quality, and supervision of waste disposal and protected areas, with the objective of avoiding, controlling or reducing the pollution of water resources.
Vice-Ministry of Housing and Urban Development	Urban and construction law (direction, control, norms, and permits) and its regulations and decrees, law of regulating plans, law of the institute of liberty and progress, cemetery law, law of fuel deposits and petroleum derivatives, and others.
Planning Office of the AMSS	Ordinance of the control of urban development and construction, regulation of the ordinance of the control and urban development and construction.
Executive Committee of Water Protection	Executive Decree No. 50

### 3.1 Implementing institutions

These institutions develop environmental and natural resource protection and conservation projects and programs, including urban and rural development. The institutions listed have been identified according to the area of attention. Not all of them receive complaints, but their objective is to control and monitor environmental phenomena. Such is the case of the Center of Meteorology and Hydrology, which counts on basic information to prevent disasters.

In the following table, the relationship of the implementing institutions with the areas of action in natural resources and environment is described.

**Table 2.** Table of Institutional Relationships With Areas of Attention

Name of Institution	NATURAL RESOURCES						HEALTH				PHYSICAL SPACE	
	Forestry	Fauna	Water	Soil	Fishing	Non-renewable	Water	Air	Soil	Environmental Health	Cultural Patrimony	Urban Development
ENVIRONMENTAL LABORATORY (*)							**	**	**			
METEOROLOGY DIVISION (*)							**	**				
HYDROLOGY DIVISION (*)			**				**					**
DIRECTION OF ENVIRONMENTAL HEALTH							**	**	**	**		
NATIONAL COUNCIL FOR CULTURE AND ART (CONCULTURA)											**	**
CENTER FOR FISHING DEVELOPMENT					**					**		
NATIONAL PARK AND WILDLIFE SERVICE	**	**	**	**						**		
SERVICE OF PLANNING AND HYDROGRAPHIC BASINS	**		**	**			**	**				
NATIONAL NAVY	**	**	**		**		**			**		
URBAN DEVELOPMENT (Municipality of San Salvador)											**	**
SPECIALIZED WATER UNIT (ANDA)			**				**			**		**
URBAN DEVELOPMENT (ANDA)			**				**			**		**
CONTROL, NORMS AND PERMITS (VMDU)	**	**	**	**			**	**	**	**	**	**
OFFICE OF PLANNING OF AMSS (OPAMSS)											**	**
EXECUTIVE COMMITTEE PROTECTOR OF WATER RESOURCES (CEPRH)	**		**	**			**		**			**
GENERAL DIRECTION OF TRANSIT								**				
UNIT OF ENERGY, MINES, AND HYDROCARBONS				**		**						

(\*) Does not address complaints. Could provide support in inspection and diagnosis, since within its objectives are vigilance and control of atmospheric phenomena and quality of natural resources.

(\*\*) Areas of competence.

### 3.2 Service institutions supporting integral defense

Each one of the institutions listed below monitors the protection and conservation of natural resources, enforcing existing laws and regulations supporting the integral defense of a damage caused to the interests of the population.

Given the fact that the conservation and protection of the environment is a right and an obligation, and as an effort to fulfill this mandate, various governmental institutions have been created. Of these, a special mention should be made of the creation of the National Civil Police, which has projected in its structure the formation of the Environmental Police. These activities are integrated among four institutions:

- Attorney General of Defense of the Environment.
- Ministry of National Defense.
- National Navy.
- National Civil Police.

### 3.3 Norm sanctioning institutions

These are institutions which because of their structure can apply corresponding sanctions for a damage caused to natural resources and the environment and which also affects the population. The support of these institutions will be come effective when an investigation of the complaint has been carried out and the damage caused has been diagnosed. These institutions will then proceed to enforce the specific legislation. This group is made up of the:

- Public Prosecutor of the Republic.
- Supreme Court of Justice.
- Municipal Authorities (courts).

### 3.4 Norm regulating institutions

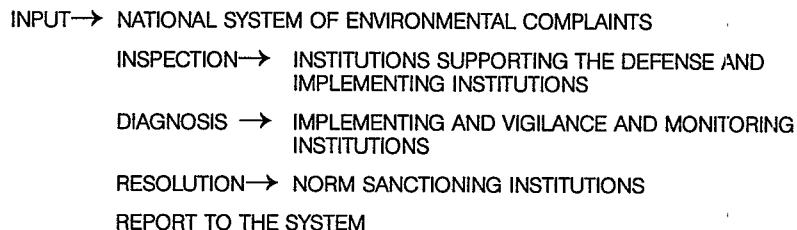
The objective of the norm implementing institutions is that of establishing and reviewing guidelines for the conservation and protection of natural resources and the environment. This group is made up of:

- Executive Secretariat of the Environment.
- Health and Environmental Commission (Legislative Assembly).
- Salvadoran Institute of Municipal Development.

## 4 MECHANISMS OF RECEPTION

Complaints are defined as the notification or warning to the competent authority of a damage done to, or about to be done to, the natural and cultural patrimony. This can be communicated in writing or verbally (including telephone calls). It can be attended to by any of the institutions which make up the system.

It is important to establish a mechanism which makes viable the reception of complaints, which will avoid a bureaucratic attitude in paying attention to them. Therefore, the following scheme is proposed:



The system should be made public through the means of communication of the country, with clarity in its text so that the population can identify the places to which it can direct its complaints.

The communiqué cannot be published until it is approved by the institutions involved.

The dissemination will be an instrument of classification of complaints, since the institutional directory would be published with the identification of each one of the areas of attention.

## 5 INSTITUTIONS RECEIVING COMPLAINTS OF AN ENVIRONMENTAL CHARACTER

The following are service institutions in support of the integral defense:

- National Civil Police.
- Attorney General for Environmental Defense.
- Ministry of National Defense.
- National Navy of El Salvador.

The following table lists institutions by the type of complaints they handle.

**Table 3.** Attention to Complaints Based on Resources

Problem	Institution
Air pollution	Direction of Environmental Health
Environmental health	Direction of Environmental Health
Damage to cultural patrimony	Concultura
Fishing resources	Center for Fishing Development
Flora and fauna	National Park and Wildlife Service
Soil deterioration	Vice-Ministry of Housing and Urban Development, Office of Planning of AMSS
Water Pollution	CEPRHI
Exploitation of mines and quarries	Unit of Energy, Mines and Hydrocarbons
Forest exploitation	Forestry Service

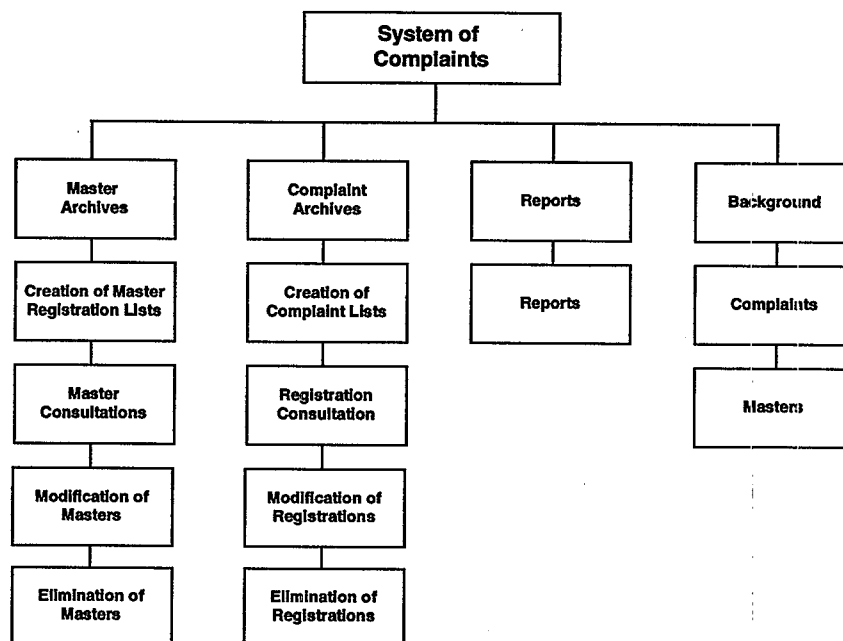
In addition to these institutions, all of the municipalities of the country receive complaints of an environmental character.

## 6 MECHANIZED SYSTEM

For the establishment of a bank of complaints a design is required of a structure that responds to created needs. Therefore, a proposal is advanced for the design of a data bank which will allow a continuous and easy-to-manage registration for all of the institutions which make up the system (see Figure 1).

Due to the needs defined by the system, it is recommended that this be added to the informational unit of SEMA, without omitting the important role which could be played by the technicians of the different areas of attention in the Secretariat. This depends, of course, on the scale presented by the problem, given more attention to the problems of great scope operating under the concept of technical proposals.

The proposed design is oriented towards the final user. Therefore, the structure will be based on menus, with four large sections: a) the management of principal masters, for example the identification of the complaint in the departments of the Republic, municipalities, affected area, etc.; b) management of the archive of complaints itself, covering also the maintenance of this archive; c) definition of the type of report for the users, frequency of issue of the number of copies, etc. and d) A process of supports



**Figure 1.** National system of environmental complaints.

to the masters and to the archive of complaints with the specific end of assuring the due functioning in any emergency.

#### 6.1 Description of a questionnaire for the monitoring of complaints

It is important to establish a model of typifying or classifying the complaints for an easy management at the level of institution and area. This format could be functional, with the advantage of summarizing all of the information necessary for the problem identified, and at the same time would be the official document of application for attention (see Figure 2).

CODE:	
AREA:	DATE OF ENTRY:
CIRCUMSTANCES:	
LOCATION:	
SCALE:	
COMPLAINANT:	
SENT TO:	DATE:
FOLLOW-UP:	DATE:
OBSERVATIONS:	
RESULTS:	

**Figure 2.** Questionnaire for monitoring environmental complaints.

**Figure 2 Key:**

Code	Identification of the complaint within the system and completed by the system of mechanization.
Area	Identification of the problem within the affected resource.
Date of entry	Date of input of the complaint into the system.
Circumstances	Development of a brief description of the general content of the complaint.
Location	Corresponds to the exact location of the problem, including the address, municipality and department.
Scale	Identification of the scope of the problem in time and space.
Complainant	Name of the person or institution presenting the complaint (this should remain anonymous).
Sent to/Date	Name(s) of the institution(s) to which the complaint is sent; date of the sending of the complaints to the different institutions which make up the system.
Follow-up/Date	Consultations with the institutions of the system to which the complaint was sent in a period greater than eight days; date of the consultations, carried out in the follow-up.
Observations	Specific comments on the problem.
Results	A brief description of the resolution.

## 7 ADVANTAGES OF THE CREATION OF THE NATIONAL SYSTEM OF ENVIRONMENTAL COMPLAINTS

- More linkage with the institutions involved in environmental matters.
- Identification by institution of capacity for resolution, with the definition of appropriate actions based on competence.
- Establishment of mechanisms of exchange and information and analysis of the problems.
- More and better capacity for resolution.
- More accessibility for the denouncing population.
- Establishment of a database.
- Existence of an institutional and professional directory, accessible to a communication network.

## 8 RECOMMENDATIONS

- Incorporate a system of directly, free and exclusive communication for the institutions that make up the system (fax, telephone).
- Given its functions of its physical presence in all of the country, uninterrupted work hours (from Monday to Friday), with specific personnel for functions of environmental protection and as an objective of its creation, it is recommended that the National Civil Police cover the function of the system of environmental complaints.

- 
- The implementing institutions of the different sectors should make the diagnoses of the problems and determine the damage caused, supporting the resolution to apply the corresponding sanction.
  - Each institution of the system should be able to count on transportation for necessary field visits, and/or at least support should be given between institutions when this is lacking.
  - Each institution should designate a person responsible for giving attention to the complaints.
  - The Executive Secretariat of the Environment should have a database of the complaints as a tool of the system of information, and should keep informed those who request it on the national system of complaints, according to the information received by the sectoral institutions.
  - Continuously train the personnel of the system in issues of environmental management.





---

## THEME 4:

### EXPERIENCES IN COMPLIANCE AND ENFORCEMENT

- 18. Summary of Theme Discussion, *Moderator: R. van Heuvelen, Rapporteur: D. Bronkema*..... 109
- 19. Results From Monitoring Compliance and Enforcement, Norway 1993,  
*G. Rødland, A. Miller* ..... 111
- 20. General Remarks on Environmental Enforcement in Romania, *D. Popescu* ..... 117
- 21. Compliance Monitoring in Nigeria's Industries, *M.T. Odubela, I.I. Omoniyi*..... 123
- 22. A Leading Case for the Ensenada Petrochemical District Industries Transformation,  
Buenos Aires Province, Argentine Republic, *C.E. Maiztegui*..... 129

---

Papers 1 through 17 in Proceedings Volume 1.



**SUMMARY OF THEME #4: EXPERIENCES IN COMPLIANCE AND ENFORCEMENT**

Moderator: Robert van Heuvelen  
Rapporteur: David Bronkema (ERG)

**GOALS**

Presentation of case studies of environmental problems. Discussion of the development and implementation of comprehensive enforcement approaches. Presentation of information on environmental enforcement successes. Analysis of factors that lead to successful results, drawing implications for using successful approaches in a variety of settings.

**1 PRESENTATIONS**

Mr. R. van Heuvelen, Director of the Office of Civil Enforcement of the U.S. Environmental Protection Agency, presented an overview of successful outcomes of enforcement actions carried out by EPA. No single enforcement model or strategy exists that guarantees success, and as a result EPA's approaches to enforcement have varied. The list approach, in which a fixed universe of facilities to target was established, was particularly successful in the early phases of EPA and has formed the basis for subsequent approaches. There has been a general trend away from an emphasis solely on assessing penalties towards a compliance-plus strategy, which tries to leverage the impact of each individual enforcement action to secure additional deterrence and environmental results. These compliance-plus approaches have met with success. One new approach has been to maximize environmental impact through compliance audits, using big cases to show EPA's resolve and to promote new technologies, and to maximize the leverage of individual cases to increase pollution prevention initiatives. Finally, EPA has also reduced the civil penalty assessed to violators in exchange for the defendant's promise to engage in "Supplemental Environmental Projects," improving the injured environment and pushing the development of new technologies.

Mr. A. Archer, Project Manager for the Sewerage and Solid Waste Project Unit of the Ministry of Health of Barbados, presented a summary of the development of regulations for the disposal of offensive matter in Barbados. Before 1970, Barbados had crude methods of waste disposal. Health services regarding the disposal of offensive matter regulations were enacted in 1969, and their enforcement was entrusted to the Ministry of Health. At the time, crude sewage and septic-tank effluent were being discharged into the sea from a variety of businesses and governmental institutions. Water sampling was begun, which provided stark evidence of the high levels of bacterial pollution. The response to the new Statutory requirements was quite positive, and the threat of fines coupled with flexibility in time frames granted for the installation of equipment were sufficient to induce compliance. In 1980 the Barbados Water Authority was established, and sewerage regulations were enacted. The enforcement of connections to the sewerage system, with appropriate tolerance for low-income areas of the city, has resulted in significant environmental improvement. The current high standard of public health and environmental conditions in Barbados have allowed tourism to become one of the major elements in the economy of the country. Further legislation is required to protect the environment and will be enacted shortly.

Mr. K. Nkofi, Special Projects Officer of the Environmental Protection Agency of Guyana, described the introduction of voluntary compliance and enforcement requirements into the mining industry in Guyana. The main environmental problems caused by the industry's activities are toxic chemicals and solid waste. No legislation currently exists in Guyana for environmental control of mining operations. Governmental monitoring of the industry is carried out by the Guyana Geology and Mines Commission and the Guyana Agency for Health Sciences, Education, Environment and Food Policy. The environmental standards observed by the mining company, a Canadian subsidiary,

are those set by the Quebec Province of Canada. Agreements with the company include comprehensive rehabilitation of a mining site upon its abandonment and frequent monitoring of water quality surrounding mining sites. The cost of instituting these activities is met by the company. The success of this environmental program can be traced to several factors, including the existence of standards set by the home country of the foreign company involved, international pressure, and national public awareness. However, a body of legislation in which enforcement activities are grounded should also exist, and Guyana is on its way to passing such a bill.

Mr. J. Gerardu of the Directorate-General for Environmental Protection of the Ministry of Housing, Spatial Planning, and the Environment of the Netherlands, spoke on the experience of that country in the "Control of License-Holders for the Disposal of Chemical Waste by the Inspectorate for the Environment." Over the last two years, the Inspectorate for the Environment carried out a standardized check on all license holders for the disposal of chemical waste in the Netherlands. The objectives were to increase compliance among the license holders, check the quality of the licenses, identify bottlenecks in legislation and regulations, and provide a basis for the decentralization of enforcement tasks from the Inspectorate to the provinces. When shortcomings were identified measures were taken to correct them, including sending warning letters to companies, advising competent authorities to adjust poorly written licenses, and systematically rechecking those companies found to be out of compliance. This effort was successful in meeting its objectives. The investigation and follow up actions increased both the quality of the licenses and the rates of compliance, and recommendations were made for improvement. The data provided an excellent basis for delegating tasks to the provinces, which are now responsible for the inspection of these license holders.

## 2 DISCUSSION

The theme presentation was extensive and generated a great deal of interest, however, no time remained for discussion.

**RESULTS FROM MONITORING COMPLIANCE AND ENFORCEMENT, NORWAY 1993**

RØDLAND, GRO<sup>1</sup> and MILLER, ANGELA<sup>2</sup>

<sup>1</sup> Head of Department

<sup>2</sup> Senior Executive Officer

Statens forurensningstilsyn, P.O.Box 8100 Dep. 0032 Oslo 1, Norway

**SUMMARY**

This paper covers the Norwegian State Pollution Control Authority's (SFT) strategy for selecting enterprises to be inspected and methods of inspection. Results from the inspections carried out in 1993 are reported.

**1 STRATEGY FOR SELECTION OF ENTERPRISES TO BE INSPECTED AND METHODS FOR MONITORING COMPLIANCE**

In Norway, 1500 enterprises have been granted discharge permits. The permits are usually multimedia, and cover water, air, noise and industrial and hazardous waste. Other minor enterprises are controlled only through regulations.

It is not adequate, nor necessary to inspect all the enterprises at the same frequency or with equal thoroughness. In order to get the best possible effect from our limited inspection capacity, we have to carefully select which enterprises to inspect or audit.

**1.1 Strategy for selection of enterprises**

Our strategy for selecting enterprises to be inspected is based on the principle that our resources should be used where they will give the best results for the environment. When choosing the enterprise the following criteria are used:

1. Enterprises which contribute to environmental problems in areas which are given high priority by environmental authorities.
2. Enterprises with a great potential or risk of hazardous discharges.
3. Suspicion of violations.
4. Geographic areas with special environmental problems.
5. Preventive considerations.

For 1993 these topics/enterprises were given priority:

1. Hazardous waste.
2. Hazardous substances, especially potential discharges of heavy metals to municipal sludge.
3. Other environmental problems which were given national or international priority to solve, as described in international agreements.
4. Enterprises with a high risk or potential for hazardous discharges as classified in the control classes.
5. Serious violations in 1992.
6. Reports of violations or suspected violations (self-reported or reported by neighbours, other authorities, etc.).

### 1.1.1 Re. 4 Control classes

All the 1500 enterprises that have been granted permits are divided into four control classes. The classification is based on the potential emissions from the enterprise and their toxicity. The environmental sensitivity (air and water quality) of the surroundings are also taken into account. The most polluting enterprises are placed in class 1, which includes 50 to 60 enterprises/plants (e.g., chemical industry, pulp and paper industry, aluminium industry, ferro alloy industry, large foundries, off-shore oil installations). Small enterprises producing only a limited amount of pollution are placed in class 4 (e.g., small dairies, slaughterhouses and small asphalt plants).

A schedule for monitoring compliance for the enterprises depending on control class has been worked out. This is outlined schematically in table 1.

**Table 1. Enterprises With Permits: Schedule for Compliance Determination**

Class	No. of Enterprises	Reports to SFT	Inspections Frequency	Audit Frequency Source Testing
1	50	Once a year	Annually	Once every 3rd year
2	100	Once a year	Once every 2nd year	Once every 6th year
3	350	Once a year	Once every 2nd-3rd year	
4	1000		When complaints type of discharge	
Total	1500			

### 1.2 Methods for monitoring compliance

Compliance is monitored through three different methods, self-reporting to SFT, inspections and audits.

#### 1.2.1 Self-reporting

For enterprises in control class 1, 2 and 3, the permit includes a requirement to establish and maintain a well defined self-monitoring program. Once a year they must submit an account of their emissions to SFT. This report should include their total emissions, any discharges exceeding the discharge limits or other violations. The reasons for violations must be given together with an explanation of corrective actions taken to avoid recurrence.

Through the reports submitted to SFT, we get a lot of useful information about the current situation at the enterprises at a fairly low cost for the authorities. The quality of the information can, of course, be discussed. The information given in these reports is checked at inspections and audits. There are, however, few cases uncovered during inspections of under reporting of discharge or violations in connection with self-reports.

#### 1.2.2 Inspections

Inspections are normally a one day unannounced visit at the enterprise. The total work load per inspection is 3 to 5 days.

The objectives of an inspection are:

- To check whether the enterprise is in compliance or not
- To collect evidence in the case of non-compliance, to ensure the necessary enforcement actions.
- To ensure high quality of the self-reported data
- To check that a system for internal control is established

- To demonstrate that the authorities take compliance seriously

An inspection is a useful method to verify compliance with the specific requirements in the permit. For minor, uncomplicated enterprises it may also give a satisfying evaluation of the preventive actions taken by the enterprise in order to avoid accidental discharges and the environmental management system. For greater, more complex enterprises, inspections can only be used to verify compliance for parts of the enterprise or permit. Audits will have to be used in order to evaluate the environmental management system.

### 1.2.3 Environmental audits and source testing

Environmental audits and source testing are used not only to monitor compliance but also to evaluate the environmental management system in the enterprise. The audits are normally carried out by 2 to 3 inspectors who stay in the field/at the enterprise for 4 to 5 days. The total time involved in an audit varies from 3 to 7 weeks. The time consumption connected with an audit makes it very important to choose carefully when and where an audit is the right tool for monitoring compliance.

A written report is always sent to the enterprise following an audit or an inspection. The enterprise is reminded of their duty to immediately undertake necessary corrective actions in order to get into compliance if violations are revealed. Both during audits and inspections there may be findings which can not be considered as non-compliance, but where SFT finds it necessary to point out possible improvements. These findings are classified as observations. The inspection or audit is followed up by asking or legally imposing the enterprise to report the corrective actions done in order to be in compliance and to give their evaluation of the observations.

## 2 RESULTS

The inspection capacity was in 1993 as illustrated in table 2.

**Table 2.** Inspections and Audits in 1993

	Inspections	Audits
Control Class 1	32	30
Control Class 2	30	9
Control Class 3	109	1
Control Class 4	84	3
Hazardous waste handlers	32	(5)
Local authorities (wastewater treatment plants and waste disposal sites)	1	11
Controlled only by regulations	25	
Total	313	54

Audits were used in high risk enterprises and in order to go deeper into priority problem areas such as hazardous waste treatment and heavy metal in municipal sludge. A total of 54 enterprises were audited. Thirty nine of the audits were undertaken in enterprises in the 2 highest control classes. The 4 in class 3 and 4 are small treatment plants for hazardous waste, which was a preferential topic last year. Five wastewater treatment plants were audited as part of the campaign to inspect the control of heavy metal in municipal sludge. Minor enterprises with potential discharges of heavy metals to the wastewater treatment plants were inspected in connection with these audits.

Inspections were mainly used to check enterprises in control class 3 and 4 and enterprises without permits. Inspections are also used as a follow-up to self-reporting. If the annual report is not received after the first reminder, the enterprise will be inspected. Enterprises will also be inspected if reported violations do not include explanation of corrective actions taken to avoid recurrence.

The violations revealed during inspections are classified according to how serious the violation was. These results are given in table 3. Enterprises in control class 1 and 2, which are regularly inspected, are more frequently in compliance, and the violations found are minor. The percentage of enterprises in compliance is lower and the percentage of serious violations is higher for minor enterprises, which are not often inspected.

**Table 3. Results From Unannounced Inspections in 1993**

	No Violation	Minor Violation	Serious Violation
Control Class 1	34	66	0
Control Class 2	20	80	0
Control Class 3	8	74	18
Control Class 4	10	80	10
Controlled only by regulations	12	84	4
Hazardous waste handlers	40	50	10

The cause of the violations revealed during the inspections are listed in table 4. This table gives a summary over violations revealed for the inspected enterprises, and the results are given as a percentage for each type of violation within each control class. Many enterprises have more than one type of violation. The two main reasons for violations are insufficient self-monitoring and management system, and insufficient handling of waste or chemicals. The high percentage of violations due to these reasons is of course a result of the priority these topics have been given. SFT considers internal control, preventive actions, reliable environmental management and the handling of hazardous waste and chemicals to be high priority areas.

**Table 4. Violations Revealed During Unannounced Inspections 1993**

Violation	Control Class			
	1	2	3	4
Exceeding production limits	0	7	6	12
Acute pollution	0	7	3	6
Defective or insufficient technical equipment	6	7	12	17
Insufficient maintenance	3	10	9	5
Insufficient self-monitoring and management systems	27	57	60	75
Exceeding discharge limits	3	7	10	21
Insufficient handling of waste or chemicals	27	30	25	44
Other	3	10	22	29

Results obtained through audits confirm the results from the inspections. By performing audits, SFT does not only monitor compliance and reveal violations, we also find the reasons for non-compliance. Only 5 of the 54 audited enterprises were in compliance. The causes for non-compliance are given in table 5.



**Table 5. Violations Revealed During Audits in 1993**

Violation	No. of Enterprises	%
Environmental management system:		
Not established	15	28
Not completed	13	24
Non-compliance with internal rules	10	19
Exceeding discharge limits	8	15
Discharge without permit	4	7
Defect or lack of technical equipment	7	13
Insufficient control of purification plant	7	13
Insufficient maintenance of vital equipment	4	7
Insufficient system for self-monitoring	14	26
Insufficient information and declaration of chemicals	5	9
Insufficient handling of waste and chemicals	19	35
Insufficient prevention against acute pollution	7	13
Other	5	9

### 3 INTERNAL QUALITY ASSURANCE

By organizing enforcement into a separate department, as done in SFT, the inspectors also have an internal "quality assurance" function. The inspectors will, during the inspections, also reveal whether the permits are relevant to the current situation in the enterprise or not. Nonenforceable or ambiguous permits will immediately be discovered. Unfortunately, we may also find incorrect handling of the permits by the case officers.

Irrelevant conditions or nonenforceable permits are reported directly to the case officers. Procedures for dealing with nonconformity will be established this year. Nonconformity will be reported by chain of command to the responsible department.

As a result of last years' inspection activity, all the enterprises in the textile industry are asked to apply for new permits due to irrelevant claims in the existing permits. There will also be an evaluation of the authorities control of the hazardous waste system due to revealed weaknesses and possible misunderstandings. New guidelines for how to compose permits for wastewater treatment plants and waste disposal sites will be worked out due to problems with enforcability.



## **GENERAL REMARKS ON ENVIRONMENTAL ENFORCEMENT IN ROMANIA**

POPESCU, DUMITRA

Professor of Law, Institute for Legal Research of the Romanian Academy, Str. Ciurea ur. 14, Bl.y1,  
Lc. G, et. 111, ap. 54, Bucharest, Section 2 cod 73296, Romania

### **SUMMARY**

This paper provides an overview of the central and local authorities responsible for enforcement of Romanian laws and policies focusing on the Ministry of Waters, Forests and Environmental Protection as the main central state authority in the field.

This paper also presents the specific methods and tools of different branches of law, their action and gradual interaction in the systematic process of environmental enforcement.

We also discuss what branch of law including its tools and why they have preponderance in assuring the environmental law enforcement in Romania.

### **1 INTRODUCTION**

After 1989 in Romania new organizational structures for environmental protection were established. The building of the new structure started in 1990 with the formation of the Ministry of Environment, which became the Ministry of Waters, Forests and Environmental Protection (MWFEP) in December 1992 (1). The MWFEP carries out a whole range of activities which were previously carried out by sector organizations such as National Water Council, National Council for Environmental Protection and Commission for Protection of National Monuments.

Unlike the institutional structure, the basic environmental legislation currently in force in Romania dates from 1960s-70s (Law no9/1973 on Protection of the Environment) and subsequent supporting laws (including the Water Law of 1974, Forestry Code of 1962, Toxic Substances Law of 1979). However, quite a lot of secondary legislation in the form of governmental Decisions and ministerial Orders and Instructions currently in force were introduced during since 1990. In this way some of the most burning questions concerning permitting, Environmental Impact Assessment (EIA), charges, fines and penalties and other sanctions were regulated. Collateral legislation has been adopted, such as, Law no 18/1991 on Land, Law no 50/1991 on Buildings, Law 82/1993 Danube Delta Biosphere Reserve.

In spite of the fact that there have not been any major environmental regulatory steps in the last four years, it should be underlined that the new comprehensive environmental draft law has been prepared. The draft law has entered the Parliamentary process and is expected to be enacted in 1994. The draft covers the main legal principles, measures, responsibilities and sanctions. Therefore the new law will constitute a basic act for environmental enforcement according to the western country standards and practices.

### **2 THE INSTITUTIONAL STRUCTURE FOR ENVIRONMENTAL PROTECTION AND ITS RESPONSIBILITIES**

#### **2.1 The Ministry of Waters, Forests and Environmental Protection**

The MWFEP is the principal Ministry for the administration, compliance checking and enforcement of legislation relating to environmental protection, water, waste and forests as set out in Governmental Decision no 792 on the Organization and Function of the Ministry of Waters, Forests

and Environmental Protection. The Ministry comprises three Departments: Waters, Forests and Environmental Protection. Waters and Forests management also includes two autonomous State companies Apele Romane (Water Authority) and ROMSILVA (the States forests company), which are attached to the specific Secretaries of State of the Ministry (2).

The Department of Environmental Protection has four Directorates:

- Environmental strategies, drafting laws, issuing administrative regulations, and environmental impact assessment.
- Environmental monitoring and management of protected areas.
- Environmental inspection.
- International and public relations.

The Department of Waters comprises two Directorates and an Inspectorate. One of the Directorates is responsible for strategic planning, drafting laws, and issuing administrative regulations and for water quality and interministerial coordination, as well as the over all control on standard setting and permitting. The other Directorate coordinates water management and is responsible for hydrological and meteorological assessment and flood control. Day-to-day management of water resources, including permitting are the responsibilities of the autonomous State company, Apele Romane, which operates through its eleven regional river basins.

The Department of Forests comprises the Directorate and State Inspectorate of Forests and is responsible for the promotion of productivity and protection against over-exploitation. Day-to-day management is undertaken by ROMSILVA.

National Commission for Nuclear Activities Monitoring is within the Ministry and controls safety and environmental protection at nuclear facilities including facility location, construction, cocommissioning and operation.

## 2.2 Other ministries having important environmental responsibilities

The Ministry of Health is responsible for monitoring consequences of environmental quality, water and foodstuff quality control, issuing regulations on people health safety requirements (3).

The Transport Ministry and the Ministry of Interior are responsible for controlling the motor vehicles emissions, noise and vibrations, and transport of goods and products.

The Ministry of Agriculture covers soil utilization (4) and protection, the Ministry of Industries is responsible for mineral resources and energy.

The above institutional structure for environmental protection reveals as a main shortcoming the fact that in a number of cases the user of each constituent of the environment and the one responsible for the protection is the same authority. As a consequence the balance between the rights of using the resources and the obligations of protecting them might be affected.

### 2.2.1 Environmental protection agencies (EPAs)

There are 41 EPAs, one in each of the forty counties and one in Bucharest. The EPAs are under direct control of a Secretary of State in the central Ministry of Waters, Forests and Environmental Protection and are managed by the Director, a Direction Committee and an Administrative Council. The agencies play a central role in the practical implementation of environmental policy and law enforcement including permitting, monitoring, compliance checking and instigating legal action for non-compliance. They are responsible for pollution control, conservation and ecological restoration. Key environmental protection functions are the responsibilities of the Section for Regulations, which issues environmental permits and collects data and information and the Section for inspection which makes the systematic control and inspections and applies fines.

### 2.2.2 Local government

At local level, besides the local branch authorities of the ministries acting in the field of environment, the local governments have less powers. The Law on Local Public Administration (5) requires local authorities to act in order to restore and protect the environment, parks and nature reserves, and to conserve and protect historical and architectural monuments. To carry out such tasks the local councils have the authority to organize local ecological and environmental protection commission (6). However, local authorities have very little financial resources.

### 2.3 The public prosecutor's office and the judicial system

The public prosecutor's office is responsible for criminal prosecution. However, their role in environmental protection is very limited. In the future, no doubt their involvement will increase.

The judicial system with setting up the administrative courts (7) having powers of judicial review over administrative decision will bring new developments in environmental law enforcement. Also the restoration and enhancing the property rights will determine people to litigate using the civil law provisions, and the provisions of the new environmental framework law, which soon will be approved. To this we may add the setting up of the Constitutional court meant to judge the constitutionality of any legal rules (8).

## 3 **METHODS AND TOOLS OF ENVIRONMENTAL LAW ENFORCEMENT**

### 3.1 Methods of enforcement

The environmental law has an interdisciplinary character crossing the main branches of laws such as: constitutional law, administrative law, civil law, criminal law and financial law.

The constitutional law provides the public authorities and their powers to implement and to enforce the environmental law. The administrative law establishes the environmental policy and regulates environmental standards, the procedure, and the control of permitting. The civil law is dealing with remedies for getting compensation for environmental damages. The criminal law contains coercive norms ensuring the observance of environmental law. Finally, the financial law comes into action when there is any infringement by economic but illegal goal.

Taking account of its characteristics the environmental law may be enforced by two basic methods. Preventive methods consisting of monitoring compliance through negotiations, permitting and standard setting as well as control. And repressive methods represented by sanctions against violations through administrative law tools in case of the least serious offenses, civil law tools in case of medium offenses and the criminal law tools comes into action on offenses carrying the greatest risks to society, environment and public health (9).

We should mention that, at present, in Romania not only individuals, owners and operators of facilities may be sanctioned, for violating environmental law, but also municipalities i.e mayor, local council, and other political subdivisions are subject to enforcement actions according to administrative and civil law tools except criminal law.

### 3.2 Tools of enforcement

#### 3.2.1 Tools of administrative law

The extensive institutional structure existing in the Romanian system of environmental management and protection illustrates also that the public administration is the most important in environmental law enforcement. After 1989 quite a number of secondary pieces of legislation came in force in order to enhance the role of preventive tools of administrative law, as well as the

administrative sanctions. The introducing in the administrative legal system of the permitting procedure(10) followed by Environmental Impact Assessment regulation (11) and the technical conditions and norms on air protection(12), which puts a great emphasis on preventive measures and tools are examples of this kind.

It should be added that prior to 1989 the administrative tools were also developed, but very seldom applied. Also the very low level of fines as well as the fact that the facilities were owned by State made the enforcement action a very weak action.

In order to obtain the permit or license the environmental requirements ( air, water, soil) must be met. That means the sectoral advice must be obtained beforehand. The environmental impact assessment gathering all such requirements and the sectoral advice is the basis for issuing the environmental consent as a collateral and prior agreement to the operating permit ( license), which is the legal basis for operating. The permit might be issued at the national or local level. On the basis of the content of EIAs the measures to control emissions are defined and the emission levels set up.

Once a permit is granted, the authority, at the national or local level checks to make sure emission levels and other preventive measures specified in the permit are being complied with. Monitoring compliance includes especially reports submitted by facilities and systematic inspections. In the event that the inspector finds out that compliance, then the inspector may give to the person in charge a warning or may fix a period of time to comply with the prescribed measures, or the agency may use the economic instruments or incentives.

At present, the most frequent response is to resort to administrative law sanctions especially to fines, on public, private facilities or municipalities for non-compliance. The fines are applied according to media-specific violations, for water pollution, air pollution, land pollution and hazardous wastes, noise and forest degradation (13). The scale of fines is extensive and the applied amount is proportional to the type and seriousness of offenses. Applying the fines (14) the inspector or the agency for environmental protection may oblige the violators to put into operation the measures meant to reduce or eliminate pollution, or may prohibit the polluting activity and restore the environment (15).

Also if a polluter pays a fine, he still may be required to pay damage compensation. According to the seriousness of offense and the behavior of the violator, criminal law sanctions (criminal fines) may be applied. Unlike the administrative tools which are focused on the violation, criminal tools are designated to impose sanctions on the violator.

Apart from above mentioned tools, in Romanian legislation, Law no 9/1973 on environmental protection, Law 4/1974 on waters, there is the most severe administrative action, known in the most countries, and that is the sanction of revoking the permit, or even to shut down

### 3.2.2 Tools of civil law

In the past, as well as at present, civil law had and still has a limited role in environmental protection. In conformity with the Romanian civil law, matters which may come more frequently in the field of environmental protection are as follow:

- Personal integrity rights.
- Neighborhood right (nuisance).
- Possession rights (trespass).
- Compensation of damages.

The infringement of personal integrity rights such as the rights~ of personal life, health and physical integrity may rise a number of consequence , i.e. imposing conditions upon use, stopping the unlawful activity until compensation is given.

Neighborhood rights ( Civil Code, Articles 611-615) are based on the rule that the owner must avoid those activities which would disturb others, especially the neighbors. Also in the Civil Code, Article 408 there is the rights to undisturbed possession. If a serious disturbance or damages occur the civil law tools would apply, i.e. damage recovery claims (land clean up), cases against facilities

to prohibit or demand certain activities. Compensation of damages may be awarded in cases brought under Article 998 of Civil Code, which states that any person causing damage to another must repair the damage, or Article 1000 which makes persons liable for damage caused by persons for which they are responsible. Strict liability for damages caused to the environment will be imposed with the coming into force of the draft Law on Environmental Protection (Article 79).

### 3.2.3 Criminal law tools

It might be said for sure that up to the present, in Romania criminal law has not played a supporting role in making the violators comply with environmental requirements and to deter others from noncompliance. The framework environmental law of 1973 and the law on waters, as well as criminal code provide a number of offenses (crimes), such as, putting into operation facilities without necessary equipment for environmental protection, the release of pollutants exceeding the allowable limits, the carrying out of any activity of importing wastes or any dangerous goods in violating the legal rules. The criminal law tools are: imprisonment, fines and payment for restoration. However, in the field of criminal tools there is no practice in our judicial system~16).

## 4 CONCLUSIONS

Since 1991 and especially 1993 the Romanian Government is working on setting a policy and providing a regulatory framework for sustainable development. In line with this the MWFEF took a range of actions and measures meant to develop a policy of environmental protection such as (17):

- Setting the priorities by identifying 14 "hot areas" and the establishment compliance schedule for reducing pollution.
- Enacting a number of regulations, i.e., on environmental impact assessment, permitting, wastes.
- Increasing systematic inspection to ensure that permit requirements are being met and that measures prescribed by authorities are being implemented.
- Promoting integrated and coordinated or even common inspections in order to ensure that pollutants are not simply transferred between air, water and land and to involve veterinary sanitary inspectors and police inspectors for preventive medicine as well as the local units of government in environmental enforcement (17).
- Increasing role of economic instruments, i.e., tax and surtax on water consumption, as well as emphasize on fines, penalties and soil recovery.

## ENDNOTES AND REFERENCES

1. Governmental Decision no 792/ 1992 on the Organization and Function of the Ministry of Waters, Forest and Environmental Protection.
2. Investors' Environmental Guideline, European Bank for Reconstruction and Development, Graham & Tortman/Nijhoff, London, 1994. pp.475-477.
3. Law no 3/1978 on Public Health.
4. The Ministry of Public Works and Urbanism as well as local governments have certain responsibilities on using land within localities (Law no 50/1991 on Buildings).
5. Law no 69/1991 on Local Public Administration.
6. Governmental Decision no 103/1992.

7. Law no 29/ 1990 on Administrative Litigation.
8. Law no 47/1992 on Organization and Function of the Constitutional Court.
9. A. Hamzah and R. Surachman, "The Application of Criminal Law Instrument in the Environmental Law Enforcement," in Proceedings Vol. I, International Conference on Environmental Enforcement, 1992, Budapest, Hungary, pp. 430-432.
10. The ministerial Order no 170/1990 on permitting and the ministerial Order no 113/1990 on Documentation Required for Permit Application.
11. The ministerial Order on Methodological Norms concerning the Procedure on Environmental Impact Assessment.
12. The ministerial Order no 462/1993 on Technical Conditions concerning Air Protection and Methodological norms on Determining Emissions of Air Pollutants of Stationary Sources.
13. Law no 9/1973 on Environmental Protection, Resolution of the Council of Ministers no 2496/1969 on the Establishment of Sanctions for Violations relating to Waters, Law no 10/1982 on Waste Collection Hygiene and Maintenance of the Exterior of Grounds and Buildings Alongside Facilities, The Law no 18/1991 on Land, The Governmental Decision no 2/1994 on Quality of Buildings, The Governmental Decision no 127/1994 on Establishment and Sanctioning of violations to environmental Lawlists 37 such violations.
14. Very often fines are applied for noncompliance with requirements for water, air and soil protection, and very seldom for making the investment without environmental consent.
15. Examples of such measures are: the appropriate exploitation of the water purification station, the cleaning the land and measures for preventing the spilling of oil, stopping the pumping of polluting residues.
16. The Law no 9/1973 on Environmental Protection, Articles 77,78,8,10,14 and 36, Criminal Code of 1968, Articles 248, 249, 302(a).
17. Jurnalul Naturii (The Journal of Nature) edited by the Ministry of Waters, Forest and Environmental Protection, no 1, March, 1994.



## COMPLIANCE MONITORING IN NIGERIA'S INDUSTRIES

ODUBELA, MODUPE T.<sup>1</sup> and OMONIYI ISAAC I.<sup>2</sup>

<sup>1</sup> Assistant Director, Inspectorate and Enforcement Department

<sup>2</sup> Environmental Scientist, Environmental Quality Department

Federal Environmental Protection Agency, P.M.B. 3150, Surulere, Lagos, Nigeria

### SUMMARY

The industrial pollution problem is highlighted. The structure of inspection and enforcement services, strategies for compliance monitoring, regulations and laws, inspection and environmental auditing and results of the compliance were enumerated.

### 1 INTRODUCTION

Industrialisation is one of the main indices of global and national development. However, industrialisation has been a mixed blessing to mankind. On the one hand, it enhances the quality of life and on the other hand, poses serious threats to the management of natural systems and security of public health. (1)

In Nigeria, industrial development is pursued with vigour but without adequate care for the environment. Textile plants, breweries, sugar refineries, pulp and paper plants, and petrol-chemical industries have all discharged their raw untreated or inadequately treated liquid effluents and solid wastes into open drains, streams, channels and lagoons. Past efforts of governments including States and local governments have led to a number of environmental laws. Many of the laws date back to colonial period, and include:

- Oil Pipeline Act 1956.
- Public Health Act 1958.
- Oil in Navigable Waters Acts 1963, cap 339.
- Factories Act 1987.
- States edicts on environmental sanitation. (2)

However, none address industrial pollution exhaustively. Coordination and enforcement were almost nil.

### 2 THE STRUCTURE OF INSPECTION AND ENFORCEMENT SERVICES

#### 2.1 Administrative framework

With the incidence of the Koko toxic waste episode in Nigeria in 1988 which is the climax of this problem, the Federal Government of Nigeria set up Federal Environmental Protection Agency (FEPA) with Decree 58 of 1988 with the overall mandate of protecting Nigeria's environment. The Decree also empowered the Agency to promulgate regulations.

To date the Agency has promulgated or issued a number of regulations including:

- S.1.8 of 1991: National Effluent Limitation Official Gazette Federal Republic of Nigeria No 42, Vol 78, August, 1991.
- S.1.9 of 1991: Pollution Abatement in Industries, industries Generating Wastes Official Gazette, Federal Republic of Nigeria No 42, Vol 78, 20th August, 1991. (4)

- S.1.15 OF 1991: Management of Hazardous and Solid Wastes Official Gazette, Federal Republic of Nigeria, No 102, Vol 78, 31st December, 1991.

### 3 COMPLIANCE STRATEGIES

#### 3.1 Compliance monitoring

Regulations and laws do not correct misdeeds unless they are enforced and complied with. The Federal Environmental Protection Agency created an Inspectorate and Enforcement Department which is vested with the authority to enforce environmental protection laws, and checking and effecting compliance of industries with these regulations and laws related to industrial pollution.

The Agency also coordinates, and liaise the activities of other sectoral groups such as Federal Ministry of Industries, Health, Petroleum Resources, States and Local Governments on industrial compliance. For its day to day activities the Inspectorate and Enforcement Department is divided into three divisions:

- Standards, Regulations and Registration responsible for setting or reviewing standards, formulating regulations and issuing permits as well as accrediting environmental consultants and contractors.
- Chemical Tracking responsible for chemical notification procedure, hazardous waste traffic control and monitoring of imported chemicals from cradle to grave.
- Compliance Monitoring responsible for checking and effecting compliance of industries with standards and pollution abatement strategies.
- There is a Public Complaints Unit attached directly to the Office of Head of Enforcement for prompt actions in addition to these three divisions.

In 1993, there are about 100 officers responsible for monitoring industrial compliance.

The Agency, which adopts the universally accepted "carrot and stick" policy, evolved procedures for:

- Identifying the highly polluting regulated industries through inspections.
- Establishing management accountability for facilities by stressing the need for environmental audit and regular reports.

There are about three thousand industrial establishments all over the country. According to FEPA's Guidelines and Standards for Environmental Pollution Control in Nigeria (3), the major categories of industries in Nigeria are:

- Metal and Mining.
- Food, Beverages and Tobacco.
- Breweries, Distilleries and Blending of Spirits.
- Textiles.
- Tannery.
- Pulp, Paper and Paper Products.
- Chemicals and Allied Industries.
- Wood and Wood Products.
- Leather Products.
- Cement and Paints Products.
- Petro-chemical and Plastics Products.
- Others.

Federal Environmental Protection Agency (FEPA) monitors compliance by means of reports submitted on the industrial facilities through:

- Inspections.
- Environmental auditing.
- Source testing.

To ensure compliance, the major industries are divided amongst the officers. In order to get the best possible effect from our limited inspection capacity, the industries are divided into 12 major categories and each sector is treated on its own merit. The compliance program is based on an integrated multi-media approach.

### 3.2 Self monitoring

Industries are encouraged to do self monitoring. This is done by way of an In-House Training Program of the Inspectorate and Enforcement Department which enlightens operators of facilities on the basic requirements.

The self monitoring procedures of FEPA stipulate that:

- An industry or a facility shall:
  - Have a pollution monitoring unit within its premises.
  - Have onsite pollution control.
  - Assign the responsibility for pollution control to a person or corporate body accredited by the Agency.
- A discharge, including solid, gaseous and liquid waste from any industry or facility shall be analysed and reported to the nearest office of the Agency every month, through a Discharge Monitoring Report.
- An unusual discharge or accidental discharge of waste from any industry or facility shall be reported to the nearest office of the Agency not later than 24 hours of the discharge.
- An industry or facility shall submit to the nearest office of the Agency a list of the chemicals used in the manufacture of its products:
  - Details of stored chemicals and storage conditions.
  - Where chemicals are bought, sold and obtained, the name of the secondary buyers.
  - An industry or facility shall have a contingency plan approved by the Agency against accidental release of pollutants.
  - An industry or a facility shall set up a machinery for combating pollution hazard and maintain equipment in the event of an emergency.

In meeting these self monitoring requirements, the States and Zonal Offices of the Agency serve as pollution response centres for coordinating pollution response activities.

In addition, to the above requirements, industries are required to obtain the following permits:

- The Industrial Waste Discharge Permit.
- The Municipal/Industrial Waste Disposal Permit.
- Locally Generated Hazardous/Toxic Waste Disposal Permit.
- Locally Generated Waste Storage/Treatment Permit.
- Permit to Operate Landfill Site.

### 3.3 Inspections

The inspection procedure of the Agency employs strategies that prevent fake inspectors into the industrial facilities. The procedure stipulates that no entry should be granted to any officer without the 'Authorisation to inspect paper' which indicates the name and location of the facility to be inspected, the leader of the inspection team and date of inspection etc. The authorisation must be duly signed by the Head of Enforcement Department. The manager of the facility is to collect and retain a copy of the authorisation after confirming the identity of the Head of Inspection team. At the end of the inspection the Manager of the facility is to write an evaluation report on the inspection exercise and forward it to the Head of Enforcement or Director-General of the Agency who in turn will write to confirm if the inspection has indeed been authorised.

About 60 percent of the inspections are unannounced and usually last for few hours per day for walk-through inspections.

The inspections employ physical determinations as well as questionnaire and the objectives are:

- To ensure high quality self-monitoring schedules.
- To check whether the facility is meeting the compliance schedules drawn up for it by FEPA.
- To record evidence of non-compliance.

The inspections also seek to answer the following questions:

- Does the facility have any valid discharge permit?
- Was any Environmental Impact Assessment carried out before the take off of the facility?
- Are the records of self-monitoring data properly prepared and kept by the environmental unit of the facility?
- Has the required pollution monitoring or control equipment been installed and properly operated?
- How well are the emergency/contingency programs being polluted?
- Are there any signs of wilful violation of FEPA's regulations?

At the end of an inspection exercise and following the review, a copy of the report is sent to the visited facility in order to ensure future correction of mistakes.

Over the last two years, total annual inspections are a little over 300.

### 3.4 Environmental auditing and source testing

Prior to 1991 in Nigeria, industries were established without any environmental impact assessment (EIA) report. The implication is obvious with the commencement of enforcement activities in 1991, FEPA had to make it compulsory for all existing industries to carry out comprehensive environmental audit of plants to the Agency.

The audits are carried out by FEPA's accredited consultants. The auditing gives the clear picture whether the facility is in compliance and finds reason for non-compliance.

The auditing also brings out the mis-management of resources like raw material, mishandling of chemicals and careless house-keeping practice.

The case of certain highly polluting facilities and especially those facilities generating public criticism, a combined team of FEPA Inspectorate and Enforcement and Quality monitoring officers carry out audit of such facilities. In such cases, the exercise depending on the nature of the problem.

Between 1991 and 1993, a total of 104 audit were carried out.

#### 4 RESULTS

In about 1000 inspections carried out since over 3 years only 18 per cent compliance has been achieved. But there has been a remarkable improvement with each succeeding year. The improvement in compliance has been due to the following:

- Encouraging the citizen participation in identification of violations and easy reporting procedure to the public compliant unit of the Inspectorate.
- Enforcement of corporate co-audits (detailing environmental impacts of products, production processes and materials, handled in line with FEPA regulations as a tool to allow workers and communities to confront environmental job blackmail.
- FEPA's campaign on moving economy towards better process and less-polluting technology.
- Requests of the FEPA to the industries to match their efforts on bending backwards on moratorium with commitments to make some sacrifice in ploughing back their profits into meeting compliance.

#### 5 CONCLUSION

From scratch the Federal Environmental Protection Agency has been able to build a satisfactory compliance monitoring procedure by mobilizing internal/resources. The agency has succeeded in sensitizing industries on the need for compliance.

The strategies of citizen participation in reporting violations and FEPA industry dialogues have been catalysts for the level of success achieved by inspections. But a great deal needs to be done for industries to achieve full compliance in Nigeria.

#### REFERENCES

1. Odubela M.T. (1993): Environmental Implications of food packing materials and industrial process wastes. Paper presented at workshop on role and impact of regulatory bodies on food, beverage and tobacco industry.
2. Adegoroye Goke, 1993: Environmental Regulations and Enforcement in Nigeria with special reference to the industrial sector - Paper presented at National Workshop on Pollution Control organised by the Manufacturers' Association of Nigeria. pages 20. [Paper Presentation]
3. FEPA, 1991: National Guidelines and Standards for Environmental Pollution Control in Nigeria. [Guideline reference]
4. FGN, 1991, S.1.9: National Environment Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations. [Regulation reference].



## **A LEADING CASE FOR THE ENSENADA PETROCHEMICAL DISTRICT INDUSTRIES TRANSFORMATION, BUENOS AIRES PROVINCE, ARGENTINE REPUBLIC**

MAIZTEGUI, CRISTINA E.

Coordinadora General, Direccion Provincial del Medio Ambiente, Ministerio de Salvo y Accion Social de la Provincia, Calle 68 #541 Dto B, La Plata 1900, PCIA BS. AS., Provincia de Buenos Aires, Argentina

### **SUMMARY**

A general work area description is given. A short diagnosis view, provincial and regional. Finally the strategy for the change.

## **1 INTRODUCTION**

### **1.1 Work area description**

The Ensenada Petrochemical District is located in the province of Buenos Aires, 65 km south of the city of Buenos Aires, which is the country's capital, It is situated very close to the city of LA PLATA, the capital of the province. The district is located in the Ensenada and Berisso districts. This area, practically includes the "BUENOS AIRES METROPOLITAN AREA", because there is no limit between the 22 town councils.

La Plata, Berisso and Ensenada municipalities have a total of 692,000 inhabitants, which means an average population density of 550 people per square kilometre (km<sup>2</sup>), according to the 1991 census. The active population, is around 48%, but only 12.9% is dedicated to industrial activities, approximately 43,000 people.

As of a few years ago, in this area, and specifically with respect to the port activities, there were very important industries, such as SWIFT and ARMOUR, meat packing. However, the economic decline and political fluctuation of the country, were responsible for the loss of 60,000 jobs, from 1970 to 1994. This is why at this moment, the industrial district is the last relevant source of work in the region.

The area of the district has given lodging to several industries working with the principal : the oil refinery, called YACIMIENTOS PETROLIFEROS FISCALES (YPF). That firm, which was recently traded in a Stock Company and sold to private hands, is conducting oil operations all over the country, but it has only one oil refinery in Buenos Aires, located in this district.

### **1.2 Industrial activity**

YPF is one of the most important firms in Argentina, with the biggest billing and fixed capital. For 60 years responsible for the petroleum policy in the country, and was the most important firm traded in the world during 1993.

THE PETROCHEMICAL DISTRICT has about 3,500 workers, at this moment and many contracting firms. This means a total of about 32,000 persons benefit directly, and 128,000 inhabitants, indirectly, considering a marginal tendency of consumption of four. Other firms within the district, excluding YPF, are:

- PETROQUIMICA GENERAL MOSCONI, which manufactures petrochemical products.
- COPETRO, which process YPF petroleum carbons and charcoal.

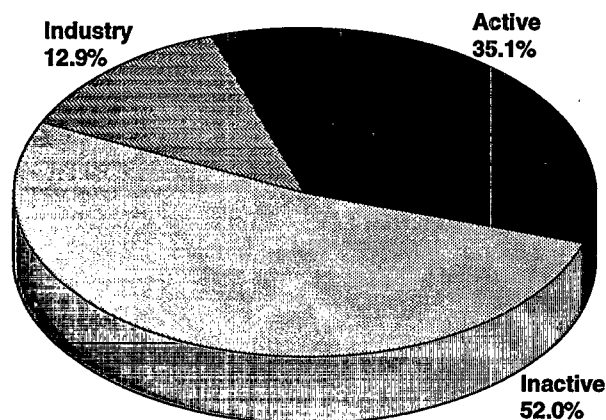


Figure 1. Active population: La Plata - Berisso - Ensenada.

- IPAKO, polyethylene.
- PROPULSORA SIDERURGICA, cold laminated.
- PETROKEN, polypropylene.
- POLIBUTENOS ARGENTINOS, polybutene.
- MALEILC, solid anhydride maleilc.
- EDELAP, energy distribution.
- PROSUL, sulfuric acid.
- PETROQUIMICA LA PLATA, aromatics and oleophins.

## 2 DIAGNOSIS

### 2.1 Environmental situation in the province

The Province of Buenos Aires consists of a very large area, and has 13,000,000 inhabitants, with 8,000,000 living in the METROPOLITAN AREA Buenos Aires, generating an average population density of 2,200 inhabitants per km<sup>2</sup>. So it's very easy to see what kind of problems the province has. It lacks urban development and planning. There is not enough drinking water, sewers, or treatment of solid waste (urban or industrial), and there is an inadequate use of land.

Furthermore, it's necessary to speak about other problems, in order to make complete diagnosis, such us:

- Financing difficulties of the public departments, caused by the successive adjustment plan.
- Decline of human and material resources, in control and planning departments.
- No trust in the public's powers.
- Institutional confusion.

Apart from that, the State has other kinds of problems within its interior, where the average population density is not more than 16 inhabitants per km. Essentially, the problems come from the



inadequate management of natural resources caused by the different economic activities, and the natural conditions such as climate and geography (drought and flooding, etc).

Finally there is another Petrochemical area in the province of Buenos Aires, in the city of Bahia Blanca. It exists with similar problems as the ones found in Ensenada city.

## 2.2 Environmental situation in the area

During the last 50 years there wasn't any urban planning or pollution prevention, in the three municipalities where the program is taking place. That's why the environmental resources are affected, they are not irreversible, but of much concern.

The waterways are used as drainage for all kinds of wastes, because there is no alternative infrastructure for them.

All of them, flow into the RIO DE LA PLATA, which is contaminated in the coastal area, about 500 meters. In spite of that, the water is taken from the river to make it drinkable.

Finally, the atmosphere presents in general, tolerable indexes, even though our laws are not complete in this subject. If we compare the atmosphere quality with international laws, we are above the limits, in some periods.

## 2.3 Institutional situation

The governmental organization for environmental subject, is yet in an intermediate period, because there are several departments in charge of this, depending on different agencies, with no connection among them, nor among laws. They don't have clear limits among them, and in some cases there is no applicable law.

Apart from that, environmental concerns are never given priority, and that's why at the beginning of our management, we found several industries which never had been controlled or punished by the State.

This year, Buenos Aires province has created by law, a new agency to coordinate environmental policy, which is called PROVINCIAL INSTITUTE OF ENVIRONMENT, but it is not working yet.

# 3 STRATEGY

In this context, the Ministry of Health, through the Provincial Direction of Environment, in accordance with its responsibility of preserving the public health and natural resources, and using every tool possible, designed this program, to get the environmental transformation of the industries of the Petrochemical district.

## 3.1 Pressing to get consensus

The first step was to organize, within three months, an intensive operation of monitoring and control, with many inspectors of the Ministry viewing the working atmosphere in the surrounding area of the district (operating modern equipments to get samples, and to be communicated), in order to determine the activities of the industries. At the end of the plan we had to punish most of them, in an amount of \$1,000,000. It was the first time that the fines were paid.

## 3.2 Guiding the cooperation

After identifying the "environmental conflict", and to develop the program, we set up an institution both public and private with a model, calling every interested group, to look for solutions. And that's how provincial and local authorities, and presidents of the firms sat down together, to work.

A simple General Agreement, signed by the Ministry of Health, the three municipalities and all the industries, was the normative instrument to set up a work system, to solve the complex problems of the area.

A chairman council, named "PETROCHEMICAL DISTRICT PLENARY COMMITTEE," was created. They approved regulations of the committee, and agreed to make decisions by consensus.

After that we were able to sign agreements with each industry in particular, to develop actions described before, and to begin self-control programs and basic treatment works.

### 3.3 Internalizing the external

The second stage of the reconversion program contains the following actions:

- 3.3.1 Setting up a self-control mechanism to make each firm conduct its own diagnosis and corrections, considering certain data of the different issues that could impact the environment. Not one industry was controlling its waste, even though it seems incredible, and they were trying not to notice the damage they were generating.
- 3.3.2 Considering preliminary assessments, to make the basic treatment work for all the wastes, using adequate technologies. At this moment, most of the industries have installed different treatment systems in accordance with the problem.
- 3.3.3 Performing an atmosphere contaminant diffusion model for the area, to analyze the dispersion of the substances in the air, considering the climate and other natural conditions.
- 3.3.4 Installing a continual sampling network of quality air, in different parts of the region, with the agreement of everybody, in which will be analysed:
  - Sulfur dioxide.
  - Nitrogen oxide.
  - Carbon monoxide.
  - Hydrocarbons.
  - Particular materials.

The sampling network will be operated by the Ministry or the University, such as the PLENARY COMMITTEE decides.

- 3.3.5 Performing an environmental auditorship per industry, to make a certain individual assessment, and to be able to approve definitive transformation programs, to be done in not more than 5 years.

### 3.4 Law modification

In the third stage we will know if it is necessary to change the different laws, to make them adequate to regional limits. Strict periods and adequate technologies will be fixed, to be respected by human activity. The approval of legislators local and provincial, is also necessary.

### 3.5 Looking for total solutions

Following these steps, we will perform a Regional Environmental Assessment, considering physical, biological, law-institutional, economics, cultural and social aspects. From that Assessment,

we will get different preventions, corrections or mitigating decisions of the environmental impacts, such as relocated towns, shutting or moving of factories, etc.

### 3.6 Respect to change

Environmental education and social participation could not be absent. It is necessary to give to the community, all the available information, enough for the people to understand and give their opinions. There is no possibility of success, without the community, in this kind of program.

That is why, from the beginning of the whole program, it was developed through the representative institutions with the knowledge and opinions of the people.

- Permanent and public information is given on the advances of the program.
- Popular control-program mechanisms are promoted in order to give continuity to the program, in spite of political fluctuations.

## 4 RESULTS: IMPLEMENTING THE ENVIRONMENTAL PLAN

The different community groups will be able to analyze and to approve the ENVIRONMENTAL PLAN OF THE AFFECTED AREA OF THE ENSENADA PETROCHEMICAL DISTRICT, which will contain not only industrial aspects, but other actions to perform the several activities which degrade the environment.

We are sure that it will be necessary, at this moment, to call other governmental agencies, also responsible for the protection of the environment, to be able to perform the ENVIRONMENTAL PLAN. Therefore the provincial or local governments could be required to transform themselves.

We are sure that this program, which is just beginning, is the only way to change behavior, after so many years of doing nothing.



---

## THEME 5: THE ROLE OF COMMUNICATION IN AN ENFORCEMENT PROGRAM

6. Summary of Theme Discussion, *Moderator: P. Verkerk, Rapporteur: D. Bronkema*..... 137
7. The Mexican Experience on the Enforcement of Environmental Normativity,  
*F. Bahamonde Torres* ..... 139

---

Papers 1 through 5 in Proceedings Volume 1.



## **SUMMARY OF THEME #5: THE ROLE OF COMMUNICATION IN AN ENFORCEMENT PROGRAM**

Moderator: Pieter Verkerk

Rapporteur: David Bronkema (ERG)

### **GOALS**

Address how effective communication is used to enhance enforcement program compliance. Address the importance and use of public outreach and statistics to gain support for compliance and enforcement both in the public at large and within the regulated community, taking into account some of the problems and difficulties in gaining public attention and support.

### **1 PRESENTATIONS**

Mr. M. Stahl, EPA Office of Enforcement, presented a summary of Mr. P. Keough's paper, "Changing Environmental Behavior in the United States Through the Use of Public Disclosure of Information." In the United States, much of the environmental legislation at the state and national level contains elements requiring industry to report on its emissions and stresses the importance of allowing the public complete and open access to this data. Public disclosure of this environmental information is a cornerstone of the regulatory process in that country. Experience has shown that public disclosure of this data has had a major impact on compliance rates and has led to improved environmental management. Virtually all of the self-reported information in the United States is available to the media and the public. This acts as an incentive for industry to go beyond mere compliance with the applicable law or regulation, because of public image concerns. As a result, many corporations have begun to implement ambitious pollution prevention programs. Members of the press and environmental groups commonly review compliance information in agency files, which has been supplied by sources and receive press releases from state and federal environmental agencies about non-compliance by individual sources. The press can be a major ally in helping to improve compliance by publicizing enforcement actions taken. Communication of federal enforcement programs is also enhanced through meetings with states, industry, and environmental organizations.

Mr. O.O. Uwejamomere, Housing and Environment Correspondent for "The Guardian" in Nigeria, analyzed the changing role of the Nigerian media with respect to environmental issues, using two case studies. The first case study concerned the dumping of drums containing industrial waste by a foreign company, while the second dealt with environmental problems of a real estate development on a swampy estuarian site. An examination of the role of the media in these cases revealed that it has the ability to deter potential violators through public pressure for compliance, making it a potential ally in compliance monitoring and environmental enforcement. Enforcement authorities should consider the issuance of regular press releases either as an incentive for facilities that meet inspection standards or as a deterrent for their non compliance. It is essential to make press releases a statutory aspect of all enforcement action. However, the media has limitations in the depth and extent of coverage it can offer. The releases must be made relevant to the general public and be of sufficient current interest.

Mr. Francisco Bahamonde (delivered by Alfred David Gidi) Assistant Federal Attorney for Verification of Normativity for the Federal Attorney's Office for Environmental Protection of SEDESOL of México, spoke about México's experience in establishing a program of environmental enforcement. In the mid-1980s, a two-prong effort was undertaken, establishing an inspection program and promoting legislation to create systematic environmental norms and regulations. As legislation was passed, environmental responsibilities were assigned to various government institutions, with the Federal Attorney's Office for the Protection of the Environment being responsible for assuring and

verifying compliance with environmental legislation. This is carried out through evaluating potential violators, on-site visits, and legal action. Popular denouncements and complaints are valuable sources about violators. The Federal Attorney's Office has conducted extensive on-site visits to both industry and natural protected areas, resulting in numerous sanctions, penalties, and industrial closures. Air quality is of particular concern, and particular attention is paid to inspection of automobile manufacturers and industrial emissions.

Mr. J.C.M. Veenman of the Department of Information and External Relations of the Ministry of Housing, Spatial Planning, and the Environment of The Netherlands addressed the role of communication in implementing environmental enforcement policy in that country. The Dutch information approach to enforcing environmental laws is based on thinking analytically and strategically in terms of information objectives, target groups, information resources, and messages. Since 1985, a three-track information strategy has been followed: inform and motivate enforcers by providing enforcers with information on legislation and industry; motivate administrators and government officials to achieve political priority for enforcement programs; and inform industry and companies that are covered by environmental laws how to comply with them. This strategy is a preventive enforcement approach with the aid of information. In addition to this strategy, informing the public is a prerequisite for obtaining general support, and a lot of effort has been placed on increasing the general awareness and influencing the commitment and attitudes of the public, with good results. Enforcers must have good insight into the possibilities of communicating information to the public; they must also have sufficient motivation, and they must be given the opportunity to provide this information.

## **2 DISCUSSION**

The theme presentation was extensive and generated a great deal of interest, however, no time remained for discussion.



## THE MEXICAN EXPERIENCE ON THE ENFORCEMENT OF ENVIRONMENTAL NORMATIVITY

TORRES, FRANCISCO BAHAMONDE

Assistant Federal Attorney for Verification of Normativity, Federal Attorney's Office for Environmental Protection, SEDESOL, México

"The world in which we live in has not been inherited to us from our parents; it has been lent to us by our children." Luis Donaldo Colosio, December 8, 1993 (paraphrasing Chief Seattle).

Although Mexican environmental normativity was concluded in 1976 (Figure 1), during 1977 through 1979, time was spent in developing the current legislation. At the same time adjustments to the administrative infrastructure were made, in preparation for the application of the actual inspection program from 1980 to 1982, whose objective was to apply the law effectively. Unfortunately, due to the economic crises and the inflationary process of those years, the sanctions did not represent real punishment to the polluters, diminishing significantly the effectiveness of this program.

By 1982, a clearer perspective, community awareness and demand for solutions of the environmental problems was perceived, which was translated in a more specific response by the government, during the same year, amendments to the law were passed by congress. The new administration promoted changes in its structure creating the Under Secretariat of Ecology (Figure 2), responsible for the normativity, surveillance and enforcement of air, water, soil, flora, and fauna protection. Created in 1983, by 1985 promotes a more direct compliance to the law, resulting

In general agreements with all industrial sectors, starting with those potentially more polluting.

Thus a two prong effort was enacted. One of which was the inspection program for the verification of compliance to the agreements, and the other to legislate a broader normativity and regulatory statutes.

Such effort became law in 1988 with the enactment of the "ecological equilibrium and environmental protection act", which incorporates issues related with soil contamination, management of toxic waste, the protection of flora, fauna and natural resources, environmental impact evaluations, and for the first time responsibilities on environmental matters for state and municipal governments.

Between 1989 and 1992 (Figure 3), the inspection and verification program was continued, although the legal administrative process was not applied entirely because no sanctions were issued. Only specific environmental programs to modify and better processes for each individual industry in order to control the emissions that were detected by on-site inspections.

In May 26, 1992, the Secretariat of Social Development was created by merging part of the extinct Secretariat of Programming and Budget, specifically the "Solidarity Program" and the Secretariat of Urban Development and Ecology (Figure 4).

Within the structure of the newly formed secretary, two separate agencies were created to promote a better environment: The National Institute of Ecology and the Federal Attorney's Office for the Protection of the Environment.

To the National Institute of Ecology was given the responsibility to formulate, modify and update the environmental law, regulatory statutes and normativity and define national ecological policy, that is to continuously evaluate the prevailing environmental situations and act accordingly by adapting the law and its controls to the needs of the community. Also within the institutes responsibilities is the issuance of permits for operation of facilities or their upgrading and enlargement.

Meanwhile, the Federal Attorney's Office for the Protection of the Environment has the specific mandate to assure and verify compliance with environmental legislation and to the specific conditions

to the permits issued by the Institute, and when necessary, to define and apply administrative sanctions.

In order to comply with such a mandate and apply strictly the legal and administrative regulations stipulated in the law, which includes stiff fines, this responsibility is carried out by considering various steps that include:

- The evaluation of the universe of contaminating sources and its classification in accordance with its polluting potential.
- On-site visits to identify irregularities in each industry.
- Presentation before the attorneys office of inconformities by the corresponding industry if irregularities are found.
- Admission and evaluation of such inconformities and proof of industry compliance.
- Issuing of the administrative resolution and the technical measures to be taken by the infractor in order to comply with the norm, the compliance timetable and the awarded fines.
- Execution of the administrative resolution.
- On-site visits to verify compliance of each contaminating source, as issued in the respective administrative resolution.

This is carried out mainly through the industrial Emission of verification program, whose objective is to carry out inspections to verify that the emission sources comply with the law and regulations. This program is divided into two phases: "the attention to popular denouncements and complains" whose purpose is to take care of complains presented by the community to the authority, and that of "agreement compliance", focused on the verification of compliance of the norms and the recommendations issued as result of the on-site inspections.

By applying this procedure, the Federal Attorney's Office for the Protection of the Environment (Figure 5), has been able to perform 19,736 on-site inspection visits from August 1992 to March 1994. 11,476 of which have been conducted within México City's metropolitan area and the remaining 8,260 in the rest of the country.

This means that in one year and eight months we have been able to double the number of on-site visits compared to the previous six years. This achievement has been possible thanks to the strong determination of President Salinas of not having a single industry that does not comply with our environmental law.

This significant effort (Figure 6, not available), has resulted in 1,084 partial closures with a concurrent economic sanction, 191 with definite closures and fines, and 13,933 industries with specific recommendations and fines. Also, 4,528 industries were found to comply with the law and thus no legal action was required.

Another program of importance is the "Verification of Natural Resources" (Figure 7), which consists of scheduled inspections to natural protected areas, in order to insure that the applicable regulatory decrees and laws for the protection, defense and restoration to those sites. In 1993, under this program we were able to formulate 2,397 visits resulting in some cases in sanctions and in most others with recommendations to the proper authorities to be enacted and complied to.

With regards to the "Environmental Impact Verification Program" (Figure 8), which as I mentioned its objective is to verify compliance to the specific conditions of the permits issued by the National Institute of Ecology, particularly those related to the preparation of the site, construction and operation of industrial facilities, resulted in 343 visits in 1993, of which 30 were totally temporarily closed, 1 was partially temporarily closed, 5 were definitively closed, 261 were turned to the proper authorities and 43 were found to be complying with the law.

Of Particular interest is the "New Car Verification Program" (Figure 9), whose objective is to assure that new automobiles and trucks comply with the norm before they are sold to the public. During 1993, 11 automotive plants were visited and 53 different models were inspected. We are glad to inform that all plants and vehicles were well within current regulations.

Special mention needs to be made of the programs applied during the winter months in México City's metropolitan area whose purpose is to diminish the air pollution problems that occur due to the thermal inversion processes that predominate this time of the year.

Within this program we have "Aerial Surveillance" (Figure 10), whose objective is to detect obvious industrial emissions that contribute significantly to the air quality problem. This surveillance is carried out by our inspectors in helicopters. The industries in non compliance are reported to land based inspectors that immediately proceed to inspect the industry and determine if in effect such emissions are contaminant, in which case they proceed to apply the proper fine, assisting in this program we also have the networks and radio station helicopters, whose reports are considered as a denouncement.

During the winter periods of 92-93 and 93-94, there were 758 reports that represented 317 industries, of which 83 were partially shut down until the problem was solved, 1 was totally temporarily closed and 233 were fined.

Another winter program is the "Attention to Environmental Contingencies" (Figure 11), which consists of verifying the industry's compliance to winter regulations of agreed reductions to their productive processes. When a contingency status is declared, industry must comply to previously agreed reduction percentages, for instance, when Phase I is declared industry must reduce production between 30% and 40%, and up to 70% when Phase II is enacted.

During the winter of 92-93, the spring-fall of 93 and winter of 93-94, there were 14 contingency status declarations for which 3,778 inspections were carried out, with 174 industries subjected to judiciary revision for non-compliance, of which 23 were partially and temporarily shut down and 116 were fined.

Also, during the winter months there is another program geared to stop those vehicles that flagrantly pollute (Figure 12), which are removed from circulation after on-site evaluation of their emissions. This program which is carried out under the responsibility of the Federal Attorney's Office for the Protection of the Environment in coordination with the Secretary (Department) of Transportation and the Federal District Government.

As a result of this effort, during the last two winter seasons, 53,463 vehicles were stopped of which 28,906 did not pass the evaluation and were removed from circulation, issuing a 48 hour permit to carry out the required repairs.

Finally, this slide shows a summary of the Federal Attorney's Office for the Protection of the Environment from August 1992 to March 1994 (Figure 13), which includes the results of the training programs for federal agents and the total amount of fines applied to non-compliers.

#### A Great Effort

The environmental policy instituted by President Salinas not allowing for a single industry to be non-compliant of the current legislation is being enforced, following five basic rules:

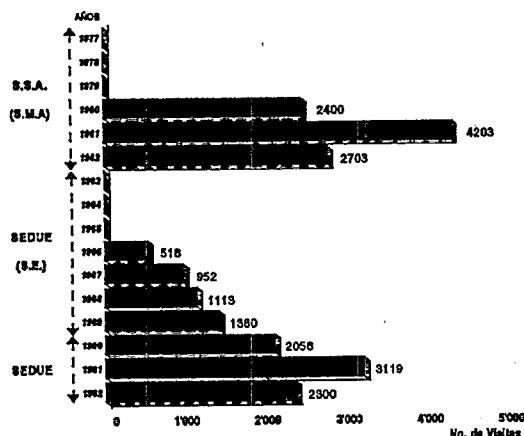
1. The truth above else in the handling of information.
2. Accepting and correcting errors.
3. Making all information available to the public.
4. The use of a standardized format.
5. Compliance to all announced actions.

Thank you.

**SEDESOL**

SECRETARÍA DE DESARROLLO SOCIAL

PROCURADURÍA FEDERAL DE PROTECCIÓN AL AMBIENTE

**FIGURA 1.- EVOLUCIÓN HISTÓRICA  
1977 - 1982****ACCIONES**

1977 - 1979

- Promoción de la Ley.
- Ajustes internos en la organización.
- Preformación para inicio formal de inspección.

1980 - 1982

Inicio de inspección formal.

NOTA: Por inflación, los montos de las multas se hicieron inútiles.

1982 Se publica una nueva Ley. "Ley Federal de Protección al Ambiente".

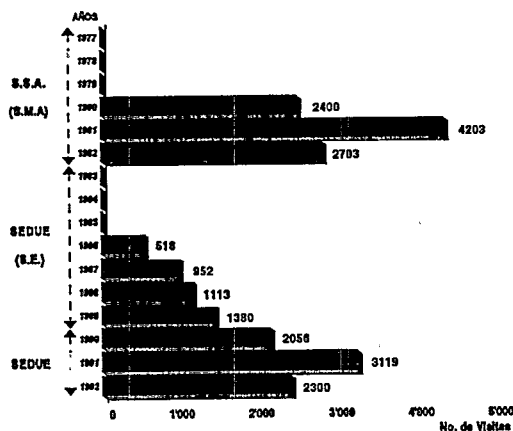
OBSERVACIONES: PERIODO 1977 - 1982

Figure 1.

**SEDESOL**

SECRETARÍA DE DESARROLLO SOCIAL

PROCURADURÍA FEDERAL DE PROTECCIÓN AL AMBIENTE

**FIGURA 2.- EVOLUCIÓN HISTÓRICA  
1982 - 1988****ACCIONES**

1983 - 1985

Se promueve el cumplimiento de la Ley mediante convenios de cumplimiento con representación de cada sector industrial, iniciando con los potencialmente más contaminantes.

1986 - 1988

Se inician las inspecciones para verificar el cumplimiento de los convenios anteriores.

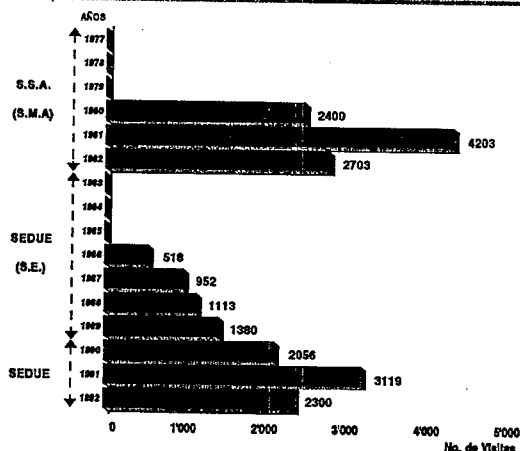
OBSERVACIONES: PERIODO 1983 - 1988

Figure 2.

**SEDESOL**

SECRETARIA DE DESARROLLO SOCIAL

PROCURADURIA FEDERAL DE PROTECCION AL AMBIENTE

**FIGURA 3.- EVOLUCION HISTORICA  
1989 - 1992****ACCIONES**

1989 - Junio 1992

Se continúa con la inspección sin terminar el proceso administrativo (imponer sanciones) llegando a programas técnicos que solucionarán los problemas encontrados.

OBSERVACIONES: PERIODO DE 1989 A JUNIO/1992

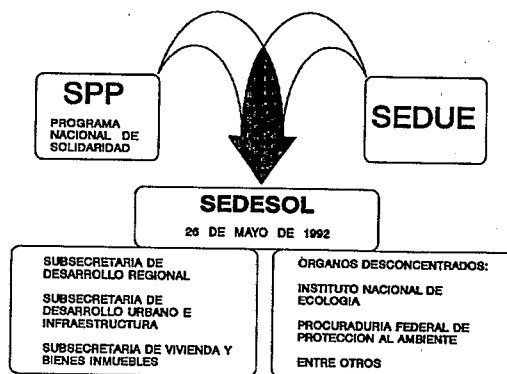
Figure 3.

**SEDESOL**

SECRETARIA DE DESARROLLO SOCIAL

PROCURADURIA FEDERAL DE PROTECCION AL AMBIENTE

CREACION DE LA SEDESOL

**FIGURA 4.- CREACION DE LA SECRETARIA  
DE DESARROLLO SOCIAL**

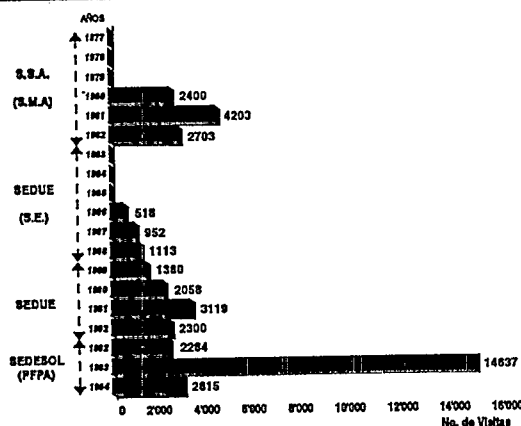
OBSERVACIONES:

Figure 4.

**SEDESOL**  
SECRETARÍA DE DESARROLLO SOCIAL

PROCURADURÍA FEDERAL DE PROTECCIÓN AL AMBIENTE

FIGURA 5.- EVOLUCIÓN HISTÓRICA  
1992 - 1994



### ACCIONES

- Incremento de inspecciones.
- Realizar las inspecciones como lo ordena la Ley, llegando a la Sanción Económica.

OBSERVACIONES: PERIODO DEL 4/AGOSTO/92 AL 31/MARZO/94

Figure 5.

**SEDESOL**  
SECRETARÍA DE DESARROLLO SOCIAL

PROCURADURÍA FEDERAL DE PROTECCIÓN AL AMBIENTE

FIGURA 7.- PROGRAMA DE  
VERIFICACIÓN EN MATERIA DE  
RECURSO NATURALES

REALIZAR VISITAS DE INSPECCIÓN A LAS ÁREAS NATURALES PROTEGIDAS, CON EL FIN DE ASEGURAR QUE LAS DISPOSICIONES JURÍDICAS APLICABLES A LA PROTECCIÓN, DEFENSA Y RESTAURACIÓN DEL MEDIO AMBIENTE SEAN CUMPLIDAS.

TOTAL DE VISITAS 2,397

PROGRAMA	VISITAS DE INSPECCIÓN	RESULTADOS
ÁREAS NATURALES PROTEGIDAS	1 RESERVA ESPECIAL DE LA BIOSFERA "ELA DORTOS, GUERRERO ROO. 6 PARQUES NACIONALES (QUETZAL, PIEDRAL, MEXICO Y MORELOS). 106 "CORREDOR BIOLÓGICO "CHICHAUATZ", MORELOS. 40 RESERVA DE LA BIOSFERA "CALACUL", CAMPECHE. 19 RESERVAS DE LA BIOSFERA, CHIAPAS. 86 ÁREAS NATURALES, NUEVO LEÓN. 120 ÁREAS NATURALES EN LOS ESTADOS DE: BOB, DGO, HGO, JAL, NAY, OAX, PUE, TAB Y YUC.	CLASIFICA TOTAL TEMPORAL. SE LEVANTARON ACTAS TURANDONE A LA SALVA LA RECOMENDACIONES PARA CORREGIR IRREGULARIDADES. SE LEVANTARON ACTAS, EN EL CASO DE LA TALA SE FORMULARON RECOMENDACIONES A LA SALVA Y, EN ALGUNOS CASOS SE PRESENTO DENUNCIA ANTE EL MINISTERIO PUBLICO, PARA EL SEGUIMIENTO CORRESPONDIENTE.
BIOSPHERA MONICA	1,094 RESERVA ESPECIAL DE LA BIOSFERA "MANTOPO MONICA" EN LOS ESTADOS DE MICHOACAN Y MEXICO.	SE LEVANTARON ACTAS, EN EL CASO DE TALA SE FORMULARON RECOMENDACIONES A LA SALVA Y, EN ALGUNOS CASOS SE PRESENTO DENUNCIA ANTE EL MINISTERIO PUBLICO, PARA EL SEGUIMIENTO CORRESPONDIENTE.
TORTUGAS MARINAS	19 ÁREAS DE COCIMA, MICHOACAN, GUERRERO Y OAXACA. 1 RANCHO NUEVO, TAMAULIPAS.	SE LEVANTARON ACTAS, TURANDONE MEZANTE OPINO LAS RECOMENDACIONES A LAS DEPENDENCIAS RESPONSABLES DE LA ADMINISTRACION DE LOS CAMPAÑEROS TORTUGUEROS.
RECURSOS NATURALES	206 NIVEL NACIONAL.	LOS ILICITOS CORRESPONDEN A MATERIA FORESTAL Y FAUNA SILVESTRE, SE LEVANTARON ACTAS Y SE FORMULARON RECOMENDACIONES A BARR Y REPESOL.

OBSERVACIONES: PERIODO DE LAS VERIFICACIONES: AGOSTO DE 1992 A FEBRERO DE 1994

Figure 7.

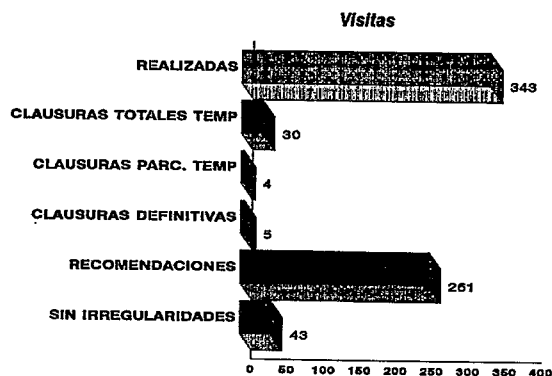
**SEDESOL**

SECRETARIA DE DESARROLLO SOCIAL

PROCURADURIA FEDERAL DE PROTECCION AL AMBIENTE

**RESULTADO DE LAS VISITAS****FIGURA 8.- PROGRAMA DE VISITAS DE IMPACTO AMBIENTAL**

REALIZAR VISITAS DE INSPECCION PARA VERIFICAR QUE LAS CONDICIONANTES DE LAS AUTORIZACIONES EN MATERIA DE IMPACTO AMBIENTAL OTORGADAS POR EL INSTITUTO NACIONAL DE ECOLOGIA SE REALICEN CONFORME A LO AUTORIZADO.



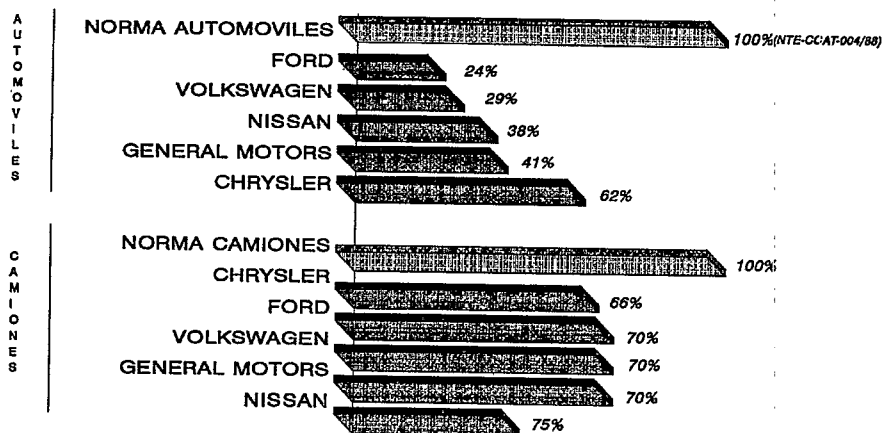
OBSERVACIONES: PERIODO DE VERIFICACION: 4 DE AGOSTO/92 AL 31 DE MARZO/94

Figure 8.

**SEDESOL**

SECRETARIA DE DESARROLLO SOCIAL

PROCURADURIA FEDERAL DE PROTECCION AL AMBIENTE

**RESULTADO DE LA VERIFICACION****FIGURA 9.- PROGRAMA DE VERIFICACION DE VEHICULOS EN PLANTA**

OBSERVACIONES: PORCENTAJE PROMEDIO DE LOS RESULTADOS DE EMISION DE GASES (HIDROCARBUROS (HC), MONOXIDO DE CARBONO (CO) Y OXIDOS DE NITROGENO (NOX)), EN UNA MUESTRA DE VEHICULOS NUEVOS MODELO 1993, POR EMPRESA

Figure 9.

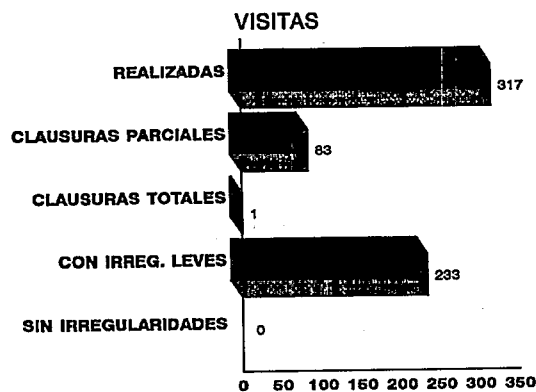
**SEDESOL**

SECRETARIA DE DESARROLLO SOCIAL

PROCURADURIA FEDERAL DE PROTECCION AL AMBIENTE

**FIGURA 10.- PROGRAMA DE VIGILANCIA AEREA**

CON HELICOPTEROS PROPIEDAD DEL DDF Y DEL GOBIERNO DEL ESTADO DE MEXICO, INSPECTORES DE LA PROCURADURIA IDENTIFICAN AQUELLAS EMPRESAS QUE TIENEN EMISIONES OSTENSIBLES Y LAS REPORTAN PARA QUE PERSONAL EN TIERRA VERIFIQUE MEDIANTE VISITAS DE INSPECCION SI SON CONTAMINANTES O NO.



OBSERVACIONES:

Figure 10.

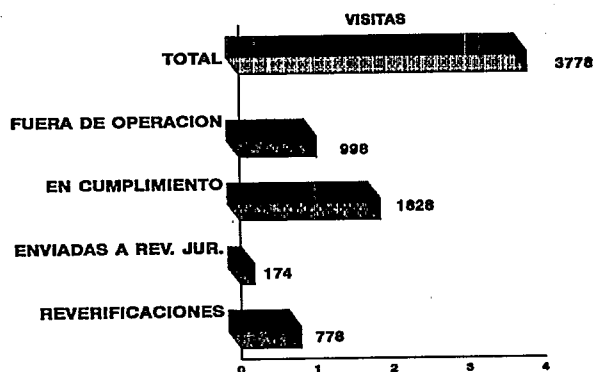
**SEDESOL**

SECRETARIA DE DESARROLLO SOCIAL

PROCURADURIA FEDERAL DE PROTECCION AL AMBIENTE

**FIGURA 11.- PROGRAMA DE ATENCION A CONTINGENCIA AMBIENTALES EN LA Z.M.C.M.****RESULTADO DE LAS VISITAS**

AL DECLARARSE CONTINGENCIA AMBIENTAL, LA PROCURADURIA VERIFICA QUE LAS EMPRESAS CUMPLAN CON EL PROGRAMA MEDIANTE LA REDUCCION DE SUS PROCESOS PRODUCTIVOS CON EMISIONES A LA ATMOSFERA DE UN 30 A UN 40% EN FASE I Y EN UN 70% EN FASE II.



OBSERVACIONES: PERIODO DE ATENCION A CONTINGENCIAS: 1 DE DICIEMBRE/82 AL 31 DE MARZO/83 Y 1 DE DICIEMBRE/83 AL 31 DE MARZO/84

Figure 11.

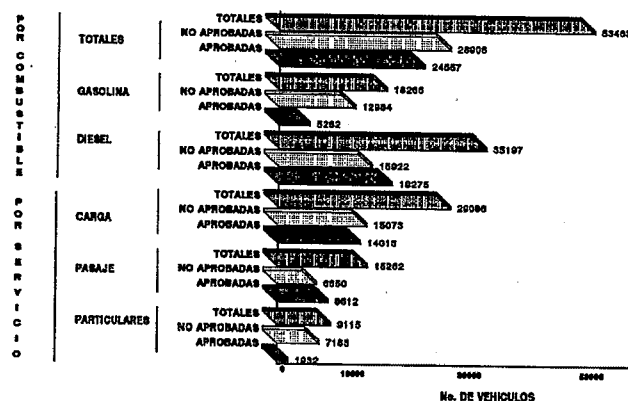


**SEDESOL**  
SECRETARIA DE DESARROLLO SOCIAL

PROCURADURIA FEDERAL DE PROTECCION AL AMBIENTE

### RESULTADO DE LAS ACCIONES

LA PROCURADURIA, EN COORDINACION CON EL DDF, LA SCT Y EL GOBIERNO DEL ESTADO DE MEXICO, LLEVAN A CABO UN PROGRAMA MEDIANTE EL QUE SE DETIENEN VEHICULOS CON EMISIONES OSTENSIBLEMENTE CONTAMINANTES, EN CASO DE NO APROBAR LA REVISION SE RETIRAN DE LA CIRCULACION.



OBSERVACIONES: PERIODOS INVERNALES 92 - 93 Y 93-94

Figure 12.

**SEDESOL**  
SECRETARIA DE DESARROLLO SOCIAL

PROCURADURIA FEDERAL DE PROTECCION AL AMBIENTE

### FIGURA 13.- SUMMARY OF NATIONAL ACTIVITIES

#### Attributes:

To watch over the compliance to current legislation, norms and programs for the protection, defense and restoration of the environment.

#### Actions:

On site inspections of Industrial emissions	19,736
On site inspections of natural resources	2,397
On site inspections on environmental impact matters	343
New vehicle verification on plant	11 Industries 53 models
Environmental contingency program	3,778
Training	23 courses, 866 participants
Detention of flagrantly contaminating vehicles	54,111
On site inspections to Industrial parks	344
Total fines	US \$ 10'200,000

NOTE: For the period august 4, 1992 / march 31, 1994

Figure 13.



---

## **THEME 6:**

### **ESTABLISHING INTERNATIONAL NETWORKS**

6. Summary of Theme Discussion, *Moderator: D. Slater, Rapporteur: D. Bronkema* ..... 151
7. Establishing International Networks—UNEP IE/PAC Experience, *J.H. Skinner*..... 155

---

Papers 1 through 5 in Proceedings Volume 1.



**SUMMARY OF THEME #6: ESTABLISHING INTERNATIONAL NETWORKS**

Moderator: David Slater

Rapporteur: David Bronkema (ERG)

**GOALS**

Description of current efforts to develop international support networks for enforcement. Issues discussed should include the genesis of the network, entities involved in developing and maintaining it, types and levels of participation, subjects addressed by the network, vehicles and topics of exchange, and future directions and changes anticipated for the network.

**1 PRESENTATIONS**

Mr. D. Slater, Director and Chief Inspector of Her Majesty's Inspectorate of Pollution of the United Kingdom, commented on the similarity of environmental enforcement problems faced by different countries. As a result, it is important to learn from fellow regulators and to build on methods that have worked. Several clear trends are apparent. A comprehensive approach in which all three media are attacked at once yields the best results. Secondly, pollution prevention is crucial. End-of-the-pipe abatement is no longer state of the art. Process choice and pollution prevention need to be pushed. Finally, public awareness and support are very important. Planning is necessary to make actions clear and public. In all of this, there is a need to continue communication and networking among regulators. Mr. Slater commented on the development of the European environmental network, tracing its beginnings to an initiative from the Dutch. At a meeting in Chester, England, in November 1992, an EC Network of national pollution regulation inspectorates was established on an informal basis, and it was agreed that the network should address the technical and practical aspects of enforcement. The objectives were an exchange of information and experience, and mutual support. Reports, data, and directories have been produced. This network has now been adopted by the European Union and given a formal status.

Mr. L. Krämer of the DG Environment, Nuclear Safety and Civil Protection, of the Commission of the European Communities, continued the exposition of the European Network. The European Network is challenging the rights of sovereign nations to make their own laws. The environmental legislation of the European Network imposes environmental laws on member governments, and this has created some controversy. There is also a problem in the implementation of the environmental legislation. When identical legislation meets different legal, economic, social, and political cultures, different results occur. The challenge is to apply the legislation equally. An important aspect of the current work of the European Network is to make countries understand that enforcement of environmental legislation is very important. The situation of the environment in Europe has deteriorated over the last few years. In addition, environmental enforcement is necessary to ensure free internal competition. Mr. Krämer stated that he is deeply convinced that the right to environment is a human right, so it cannot be subjected to national sovereignty. If the right to environment is understood on this basis, environmental enforcement will take on another dimension. Environmental networking then takes on a dimension of networking for the fight for human rights. This is the challenge for the years ahead, as we deal with shrinking resources. More, better, and deeper networking is needed at all levels.

Ms. M. T. Szauer, Deputy Director of the Environmental Department of the National Institute for the Environment and Natural Resources of Colombia, described the Caribbean Environmental Programme (CEB) and its consolidation as a network for the Caribbean Region. CEB was established as a result of the belief that only a cooperative regional approach could address the increasing threat caused by mismanagement of the marine environment in the region. It is composed of the insular and coastal states and territories of the Caribbean Sea and the Gulf of México and their adjacent

water, the United States coastal states, the islands of the Bahamas and south to the French Department of Guiana. The ongoing consolidation of the network relied on mechanisms such as intergovernmental meetings, expert meetings on specific subjects, and project-specific networking systems developed through the committees of the CEB. The CEB also has at its core a region wide data compilation and distribution system. Starting in 1990, five regional programs were established within the CEB, responsible for carrying out their own activities and projects. They are tied together by the long-term goal of the 1990 Action Plan, whose original goal is to "achieve sustainable development of marine and coastal resources in the Wider Caribbean Region through effective integrated management that allows for increased economic growth." Financed by the Caribbean Trust Fund, to which all states and territories of the region contribute, and by the UNEP Environmental Fund and other counterpart contributions, the CEB has enjoyed significant success in affecting environmental legislation, establishing protected areas, conducting research, and engaging in training.

Mr. S. Klem of Interpol described Interpol's involvement in combatting international environmental crime. Interpol is an international police organization comprising 174 member states from all over the world. As early as 1976, Interpol was fighting the illegal traffic in species of wild flora and fauna. Today, however, the general secretariat's major preoccupation is the illegal traffic in hazardous waste and dangerous substances. Investigations into this activity encounter many problems; information is often widely scattered because there is usually no central contact point and there is no uniform definition of "environmental crime," and because professional environmental criminals generally hide their illegal activities behind a legal facade, sometimes involving the corruption of government officials. The most recent initiative to remedy this situation was to set up a working group to discuss these issues. Possible solutions included improving cooperation and exchanging and distributing information through existing Interpol channels. Recommendations can also be made regarding the adoption of legislation to combat environmental crime and the harmonization of existing legislation. Interpol has a number of facilities at its disposal for combatting international environmental crime, including a world-wide information/telecommunications network, computerized criminal records, and international notices. It offers training programs relating to environmental crime, and it seeks to fulfill its main mission of facilitating and fostering better understanding and closer cooperation between members of the international law enforcement community, as well as with other appropriate national and international environmental organizations.

Mr. M. Alushin, Director, International Enforcement Program, suggested several possible components of a successful international network of cooperation in environmental enforcement, taking Canada, the United States, and México as examples. The components include respect for national sovereignty, institutional frameworks for cooperation, cooperation in solving environmental problems, consultation on laws and policies, and communications strategy. The United States, México, and Canada have begun to experiment with many of these components of enforcement cooperation. A variety of tools are available, ranging from cooperation in training and developing technological tools that enhance compliance-monitoring capabilities to cooperation in promoting voluntary compliance, and conscious strategic collaboration in setting priorities for enforcement activity, selecting targets for enforcement action, and communicating enforcement results to maximize their deterrent effect. The evolving network will work best by building partnerships of cooperation, both between the countries of North America and between the many national and local agencies contributing to environmental enforcement.

Mr. J. Skinner, Senior Advisor to UNEP IE/PAC, discussed three topics related to building global partnerships and networks for environmental protection and sustainable development: the rationale or need for such partnerships and networks; the experience of UNEP IE/PAC's programs involving broad-based partnerships; and important goals of those partnerships. Partnerships are drawing attention for three different reasons: there is recognition of the need to augment the conventional approaches to environmental protection based on end-of-pipe control technologies implemented through regulatory programs and enforcement; there is a realization that it is essential to work together to reach consensus solutions that will meet both environmental and development

goals; and the potentially high cost of environmental programs makes it necessary to combine the scientific, technical, and economic resources of all parties. The UNEP Industry and Environment Programme Activity Center (IE/PAC) was established in 1975 to bring industry, governments, and non governmental organizations (NGOs) together to work towards environmentally sound forms of industrial development. IE/PAC has held continuous consultations with those entities since its formation and has promoted a wide array of initiatives and programs as a result. From this experience, Mr. Skinner outlined five important goals for partnerships; partnerships should: 1) enhance compliance with environmental laws and standards; 2) encourage cleaner production and other preventive approaches as the strategies of choice for dealing with environmental problems; 3) support public information and environmental education; 4) encourage technology transfer and technical assistance both on a domestic and international basis; and 5) provide for better integration of environmental policy with other policies.

## 2 OPEN DISCUSSION

Dr. Bohne from Germany supplemented the information given on the European Network. He stated that the presentation had given a vision of the European Network as seeking to give people environmental rights, but that there were three very practical reasons for which the European Network was established. The first was a discrepancy between a growing body of European law and the legal requirements and their implementation. The second was that no institutions could deal with this discrepancy, because the European Network has no power to enforce legislation. The third was in the area where environmental and economic concerns come together; there was a negative impact on free competition in Europe because of inconsistencies in regulatory requirements, which caused companies to move to countries with less restrictive regulations. Dr. Bohne concluded by saying that the network remains a process, and the exchange of information allows for a better understanding of the different situations and provides the opportunity to come up with proposals for European legislation.

Ms. Mitchell from Canada stated that she worked for an NGO and directed her question to Michael Alushin, who had spoken on the network being created by the governments of Canada, México, and the United States. She stated that a point needs to be made that NGOs are also cooperating and organizing networks. The question was whether the NGOs and the governments were always going to move in separate circles.

Mr. Alushin from the United States responded by saying that they were aware of the NGOs and are looking forward to working with them.

Mr. Slater from the United Kingdom concluded by declaring that there is a need for more networking, and that we cannot wait for this to occur but must go ahead and do it ourselves. This was one of the lessons drawn from the creation of the European Network, the result of efforts by individuals who went ahead on their own.





**ESTABLISHING INTERNATIONAL NETWORKS—UNEP IE/PAC EXPERIENCE**

SKINNER, JOHN H.

Senior Advisor, United Nations Environment Programme IE/PAC, 39-43 Quai André Citroën, Tour Mirabeau, 75739 Paris, Cedex 15, France

**SUMMARY**

This paper covers three issues related to building global partnerships and international networks for environmental protection and sustainable development. First, the rationale or need for such partnerships and networks is discussed. Second, some of UNEP IE/PAC's programs which are founded on broad-based partnerships are outlined. The paper closes with some observations on the goals of partnerships.

**1 INTRODUCTION**

It is an honor to represent the UNEP Industry and Environment Programme Activity Centre (IE/PAC) at this third International Conference on Environmental Enforcement. UNEP IE/PAC appreciated the opportunity to work with the other conference sponsors and organizers, the US EPA, WWF, SEDESOL and VROM and to participate in discussions of these timely and important subjects.

I also bring you best wishes for a successful conference from Mrs. Jacqueline Aloisi de Larderel, Director of UNEP IE/PAC. She very much wanted to be with you today but was recently called to an important meeting by the UNEP Executive Director. Happily for me, this turn of events resulted in my good fortune in being able to travel to Mexico and attend your meeting. However, I promised Jacqueline a full report on your deliberations on my return.

I am very impressed by the theme of this session: Establishing International Networks. This theme reflects the important need to bring together the combined resources and expertise of all elements of society to effectively deal with some of the complex health, safety and environmental issues of the future. This concept of global partnerships and networks is clearly called for by Agenda 21 adopted at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992. Just reading the titles of some of the sections of Agenda 21 sounds a roll call of the major groups with a stake in sustainable development:

“Global action for women towards sustainable and equitable development...

Children and youth in sustainable development...

Recognizing and strengthening the role of indigenous people and their communities...

Strengthening the role of NGOs...

Local authorities initiatives...

Strengthening the role of workers and their trade unions...

Strengthening the role of business and industry...

Scientific and technological community...

Strengthening the role of farmers...

Environmentally sound technology: transfer, cooperation and capacity-building...

National mechanisms and international cooperation for capacity-building in developing countries..."

This session gives us all the opportunity to review how we can respond to the mandates of Agenda 21 and forge effective partnerships with governments, other industries, international organizations, professional associations, academia, NGOs and others that will contribute to sustainable development.

In my presentation today I would like to cover three topics related to building global partnerships and networks for environmental protection and sustainable development. First, I would like to discuss the rationale or need for such partnerships and networks. Second, I would like to tell you about some of UNEP IE/PAC's programs which are founded on broad-based partnerships. And finally, I will close with some observations on the goals of partnerships. However, I hope that these observations, developed over my 20 years experience in the environmental field, stimulate thought and discussion.

## **2 THE NEED FOR PARTNERSHIPS AND NETWORKS**

I believe that there are three interrelated reasons for the current, wide-spread interest in partnerships for environmental protection and sustainable development. The first is a growing recognition of the need to augment the conventional approaches to environmental protection that are based on end-of-pipe control technologies implemented through regulatory programs and enforcement. The second is the realization that we are all stakeholders in sustainable development and that it is essential to work together to attempt to reach consensus solutions that will meet both environmental and development goals. The third is that the potentially high cost of environmental programs makes it necessary to combine the scientific, technical and economic resources of all stakeholders. Let me elaborate a bit on these issues.

Over the past 20 years I have seen substantial progress in addressing many environmental problems. For the most part, this progress has been made primarily in those countries that have established environmental control programs based on environmental standards, regulations and enforcement. For example, extensive efforts in regulating discharges to surface waters and requiring the treatment of municipal and industrial waste waters, has improved significantly the water quality in many lakes, streams, rivers and estuaries. The air in many cities is cleaner today due to the application of emission controls on mobile and stationary sources. Effective regulatory programs for solid waste management have eliminated open dumping and put in place integrated systems of sanitary landfills, waste-to-energy facilities and recycling systems. Regulatory control programs for the management of hazardous waste have led to the implementation of modern waste treatment and disposal facilities. These advances have not come easy and should not be taken for granted. In general, environmental regulatory programs have resulted in the advancement and application of environmental controls and have made a difference.

However, many environmental problems still exist and we understand them to be more complex to manage than those that have been dealt with in the past. Consider the difficulty of dealing with environmental discharges from hundreds of thousands of small sources with substantial cumulative effects. How do you effectively control area wide on non-point sources such as run-off from agricultural lands or urban areas? We recognize that many environmental problems are international in nature including transboundary movement of pollutants and wastes. Others are global in scope, such as loss of biological diversity, stratospheric ozone depletion and the potential of global warming due to the greenhouse effect. Simple application of pollution control technologies will not be enough to deal with many of these complex problems that are systemic in nature.

Environmental problems in countries with developing economies pose a special set of problems. In some cases, there are no environmental standards and regulations, no administrative body responsible for enforcement and no obligation for industry to dispose of wastes properly. Often

financing is not available for the construction of pollution control facilities, and there is a lack of trained personnel to operate such systems. Broad-based efforts involving institution building, public education, technical assistance and technology transfer are important to making progress in these situations.

We also need to recognize the potentially high costs of environmental protection. I know that the U.S. is currently spending \$115 billion a year on environmental protection and this amount is expected to double by the end of this decade. By then, the United States will be spending 3 percent of their GNP for environmental protection. I have seen similar projections for expenditures in other countries as well. Clearly expenditures at these levels will affect all sectors of society. We must seek ways to reduce these costs and make the most efficient use of the combined technical and economic resources of all stakeholders.

In order to build awareness of the importance of partnerships, UNEP IE/PAC in cooperation with the Prince of Wales Business Leaders Forum and the Center for Environmental Management, Tufts University have initiated the development of a comprehensive publication on international case studies that demonstrate the benefits and difficulties inherent in partnerships for sustainable development. The objective is to raise awareness of the effectiveness of partnerships and to show how stakeholders have joined forces to solve various kinds of environmental problems. The case studies will be drawn from a variety of industry sectors and countries and will illustrate the wide variety of partnerships in terms of the nature and number of partners, the purpose and structure of the partnership and its scope of action. It is hoped that this publication, to be completed in 1994, will summarize some of the key lessons of creating, operating, evaluating and replicating successful partnerships. Let me now tell you about some other IE/PAC efforts in this regard.

### **3 INTERNATIONAL PROGRAMS AT UNEP IE/PAC**

The UNEP Industry and Environment Programme Activity Centre (IE/PAC) was established in 1975 to bring industry, governments and non-governmental organizations (NGOs) together to work towards environmentally sound forms of industrial development. IE/PAC was active in UNCED's preparation and participated in the various industry fora. Following UNCED IE/PAC reviewed its strategy and with the help of an Advisory Group formed by its partners in industry, government and NGOs and reoriented its activities to better support the initiatives of Agenda 21. A summary of some major activities with an emphasis on international partnerships follows.

#### **3.1 Cleaner Production**

IE/PAC launched its Cleaner Production Programme in 1990, in partnership with many organizations including OECD, EU, UNIDO, and the World Bank. This concept has now entered the sustainable development lexicon and is strongly supported in Agenda 21. Our Cleaner Production Programme today includes: national cleaner production workshops held around the world, a publications series translated into several languages, ICPIIC the International Cleaner Production Clearinghouse, the establishment of Cleaner Production Centres in cooperation with UNIDO and a series of cleaner production demonstrations in China and Africa. The programme networks with organizations and experts world wide and transfers information to a broad set of audiences. In October 1994, in Poland, this broad program will be reviewed and discussed to assess progress made and suggest future directions.

#### **3.2 APELL**

The APELL Programme (Awareness and Preparedness for Emergencies at the Local Level) which promotes the prevention of, and response to, industrial accidents was developed in 1988 and was also acknowledged in Agenda 21. This is a good example of an international partnership actively

developed by UNEP IE/PAC, the chemical industry (the International Council of Chemical Associations), and governments to prepare the APELL Handbook which is now available in 14 languages. Furthermore, APELL recommends national and local partnerships to prevent accidents and prepare for emergency response, and twenty APELL Seminars and Workshops have been held over the past five years reaching over 1000 local decision makers from industry, government, local authorities, and communities. Over 70 national governments now have APELL focal points which disseminate APELL information to appropriate industries and agencies on a nationwide basis and the APELL network links the members of this network.

### 3.3 OzonAction

UNEP IE/PAC is also responsible for the clearinghouse function envisaged in the Montreal Protocol on Substances that Deplete the Ozone Layer. The OzonAction Information Clearinghouse transfers information on ozone-depleting substances including: policy and technical options, descriptions of alternative technologies, an international directory of experts, document abstracts and news bulletins. Workshops, conferences and training activities are held around the world and country programs have been established to provide practical assistance to industry and governments to help phase out ozone depleting substances. Regional networks of ozone offices are being established under the auspices of UNEP, enabling the sharing of information and experiences on the implementation of the Montreal Protocol.

### 3.4 Tourism and transport

Agenda 21 cites the importance of tourism, one of the world's largest and fastest-growing industries, in promoting sustainable development. The IE/PAC tourism programme, launched in 1991 involves partnerships with international organizations, particularly UNESCO and the World Tourism Organization, and has developed links with tourism industry associations. The program involves publications, training, technical assistance, networking and the preparation of guidelines on tourism and the environment. Transport is another area highlighted by UNCED and in 1993 IE/PAC devoted an issue of Industry and the Environment to this subject and is carrying out an evaluation of work in this field in order to develop future programs.

### 3.5 EnTA

In 1993, IE/PAC launched a new program on Environmental Technology Assessment (EnTA). The goal of EnTA is to encourage the use of technology assessment as a tool to support the development and application of environmentally sound technologies that are consistent with sustainable development. Two specific goals are to encourage cleaner production and to discourage the export and use of technologies that pose potential environmental hazards, especially in developing countries. To guide this effort, an international advisory group has been established, and the first issue of the EnTA Newsletter was issued. Future activities will include work on guidelines on the environmental information that technology importers can and should provide to importing countries. A study of the feasibility of such guidelines was called for by the UNEP Governing Council at its last meeting.

### 3.6 Sectoral activities and information transfer

IE/PAC sectoral activities provide comprehensive guidance to specific industry sectors to encourage improved environmental performance. Environmental management tools and technologies such as waste and energy audits are addressed. A series of technical guides have been prepared jointly with industry and over 15 industrial sectors have been covered to date. The response to these in other sectors show the need and demand for such technical guidance. The industry and

Environment Review is issued quarterly and is distributed to over 10,000 persons worldwide including government, industry and educational organizations. Each year IE/PAC responds to over 5,000 requests for information and documentation, and more than 500 researchers from academia, industry and government consult the IE/PAC library and database resources.

### 3.7 Consultation with industry, government and ngos

You can see from the descriptions above, IE/PAC has continuous consultation with its various partners in carrying out its programs and responsibilities pursuant to Agenda 21. In response to UNCED, in 1993 IE/PAC held specific consultations on two subjects: voluntary codes of conduct and sustainable consumption patterns. At a meeting with representatives of 30 international and national industry associations, voluntary environmental reporting was extensively discussed as a precondition for implementation of industry's voluntary codes of conduct on environment and sustainable development, such as the Business Charter for Sustainable Development formulated by the International Chamber of Commerce. More than 100 corporate reports on the environment, as well as some first guidelines on environmental reporting, were discussed. IE/PAC also began its contribution to implementing Agenda 21's Chapter on changing consumption patterns at another meeting with various stakeholders on this subject. There is a need for more understanding of the relationship between industry and consumers in determining the level and sustainability of consumption patterns and several organizations identified follow-up actions to further identify problems and solutions. IE/PAC will continue to strengthen its work on this important aspect of follow-up to UNCED, and continue to encourage industry codes of conduct that promote voluntary compliance with environmental policies.

## 4 SOME GOALS FOR PARTNERSHIPS

I would like to suggest a five important goals for partnerships. These are not intended to be all inclusive and I invite your suggestions for others or alternatives.

First, partnerships should enhance compliance with environmental laws and standards. They should be viewed as complimentary to environmental control and enforcement programs and not substitutes for them. Partnerships can furnish technical and managerial assistance, provide forums for consensus building and help develop institutions within government and industry to improve voluntary compliance with environmental standards. In order to assist governments build their institutional capability to carry out environmental programs, IE/PAC in 1992 published a report entitled "From Regulations to Industry Compliance: Building Institutional Capabilities." That is why IE/PAC is pleased to join with the environmental agencies of the Netherlands, Mexico and the U.S., and the World Wildlife Foundation to sponsor the Third International Conference on Environmental Enforcement in Oaxaca, Mexico.

Second, partnerships should encourage cleaner production and other preventive approaches as the strategies of choice for dealing with environmental problems. The traditional approach to environmental protection has been an end-of-pipe strategy that captures or removes pollutants after they are generated, or cleans up contamination after it has occurred. A cleaner production or preventive strategy is different, it means not creating pollution in the first place. This can be accomplished by substituting less toxic materials in product designs, recycling within industrial processes or increasing process efficiencies, and extending product lifetimes. Cleaner production usually entails cost savings in terms of reductions in waste treatment and disposal costs, reduced liability for environmental damages, lower raw material costs and process efficiencies.

Third, partnerships should support public information and environmental education. Partnerships can improve information flow to stakeholders and decision makers and educate the public on the nature of environmental problems and what can be done about them. Partnerships can

involve research into the social and economic aspects of environmental protection to better understand and design economic incentives and information and education programs.

Fourth, partnerships should encourage technology transfer and technical assistance both on a domestic and international basis. The results of environmental research and development must be transferred into the field as new and improved technological and management systems are developed. Outreach efforts to apply the results of research are essential. This is especially true on an international basis. Technology transfer to countries with developing economies is especially important.

Fifth, partnerships should provide for better integration of environmental policy with other policies. Other national and international policies can have as strong or stronger influence on environmental protection as can environmental policies. Consider the effect of energy policy on the types of fuels used, transportation policy on the vehicle mix and modes of transportation, and agricultural policy on fertilizer and pesticide use. The environmental effect of these policies need to be assessed in national and international forums. Approaches that reconcile environmental and other objectives need to be explored.

To deal with the increasingly complex environmental challenges of the future new tools and broader based strategies will be necessary. UNEP IE/PAC looks forward to new partnerships that recognize the needs and capacities of different groups and bring together the necessary resources for continuous improvement in environmental protection and sustainable development.

---

**UNEP WORKSHOPS:**  
**INSTITUTION-BUILDING FOR ENFORCING**  
**REGULATIONS RELATED TO INDUSTRIAL ACTIVITIES**

1. Instructions for UNEP Institution-Building Workshops, *R. Glaser* ..... 163
-





## INSTRUCTIONS FOR UNEP INSTITUTION-BUILDING WORKSHOPS

GLASER, ROB

Inspector, International Affairs, HIMH/VROM, Ministry of Housing, Spatial Planning and the Environment, Seissingel 4, 4330 AJ Middleburg, The Netherlands (on behalf of UNEP IE/PAC Paris)

### 1 UNEP'S INVOLVEMENT

UNEP's role is in the dissemination of information on environmental issues to all member countries of the UN and in acting as a catalyst by promoting and initiating environmental activities. Countries can expect UNEP to assist them with their requests concerning all matters related to the environment, in the broadest sense of the word.

The third day of this conference will provide a focus on UNEP's contribution to capacity building in the field of compliance and enforcement in four of the twelve workshops. The issue of capacity building in compliance with and enforcement of environmental laws responds perfectly to the outcome of the 1992 UNCED meeting in Rio.

### 2 INTRODUCTION

#### 2.1 From regulations to industry compliance

In April 1990, the UNEP office in Paris (IE/PAC) organized the first meeting of a group of senior experts on industrial enforcement from eight countries. The experts presented and explained the procedures for environmental enforcement in their countries. This starting point resulted in issuance of Technical Report 11, "From Regulations to Industry Compliance," subtitled "Building Institutional Capabilities." The report was published in 1992, after a thorough review and incorporation of the latest concepts on this subject. The report, or guideline, was made available at the Budapest Conference in 1992.

The main concept of the guideline was to provide a framework for capacity building in compliance and enforcement programs and to create a starting point for developing or newly emerging countries (NEC). The guideline focused on countries that felt the need to initiate a program to address the issues of compliance with and enforcement of environmental laws—particularly, those countries that had promulgated a large number of laws, without sufficient control mechanisms and infrastructure to make such laws really effective.

The guideline is good reading material. It is not a recipe, nor is it the final solution to specific problems. The guideline discusses, in a very generic manner, key issues facing licensing and compliance authorities (control organizations, inspectorates) and guides the reader through the general procedures of permitting, monitoring of compliance, and enforcement.

The guideline triggered reactions worldwide and requests for further assistance soon reached the office of UNEP IE/PAC in Paris. The main question—how to get started—became the issue and required a proper response. The need became obvious to develop a comprehensive manual aiming at a "do-it-yourself" level in this field.

#### 2.2 Budapest Conference in 1992, manual: Industrial Environmental Compliance and Enforcement Programs

The papers presented during the Budapest Conference in 1992 and the adoption of "The Principles of Environmental Enforcement" (developed by U.S. EPA at the request of the Polish Environment Ministry in cooperation with VROM) text and course material as a framework for

international exchange accelerated recognition of the need for a training manual which would take the next steps toward program design and development. The manual, titled "Industrial Environmental Compliance and Enforcement Programs" (within the framework of building institutional capacity), shows how to promote and progress in compliance and enforcement at the various levels of program development. The manual puts into perspective the major elements in the establishment of an effective program. The manual further delineates the various possible routes that can be taken in establishing environmental compliance and enforcement programs.

The manual also adopts the "train-the-trainer" philosophy and enables officials of environmental organizations to use the manual as a reference in designing programs and as a training document for their staff.

As it stands now, the manual will be presented as a draft to the participants in this conference. The manual will be discussed in the working groups during four of the sessions on day three. It will be revised to incorporate the comments of the participants. After revision, it will be published for distribution worldwide. With the limited funds available, UNEP will provide further assistance in training for those countries that ask for such assistance. However, the countries themselves must do most of the work.

### **3 GENERAL ORGANIZATION OF THE MANUAL**

The "Industrial Environmental Compliance and Enforcement Programs" manual now on the table presents reading material in several modules. The modules describe the major elements in the development of environmental compliance and enforcement programs. Special emphasis is placed on permitting and on the human and financial resources required for such programs.

The case studies selected as training material describe, in increasing complexity, the various levels of development of compliance and enforcement programs. Building the institutional capacity of the program of a given country, in balance with a workable compliance and enforcement program, is the ultimate goal of the training exercise. In presenting the case studies transparencies will be used to strengthen the impact of the material and to promote discussion among the participants.

With the help provided and the answers given in the case studies, participants can find ways to create programs on their own that match the program capacity of a particular country with the existing infrastructure in that country.

The contributions and the comments of the participants at the workshops will be taken into account in compiling the final manual. The solutions to the problems identified and presented by the participants will be collected during the UNEP workshops.

### **4 HOW ARE THE WORKSHOPS ORGANIZED?**

During the workshops, case studies will be discussed with participants. Therefore, the participants are encouraged to review the training manual before attending the workshops.

The contents of the case studies have been chosen, to replicate reality as closely as possible. Each of the four selected cases, which are based on experience of UNEP experts, represents the state of development of organizational infrastructures and the promulgated laws of a hypothetical country. The case studies are arranged in order of increasing complexity, coinciding with the state of development of the country studied. The need for a properly balanced enforcement program is made clear in each case study. Participants are encouraged to come forward with ideas about strengthening the capacity of compliance and enforcement programs. Such contributions from participants will add to the value of the training manual and will make it even more relevant to actual issues in developing countries.

#### 4.1 Advice

To be able to effectively join in the discussion of case studies 1 and 2, participants are advised to become familiar with the contents of modules 1 and 2 in the Training Manual. Case studies 3 and 4 require knowledge of modules 3 and 4 of the Training Manual, respectively.

The case studies are derived from experience gained in Poland, Mexico, the Philippines, Thailand, Argentina, Zambia, Zimbabwe, Indonesia, the United States, the Netherlands, the Russian Federation, Brazil, Sri Lanka, and many other countries.

As has been indicated, the participants will test the training manual and the case studies during the workshops. The participants will work as if the training session were taking place in their own countries and as if they were applying the training manual in their home countries.

The response of the audience and the changes or alternatives in the manual that they suggest are extremely important. Participants' comments will be recorded and incorporated in the final training manual.

### 5 WHAT DO THE MODULES DESCRIBE?

#### 5.1 Overview

Provides a general introduction. It includes an overview of the manual and presents, in summary, the definitions and the framework for the main concepts of the Principles of Environmental Enforcement.

#### 5.2 Module 1

Covers the subject of how to design a compliance and enforcement program. It describes the institutional aspects of capacity building in industrial compliance and enforcement.

#### 5.3 Module 2

Discusses the human and financial resources required and funding opportunities available for a compliance and enforcement program.

#### 5.4 Module 3

Describes the fundamental concepts and procedures in designing inspection, self-monitoring, and enforcement response programs.

#### 5.5 Module 4

Presents the main elements of the permitting process that lead to enforceable prescriptions in permits.

### 6 WHAT DO THE CASE STUDIES PRESENT?

The four case studies in this manual are tailored to help participants recognize "the fundamental issues in developing an effective compliance and enforcement program" and project the information on conditions in their home countries. The points that the case studies put forward characterize the compliance and enforcement programs and the capacity of the executing organizations in each country studied.

## 6.1 Case study 1: Kariz

Kariz is a small country, with mining, textile operations, and agriculture as its main industries. Currently, no specific institute is responsible for environmental management. An interministerial committee has been established. There is a ministry of natural resources that has responsibility for management of Kariz's natural resources, mainly forestry and wildlife. A mining company monitors water quality. Some experience exists in enforcement. Pollution problems are clearly abundant and widespread. A number of environmental laws are in place, although the structure of authority and responsibility for enforcing those laws are diffuse.

A new environmental management act has been adopted, and an Environmental Quality Council created.

### 6.1.1 Task of the participants

Develop an environmental action plan for Kariz. Keywords for the participants: "How to get organized." Take into account the need to develop program functions, organize an agency responsible for the compliance and enforcement program, and fulfill other institutional requirements. Develop institutional capacity for Kariz.

## 6.2 Case study 2: Mudima

Mudima is a medium-size country. Its industry centers on oil and gas processing, mining, logging, chemical plant operations, and cattle breeding. The government has made a commitment to abate pollution. NGOs, regional organizations, and the government are organized. Widespread pollution has been observed.

An environmental compliance and enforcement agency has been established for some time but seems to be ineffective in the effort to abate pollution. Financial constraints are considerable. Mudima has no systematic permitting and inspection system. The state is responsible for enforcement.

### 6.2.1 Task of the participants

Keywords for the participants: "How to become effective." Develop an effective compliance and enforcement program, taking into account the financial constraints and the human resources and enforcement infrastructure in existence. Consider also the institutional requirements, such as the need for a process of consultation.

## 6.3 Case study 3: Avnia

Avnia is a medium-size country. Its major industries are mining of coal and metals, production of heavy machinery, and agricultural. The permitting and enforcement systems are decentralized through the provinces. Avnia recently changed its law to improve the enforcement system in the provinces. Recently, a law concerning Hazardous Waste was enacted to address significant problems related to industrial waste. Its unclear definitions of hazardous waste and other problems are undermining the new law.

### 6.3.1 Task of the participants

Keywords for the participants: "How do you execute enforcement?" Identify the effects of the changes in Avnia's law on its enforcement program. Provide recommendations for improving enforcement in Avnia.

#### 6.4 Case study 4: Odemi

Odemi is a medium-size country. Its main industries are metal refining, oil refining, textile manufacturing, butchering, crop farming, and piggery operations. Odemi has 10 years of experience in the execution of environmental laws governing air and water issues. Permitting system is in full operation, Odemi lag in permitting. Difficulties in enforcement are the result of standards and inspection infrastructure.

##### 6.4.1 Task of the participants

Keywords for the participants: "How to get an enforceable permitting process." Improve permitting and establish systematic enforcement. Develop tools to evaluate progress and promote cooperation with the regulated community.

### 7 WHAT WILL BE DONE WITH THE RESULTS OF THE WORKSHOPS?

Comments and contributions of the participants during the workshops will be compiled and reported. Participants will complete a questionnaire to evaluate the workshops. The results will be distributed to all participants.

The manual will be updated and published for distribution worldwide through UNEP IE/PAC, Paris.

A facilitator's guide will be added to the manual to assist trainers-to-be in using the manual.

### 8 WHERE ARE WE TO GO FROM HERE?

The real test of the training manual will be in practice.

To improve the manual, UNEP will need evaluation of and comment on the use and application of the manual in different countries. Such improvement is a long-term goal for UNEP. The countries that are implementing and developing an enforcement program might require assistance through UNEP. UNEP will be eager to receive information about the experiences gained in those countries that use and apply the training manual.



## SPECIAL TOPIC WORKSHOPS

### *Export/Import of Illegal Shipments of Hazardous Waste, Toxic Chemicals, or Contaminated Products*

3. Summary of Workshop, *Facilitator: W. Klein, Rapporteur: R. Sturgess* ..... 171

Papers 1 through 2 in Proceedings Volume 1.

### *Field Citations as an Approach to Enforcement*

4. Summary of Workshop, *Facilitator: M. Alushin, Rapporteur: K. Rubin* ..... 177

Papers 1 through 4 in Proceedings Volume 1.

### *CFC Control Program Enforcement: Implementing the Montreal Protocol*

3. Summary of Workshop, *Facilitator: H. Kesselaar, Rapporteur: M. Mayo* ..... 181

Papers 1 through 2 in Proceedings Volume 1.

### *Criminal Enforcement Role in Environment*

5. Summary of Workshop, *Facilitator: G. van Zeven, Rapporteurs: A. DeLong, T. Shewmake* ..... 185

Papers 1 through 4 in Proceedings Volume 1.

### *Enforcement at Government-Owned or -Operated Facilities*

2. Summary of Workshop, *Facilitator: M. Stahl, Rapporteur: A. DeLong* ..... 189

Paper 1 in Proceedings Volume 1.

### *Enforcement of Economic Instruments*

3. Summary of Workshop, *Facilitator: J. Peters, Rapporteur: E. Cowan* ..... 193

4. Enforcement of Economic Instruments in Russia, *M.M. Brinchuk* ..... 199

Papers 1 through 2 in Proceedings Volume 1.

---

*Promoting Voluntary Compliance: Environmental Auditing, Outreach, and Incentive Programs*

5. Summary of Workshop, *Facilitator: S. Bromm, Rapporteur: D. Bronkema* ..... 205
6. Promoting Voluntary Compliance: Linking Competitiveness, Corporate Quality, and Self-Auditing, *J. Olha, A. Mastrandonas*..... 209
7. Voluntary Environmental Initiatives and Environmental Policy: Environmental Management Systems, Auditing, and Enforcement, *N. Kennedy, A. Greene* ..... 241

Papers 1 through 4 in Proceedings Volume 1.

*Role of Police*

3. Summary of Workshop, *Facilitator: J. Peters, Rapporteur: M. Low, T. Shewmake*..... 249

Papers 1 through 2 in Proceedings Volume 1.



**EXPORT/IMPORT OF ILLEGAL SHIPMENTS OF HAZARDOUS WASTE,  
TOXIC CHEMICALS, OR CONTAMINATED PRODUCTS**

Facilitator: Wout Klein

Rapporteur: Rick Sturgess (Apogee)

**GOALS**

The sessions addressed the following questions:

- How are nations ensuring they know of shipments with potential environmental hazards?
- How well understood are procedures and other requirements?
- How are illegal activities identified?
- What responses have been taken and why, and how effective have they been?
- What types of international cooperation have been useful?

**1 INTRODUCTION**

More than 35 participants from more than 20 countries met in three separate sessions to discuss their experiences and thoughts on methods for limiting, detecting, and enforcing regulations on the illegal import and export of hazardous wastes, toxic chemicals, or contaminated products.

In addition, participants presented their views on the most important aspects for countries to consider in designing a program to limit and respond to illegal shipments of hazardous waste. The discussion ranged from views on the institutional frameworks needed within governments for effective compliance promotion and enforcement to the need for international access to high quality information on illegal waste shipment activity. Representatives from countries with a long history of successes and failures in responding to illegal hazardous waste shipment issues as well as those who have just begun to grapple with these problems provided a range of alternatives for approaching the problem suited to the specifics of their country's needs and existing institutions.

The importance of a program for compliance promotion and enforcement of requirements on trans-boundary waste shipments has been driven home to many countries as a result of specific instances of illegal activity with potentially serious consequences, such as the dumping of waste by an Italian firm in Nigeria. In other cases, such as in Latvia and China, policy activity in this area has been increasing in conjunction with a number of other developments in environmental legislation and institutional development. In addition, countries that have existing requirements on trans-boundary shipments, such as those in North America and Europe, are faced with changes in border controls as a result of regional trade agreements that may effect waste shipments as well. Finally, all those present were interested in increasing international cooperation and information flows on this issue.

Many of the participants were signatory members of the Basel Convention on trans-boundary shipments of hazardous wastes. As a prelude to the discussion, participants of signatory nations summarized the results of the second Basel convention. At this meeting, participating members agreed to accept a ban on the export of hazardous waste for final disposal from OECD countries to non-OECD countries, effective in March of 1994. This ban would continue to allow the trans-boundary shipment of wastes intended for reuse or recycling. In 1997, however, the ban would be extended to cover all exports of waste for any use from OECD to non-OECD countries, except where agreed to in negotiations between individual countries. Some participants who are not signatories to the agreement stated that the provisions for bilateral agreements was one of the major factors in their decision not to join the convention.

## 2 PAPERS

Papers dealing with the subject can be found in Volume I of the proceedings under headings as follows:

- Enforcement in the Netherlands of the European Regulation on Transfrontier Shipment of Hazardous Waste, W. Klein, pp. 375 - 381. A concise paper giving quantities of transported wastes to and from the Netherlands and shortly mentioning all of the items stated above.
- The United States' Enforcement Approach to the Export and Import of Hazardous Waste, S.E. Bromm, pp. 383 - 397. This paper roughly deals with the same matters for the USA, but in more detail and depth.
- The Enforcement Project on Transboundary Movements of Hazardous Waste Within Europe, R. de Krom and H. Kesselaar, pp. 365 - 371. A paper describing a project to improve exchange of ideas and cooperation between partner countries in the enforcement of the European regulation.

On page 373 of Volume I are listed another 13 papers from other International Workshop and Conference Proceedings on the same subjects.

## 3 OPEN DISCUSSION

### 3.1 Methods of detection for shipments of waste with potential environmental hazards

Participants acknowledged the difficulties in detecting fully all shipments of hazardous waste crossing their borders. Both shipments where none of the required paperwork was prepared and shipments where the contents were misrepresented in accompanying documentation provide challenges to governments. Although many present felt that the sophisticated techniques used by those involved in illegal activity make it difficult to ensure complete detection of illegal shipments, a number of techniques have proven effective in limiting this illegal activity. Detection methods included the following:

#### 3.1.1 Environmental inspectorate

- Environmental inspectors. Some participants stressed the need for a cadre of government employees trained in the technical and administrative details of hazardous waste. These officials provide an independent inspection and investigatory body that can follow-up on information gathered from other sources or can lead detection efforts separate from those carried out through normal customs channels.
- Proactive investigation. A number of participants suggested developing "waste profiles" to aid in the detection efforts outlined above. These include industry analyses to identify common hazardous wastes generated in the production of goods, to criminal histories of individuals and companies. These information databases can provide information on trends and criminal backgrounds to help focus inspection and investigation efforts. International sharing of this type of information was encouraged.
- "Paper Trails." The importance of documentation at each stage of the shipment process, from cradle to grave, was emphasized. This trail of paper makes illegal activity more cumbersome, as documentation must be falsified at many stages in the process and makes detection easier. For example, a Canadian participant

noted that illegal waste shipments are often detected by examining records at the disposal facility.

### 3.1.2 Other government institutions

- Customs inspections at international borders and ports. Although the role played by customs officials differs from country to country, most participants emphasized the critical detection role played by a customs officials trained to detect oddities in shipment documentation and to identify illegal substances.
- Police Inspectors and Criminal Intelligence. In addition to customs officials and inspectors focussing on illegal waste shipments, a good deal of illegal transboundary shipments are detected through the broader activities of police departments and the intelligence community. Indeed, hazardous waste shipments may be only one part of the illegal activity carried out by individuals or organizations. Therefore, coordination, training, and information sharing among those governmental bodies likely to uncover illegal waste import/export activity is essential.
- Other governments. While many participants stressed that Basel Convention signatory nations are required to provide "Prior Informed Consent" for transboundary waste shipments, others noted that this did not always occur and did not require those nations that have not signed the convention to comply. Nevertheless, it was noted that a good deal of information on hazardous waste shipments flows from originating countries as well as countries that are intermediate transit points to the country of destination.

### 3.1.3 Other organizations

- Non-governmental Organizations (NGOs). For many countries, international NGOs, such as Greenpeace, as well as local organizations are critical sources of information on illegal waste shipment activity. In Indonesia, for example, these organizations played a principle role in detecting illegal shipments prior to recent capacity-building efforts in the country.
- The media and the public. Private citizens and journalists have played an important role in detecting and publicizing illegal waste shipments in many countries. Frameworks for encouraging this type of public participation, such as "hotlines" for citizen reporting were mentioned as effective tools.

## 3.2 Clarity of understanding of hazardous waste import/export procedures and requirements

Participants recognized that understanding of hazardous waste import/export requirements is poor, both within a single country and between nations. A critical problem is the definition of "hazardous substance." Many countries and international organizations have adopted different definitions and alternative lists of substances considered dangerous. For example, the European Commission, the OECD, and the Basel Convention have all adopted varying standards. In addition, interpretation of these standards differs between countries. A critical point of dispute is the definition of recyclable materials as opposed to hazardous waste. A number of governments have been accused of exporting hazardous wastes that they define as materials for recycling or reuse. Although participants realized that this issue was quite difficult to resolve, they felt a greater reliance on technical/science based definitions of hazardous substances was needed.

In addition to definitional problems, transporters, importers, and exporters, as well as government officials and the public are often ignorant, or plead ignorance of regulations on import

and export. It was felt that there was not sufficient effort being placed on compliance promotion activities such as educational programs and letters to the regulated community. It was pointed out that this compliance promotion activity can also strengthen enforcement efforts since evidence that entities had received specific information on requirements limits an illegal transporters ability to plan ignorance of laws.

In addition, both legal training and technical training is critical for government officials that will be required to carry out the laws. Training for customs officials on methods for identifying hazardous waste is important, although experience in the United States has been that custom's officials prefer to focus on more traditional smuggling activity.

### 3.3 Responses to violations

Participants focussed on responses to violations that are somewhat unique to illegal shipments of hazardous waste. In general, participants believe that a firm response to violations is necessary to deter future violations. In addition, since detection is difficult in many cases, penalties must be costly to provide strong disincentives to other potential violators. Participants offered the following suggestions for responses that have proven effective or that seem appropriate to hazardous waste import/export violations:

- Require transporting companies or *countries* to take back waste and clean-up problems in the destinating country. While there was some difference of opinion on the responsibility of the originating country as opposed to the company, the majority of participants felt that the country of export must take responsibility for actions of companies operating within its borders. Some participants pointed to examples in the Netherlands and elsewhere where waste was sent out of the importing country but was not accepted by the country of export.
- Hold-up transport. Participants noted that there was an implicit economic penalty associated with impoundment of vessels transporting waste illegally. Although this measure appeared most appropriate for ship-borne waste, it has proven effective in Nigeria and elsewhere.
- Criminal penalties. The Basel Convention promotes the use of criminal law to penalize violators. This is consistent with policies in many countries that rely on fines, and jail terms for violators.
- Negative publicity. NGOs and the public can play an important role in pressuring exporters to abide by accepted practices for hazardous waste shipments. In some instances, public reaction has caused transporters to modify their waste disposal plans, even for shipments that met existing regulations.

### 3.4 International cooperation

There are many international efforts underway to improve compliance and enforcement of existing legislation on hazardous waste import and export as well as encourage the development of sound policies in countries where they do not currently exist. In addition to the Basel Convention, a number of regional agreements have been created, including ASIAN, EC, and Africa (through the Bamako convention). Some participants were not yet satisfied with existing agreements, in particular some participants were uncomfortable with current provisions for bilateral agreements for hazardous waste exports to developing countries. They felt that economic pressures would force these nations to accept shipments of waste with serious health impacts.

International cooperation on enforcement activity is also increasing, primarily through initiatives of INTERPOL and other international investigative bodies. Of particular interest to participants are the creation of databases of criminal activity that will aid nations to identify exporters with a history of hazardous waste violations and other related illegal activity.

### 3.5 Recommendations for country policies and programs on illegal import/export of hazardous waste

Many countries are in the process of formulating new policies or modifying existing policies in response to changes in national priorities or the removal of barriers to free trade. Participants were asked to provide assistance to these nations by offering a single recommendation they felt was critical to the development of an effective program for managing the illegal import and export of hazardous waste. These recommendations are summarized are below.

#### 3.5.1 Planning and preparation

- Involve all concerned parties across government, the private sector, community groups and non-governmental organizations in discussions prior to formulation of policy. These conversations will ensure that major concerns are addressed in program design and future cooperation for compliance promotion and enforcement will be encouraged.
- Learn as much as possible about programs in other countries so as to understand the definitions of hazardous waste in use by exporting nations. This information-gathering phase will also allow countries to learn from the mistakes made by other nations and allow a country to design a policy from models currently available that is most suited to its needs and existing institutions.
- Ensure technical expertise exists or is developed within the agency responsible for inspections and investigations. Training should also be available for customs officials and others who will be asked to support inspection and detection efforts.
- Start with achievable objectives given the capacity of the country. Expand efforts over time as experience and institutional capacity is built through training, information exchange, and experience.

#### 3.5.2 Program and policy formulation

- Ensure that definitions of hazardous waste are clear and are based on sound scientific analysis.
- Build on these definitions with requirements for sufficient documentation, including required manifests of shipment contents and formal notices of agreement between exporting and importing nations. Records should provide a detailed paper trail of waste shipments from departure to final disposal to bolster enforcement efforts and make illegal activity more difficult. Include provisions for stiff enforcement actions, including criminal penalties, that target individuals responsible for shipments as well as companies. Require that reporting cover both hazardous wastes and materials that could conceivably be classified as recyclable, although countries may choose to accept these recyclable materials, it is still important to track their entry into the country in order to reassess their potential for harm over time.
- Make responsibilities clear among levels of government (national, local) and among government departments for various types of waste. For example, many countries place authority for household hazardous waste issues with local government authorities, while issues of industrial hazardous waste and waste imports are governed at the national level.
- Design an effective information system for tracking waste shipments that can provide up-to-date information to inspectors and customs officials. Incorporate information available from international sources. The importance of information was stressed repeatedly. Canada, has found that, although extensive information on

hazardous waste shipments within the country is collected, this information is not readily available in some provinces, hampering compliance and promotion efforts.

### 3.5.3 International cooperation

- Informal networks and more formal international arrangements can provide important support for new programs governing import/export of hazardous waste. Participation in international treaties such as the Basel Convention, the Bamako agreement, and other multinational or regional arrangements can provide a formal demonstration of commitment to responsible action on control of hazardous waste shipments.
- Cooperation and support from countries responsible for large-scale waste production is often critical to a well-functioning program. The export of pesticides from countries where their use is banned were cited as examples of issues that need to be resolved through additional negotiation between hazardous substance exporting and importing countries.

## 4 CONCLUSIONS

It is striking that problems with transboundary shipments of hazardous waste, enforcement practice and the need for international networking are so uniform throughout the world.

Key factors for successful enforcement of regulations on this subject are:

- clear and uniform definitions
- clear responsibilities and organization
- linking of information
- international networks of enforcement agencies

A general feeling exists that international networks like they are emerging in Europe, in North America, in South East Asia and in the Mexican Gulf area could be nuclei of broader international cooperation and that these networks could also initiate improvements in the fields of definitions, organization, and information.

## FIELD CITATIONS AS AN APPROACH TO ENFORCEMENT

Facilitator: Michael Alushin  
Rapporteur: Ken Rubin (Apogee)

### GOALS

This topic addressed the following issues:

- What are field citation programs?
- For what kinds of violations are they most useful?
- What are the program design elements and different approaches to organizing a field citation program?
- What authorities are needed?
- What factors are important to successful implementation and what kind of training and communications are needed to implement the program?

### 1 INTRODUCTION

Some 20 participants from 12 countries met in two sessions to share their experiences with field citation programs. The definition of "field citation" used to initiate discussion was that of a modest fine imposed in the field, generally at the time and place of first discovery of a violation. The concept was expanded during the session to reflect the social, political, and economic conditions of various countries or sub-national jurisdictions. After discussion, field citation programs were seen to be low-cost, streamlined, expedited enforcement tools that avoid lengthy court proceedings and harsh penalties such as jail terms. Since they allow quick flexible response, field citation programs often prevent small non-compliance problems from growing.

### 2 PAPERS

Three papers, printed in Vol. 1 of the proceedings, provided useful background for the discussion.

Mr. Lee Paddock, Director of Environmental Policy, Minnesota Attorney General's Office, USA, described Minnesota's use of civil field citations to address illegal disposal of solid waste such as tires, batteries, appliances, and garbage. The program was adopted to handle a large number of smaller violations by authorizing environmental inspectors and state conservation officers to impose fines up to \$2,000.

Ms. Shelda Sutton-Mendoza, Manager, Prevention/Inspection Section, Underground Storage Tank Bureau, New Mexico Environment Department, USA, described New Mexico's program for enforcement of underground storage tank regulations. The program greatly increased compliance rates by coupling education and enforcement. It provides an expedited process for imposing fines up to \$500, although the large majority of fines are limited to \$100.

Mr. John Rasnic, Director, Stationary Source Compliance Division, U.S. Environmental Protection Agency, along with Ms. Jane Engert, Environmental Scientist, U.S. EPA, described a proposed U.S. Clean Air Act Field Citation Program which will allow imposition of fines up to \$5,000 for each violation. EPA will consider various factors in determining the amount of the penalty (with a cap on total penalty to be assessed for multiple violations) and will coordinate closely with state governments in using the remedy.

### 3 DISCUSSION ISSUES

Country experience with field citation programs identified a number of key issues that served as a useful framework for discussion:

- Authorities for action.
- Legal structure.
- Training and other issues of implementation.
- Intergovernmental cooperation.

#### 3.1 Authorities

Field citation programs tend to reflect the social, political and economic conditions in each country. In most programs, for example, government agents or officers have the authority to issue citations, but some jurisdictions allow citizens to issue tickets, make citizen's arrests, or refer a violation to the appropriate government agency. Other programs engage private companies or agents from sister agencies (conservation officers in the state of Minnesota, for example) as field agents.

Authorities also specify the scope of citeable activities. Some programs are quite narrow. In Kenya, for example, citations are issued by many different agencies with narrow authorities in wildlife preservation, protection of natural area, marine resources, or forestry. In the U.S. State of New Mexico the citation authority is limited to underground storage tanks, but 93 activities are citeable. In Mexico, Sedso's 2000 field agents have broad authority to issue citations across a wide range of industrial and commercial activities. In Canada, the federal government is currently surveying its administrative agencies to develop a schedule of "ticketable" offenses of federal environmental regulations together with applicable fines or penalties.

Authorized penalties include the imposition of warnings, fines, or penalties, closure of facilities, seizure of assets, or orders to correct problems causing violations. Where fines are authorized, they generally contain schedules by type or extent of offense and minimum or maximum amounts that may be imposed. Many programs find that access to different types of penalties provides the flexibility to take actions that are consistent with the nature and extent of violations.

#### 3.2 Legal structure

Key issues with respect to legal structure include:

- Source of authority—whether new legal authority is required in countries wishing to start a field citation program.
- How explicit must legal authority be—field citations in some jurisdictions are issued under merely implied authority to informally settle other types of enforcement actions explicitly authorized by law.
- Whether authority should be civil or also criminal (potentially involving a jail sentence).
- Burden of Proof—whether the government or the party charged with violating the law must establish the relevant facts surrounding the charge.
- Appeals—whether they are allowed and how they are handled.

Many field citation programs draw their authority explicitly from legislation enacted for that purpose. Interestingly, New Mexico's underground storage tank field citation program is a purely administrative creation. The program offers violators an administrative order which serves as a settlement agreement resolving the problem before more severe enforcement action is taken. The state has no statutory or regulatory authority for field citations. Nevertheless, the administrative route is often preferred by violators who also face the possibility of statutory penalties of up to \$10,000 per day. To date, New Mexico's legal authority to issue field citations has not been challenged.



The burden of proof varies among programs. In Jamaica, for example, field agents must prove that a violation has occurred (illegal dumping of waste, for example) and that the violation adversely affected public health. In most cases, this becomes difficult, especially the need to address public health issues in each case. In other programs, violators who choose to dispute citations must prove that no violation occurred.

Most field citation programs have either an administrative or judicial process of appeals. Ontario offers an administrative process designed to settle disputes quickly and at low cost. Other programs rely much more heavily on the courts to handle appeals. The Bahamas process of issuing "field orders" engages that court system in a relatively long drawn out process of appeals.

Some field citations preclude further enforcement actions while other act as only the first step in an integrated enforcement system. Enforcement programs can be severely limited if use of a field citation precludes the possibility of using other enforcement actions to address the same problem at a later date.

### 3.3 Training and other issues of implementation

While most field citation programs have found that training is integral to program performance, the issue of who should be trained is of critical importance. Most programs train field agents continuously. The Ontario Ministry of the Environment also has a training course for judges designed to educate them on the authorities in environmental statutes and the importance of enforcing regulations prepared pursuant to them. As a result Ontario has found marked advances in judges' receptivity to enforcing environmental offenses and the issuance of stiff penalties that act as effective deterrents. Other training programs target police, citizens, or other agents who participate in the field citation program.

Monitoring and evaluating success of a field citation program also is key to implementation. One dimension is direct monitoring of the actions of field agents. From a broader perspective, this is only one measure of success. Other measures suggested by program representatives include:

- Reduction in costs per citation.
- Reduction in number of appeals over time.
- Increase in percentage collections.
- Increases in compliance rates.
- Environmental quality improvements.
- Public health improvements.

### 3.4 Intergovernmental cooperation

Some field citation programs are run exclusively at the national level (Mexico) while others operate at a sub-sovereign level (U.S. States and Canadian Provinces, for example). Where both exist, questions arise regarding the extent to which they complement each other or, possibly, indeed the extent to which they overlap or conflict. Most field citation programs prefer to limit interactions with elected offices. Many programs seek to leverage agency resources by interacting as needed with licensing authorities, the police, or agents from sister agencies.

## 4 CONCLUSIONS

Since most field citation programs are relatively inexpensive, they tend to enable an efficient allocation of enforcement budgets. Adequate training and monitoring of the performance of field citation programs are integral to successful programs.

A field citation program can compliment broader enforcement efforts in several ways. First, citations can offer substantial deterrent value at relatively low cost. Although rapid imposition of a

monetary penalty is the most common remedy, other more severe measures are also used. In Ontario, for example, field agents have the authority to seize assets upon discovery of a violation, and in Mexico federal field agents can close a violating facility at the time of inspection. Second, field agents are close to the regulated community and can offer technical advice on corrective or pollution prevention options. Third, field citation programs can be very flexible. Some are customized to fit specific problems, such as illegal dumping of appliances, while others have authority to issue fines for many types of violations. Finally, field citation programs provide a rapid remedy which can supplement other administrative, civil and criminal enforcement authorities while placing little or no burden on the judicial system.

## **CFC CONTROL PROGRAM ENFORCEMENT: IMPLEMENTING THE MONTREAL PROTOCOL**

Facilitator: Huub Kesselaar  
Rapporteur: Marda Mayo (TLI)

### **GOAL**

To meet the Montreal Protocol deadlines for reduction of CFCs.

### **1 INTRODUCTION**

More than 25 participants from 20 countries met in three separate sessions to discuss their experiences, programs, and recommendations for reduction of CFCs to meet the terms of the Montreal Protocol. The sessions addressed the following questions:

- What are the major challenges meeting and enforcing the CFC reduction goals?
- What types of programs have countries adopted to control CFCs? What are the successes and difficulties experienced with the existing programs?
- What lessons were learned to help with future program design?

Participants included representatives from countries with CFC enforcement programs in various stages of development ranging from those with broad-based functioning programs to those just starting to develop a program. Examples of two fully functioning programs, discussed in the sessions, are included in Volume 1 of the Proceedings of the Third International Conference on Environmental Enforcement on pages 427-442.

### **2 PAPERS**

For this special topic workshop, two papers were received. Tijink and Kesselaar reported on the Dutch policy objectives concerning the CFC-action program. In 1993 an enforcement organization started. During this year 1,600 companies were visited. In general compliance was found to be unsatisfactory; companies waited for enforcement. Rasnic and Haas gave an overview of the United States' efforts to comply with the Montreal Protocol in the framework of the Clean Air Act. In their program USEPA has relied on industry awareness and education to promote compliance. It was important to note that education is not a substitute for traditional enforcement, but is a proven method of achieving compliance in its own right.

### **3 CHALLENGES**

Out of the discussions came conclusions that the following items are necessary:

- 3.1 Meeting goals for some developing countries, including effective financial and technical assistance

Many of the participants were from countries which are signatories to the Montreal Protocol. The Protocol requires reporting and reduction achievement which some participants from developing countries indicated would be difficult to meet, even under the extended time frame allowed by amendments to the Protocol.

### 3.2 Education of the public and private groups to achieve awareness

An understanding of the enforcement goals of the CFC programs were cited by many participants as critical to program success.

### 3.3 Replacement of CFCs with harmless substances and cleaner technology

Additional research is needed so benefits provided by CFC use can be retained while using harmless and clean technology. However, beware of new chemicals to replace CFCs. While replacements, such as the HCFCs, have been developed to reduce harmful effects on the ozone layer, new substances may have undiscovered negative effects of their own. For instance, although HCFCs appear to destroy the ozone layer more slowly than CFCs, they still affect the ozone layer, and may also increase climate change.

### 3.4 Worldwide access to CFC technology

Exchange of information and technology to control and reduce CFCs would increase the probability of meeting target goals, particularly for developing countries.

### 3.5 Consistency among nations

Challenges include development of a common understanding of the treatment of recycled CFCs, labeling issues, and import/export tracking and enforcement.

### 3.6 Making an inventory

Development of a comprehensive CFC inventory of producers, importers, and users is important for initiation of the enforcement effort, and for targeting priority sources.

## 4 PROGRAMS

### 4.1 Successes

#### 4.1.1 Some industrialized countries run full programs and meet targets

Several industrialized countries have implemented broad-based programs which meet targets. Such programs include preparation of an inventory of CFC producers, importers, and users, an education program, development of priorities for maximum enforcement effectiveness and CFC reduction, a labeling program indicating which products contain CFCs, initiation of a partnership with producer and user groups, including self-reporting mechanisms, and inspections to check for compliance.

#### 4.1.2 Some developing countries have begun limited programs

Such programs include inventories, permitting programs, and administrative reporting.

#### 4.1.3 Research on new technologies and CFC substitutes is underway in several countries

Programs have been funded by both private and public funds.

#### 4.1.4 CFC suppliers and producers comply easily and meet targets

The limited number of CFC suppliers and producers makes this target group easy to control.

#### 4.2 Difficulties

##### 4.2.1 Financial assistance to some developing countries is too slow

Some developing countries do not have staff and funding to carry out effective reduction programs. Funds are available under the Montreal Protocol, but some countries do not have information on how to access these funds.

##### 4.2.2 CFC import goals are difficult to enforce

Even using Customs staff and capabilities, restrictions on imports are difficult to enforce. Mislabeling, both non-reporting of CFCs, and incorrect labeling of other chemicals as CFCs has complicated import enforcement.

##### 4.2.3 Enforcement of numerous diffuse target groups

Enforcement of reduction goals for user groups like small firms and owners of home appliances and refrigerators is difficult.

## 5 CONCLUSIONS

To design and run an effective enforcement program:

- Start the education program early
- Clearly explain the problem and benefits of the CFC ban to the target groups

Voluntary compliance is more likely where users understand what is expected of them.

#### 5.1 Form a partnership with industrial and other users for enforcement implementation

Work with users to set realistic goals and to enforce the program. Place the responsibility for compliance with the user. For example, one country requires self-reporting of CFC use, with non-reporting a violation.

#### 5.2 Explore the problem of export flows (especially flows to developing countries)

Some developing country representatives mentioned the problem of shipments of used equipment and appliances containing CFCs. For example, one country receives used refrigerators, some of which do not function long and so the CFCs used for cooling escape during disposal.

#### 5.3 Design specific legislation to prevent illegal imports

One developing country, a signatory to the Montreal Protocol, indicated they do not currently have legislation enabling them to prevent CFC imports which violate the goals of the Montreal Protocol.



## CRIMINAL ENFORCEMENT ROLE IN ENVIRONMENT

Facilitator: Gisèle van Zeben,  
Rapporteurs: Ann DeLong and Tiffin Shewmake (TLI)

### GOALS

The session addressed the following issues:

- What kinds of sanctions and other consequences are made available through criminal enforcement, and how effective are they in achieving compliance?
- What is the proper role of criminal authorities and sanctions in environmental enforcement? What should the relationship be between criminal and civil enforcement? For what types of violations is criminal enforcement (rather than civil enforcement) particularly well suited?
- What government entities might be involved in making criminal enforcement successful? How can these different groups be encouraged to work together?
- What training is required to support criminal enforcement, and what training materials are available?

### 1 INTRODUCTION

More than 60 participants discussed, in three separate workshops, the role of criminal enforcement in the environment. Participants represented countries with a broad range of existing programs, including those who currently use criminal sanctions and others who are interested in developing criminal programs.

### 2 PAPERS

Olga Dubovic reported on the protection of ecology in Russia and the importance of fighting ecological crises to protect this.

Gisèle Van Zeben examined the role of the Public Prosecutor's Department in the Netherlands with respect to the enforcement of environmental laws. The main focus is cooperation in the enforcement network and the instruments available in the field of environmental criminal law.

The paper authored by Earl Devaney summarizes the dramatic expansion in the use of criminal enforcement at the United States Environmental Protection Agency. The paper, moreover, addresses the selection of appropriate targets for federal criminal environmental investigation.

In his paper, Jan van der Plas addresses the role of the Inspectorate for the Environment in tracing environmental crime in the Netherlands by way of the Environmental Assistance Team.

### 3 DISCUSSION ISSUES

- 3.1 What kinds of sanctions and other consequences are made available through criminal enforcement, and how effective are they in achieving compliance?

Many countries use some combination of fines, penalties, jail terms, closing the facility, negative publicity, requiring environmental audits and/or injunctive relief as sanctions in criminal cases. Criminal statutes may also allow for the seizure of property related to the crime. Penalties in

environmental crimes are typically higher than administrative penalties and may be assessed on the past profits of a corporation. Environmental crimes may also be prosecuted under other charges such as fraud, racketeering, or lying.

Some countries impose criminal sanctions on the corporation; in other countries, an individual within the corporation may be held personally liable. A recent trend in the United States is to impose both penalties and jail terms on high-level corporate officers for knowing violations' in one country, proposed legislation would make the attorneys who incorporated the organization personally responsible. In one example, Canada ordered a corporation not to reimburse the managers for criminal fines and required that over the next 2 years, the environment had to be on the agenda of the board of directors' meetings.

In some countries, when a citizen brings out information on an environmental crime, part of the fine can go to the individual. Fines go back to the agency, in some cases, or to special funds for environmental uses.

The publicity surrounding high penalties and stiff jail terms seem to provide an effective deterrent against environmental crimes. An effective publicity campaign also heightens public awareness about the environment and environmental degradation. A problem can occur if judges do not give stiff enough sentences, so sentencing guidelines need to be developed.

- 3.2 What is the proper role of criminal authorities and sanctions in environmental enforcement? What should the relationship be between criminal and civil enforcement? For what types of violations is criminal enforcement (rather than civil enforcement) particularly well suited?

Criminal is considered the toughest response. Environmental crimes are an assault on the entire community, and criminal responses carry a greater stigma. However, criminal enforcement is the most resource intensive, and different levels of proof are required. Criminal actions have to show intent, knowledge or criminal reckless negligence. The theory is that the pay off is greater.

Criminal cases are generally reserved for the most serious crimes. In most countries, the number of administrative cases is much larger than the number of criminal cases. Criminal prosecution is generally reserved for 1) people who knowingly and significantly harm the environment or public health and safety, or 2) cases where there is criminal culpability. Past behavior, including the history of compliance, is taken into consideration as well. Companies that view payment of a fine as part of the cost of doing business and are repeat violators may be liable for criminal sanctions. Guidance should be developed to determine when it is appropriate to use criminal enforcement, and industry should be made aware of what constitutes a criminal offense.

A challenge is to distinguish which type of sanction to bring; criminal or civil. Who determines whether an environmental violation may be prosecuted criminally, and whether the case is brought against an individual or a corporation, varies from country to country. In some countries, this determination is made by the public prosecutor, in other countries, a steering committee or the federal government agency may make this determination.

In some countries, civil and criminal processes may occur in parallel against a firm; the government may sue separately for the damages in a civil court. Other countries do not have this option because cannot prosecute twice for some violation.

In some countries, the current criminal laws cover environmental areas; for example, in Tanzania, pollution of water is criminal. In many places, it is difficult to bring criminal sanctions, however, because of a lack of money and because criminal sanctions are politically unpopular. Some countries have no provisions for environmental crimes.

In Canada, permit exceedence is a regulatory offence and is criminal. Both companies and individuals can be charged. One creative response required a company to put an apology in the paper for the pollution.



3.3 What government entities might be involved in making criminal enforcement successful? How can these different groups be encouraged to work together?

Cooperation between the government environmental agencies, public prosecutors, police and local authorities was seen as essential to the success of a criminal enforcement program. Some countries have established steering committees or commissions to oversee criminal environmental prosecution and, in some cases, these entities are responsible for determining which violations should be prosecuted criminally. These committees may contain representatives from one or more federal government agencies, the public prosecutor's office and local officials.

Countries without inspectors must use police. A problem is often the lack of specialized police who must collect evidence for environmental crimes. Some countries have a special section that works only on environmental crimes, no civil or administrative cases.

Good data collection and sharing of data among the different government entities is important. In the US model where criminal sanctions are used when there is a history of non-compliance, you have to know what the history is. One government agency may have secret information, which can be a problem for the prosecuting agency if they will not share that information.

INTERPOL may provide investigative support for environmental crimes through their criminal information system. They collect and disseminate information, and organize working groups on specific crimes and subjects. Mutual legal assistance treaties among countries can also promote cooperations on criminal matters during the investigative stage and later.

For example, in Malaysia, environmental problems are not a priority in the public's mind. The public complains to local authorities who, often, are not responsive to environmental crimes. The federal government is trying to develop cooperative working relationships with local officials and has recently signed a MOU with the police. The process is new and many cases do not receive high penalties. Slowly, political support is being built to support this.

3.4 What training is required to support criminal enforcement, and what training materials are available?

A common theme was that training is essential for inspectors, police, prosecutors and judges. In many countries, the environmental crimes department is small with few resources, which makes training difficult. In other countries, specially trained investigators, many with police backgrounds, are trained to investigate environmental crimes. Individual criminal investigators can often specialize in environmental violations.

Many corporations are providing increased training for their employees to make them aware of what constitutes a criminal environmental action. They are also improving their technology to try to avoid criminal sanctions whenever possible.

#### 4 CONCLUSIONS

Criminal sanctions can play an important role in an environmental enforcement program and send a strong deterrent message to industry. In order for a criminal enforcement program to be effective, cooperation between inspectors, police, prosecutors and judges is essential, and the program should target the most egregious violators. Prosecutors, judges and police also need to be trained to effectively implement a criminal enforcement program.



## **ENFORCEMENT AT GOVERNMENT-OWNED OR -OPERATED FACILITIES**

Facilitator: Michael Stahl  
Rapporteur: Ann DeLong

### **GOALS**

The session addressed the following issues:

- How are governments made accountable for environmental requirements?
- What enforcement responses are effective in achieving compliance? What enforcement instruments/authorities are particularly effective?
- Intergovernmental relationships: How important is the independence of the enforcement official? What relationships and organizational linkages are useful for success?

### **1 INTRODUCTION**

More than 35 participants from over 29 countries discussed in two separate workshops, challenges and approaches for enforcing environmental requirements at government owned or operated facilities. Participants represented countries whose industries were primarily state-owned and operated as well as countries whose economies were mostly privatized except in certain sectors.

### **2 PAPERS**

Edwin Lowry, Deputy Attorney General for the State of California, United States, prepared an introductory paper entitled, "Enforcement of Environmental Laws at Government-Owned Facilities: Some Theoretical and Practical Considerations". Mr. Lowry asserts that the federal government is capable of, and does commit, as large and as serious environmental violations as private industry, and that these violations should be treated in a manner similar to private industry. He also asserts that state and local governments should be treated the same way. The Federal Facilities Compliance Act, passed in 1992, now subjects the federal government to the same fines and penalties faced by private industry. Implementation of this Act has highlighted some of the different constraints faced when working with government-owned facilities, however, as examples from the state of California demonstrate. Budgeting for the payment of penalties remains a significant obstacle, but the threat of going to court to achieve compliance with the statute has encouraged government facilities to increase their efforts at compliance with environmental laws.

Additional papers which address enforcement issues at government-owned or -operated facilities can be found in Volume 1 of the Proceedings from the second International Conference on Environmental Enforcement under Theme #5, "Economic and Ownership Issues".

### **3 DISCUSSION ISSUES**

#### **3.1 How are governments made accountable for environmental requirements?**

In several countries, recent legislation has made it possible for the government to enforce environmental laws against government-owned or -operated facilities. In some cases, either the payment of penalties or injunctive relief may be allowed. The argument presented is that government

should function and be treated like private business and that, therefore, the same regulations and penalties should apply. However, the government agencies themselves often argue that they are public service organizations, without profit motives, and that they should not be subject to the same regulatory schemes. The need for an independent judiciary is essential for this approach to work.

In the United States, legislation has also been passed which requires federal facilities to do more to prevent environmental problems, to report their emissions, and to disclose the types of materials used. Holland has also placed more emphasis on environmental care programs, not litigation. Although this takes more time and resources, the results have been better.

Most countries have some provision for citizen suits as a means to enforce compliance at government-owned or -operated facilities. In some cases, however, standing was limited to having an interest. Canada has proposed to identify an environmental commissioner to hold government accountable. A computer registry of cases has been developed and is accessible to the public and any two citizens may request a review of a case.

Some countries have established inter-agency steering committees to review environmental violations and to try to work out mutually agreeable solutions, while preserving intergovernmental relationships.

Heightening public awareness was cited by several participants as an essential factor in an enforcement program. Media publicity, education, and awareness were all seen as effective enforcement approaches. Reliance on public pressure is often more effective than other kinds of actions.

### 3.2 What enforcement responses are effective in achieving compliance? What enforcement instruments/authorities are particularly effective?

Suits filed by government agencies against government agencies is one way to try to enforce environmental laws. In some countries, however, when one agency sues another, the Attorney General can quash the suit. The agency must then try to achieve the same result through hearings and discussion. In some cases, when legal action is difficult, the state can take over the function of the agency or close it down.

In some countries, penalties may be assessed for environmental violations. However, this often creates the situation where the government takes money from one pocket and puts it in the other. In some cases, a government agency is not allowed to pay a penalty unless it has been approved in that year's budget, which makes it difficult to collect. Another approach is to go to the legislature and request that that agency's budget be reduced or to enact new legislation allowing the payment of penalties.

Interagency agreements between the regulatory agency and the regulated agency can provide a mechanism for the negotiation of administrative orders to compel compliance and develop compliance schedules. Many countries prefer to place the emphasis on injunctive relief as opposed to the assessment of fines.

In some countries, one of the barriers to enforcement is that inspectors do not have the authority to inspect at government military installations, due to national security issues.

The lack of an independent judiciary is another significant barrier to enforcement. Judges need to be independent to stand up to agencies and make them comply.

### 3.3 Intergovernmental relationships: How important is the independence of the enforcement official? What relationships and organizational linkages are useful for success?

Tension can be created when one agency tries to enforce against another—both political tensions and personal tensions between colleagues. Political constraints were identified as a significant barrier to enforcing against government-owned and operated facilities. Colleagues at sister agencies are loath to embarrass their friends and will often let a case languish or refuse to bring it. Cases may also be quashed due to political influence and interference. For example, states may not

be very successful trying to compel local governments to take action because the local prosecutor may be biased.

The regulatory agency has to play the dual role of regulator and provider of environmental management assistance. It is often difficult to play both roles effectively. Interagency policy groups were identified as important to maintaining intergovernmental relationships. However, for these groups to be effective, it was suggested that someone who controls the budget be part of the process. These types of groups can also provide useful forums for standardizing the environmental management practices of federal agencies and encouraging the use of environmental audits and EIAs to prevent future problems.

#### **4 CONCLUSIONS**

Effective enforcement at government-owned and -operated facilities requires a combination of targeted legislation, policy, publicity and public involvement. Government industries should be treated like private businesses and the same regulations and sanctions should apply. An independent judiciary is essential to enforce effectively and the establishment of interagency committees to effectively address problems and preserve relationships can be effective.



## ENFORCEMENT OF ECONOMIC INSTRUMENTS

Facilitator: Jit Peters

Rapporteur: Eric Cowan (Apogee)

### GOALS

The discussion covered the three topics of most interest to the participants.

- Why is there such interest in the potential application of economic (or market-based) instruments to help solve environmental problems?
- What are particular examples of economic instruments being used in economically developed and developing countries, and are these approaches effective and efficient?
- What lessons have been learned about these instruments, in particular designing them to ensure compliance and enforceability?

### 1 INTRODUCTION

More than 50 participants from more than 15 countries met in four separate sessions. Representatives of countries in all stages of economic development were involved in the discussions.

### 2 PAPERS

Two papers were prepared for the workshops. The one by Peters and Alblas was dealing with the enforcement of environmental charges in The Netherlands. It is often claimed that charges are easier to enforce than direct regulations. Unfortunately, no regulatory charges are being used in Dutch environmental policy, so it is not possible to compare the enforcement-burden of these two instruments on practice. Experience, however, has been gained with financing charges. The examples presented in this paper illustrate that there is a trade-off between the regulatory effectiveness and the enforceability of these charges. For reasons of feasibility and enforceability, concessions are made on the correspondence between the charge-base and the environmental problem, thus limiting the regulatory potential of the charge. The decisions made on the specifications of the charge-base indicate that enforcement problems would rise if a charge is aimed at the regulation of behavior of a specific firm or household. From the point of view of enforcement, the relative advantages of charges compared to direct regulation seem therefore to be limited. Charges can, however, improve the enforceability of other instruments by correcting prices that cause environmentally unfriendly behavior.

The paper presented by John B. Rasnic was dealing with the enforcement of economic instruments in the United States. The United States is moving aggressively toward more market based or economic incentive programs (EIP) for limiting pollution. Many believe that in the long term, market based programs have a better chance at success in pollution prevention and encouraging clean technologies than the more traditional approach of command and control. The economic approach tends to tap the resourcefulness of the entire community by bringing out their desire to obtain a product or service at the least overall costs. To accomplish their goal of internalizing all costs, economic programs must include those costs associated with environmental protection required in delivering a product or service in order to be the most successful. For most of these economic instruments to work effectively, they must be backed by clear regulations, enforceable permits to establish emission rights for trading, an effective compliance promotion effort and an aggressive

enforcement program. This paper describes several types of economic instruments, their enforcement challenges and the current activities at the USEPA to implement them.

### 3 DISCUSSION

#### 3.1 The interest in the potential application of economic instruments

The participants agreed that there was a great deal of interest in all of their countries concerning the potential application of these instruments. Not only were governments promoting the idea; in some countries, the regulated communities (industries in particular) were pushing their environmental regulators to consider economic instruments rather than command-and-control regulations. In other countries, industries were fighting these instruments because industry preferred the predictable future of a command-and-control regulation.

There were different opinions, however, about whether the interest was justified. Would economic instruments turn out to be just another "flavor of the month" in environmental protection, or were there benefits worth considering closely?

The interest in economic instruments is coming from the potential benefits that these approaches appear to offer. The participants agreed that the benefits still seemed to be potential, rather than having been proved in practice. Yet the potential benefits warrant the high level of interest.

Potential benefits of economic instruments are as follows. Note that many of these benefits overlap.

- Economic instruments offer the potential to achieve environmental protection goals at reduced cost over the alternative of command-and-control regulations. Frequently, regulations can go against market forces and increase the costs of environmental protection.
- In theory, using an "autonomous economic impetus" is likely to be more efficient and effective in achieving environmental goals.
- The approach supports important principles such as: "polluter pays" and the internalization of all environmental costs by industry.
- These instruments can lead to more support and cooperation from the target group, ie. the group being regulated. People are likely to be more cooperative when they see that they have some freedom to choose how they will comply with an environmental requirement.
- These instruments increase the flexibility that the state has to deal with environmental issues.
- The burden gets shifted to companies to work out their most appropriate compliance strategies, rather than with the government.
- The use of economic instruments can promote the introduction of new technologies better than command-and-control regulations.
- Governments around the world are running short of resources to support the traditional command-and-control approach. Economic instruments might reduce costs of program design, monitoring and enforcement.
- There are economies in the world that are in the midst of major transitions. Governments and industry have to find the most efficient ways to achieve their goals.
- Economic instruments might be more suitable than command-and-control for promoting an ecosystem-wide perspective to environmental protection.



- These approaches can promote continuous reduction in environmental problems. But properly written command-and-control regulations could have the same benefit.
- These approaches can be used to raise funds for other environmental purposes and programs.

### 3.2 Examples of economic instruments

Several important points were agreed to as part of the listing of individual economic instruments.

- It was sometimes difficult in practice to draw a sharp line between economic instruments and the traditional command-and-control approach. The two approaches frequently blended into each other in particular cases. For example: are fines and penalties an economic instrument? All economic instruments have a regulation underlying them, and most have fines or penalties as part of their regulations.
- It is hard to define economic instruments rigorously. One suggestion made was that a difference between economic instruments and command-and-control regulations is that economic instruments have the explicit purpose of letting people choose, legally, whether they will follow a proposed environmental action. Command-and-control regulations prohibit any such choice.

#### 3.2.1 Deposit-refund systems

Most countries have systems like this, for drink containers, packaging, etc. To be effective, the country must have systems for collecting, recycling, reuse, etc. of the materials being returned. Otherwise, there can be perverse results with the returned material just piling up or being exported elsewhere and distorting other countries' environmental measures. There were several examples of this happening.

Some countries are experimenting with deposit-refund systems for larger items such as cars, refrigerators, computers etc. Norway has such a system for cars. The Netherlands is proposing this approach, preferably based on a voluntary agreement with industry.

#### 3.2.2 Marketable (tradeable) permits

There is a lot of interest in this approach, but limited experience with it outside of Europe and North America.

To work properly, the state should have markets within which the tradeable permit scheme can fit. For developing countries and those undergoing radical structural change, this can be a problem.

This approach might not be consistent with the legal environmental system in countries that require polluters to use the "best available technology". That is, the permit specifies the maximum allowable pollution but the polluter is legally required to reduce pollution if it is feasible to do so. In such a case, a reduction in pollution has no economic value and therefore could not be sold.

There is a great deal of interest in this instrument, especially for dealing with air pollution problems.

#### 3.2.3 User charges for environmental goods (water, waste disposal, effluents, etc.)

Many countries have these kinds of instruments.

### 3.2.4 Taxes, including a "greening" of the tax system

Examples include taxes on energy, waste, groundwater use and pesticides.

### 3.2.5 Subsidies, including accelerated capital write-offs for pollution abatement and control equipment

Governments will probably be less interested in these incentives, because they tend to reduce government revenues.

Examples of such subsidies are in the fields of energy savings, energy efficient appliances and the promotion of new environmental technologies.

### 3.2.6 Eco-labeling

These labels support product differentiation in the market, and so exert an economic effect on the manufacturers.

### 3.2.7 Environmental logos for "clean" companies

This kind of certification can lead to cheaper bank lines of credit, lower insurance costs and more informed consumer choices. An example is the voluntary audit system within the European Union.

### 3.2.8 Strict liability and compensation schemes

Making environmental polluters strictly liable for their damages can force an economic incentive on them.

This is a particularly interesting instrument in that it can work even in the absence of effective environmental monitoring and enforcement. But it does require an active citizenry and an effective court system.

### 3.2.9 Environmental performance bonds and financial guarantees

### 3.2.10 Full-cost pricing of environmental goods, including demand management by pricing

### 3.2.11 Fines and penalties

There were different opinions as to whether these are economic instruments or not. Regulators point out that fines and penalties can change behavior by affecting profitability.

In practice, states rely on combinations of traditional regulations and economic instruments, both of which use fines and penalties to ensure compliance.

### 3.2.12 Soft loans for environmental protection objectives, from multi-lateral institutions and others

### 3.2.13 Environmental compensation policies

Could require compensation either in financial units or real environmental units, such as replacing destroyed wetlands with new wetlands.

#### 4 CONCLUSIONS

The discussions in the groups focused on what lessons could be learned about these instruments, in particular designing them to ensure compliance and enforceability.

- Environmental agencies should not think in "either-or" terms. Economic instruments should be viewed as another tool to achieve environmental goals. They will be appropriate to some circumstances, and not in others.

The original goal of having these instruments replace command-and-control regulations was highly unrealistic. It turned out that the costs that would have to be imposed were far too high. For example: the increases in energy prices that would have to be imposed to bring about the desired behavioral changes would have led to serious social unrest, especially in developing countries.

- Economic instruments frequently go hand-in-hand with command-and-control regulations. For example: most countries with deposit and refund systems also ban littering.
- The economic instruments must be designed to ensure equity across income groups.
- There is little experience yet to show whether the claims for increased efficiency of these approaches can be achieved.
- Need to ensure compatibility across jurisdictional boundaries, or the economic instruments can lead to searching for the best deals. Dumping, for example of recyclables, can occur.
- Be sure to apply the economic instrument at the most appropriate place in the production-consumption-disposal chain.
- Transaction costs can be high. Economic instruments typically require a great deal of information, some of which will be new.
- Experience has been too limited to determine the compliance and enforcement costs or approaches. However, it is likely that technical enforcement resources will continue to be required for economic instruments. Might also need new types of monitoring and enforcement, such as financial and trading audits.
- Some economic instruments are designed to work even though the government does not have good compliance monitoring and enforcement. For example: strict liability does not require environmental monitoring. But it does require an active citizenry and effective civil courts.
- Environmental problems that pose immediate threats to human health or the environment will probably continue to require command-and-control regulations.
- The introduction of economic instruments such as tradeable permits requires a good system of data collection and monitoring. These systems can be expensive.
- Enforcement costs for economic instruments are not necessarily lower than for command-and-control regulations.



## **ENFORCEMENT OF ECONOMIC INSTRUMENTS IN RUSSIA**

BRINCHUK, MIKHAIL M.

Director, Center for Environmental Legal Studies, Institute of State and Law, Znamenka Str.  
10,119841 Moscow, Russia

### **SUMMARY**

One of the newest developments in Russian environmental policy is the movement from command-and-control to market-based regulatory strategies. Payments for emission and discharge of pollutants into the environment and waste storage, granting of tax breaks, credits and other benefits to enterprises and private citizens who introduce into use low-waste and resource-conserving technologies and carry out other effective environmental protection measures are becoming the main tools for environmental protection enforcement.

### **1 INTRODUCTION**

Economic instruments are relatively new means of environmental protection enforcement in the Russian Federation. In January 1988 The Central Committee of the Communist Party of the Soviet Union and the Union's Cabinet of Ministers issued a decree "On the Basic Restructuring of Environmental Protection Activities in the Nation", that has provided for "a decisive transition from mainly administrative to mainly economic methods of environmental protection".

The existing economic mechanism of environmental protection in Russia is regulated mainly by the comprehensive RSFSR Law on Protection of the Natural Environment, adopted on December 19, 1991 (1). As the main instruments of economic mechanism of environmental protection the Law regulates financing of environmental protection measures; establishment of standards for the payment and amount of payment for emission and discharge of pollutants into the environment, waste storage and other types of adverse influences; granting of tax breaks, credits and other benefits to enterprises and private citizens who introduce into use low-waste and resource-conserving technologies, and non-traditional energy sources and carry out other effective environmental protection measures (art.15).

### **2 FINANCING OF ENVIRONMENTAL PROTECTION MEASURES**

Financing is a crucial matter for environmental protection. According to the Law financing for environmental protection measures in Russia comes from:

- The Russian Federation's republic budget, the budgets of the subjects of the Federation.
- Funding from enterprises.
- Federal and territorial environmental funds.
- Environmental insurance funds.
- Bank loans.
- Voluntary contributions from the public and other sources.

The Law requires that financing of environmental programs and environmental protection measures is to be designated as a separate item in federal, republic and other budgets. This is an

important provision of the law. At least it is assumed that questions of financing of environmental protection are to be discussed in the Government and Parliament.

In the middle of 80's, state investments in the environmental protection in the economically developed countries varied from 0.8 to 1.5 percent of the gross national product. In the USSR expenditures for the environment at that time were less than 1%.

Deep economic crisis in Russia, destabilization of the financial system, nonsolvency of enterprises, growth of inflation in the country - all these factors are doing their negative influence on implementation of legal environmental protection requirements. According to the National paper on the state of the natural environment in the Russian Federation in 1992 the volume of capital investments in environmental protection in 1992 were 20 % less than in 1991(2). In spite of the legal provision to designate financing of environmental protection measures as a separate item in the state budget the Law on the Russian Federation state budget for 1992 even does not mention this kind of activities. So the Russian public does not even know how much the state invested in the environment 1992, and 1993 as well. As estimated by economists, monies budgeted for the environmental protection in 1993 will be hardly enough for payment of the state environmental protection bodies' activities (3).

The Government which is obliged to implement the environmental protection legislation is mainly responsible for this situation. Priority of the ecological problems in the state's activities is very low at the present stage. The Government invests money first of all for solution of some economic and social problems but not ecological.

Meanwhile as estimated by the Russian Ministry of the protection of environment and natural resources the state of the environment in the country is critical and it is changing to worse. Only to stabilize the ecological situation 1760 billions of rubles was required in 1992. This sum is compared to the gross national product of Russia. Neither the state nor industry has this money now. It is evident that from year to year this sum has been increasing.

Taking into consideration the fact that improvement of the environment has become a factor of survival of the Russian people, despite the present economic difficulties the Parliament should determine in the law a certain percentage of the gross national product to be used for protection of the environment, stabilization and improvement of its state.

### 3 ENVIRONMENTAL FUNDS

Concurrent with the budgetary money, additional financing of environmental protection in Russia is expected to provide a means of establishment of special environmental funds. In accordance with the Law on protection of the natural environment a unified system of non-budgetary state environmental funds is to be established for the purpose of performing urgent environmental protection tasks, restoring environmental losses, providing compensation for damages caused and other environmental protection tasks. Environmental funds are established at the federal level as well as at the level of republics, districts and local level. All the funds are combined in one system.

These funds are formed using finances received from enterprises, institutions, organizations, private citizens, including:

- Payments for the emission or discharge of pollutants into the environment, waste storage and other types of pollution.
- Sums received on the basis of lawsuits seeking compensation for damages and fines for violations of environmental legislation.
- Funds from the sale of confiscated hunting and fishing gear and the fish and game illegally obtained through use of it.
- Money received in the form of dividends and interest on contributions, bank deposits and shareholder participation of the fund's own monies in the operations of enterprises and other corporate bodies.
- Foreign currency receipts from foreign corporate bodies and citizens.

The monies of environmental funds are to be paid into special accounts with banking institutions and distributed in the following proportion:

- 60 percent to realization of environmental protection measures at the local (city and rayon) level.
- 30 percent to realization of environmental protection measures at the republic, kray or oblast level.
- 10 percent to realization of environmental protection measures at the federal level.

The Law requires that environmental fund monies are to be spent for restoration of the environment and population, the conducting of environmental protection measures and programs, renewal of natural resources, scientific research, introduction of environmentally clean technologies, construction of air and water purification facilities, payment of compensation to citizens for damages caused to their health by pollution and other adverse effects on the environment, development of environmental training and education, and other purposes connected with environmental protection.

The Law forbids spending environmental fund monies on goals which are not connected with environmental protection (art.21).

Ecologists in Russia consider this provision of the Law as well as the decision of legislators to create a special non-budgetary environmental fund as progressive. At least there is a legal guarantee that the fund monies cannot be used for other purposes—though the Government tries to encroach upon the independent status of the environmental fund (3).

Such an attempt to liquidate the federal environmental fund was undertaken by the Government in its program "Reform development and stabilization of the Russian economy" for 1993-1995. The draft of the program suggests including the federal environmental fund in the state budget. This suggestion of the Government is an example of violation of the Law which directly says that the unified system of state environmental funds are non-budgetary.

#### **4 FINANCING OF ENVIRONMENTAL PROTECTION AND PRIVATIZATION**

Privatization of state and municipal enterprises can be considered in Russia as one of the largest source of financing of environmental protection activities. Although the privatization process in Russia is historically short - less than three years - applying to solution of ecological problems one can separate two its stages. At the first stage - from June 1991 to January 1993 - factors of environmental protection during privatization of enterprises were ignored.

Though the Russian Law on privatization of state and municipal enterprises, adopted on June 3, 1991(4), has promoted establishment within the National privatization program a special fund for restoration of the environment. But the Law have not created the legal mechanism for practical establishment of this fund. The provision concerning the environmental restoration fund was not developed as well in the first National privatization program (for 1992). So in reality this provision was not implemented.

The situation has been changed for better in 1993. Due to active position of the Ministry of protection of the environment and natural resources it agreed with the Committee on managing the state property to stipulate in a new National privatization program a number of important requirements concerning the environment. They include necessity of ecological auditing of enterprises to be privatized, elaboration of a program for environmental sanitation and establishment at the enterprise the fund for environmental sanitation.

According to a new National privatization program (which is not approved yet) ecologically dangerous enterprises can be privatized only under the condition of realization of environmental sanitation program.

These new provisions promise to contribute to improvement the ecological state of a great number of industrial enterprises. Thus privatization can serve as an important factor for engaging additional significant financing of environmental protection.

## 5 PAYMENTS FOR ENVIRONMENTAL POLLUTION

The central place in the economic mechanism for protection of the environment is given in the modern Russian environmental legislation to the polluter pays principle. According to the Law payment for environmental pollution and other types of effects are charged:

- For emission and discharge of pollutants, waste storage and other types of pollution within the bounds of established limits.
- For emission and discharge of pollutants, waste storage and other types of pollution beyond the bounds of established limits.

Payment for standard and above-standard emission or discharge of harmful substances and waste storage is to be paid by enterprises strictly according to the following procedure: 90 percent to special non-budget state environmental funds, and 10 percent to the republic budget of the Russian Federation for the purpose of financing the operations of regional state environmental protection organs.

The procedure for listing and application of standard payments for environmental pollution is to be determined by the Government of the Russian Federation.

The Law establishes the rule that payment for environmental pollution does not exempt the enterprise from performance of environmental protection measures or from compensation for damages caused by violations of environmental legislation (art.20).

The procedure for determining payments and their limit values for pollution of the environment, waste storage and other types of pollution was approved by the governmental decree on August 28, 1992. According to the decision of the Government payment for the pollution of the environment on the territory of Russia is to be charged:

- For emission of dangerous substances into the atmosphere from stationary and movable sources.
- For discharge of dangerous substances into surface and subterranean water bodies.
- For storage of wastes of production and consumption.

To make the mechanism of payments for environmental pollution more flexible, the Government decided to count expenditures of the enterprise for environmental protection measures as payments for pollution.

On the data of the Russian Ministry of protection of the environment and natural resources 46000 of enterprises charged payments for pollution of the environment in 1993.

In 1993 the Ministry determined standard payments for emissions of 217 widely distributed dangerous substances into the atmosphere and for discharge of 198 substances to water bodies. It is assumed that the list of pollutants for which enterprises are to pay in the course of time will widened and the standard payments will be determined taking into account the toxic characteristics of the substance.

Payments calculated for emissions and discharge of pollutants, and waste storage within the bounds of established limits can be included by the enterprise into the prime cost of the produced goods.

Payments determined for emissions and discharge of pollutants, and waste storage beyond the bounds of established limits are calculated in the following way. The payment for emission, discharge of pollutant or waste storage within the bounds of established limits is multiplied by the value of emission, discharge of corresponding pollutant, waste storage beyond the bounds of established limits and multiplied once more by five. This kind of payment is to be done at the expense of a profit of the enterprise.

According to the decree of the Government the territorial executive bodies in consultation with the territorial environmental protection and sanitary bodies can decrease the size of payments for environmental pollution or set some enterprises, financed from the state budget free from such payments. It is evident that by setting this provision the Government has exceeded its authorities in



regulating payments for pollution. Practice in the western states show that governments and regions can set stricter requirements for environmental protection but not weaker.

Besides the recommendations of this Ministry of protection of the environment and natural resources the executive bodies of the territories in 1991 and 1992 had the right to determine the size of payments depending on ecological situation in the region and economic possibilities of enterprises.

The Russian Federation was expected to receive in 1993 about 90 billions of rubles for pollution of the environment. One of the defects of the existing system of payments resides in the fact that payments are determined without taking into account the inflation processes in the country, which are rather high. Nevertheless payments of some enterprises are large. For example, Norilsk metallurgical plant was to pay for environmental pollution in 1993 about 4 billions of rubles.

In general payments are rather grievous for enterprises. A lot of enterprises try to avoid payments for environmental pollution. Arbitration (economic) courts had settled in Russia in 1992 about 6 000 disputes in this sphere.

## **6 ECONOMIC INCENTIVES FOR ENVIRONMENTAL PROTECTION**

In the Russian Federation incentives for environmental protection are provided by means of:

- Establishment of tax breaks and other benefits for state-owned and other enterprises, institutions and organizations, including those engaged in environmental protection, which introduce into use low-waste and no-waste technologies and means of production, use secondary resources, and engage in other activities which serve to protect the environment.
- Tax exemptions for environmental funds.
- Transfer of a portion of funds from environmental funds to interest-bearing loans to enterprises and individual citizens to finance measures guaranteed to reduce pollutant emission or discharge.
- Establishment of higher amortization rates for fixed production capital belonging to environmental protection funds.
- Setting of special reduced prices and bonuses for use of environmentally sound products.
- Introduction of a special system of taxation on environmentally harmful products, as well as products produced using environmentally hazardous technologies.
- Granting of advantageous loans to enterprises which are implementing effective environmental protection measures, regardless of their form of ownership) (art. 24 of the Russian Federation Law on protection of the natural environment).

The Law of the Russian Federation on profit tax of enterprises and organizations (5) provides that the profit tax is reduced by the sum equal to 30% of capital investments in the environmental protection, including regeneration of natural resources, guaranteed reduction of the emission and discharge of pollutants, introduction of low waste technologies, the use of recycled resources and production of ecologically clean products.

The same Law also provides that taxable profits is reduced by the sum equal to the profits used for construction, reconstruction and renovation of buildings, equipment and machineries and introduction of new technologies. That means that enterprises have a tax stimulus to use a part of its profits for introduction of new technologies.

According to the RSFSR Law on income tax of enterprises (6) payments of an enterprise to environmental funds are not imposed by taxes.

In general the system of economic tools for environmental protection in Russia is at the stage of growth. We hope that the serious environmental situation in the country will be finally overcome in the course of gradual construction of the based-on-law and social state as it is foreseen by the new

Russian Constitution, elaboration of the modern environmental protection legislation and successive development and enforcement of economic means used in the optimal combination with administrative tools.

### REFERENCES

1. Vedomosti Siezda Narodnyh Deputatov Rossiyskoy Federatsii i Verhovlogo Soveta Rossiyskoy Federatsii. 1992. N 10. St. 457.
2. Gosudarstvennyi doklad o sostoyanii okruzshauyshchey prirodlloy sredy v Rossiiskoy Federatsii v 1992 godu (National Paper on the State of the Natural Environment in the Russian Federation in 1992) //Zeleny mir. 1993. N 25. P.12.
3. Nuzhen li Rossii federalny ekologichesky fond? (Does Russia need the federal environmental fund?) //Zeleny mir. 1993. N 22. P. 3.
4. Vedomosti Siezda Narodnyh Deputatov RSFSR i Verhovnogo Soveta RSFSR. 1991. N 27. St. 927.
5. Vedomosti Siezda Narodnyh Deputatov Rossiyskoy Federatsii i Verhovnogo Soveta Rossiyskoy Federatsii. 1992. N 11. St.525.
6. Vedomosti Siezda Narodnyh Deputatov Rossiyskoy Federatsii i Verhovnogo Soveta Rossiyskoy Federatsii. 1992. N 12. St. 601.

## PROMOTING VOLUNTARY COMPLIANCE: ENVIRONMENTAL AUDITING, OUTREACH, AND INCENTIVE PROGRAMS

Facilitator: Susan Bromm

Rapporteur: David Bronkema (ERG)

### GOALS

The session addressed the following issues:

- What is the role of compliance promotion in an enforcement program? What is its role in countries that do not have a developed enforcement program?
- What is success for such programs? What should the goals of such programs be?
- How can the government leverage other resources to achieve compliance goals?
- How might enforcement policies be designed to promote compliance as well as deter violations?

### 1 INTRODUCTION

More than 45 participants from over 35 countries discussed in four separate workshops, the role of compliance promotion programs as part of an overall approach to ensuring environmental protection. Participants represented countries with a broad range of existing programs, from extensive regulatory and enforcement systems to little or no environmental laws and regulations.

### 2 PAPERS

Five excellent papers were prepared on compliance promotion programs in a variety of settings. The first paper, *The Compliance Incentive Experience in Santa Rosa, California*, authored by J.W. Garn, M.L. Grimsrud, and D.C. Paige, of Santa Rosa, California, United States described a recently initiated program to promote voluntary compliance through coordinated market incentives, technical assistance and educational programs. The program focused on auto service shops, which were a significant source of water and air pollution for the Municipality. Auto service shops that achieve full compliance based on a multimedia inspection are offered to voluntarily receive a specially designed seal (sticker or decal). The public was encouraged to do business with shops displaying the seal through a well organized outreach campaign that included television advertisements. Materials were produced to assist the industry in achieving compliance, including handouts with "Best Management Practices," pollution prevention techniques and sources for waste recycling. Additionally, the five local agencies that monitor and enforce environmental requirements at service stations joined forces to produce a consolidated inspection checklist, thereby allowing any one agency to perform a complete, multi-media inspection, referring serious violations, as necessary to the appropriate agency for follow-up enforcement.

The second paper, *Promoting Voluntary Compliance: Environmental Auditing, Outreach and Incentive Programme*, was authored by H.M. Kajura of Uganda. The paper describes a comprehensive outreach program plan that has been developed as part of the National Environmental Action Plan by the Ministry of Natural Resources over the last two years. Development of the Plan involved a grass roots effort; and the plan calls for a grass roots outreach program. Rural farmers will be taught about the environmental impacts of their agricultural practices. Environmental education will be provided in primary schools. Macroeconomic measures will be used to encourage voluntary

compliance both through direct government expenditure and influencing private behavior. Overall, the strategy heavily involves the citizenry of Uganda in the efforts to preserve the environment.

The third paper by John Hall of Texas, United States, entitled, *Promoting Voluntary Compliance: Environmental Auditing, Outreach, and Incentive Programs* describes the voluntary program that has been implemented in Texas called Clean Texas 2000. The goals of the program are to reduce hazardous waste and toxic releases by 50 percent by the year 2000, to reduce solid waste going to landfills by 50 percent by the year 2000, and to educate the public to take personal responsibility for the environment. Components of the program are targeted at different groups including industry, cities and the public. Another aspect of the program includes awards given by the Governor recognizing outstanding environmental projects and accomplishments. Finally, the program includes efforts within the government to streamline permitting and institute a comprehensive set of technical assistance programs.

The fourth paper, *Promoting Voluntary Compliance: A Valuable Supplement to Environmental Enforcement* was authored by Michael Stahl of the U.S. Environmental Protection Agency. The paper provides several examples of the use of voluntary compliance program in the United States at the federal, state, and local level. It also discusses two new developments at U.S. EPA—a reorganization of the enforcement function designed to focus on compliance problems on a regulated sector basis and the creation of an Environmental Leadership Program to promote and recognize voluntary corporate efforts.

The fifth paper, *Voluntary Environmental Initiatives and Environmental Policy: Environmental Management Systems, Auditing, and Enforcement*, authored by Nadine Kennedy and Adam Greene discusses: (1) voluntary industry programs initiated by the International Chamber of Commerce; (2) the United States Council for International Business' partnership with the Mexican Confederation of Chambers of Industry and finally; (3) efforts to harmonize and standardize voluntary environmental management systems, environmental auditing and environmental reporting. Efforts in this latter category include the European Union Environmental Management and Audit Scheme and the International Standardization Organization's project to produce voluntary environmental management standards.

### 3 DISCUSSION ISSUES

#### 3.1 Role of compliance promotion

Conference participants agreed that programs to promote compliance are important but are not a complete substitute for enforcement. Countries with developed environmental enforcement programs see compliance promotion as an important adjunct, particularly when directed at parties against whom traditional enforcement may be less practical due to their number or limited capability for learning about and implementing environmental controls (e.g., farmers, small businesses). Countries without enforcement programs believe outreach is an important first step towards improving environmental problems. Promoting voluntary actions is also seen as a good interim measure pending passage of new laws or regulations (although again, not a substitute for regulatory and enforcement and control systems).

#### 3.2 What is success?

The goals of a compliance promotion program will vary depending on its target. Programs geared to farmers or small business may focus on bringing them into compliance or using best management practices. Programs aimed at larger industry often are designed to go beyond compliance. These programs seek to get businesses to institute pollution prevention, do self auditing, expend resources to educate the public or its customers, or take other measures not legally mandated. When targeted at sectors not yet subject to regulatory control, programs are aimed at

getting their targets to voluntarily undertake measures, change practices, or use substitute materials to improve the environment.

### 3.3 How can the government leverage other resources to achieve compliance goals?

This question elicited the greatest amount of discussion in the workshops. There was universal support for the notion that a well informed citizenry can be a tremendous asset in providing incentives to industry to comply. Participants provided examples of results achieved by consumers seeking "green" products that went far beyond what traditional enforcement could achieve. On the other side of the equation, countries with a disinterested public or a public that views environmental improvement as contrary to economic goals, felt that they were at a significant disadvantage with respect to instituting successful voluntary compliance programs. Dean Paige felt that a concerned, environmentally aware public was key to the success of the Santa Rosa program. John Hall felt that public image was a significant incentive for large companies to participate in programs that go beyond compliance.

There was also uniform support for the idea that it is essential for governments to promote environmental education, particularly for children in primary school. This was a critical element of the Uganda Plan. Educating children provides both short- and long-term benefits — since children influence parents' buying and consumption behavior today and will be the buying public of the future.

Public disclosure requirements were viewed as an important avenue towards a well informed public. The media was also seen as a very important part of the public education process. Especially useful were joint ventures with the media to produce efforts like educational radio programs and public service announcements.

Seals, logos or decals, such as the ones used in the Santa Rosa and Texas programs, were seen as a valuable source of information for consumers seeking to patronize green businesses and thus a strong incentive for industry. Logos are also used in Germany, however, their use has raised legal questions over government interference in the free market.

Award programs for companies with good environmental practices have also proven successful in creating compliance competition. Indonesia runs such a program to recognize good environmental achievements by industry and local government.

Last, but certainly not least, is the important role NGO's play in building public interest and concern in the environment.

### 3.4 How can enforcement policies promote compliance?

Auditing was discussed as an important tool for achieving compliance. Mexico relies heavily on environmental audits, conducted by the government, to evaluate environmental conditions at a plant or factory in a broader context than just an inspection can achieve, looking into management systems and overall environmental performance. Audits are now generally paid for by the industries that request them. If the audit reveals problems, an agreement is drawn up outlining solutions.

Many countries encourage self auditing by the regulated community. In the Netherlands, self monitoring and internal control systems are promoted to help deal with the growing workload associated with the increasing number of businesses coming under regulation. This system, called ECO-Control, establishes goals and timetables for compliance under an industry/government covenant which eventually become enforceable through permits and other requirements if industry does not achieve these goals voluntarily.

Some countries have policies on when they will require disclosure of voluntary audit reports. The U.S. has a published policy with respect to how and when it will seek and use self audits in an enforcement action. Under Canada's policy, government inspectors do not ask to see internal audits unless a violation has occurred and the audit covers it or the information is not available from other sources. Under Canadian law, once the government shows that an illegal act was committed, the burden of proof shifts to the company to prove that they were diligent. As a result, private attorneys

are advising their clients to do environmental audits and keep well informed of new environmental requirements.

Both the United States and Canada may also include requirements for environmental auditing as part of settlements of, or sentences for enforcement cases. In the U.S., enforcement settlements can introduce requirements for environmental management, compliance and pollution prevention audits for companies with patterns of violation suggesting environmental management problems or where the same problems are likely at other facilities owned or operated by the violators. There are also policies on prosecutorial discretion in criminal cases for companies with effective environmental management systems. In Canada, their criminal justice system is empowered to require firms to self-audit or improve their environmental management systems as part of judicial sentencing.

#### 4 CONCLUSIONS

Compliance promotion programs are a critical part of a complete environmental strategy. They are most successful when coupled with a strong compliance monitoring and enforcement program. The public is our best ally in encouraging good compliance by industry. Government should nurture and encourage public interest and concern over the environment.

## PROMOTING VOLUNTARY COMPLIANCE: LINKING COMPETITIVENESS, CORPORATE QUALITY, AND SELF-AUDITING

OLHA, JENNIFER R.<sup>1</sup> and MASTRANDONAS, ANDREW<sup>2</sup>

<sup>1</sup> Research Assistant, Law Companies Environmental Policy Center, Staff Assistant, Global Environmental Management Initiative

<sup>2</sup> Associate Director, Law Companies Environmental Policy Center, Executive Director, Global Environmental Management Initiative

2000 L Street NW., Suite 710, Washington, DC 20036 USA

### SUMMARY

This paper will discuss the benefit of voluntary compliance initiatives to companies and why market-based compliance schemes provide a reasonable way for companies to conform to national or international environmental policy objectives. It will also provide examples of government-sponsored voluntary incentive programs such as the United States Environmental Protection Agency's (EPA) 33/50 Program. Finally, this paper will discuss the activities of the Global Environmental Management Initiative (GEMI)—an organization that fosters corporate voluntary compliance programs—and the necessity of self-audit programs, such as GEMI's Environmental Self-Assessment Program.

### 1 INTRODUCTION

#### 1.1 Voluntary compliance and competitiveness

Voluntary compliance is a balance that is struck between regulators and business. Rather than requiring companies to meet certain rules and regulations in a pre-determined manner, regulators offer a way for companies to determine their own methods and measurements in order to accomplish environmental policy objectives.

A consensus is beginning to form among policy makers, business leaders and academics, particularly in the United States, that when the government allows business to address environmental policy goals through an open market process, companies can be most effective from a number of perspectives, including: timeliness, cost and quality.

It is an inherent value of a profit-seeking organization to seek an *enviro-competitive advantage*, a model in which a company reduces its environmental impacts in order to become more competitive in its industry. Companies can naturally move toward enviro-competitive advantage thinking by realizing that reductions in environmental impacts lead to a reallocation of finite investment resources from environmental control and management activities to other, profit-making business endeavors.

It is not to be concluded, though, that a shift from regulator-run, mandatory compliance programs and the associated enforcement function, can be replaced entirely by market-driven environmental management programs. In any scheme, there will always be laggards who will find ways to delay environmental improvement activities, possibly to secure short-term profits or for other reasons, even when the appropriate incentives are provided by government. An appropriate environmental compliance and enforcement strategy may be one in which free-market incentives are provided to companies to move toward enviro-competitive advantage while ensuring that the laggards meet environmental policy goals through traditional command-and-control/enforcement approaches. Compliance, therefore, may be best achieved by providing a mix of free market and government incentives.

In general, voluntary compliance appears to work well. Companies are both meeting and exceeding environmental objectives through voluntary programs such as the U.S. EPA's 33/50 Program, Energy Star Buildings, and Greenlights Program. As a result of these programs, companies are participating in continuous environmental improvement and pollution prevention.

## 2 INCENTIVE PROGRAMS

### 2.1 U.S. EPA programs

To foster a better relationship with companies while enhancing efforts to promote environmental improvement, the U.S. EPA has developed several voluntary compliance programs for businesses to join. Companies are encouraged to participate because voluntary compliance programs provide a method for companies to meet certain objectives without being mandated. These programs are an excellent way for companies to communicate that industry is voluntarily participating in programs that are favorable to the environment.

The concept that appears to link all government-sponsored voluntary programs is that companies are asked to meet a certain goal (i.e., emissions reduction) but are then left to determine the best method for ensuring attainment. In a sense, then, the government is fostering market-based incentives to improve business' environmental performance.

EPA has created several voluntary compliance programs such as the 33/50 Program, Energy Star Buildings, and the Greenlights Program that enable companies to use their technology and employee expertise to meet the specific goals of these programs.

The 33/50 Program was started in 1989 at the request of Congress to create a risk analysis list of sites containing carcinogens. The program's aim was to reduce Toxic Release Inventory pollutants 33% by 1992 and 50% by 1995. The 33% goal was met one year early, in 1991, which demonstrates the power of innovative efforts in the industrial sector. There are approximately 1,200 companies participating in the program to date.

The Energy Star Buildings Program is a five-stage process in which the U.S. EPA asks participants to perform energy-efficiency upgrades where profitable. A comprehensive building survey is performed which determines heating requirements, ventilation, and air-conditioning loads. The U.S. EPA is currently working with 20 buildings in a staged approach, which should take approximately 1-2 years to complete.

The Greenlights Program, initiated in 1991, is intended to promote the use of energy-efficient lighting in offices and facilities. In return for installing new lighting systems, companies receive public visibility through EPA as well as technical assistance. It is a profit-based pollution prevention program that has 1,300 participants.

### 2.2 GEMI programs

The Global Environmental Management Initiative (GEMI), was organized in April, 1990 for the purpose of fostering environmental excellence by business worldwide. While GEMI's 28 corporate members are based in the United States, they operate in dozens of countries and represent over \$455 billion (USD) in annual revenue. A group of such powerhouse companies (see Table 1) have the capability to lead a "corporate environmental management revolution" by developing and implementing innovative voluntary compliance programs.

GEMI members helped develop the International Chamber of Commerce's (ICC) *Business Charter For Sustainable Development*, and the organization was an initial endorser of the Charter. Through follow-up activities with the ICC, UNEP and other organizations, GEMI has worked with companies to spread the message of the Charter and to foster adherence to its 16 principles.

GEMI's first major effort was to help companies commit to continuously improving their environmental performance using "Total Quality Environmental Management", a marriage of quality



**Table 1. GEMI Member Companies**

AlliedSignal Inc.	Consolidated Rail Corporation	Johnson & Johnson
Amoco Corporation	Coors Brewing Company	Merck & Company, Inc.
Anheuser-Busch Companies	Digital Equipment Corporation	Occidental Petroleum Corporation
Apple Computer, Inc.	The Dow Chemical Company	Olin Corporation
AT&T	Duke Power Company	Procter & Gamble Company
Boeing Company	The DuPont Company	The Southern Company
Bristol-Myers Squibb Company	Eastman Kodak Company	Tenneco, Inc.
Browning-Ferris Industries	Florida Power and Light	Union Carbide Corporation
The Coca-Cola Company	Georgia-Pacific Corporation	WMX Technologies
Colgate-Palmolive Company		

techniques and environmental management, first introduced by GEMI. The philosophy of continuous environmental improvement has been brought closer to reality with a systemic methodology that is aligned with the need to be competitive in global markets. In GEMI's second year, the organization published the *Total Quality Environmental Management Primer* to help environmental managers and others make the transition from total quality management to total quality environmental management (see Figure 1).

In 1992, GEMI broke new ground with the development of the Environmental Self-Assessment Program a self-auditing tool described in Section 2.3.

More recently, GEMI has introduced companion documents to the *Total Quality Environmental Management Primer* including an analysis of investors' environmental information needs, a primer on Benchmarking, and research on how companies apply corporate environmental management standards globally.

### 2.3 Environmental self-auditing

It is necessary that voluntary compliance and incentive programs have a measurement system that enables companies to rank performance against specified standards whether the standards are set externally, such as by a government, or internally, by a company. Although many companies have traditionally conducted environmental audits to ensure compliance with laws and regulations, many companies are developing comprehensive, management systems-based auditing schemes to ensure adherence to corporate policies—policies that may often go beyond regulatory requirements.

Environmental self-auditing is a valuable instrument that may be used to determine whether corporate environmental activities and conditions conform to specified criteria. Self-auditing also can be used as a means to ensure continuous improvement in the tradition of total quality environmental management. Companies that perform self-audits of management systems are often able to identify and act upon areas for improvement in a cost-effective manner before performance gaps can reach a level that may endanger natural resources or human health.

An example of a self-auditing tool is the Environmental Self-Assessment Program of the Global Environmental Management Initiative (GEMI). The Environmental Self-Assessment Program is an internal measurement tool that can help businesses measure and analyze their environmental performance and set priorities among environmental improvement opportunities.

Based on the ICC's *Business Charter for Sustainable Development*—16 principles for environmental management—the Environmental Self-Assessment Program can be used as a basis for internal decisions in the spirit of total quality environmental management. The Environmental Self-Assessment Program is a tool that measures the extent and depth of a company's management systems according to internal and external stakeholder requirements. It is:

- A desk tool, not a field instrument.
- A leading indicator of performance, not an absolute measure.
- A guide to continuous improvement based on the good faith of its user.
- A semi-subjective tool that can be consistently applied.

The Environmental Self-Assessment Program is a business tool appropriate to a wide variety of industries and companies because its design enables application and adaptation to specific business circumstances. While it is not a vehicle for external communication nor a set of standards, it does allow a company to set goals that can be measured against the 16 principles of the ICC Business Charter for Sustainable Development and provide data that may be used for internal reporting mechanisms and the development of specific action programs to improve performance.

The Environmental Self-Assessment Program is similar to other self-auditing schemes and performance measurement programs, such as the chemical industry's Responsible Care® program, though it is intended to be more broad in its application. While Responsible Care® was designed to meet the specific needs of the chemical industry, the Environmental Self-Assessment Program was developed with the understanding that it would be adapted to meet specific industry-sector, company and geographic needs.

### **3 CLOSING REMARKS**

It is critical to ensure that voluntary government initiatives, corporate incentive schemes, and self-auditing tools are linked in order to foster compliance with national or international environmental policy objectives. Participation by companies in voluntary government programs will not be successful without an understanding that these programs complement internal corporate programs. Similarly, performance measures, such as those developed through self-auditing tools, must be directly tied to the objectives of government initiatives and corporate requirements. Through a combination of voluntary programs that allow companies to determine the most effective means for compliance and measurement tools to rank performance, governments and businesses can better work together to foster environmental excellence and business competitiveness.

---

---

# ***TOTAL QUALITY ENVIRONMENTAL MANAGEMENT***

**the primer**



© 1993

**GLOBAL ENVIRONMENTAL MANAGEMENT INITIATIVE (GEMI)**

2000 L Street, N.W., Suite 710  
Washington, D.C. 20036  
(202) 296-7449

---

---

Figure 1. Total quality environmental management primer.

## ***ABOUT THE GLOBAL ENVIRONMENTAL MANAGEMENT INITIATIVE (GEMI)***

**G**EMI is a group of 23 leading companies dedicated to fostering environmental excellence by business worldwide. Through the collaborative efforts of its members, GEMI intends to promote a worldwide business ethic for environmental management and sustainable development, to improve the environmental performance of business through example and leadership, and to enhance the dialogue between business and its interested publics. Below is a list of GEMI's current member companies:

Allied-Signal Inc.  
Amoco Corporation  
Anheuser-Busch Companies  
Apple Computer, Inc.  
AT&T  
The Boeing Company  
Bristol-Myers Squibb Company  
Browning-Ferris Industries  
Colgate-Palmolive Company  
Consolidated Rail Corporation  
Digital Equipment Corporation  
The Dow Chemical Corporation  
Duke Power Company  
Du Pont Company  
Eastman Kodak Company  
Florida Power and Light  
Merck & Company, Inc.  
Occidental Petroleum Corporation  
Olin Corporation  
The Procter & Gamble Company  
The Southern Company  
Union Carbide Corporation  
Weyerhaeuser Company

The guidance included in this primer is based on the professional judgment of the individual collaborators as listed on the Preface page. The opinions expressed are those of the individual collaborators, not their organizations. Neither GEMI nor its consultants, Abt Associates, JT&A, inc., and the Environmental Policy Center are responsible for any form of damage that may result from the application of the guidance contained in this primer.

---

---

## *PREFACE*

**T**his primer is written for, and in a very real sense, by corporate environmental managers. To develop case materials, Abt Associates distilled the experiences of dozens of environmental managers and staffs who have provided the Global Environmental Management Initiative (GEMI) with invaluable information. The members of GEMI wish to thank the many people who helped prepare the primer.

This primer, in the true spirit of TQM, was a strong collaboration consisting of a cross-functional team including the members of GEMI, Abt Associates, JT&A, Inc., and the Environmental Policy Center.

The extensive research that resulted in this primer was conducted by Richard P. Wells, Mark N. Hochman and Stephen D. Hochman of Abt Associates, all of whom are based in Cambridge, Massachusetts.

Advising and additional editing were conducted by:

George D. Carpenter, Chairman, GEMI (Procter & Gamble)  
Thomas S. Davis, Chairman, GEMI TQM Workgroup (AT&T)  
Andrew Mastrandonas, Project Manager, GEMI  
(Environmental Policy Center)  
Allison Keeler, Assistant Project Manager, GEMI  
(Environmental Policy Center)  
Judith F. Taggart, President, JT&A, Inc.

The GEMI TQM Workgroup also provided valuable input:

Bob Brothers, *Eastman Kodak*  
Mike Fisher, *Procter & Gamble*  
Catharine deLacy, *Occidental Petroleum*  
Ernie Rosenberg, *Occidental Petroleum*  
Jim Leathers, *Duke Power*  
David Mason, *ICI Americas*  
Algirdas Vilkas, *Union Carbide Industrial Gases*

---

Ann C. Smith, *Allied-Signal*  
Marcia Williams, *Browning-Ferris Industries*

Susan F. Vogt  
*Executive Director, GEMI*  
*Washington, D.C.*

May, 1992

---

***GEMI STEERING COMMITTEE***

George Carpenter, *The Procter & Gamble Company*  
(Chairman, GEMI)

W. Ross Stevens, III, *E.I. du Pont de Nemours & Company*

Jonathan Plaut, *Allied-Signal, Inc.*

Polly T. Strife, *Digital Equipment Corporation*

Thomas S. Davis, *AT&T*

Dorothy Bowers, *Merck & Company*

Susan Vogt, *Environmental Policy Center*  
(Executive Director, GEMI)

---

Figure 1. Total quality environmental management primer (continued).

---



---

## ***CONTENTS***

<b><i>INTRODUCTION</i></b> .....	1
<b><i>TQEM DEFINED</i></b> .....	3
Basic Elements of TQEM .....	3
Identify your customer .....	3
Continuous improvement .....	3
Do the job right the first time .....	4
Take a systems approach to work .....	4
<b><i>IMPLEMENTING A TQEM PROGRAM</i></b> .....	5
Assess Your Status .....	5
Identify Your Customers .....	6
External .....	6
Internal .....	6
Learn to Use P-D-C-A .....	7
Learn to Use TQEM Tools .....	9
Cause and effect diagram .....	9
Pareto chart .....	10
Control chart .....	11
Flow chart .....	12
Histogram .....	14
Benchmarking .....	16
<b><i>MEASUREMENTS AND HOW TO USE THEM</i></b> ....	17
Summary .....	18
<b><i>APPENDIX A: Glossary</i></b> .....	21
<b><i>APPENDIX B: Bibliography</i></b> .....	23
<b><i>APPENDIX C: List of Study Participants</i></b> .....	25

Figure 1. Total quality environmental management primer (continued).

---

---

## ***INTRODUCTION***

**I**t was during the 1980s that world industry awoke to an operating philosophy long espoused by a visionary group of American business theoreticians. The philosophy, termed Total Quality Management, or TQM, had been embraced by the Japanese following World War II and is credited with the surge to world market dominance of that country's automobile and electronics industries in the 1970s.

Ironically, TQM had its origins in the United States during World War II, when American statistician W. Edwards Deming helped engineers and technicians use statistical theory to improve production quality. After the war, his theories largely dismissed by American corporations, Deming went to Japan, where he lectured top business leaders on statistical quality control, telling them they could rebuild their country if they followed his advice.

Since then, TQM has gained acceptance as a tool for improving corporate performance across all aspects of business, including environmental management. Today, many companies are learning that TQM can be an effective strategy to continuously improve their environmental performance.



---

---

## ***TQEM DEFINED***

**T**he Global Environmental Management Initiative (GEMI) is generally credited as being the first organization to marry environmental management and Total Quality Management (TQM). This primer outlines methods of applying TQM to corporate environmental strategies, a process GEMI has identified as Total Quality Environmental Management, or TQEM.

This document is intended to help you get started, to show you how to use TQEM to continuously improve your environmental performance. In no way do these pages comprise a comprehensive training tool on Total Quality; for that, you will need to reference the many excellent books, papers, and courses already available.

This chapter explains the elements of a TQEM system. The next chapter describes how to build a TQEM system within a business. The final chapter sums up the benefits of incorporating a TQEM system in your company.

### **Basic Elements of TQEM**

■ ***Identify your customers.*** Total Quality is based on the premise that the customer is always right. In fact, quality is defined by what the customer wants. Customers can be external (i.e., consumers, regulators, legislators, community and national environmental groups) or internal (such as other departments within the company, higher management levels).

■ ***Continuous improvement.*** The systematic, ongoing effort to improve business processes, continuous improvement changes the entire corporate perspective. The staff is motivated to seek innovative alternatives to outdated processes and policies. With continuous improvement there is no endpoint, only progress along a continuum.

---

■ ***Do the job right the first time.*** In TQEM it is essential to recognize and eliminate environmental problems before they occur. The best cure for a pound of environmental crises is an ounce of prevention. Focusing employee attention on the causes of environmental problems instead of the symptoms can reduce the cost of waste disposal, government reporting, and crisis control. By investing in prevention, a company can save on the long-term costs of compliance, resources, and unplanned liabilities.

The cost of quality is the cost that quality failures impose on your company. In environmental management, these costs are those of generating wastes that do not add to or may even reduce the value of your product or service to your customer.

■ ***Take a systems approach to work.*** TQEM teaches us to look at each part of environmental management as a system. The system includes all of the equipment and people who must work together to achieve the desired objective. Total Quality causes us to work across organizational boundaries, forming teams that represent all of the functions involved in making a system work as intended.

Interactions of people and decisionmaking procedures can be flow-charted and analyzed as a system. This focuses attention on what is wrong with the system, instead of forcing blame on an individual.

For example, in an emergency situation, a prompt and effective response results from people knowing what to do. The "first respondents" in an emergency depend on training, a reliable communications system, and well-maintained equipment. If any of these elements do not work as intended, the "system" will not work. This system includes not only people, but training, drills, and emergency equipment.

---

***In a well-organized system, all the components (functions) work together to support each other.***

***In a system that is well-led and managed, everybody wins. If by bad management the components become competitive, the system is destroyed. Everybody loses.***

---

— W. Edwards Deming, *creator of TQM*

---

Figure 1. Total quality environmental management primer (continued).

---

---

## ***IMPLEMENTING A TQEM PROGRAM***

**A** TQEM system does not happen overnight. Rather, the process becomes an evolution in the culture of the organization. Therefore, it is best to begin with small steps, building support and a record of success. However, as you take those steps, bear in mind that TQEM is a program of continuous improvement in which the entire system works together to meet or exceed customers' requirements and anticipate their future needs. In a TQEM culture, teams formed from diverse functions within the organization work on a common objective.

### **Assess Your Status**

Where are you now? Examine your company's current situation in terms of both its environmental opportunities (and vulnerabilities) and its quality practices. Ask yourself the following questions:

- How good is your compliance record?
- Have there been recent negative experiences that build a case for stopping business as usual, such as permit violations, accidental releases, waste disposal liabilities?
- Are there opportunities to ameliorate performance that will improve the company's reputation with regulators, communities, and other external customers while reducing costs (e.g., in compliance)?
- Does your company have a strong commitment to quality and customer orientation, or will this require a complete reorientation in management's thinking?
- Has your research shown that other companies have markedly better environmental management systems?

- 
- How committed is top management to improved environmental performance?
  - How ready is top management to translate this commitment into action?
  - If you do not have top management support, can you build it?
  - Do you have middle management support to implement a TQEM strategy?
  - Who are the skeptics? How can you gain their support?

The answers to these questions will help you understand where you need to build support, what training is needed, and where some of the improvement opportunities may be.

## Identify Your Customers

■ **External Customers.** Focus on the customer groups that are most critical to your company and your program. Your improvement efforts should be directed toward your customers' highest priorities. For example, many TQEM programs initially focus on regulatory agencies as their primary external customers.

Although many managers believe that nothing can be undertaken until regulators are satisfied, it is important to go through the process of determining all the customers that you must satisfy to stay ahead of evolving customer demand. (Customers may be as diverse as local communities, or as specific as the PTA of the school down the street.)

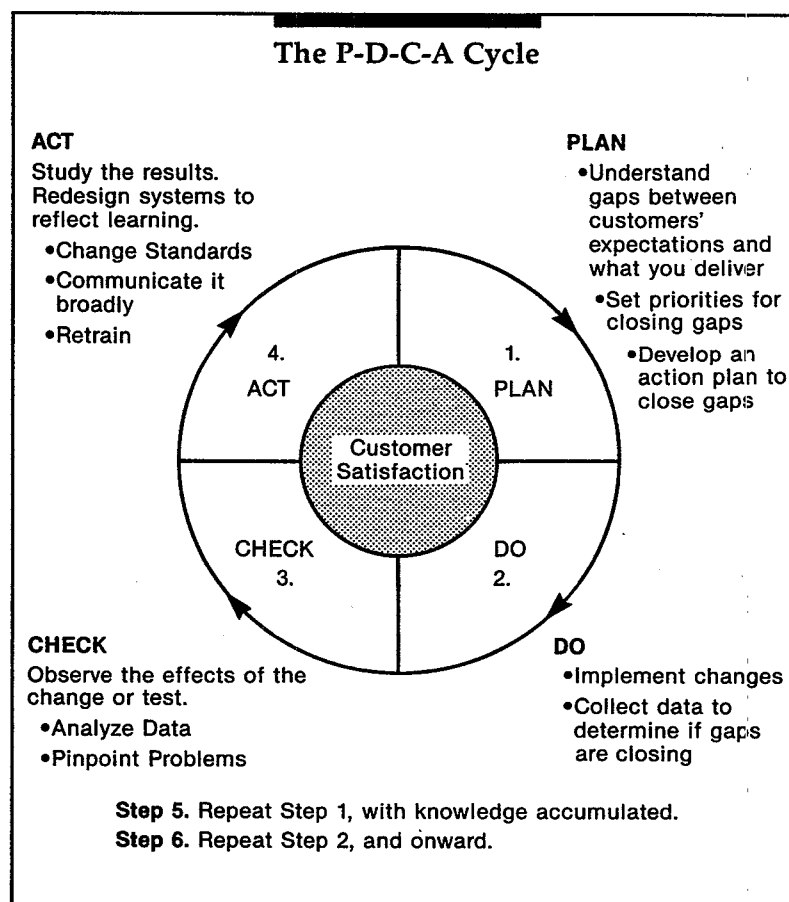
■ **Internal Customers.** The functions and processes within your company are your internal customers and suppliers. To determine your internal customers, ask yourself whom you are trying to satisfy: for example, to whom does your organization justify its existence at budget time?

This is a critical step. Identifying your internal and external customers will help define your organization's products and services and your measures of performance.

Figure 1. Total quality environmental management primer (continued).

## Learn to Use P-D-C-A

Once you have assessed your status, identified your customers, and set your improvement objectives, you need an action plan to begin the process of continuous improvement. One widely-used tool for developing an action plan is the P-D-C-A cycle.



The P-D-C-A cycle is a systematic method for continual process improvement based on the principle that you need to understand a situation or process before you can improve it. Team members must be trained to appreciate the importance of the

Figure 1. Total quality environmental management primer (continued).

---

planning and checking phases of the cycle; in total, the P-D-C-A cycle is an essential change in organizational thinking that emphasizes data-based action.

The following factors make up the P-D-C-A cycle:

1. **Plan:** Identify customers, the customers' requirements, and how well your systems provide results that meet their requirements. Build your improvement plan on data and measurements.
2. **Do:** Follow your plan. Avoid inserting changes at this point. If a major change becomes necessary, start again at Step 1 (Plan).
3. **Check:** Observe and measure the effects of the changes you instituted, preferably on a small pilot scale to minimize disruptions. Use statistical tools whenever possible to measure the results to determine if they prove or disprove your hypotheses.
4. **Act:** Make changes in the process to reflect what you have learned; this step translates the learning into a systemic improvement.
5. **Repeat:** Repeat the P-D-C-A cycle incorporating the knowledge gained. Continue the cycle, delivering ever greater quality from increasingly robust processes.

---

*A stable system is one whose performance is predictable. It is reached by removing, one-by-one, the special causes of trouble, best detected by a statistical signal.*

---

— W. Edwards Deming

Figure 1. Total quality environmental management primer (continued).

## Learn to Use TQEM Tools

A way to analyze and condense information, TQEM tools help you put data in an easily understood format that identifies and clarifies underlying causes. Use these tools to discover opportunities for pollution prevention and to measure the effectiveness of improvements you've already made, as well as to improve the work processes within your organization.

■ **Cause and Effect Diagram.** A qualitative summary of all potential causes of a problem. Each response to the question "why" becomes a branch on this "fishbone" diagram until the root cause, rather than the symptom, is identified. A fishbone is often useful in focusing a team on what data they need to collect to develop their improvement plan.

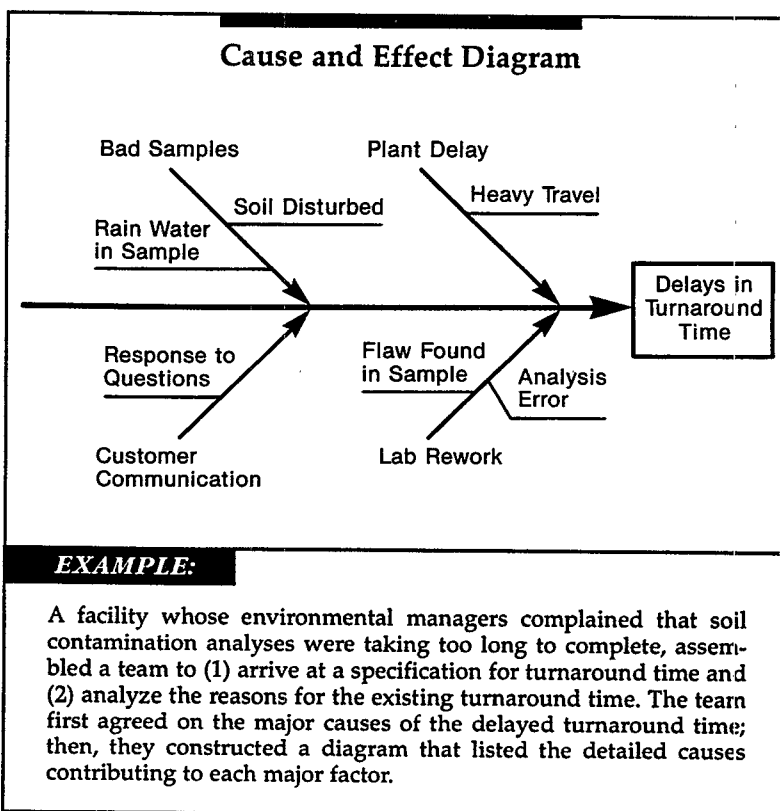
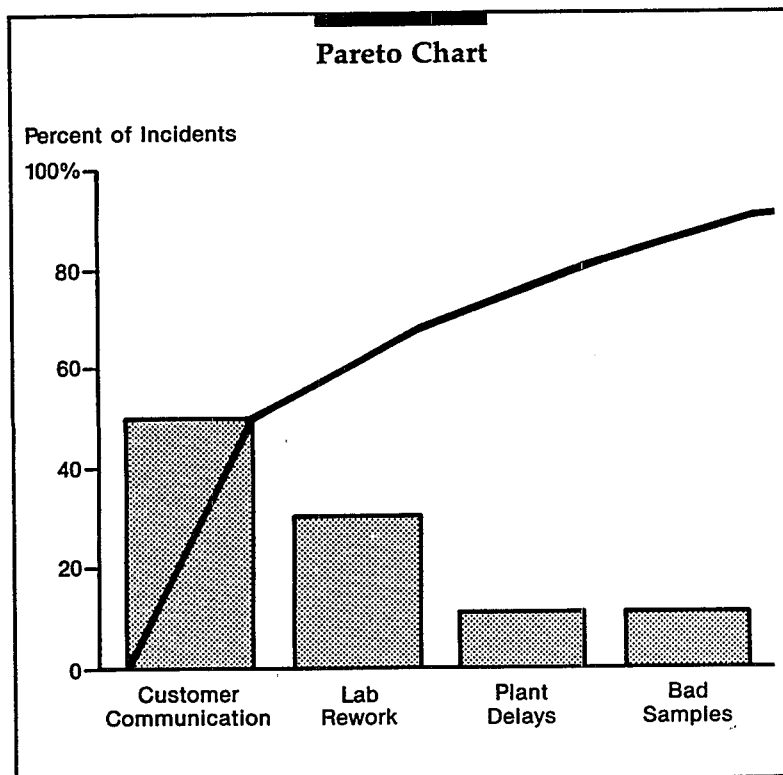


Figure 1. Total quality environmental management primer (continued).

■ **Pareto Chart.** A graphic tool that organizes data to identify and focus on major problems. A pareto chart takes data on a situation or process, ranks it in order, and thus focuses attention on opportunities to maximize improvement.



**EXAMPLE:**

The team working on the soil contamination analyses delays organized the data relating to the causes of those delays into a pareto chart that showed 80 percent of the turnaround delay could be attributed to two factors: a lack of communication between divisions within the company to anticipate information needs and a lack of a standard analytic format for lab technicians.

Figure 1. Total quality environmental management primer (continued).



■ **Control Chart.** A statistical tool to determine how much variability in a process is inherent (common causes) and how much is due to unique events (special causes such as fires). A control chart defines the expected performance range (or control limits) of a process or system. Control charts can help you understand the variability exhibited by normal systems.

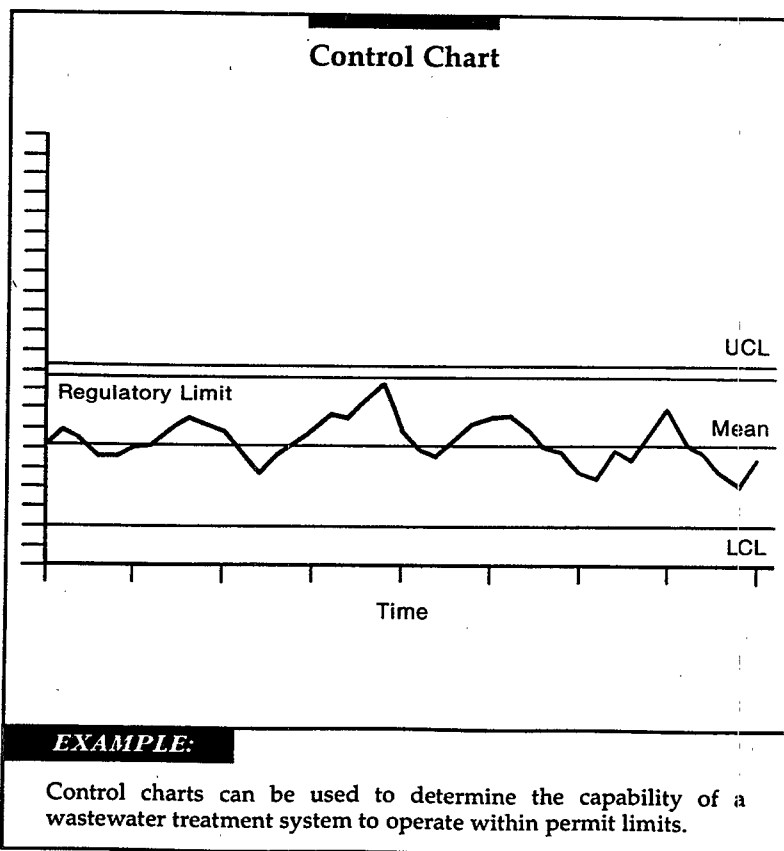


Figure 1. Total quality environmental management primer (continued).

■ **Flow Chart.** A schematic showing the relationship between process steps that helps illustrate any significant deviations from the ideal process. A flow chart often follows a pareto analysis to define the process and decide where to make changes that will improve the process.

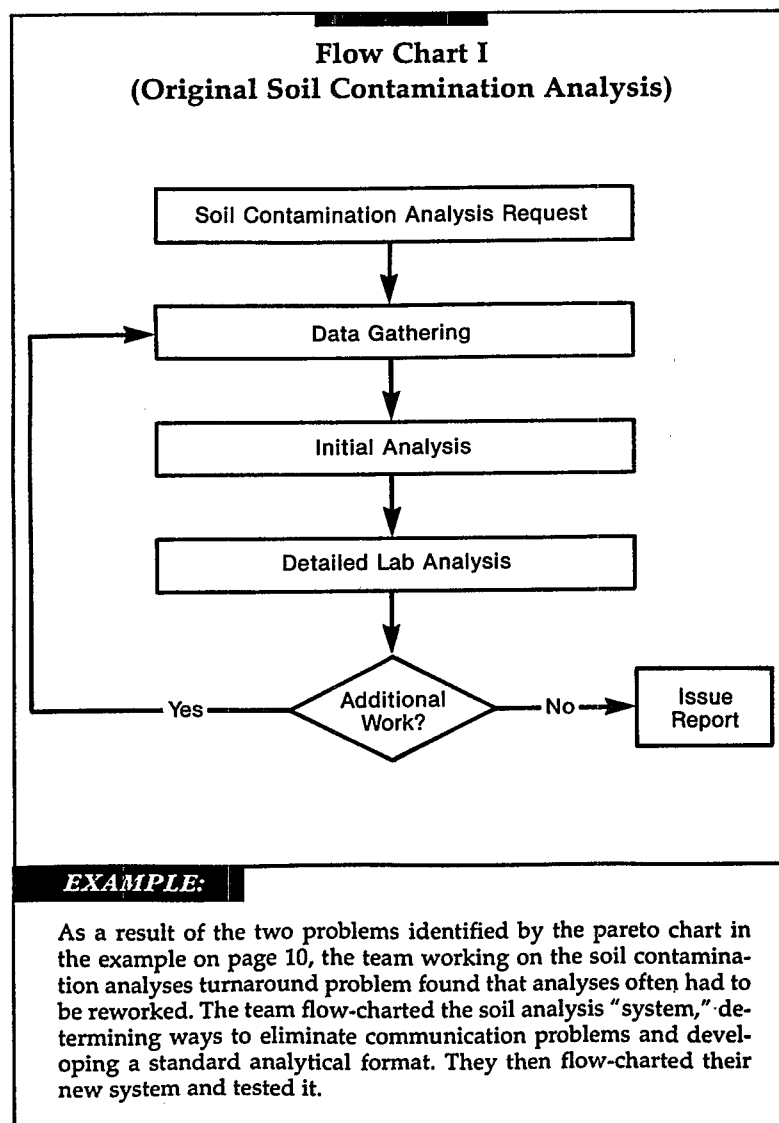


Figure 1. Total quality environmental management primer (continued).

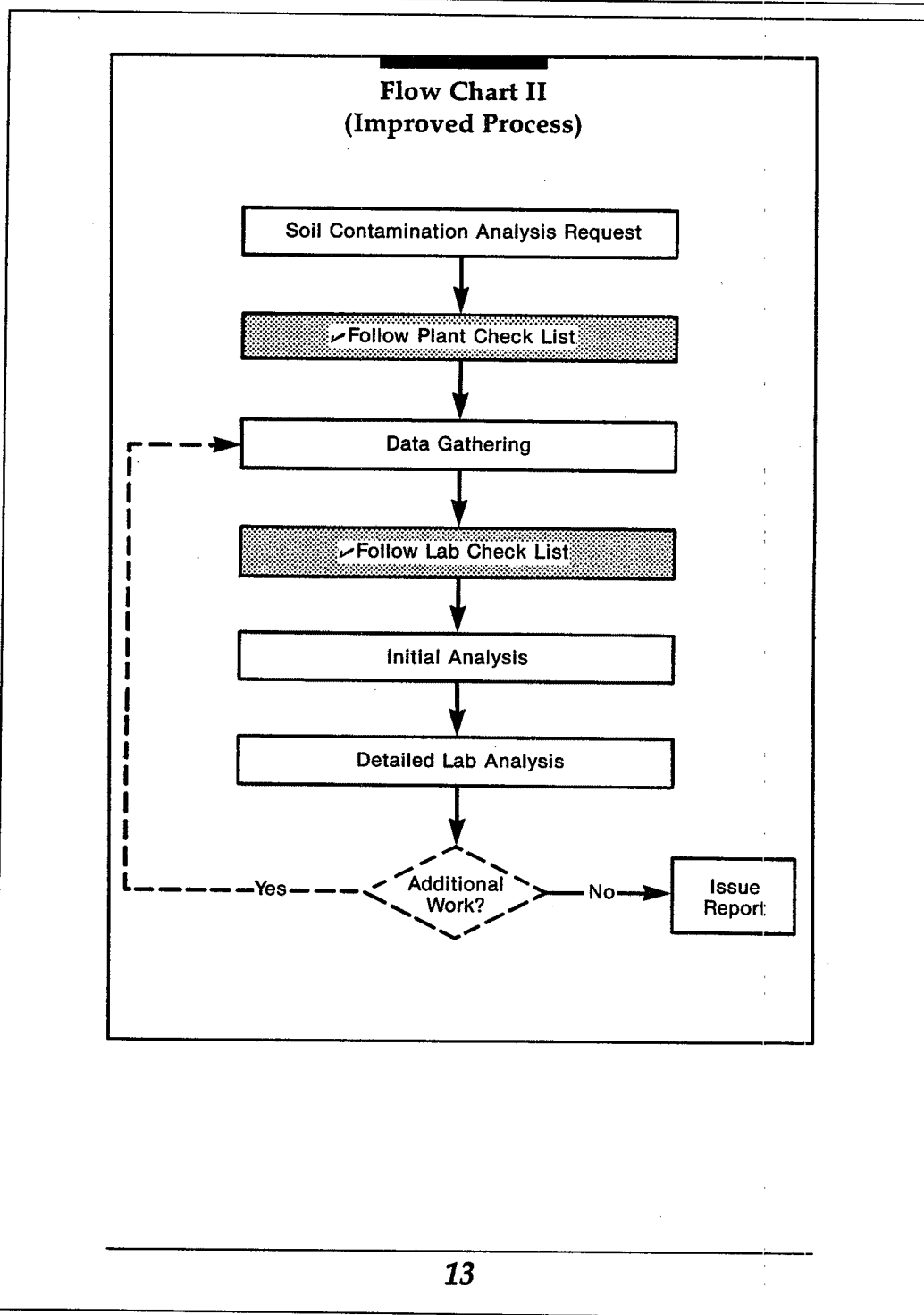


Figure 1. Total quality environmental management primer (continued).

■ **Histogram.** A graphic tool that displays the distribution, spread, and shape of a set of data from a process. If the collected data show that the process is stable and can be predicted, then the histogram can also be used to demonstrate the capability limits of the process.

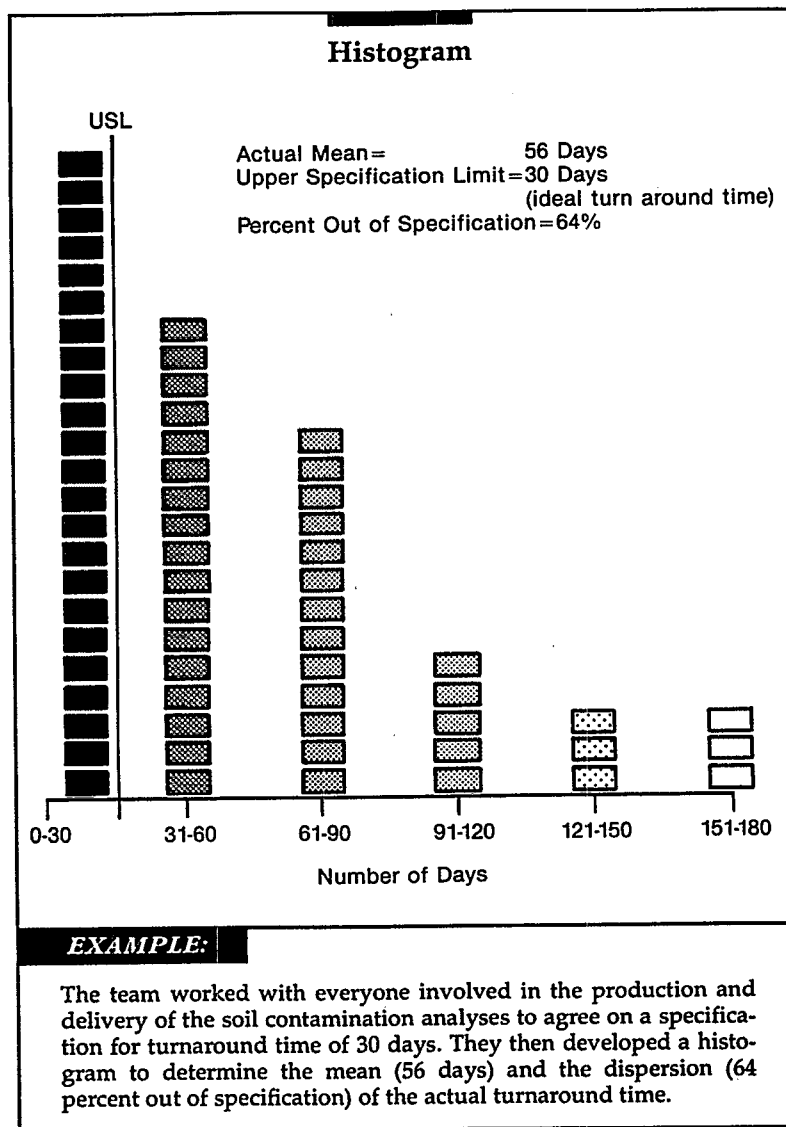
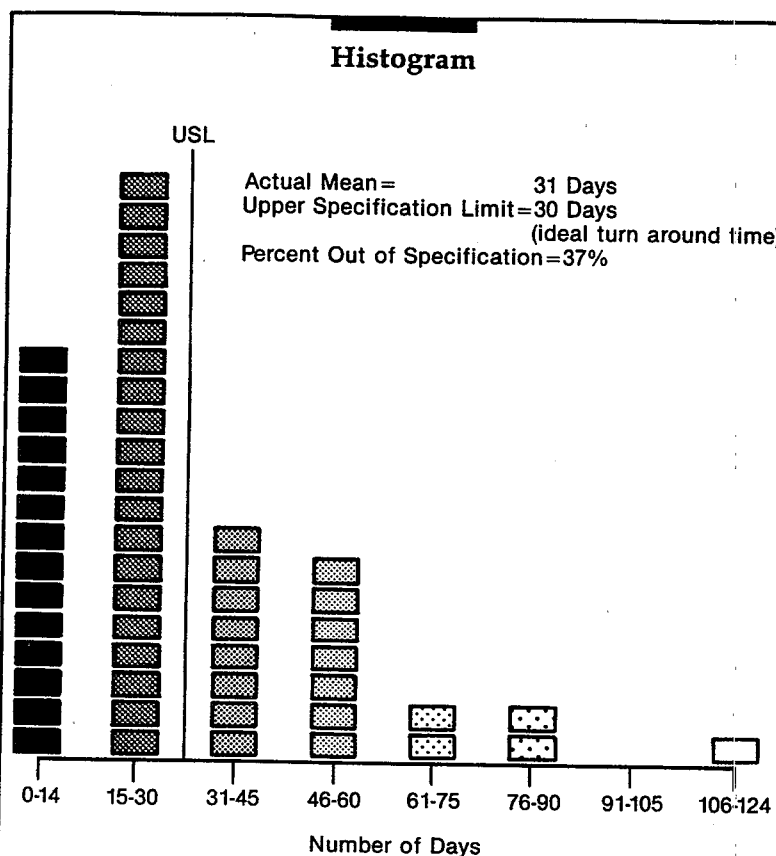


Figure 1. Total quality environmental management primer (continued).

**EXAMPLE:**

Shortly after beginning their improvement process, the soil contamination analyses team used a second histogram to measure how close they were to achieving their time-reduction goal. The histogram showed that they had reduced the mean delivery time from 56 to 31 days (just 1 day over the specification) and the dispersion had decreased from 64 to 37 percent.

Figure 1. Total quality environmental management primer (continued).

■ **Benchmarking.** Benchmarking is simply comparing one of your processes to a "best-in-class" example, either within or outside your company. This helps you in two ways: all participants benefit from the other's experiences and the "best-in-class" comparison can provide powerful justification for your own investment in continuous improvement.

However, benchmarking takes time, both to find the appropriate "best-in-class" example and to compare processes, so use the following guidelines:

1. Define and rank customer values. Benchmarking should focus on characteristics that customers value most highly; therefore, research on customer preferences may be necessary.
2. Establish partnerships with outside research sources. Independent researchers and consultants with whom you build a long-term, confidential relationship can identify benchmarking targets and help your staff conduct the comparison.
3. Gain cooperation of benchmarking targets with *quid pro quo*. Benchmarking usually means sharing data. This exchange can take several forms. Among them is a compilation by an independent researcher that gives each company aggregate sets of data for comparison.
4. Adopt a procedure that assures a thorough comparison. A list of guidelines follows:
  - Focus benchmarking on well-defined customer values or significant problems.
  - Assemble a cross-functional benchmarking team capable of completing the comparison and utilizing its findings.
  - Map your own process and measure its inputs and outputs.
  - Collect secondary data from trade publications and other public sources.
  - Determine both similarities and differences in your comparison and trace the causes.
  - Use the comparison as impetus for continuous improvement.

---

---

## ***MEASUREMENTS AND HOW TO USE THEM***

**M**easurement in both the "plan" and "check" portions of the P-D-C-A cycle is a prime component of your continuous improvement TQEM process. Before you start your TQEM program, take baseline measures; this will establish a basis for comparison with subsequent measures to monitor improvements.

Whenever you implement a new environmental measurement system, or change an old one, you should simultaneously identify measures that will tell you if the system is delivering the desired results. A company can use measurements to, among other things, get feedback on how customers are responding to the changes. Measuring your customers' opinions of your product or service will, over time, tell you if your improvement efforts are really addressing your customers' needs.

Effective measurement begins with customer requirements and monitors performance in terms relevant to your internal and external customers.

Measurements may be both direct and indirect, but the real secret lies in selecting measures that truly monitor performance and improvement: you need to know how well you are meeting your customers' requirements even as you reduce your own costs and improve your workplace environment.

A company must customize its measurement procedures. For example, a measurement system may be based on broad categories such as regulatory audits, monitoring results, and inspections. Or, as is the case with most companies, you may prefer a more detailed measurement process that could include such diverse topics as:

- Percentage of trained personnel
- Total personnel
- Total production
- Total liquid and solid waste

- Total safety and environmental investments
- Total safety and environmental expenses
- Energy use
- Total safety and environmental personnel
- Frequency of environmental audits
- Existence of emergency planning and drills
- Environmental and safety incidents

The list is endless.

Use numerical measures and tools such as histograms, pareto charts, and statistical control charts whenever possible both to improve management oversight and to strengthen the credibility of the process.

Measuring progress and sharing results as TQEM evolves affects the process significantly by documenting accomplishments, identifying areas for improvement, inspiring pride and encouraging momentum, justifying the need for more resources, and providing information for other needs.

## Summary

Business must resolve to continually improve environmental performance not just today, but tomorrow and into the future. TQEM gives you the tools to meet this challenge; you have but to use them thoughtfully and continually.

As you build your system, keep in mind that TQEM demands of its practitioners that they continually question "business as usual." That includes such fundamental questions as

- Are you staying in touch with your customers to be sure you're providing what they want?
- What is the company's impact on the environment? And how is this changing?
- How important is environmental performance to each set of customers?
- What future customer needs must the company satisfy? And, is a mechanism in place to anticipate both problems and needs?

Figure 1. Total quality environmental management primer (continued).



---

Change is the one constant today: the process that works for you today may not meet tomorrow's requirements. Follow the road map provided by TQEM to anticipate the future for your environmental business. Always remember that the continuous improvement process that is TQEM can be summed up in less than a dozen words:

***No matter how good you are, you can  
always be better.***

Figure 1. Total quality environmental management primer (continued).

---

---

## **APPENDIX A**

# **GLOSSARY**

- **Benchmarking:** The technique of comparing one of your processes to a "best-in-class" example, either within or outside your company.
- **Cause and effect:** A qualitative summary of all potential causes of a problem. Each response to the question "why" becomes a branch on this "fishbone" diagram until the root cause is identified.
- **Continuous improvement:** The systematic, continual process of improving business processes.
- **Control chart:** A statistical tool to determine how much variability in a process is inherent (common causes) and how much is due to unique events (special causes such as fires). A control chart defines the expected performance range (or control limits) of a process or system.
- **Cross-functional team:** A team of experts from every element of the process who work together to continuously improve customer-driven processes.
- **Customer:** Anyone — either within or outside your organization — to whom you supply a product or service.
- **Fishbone:** Another term for "cause and effect."
- **Flow chart:** A schematic showing the relationship between process steps that helps illustrate any significant deviations from the ideal process.

- 
- **Histogram:** A graphic tool that displays the distribution, spread, and shape of a set of data from a process.
  - **Pareto chart:** A graphic tool that organizes data to identify and focus on major problems.
  - **P-D-C-A:** A systematic data-based method for continual process improvement rooted in the principle that you need to understand a situation or process before you can improve it.
  - **Root cause analysis:** Another term for "cause and effect."
  - **Shewhart cycle:** Another term for P-D-C-A.
  - **Specification limits:** Performance standards set by internal or external customers.
  - **TQEM:** Total Quality Environmental Management
  - **TQM:** Total Quality Management

Figure 1. Total quality environmental management primer (continued).

---

---

## **APPENDIX B**

# **BIBLIOGRAPHY**

- Abt Associates Inc. *Consumer Purchasing Behavior and The Environment: Results of an Events-Based Study*. Cambridge, MA: Abt Associates Inc., 1990.
- Abt Associates Inc. *Customer Research Data for the TQEM Handbook, Global Environmental Management Initiative*. Cambridge, MA: Abt Associates Inc., 1991.
- Abt Associates Inc. *Environmental Management: From Compliance to Strategy*. Cambridge, MA: Abt Associates Inc., 1991.
- Aguayo, Rafael. *Dr. Deming: The American Who Taught the Japanese About Quality*. New York, NY: Simon & Schuster, 1991.
- Augsburger, Robert, et al. *Corporate Environmental Solutions Project: independent Study Project*. Stanford, CA: Stanford Graduate School of Business, 1991.
- Deming, W. Edwards. *Out of the Crisis*. Cambridge, MA: Massachusetts Institute of Technology, Center for Advanced Engineering Study, 1982.
- Deming, W. Edwards. *Quality, Productivity and Competitive Advantage*. Cambridge, MA: Massachusetts Institute of Technology, 1982.
- Global Environmental Management Initiative. *Corporate Quality/Environmental Management: The First Conference*. Proceedings. Washington, DC: Global Environmental Management Initiative, 1991.
- Goal/QPC. *Benchmarking*. 1991 Research Report. Methuen, MA: Goal/QPC, 1991.
- Goal/QPC. *Cross-Functional Management*. 1990 Research Report. Methuen, MA: Goal/QPC, 1990.
- Goal/QPC. *The Memory Jogger: A Pocket Guide to Tools for Continuous Improvement*. 1991 Conference Edition. Second Edition. Methuen, MA: Goal/QPC, 1985, 1988.
- Ishikawa, Kaoru. *Guide to Quality Control*. White Plains, NY: Quality Resources, 1982.

- 
- Ishikawa, Kaoru. (D.J. Lu, trans.) *What is Total Quality Control? The Japanese Way*. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1985.
- Juran, J.M. *Juran on Leadership for Quality: An Executive Handbook*. New York, NY: The Free Press, 1989.
- King, Bob. *Better Designs in Half the Time: Implementing QFD Quality Function Deployment in America*. Third Edition. Methuen, MA: Goal/QPC, 1989.
- Kleiner, Art. *What Does It Mean To Be Green?* Boston, MA: Harvard Business Review, August 1991.
- Senge, Peter M. *The Fifth Discipline: The Art and Practice of the Learning Organization*. New York, NY: Doubleday/Currency, 1990.
- Stalk, George, Jr., and T.M. Hout. *Competing Against Time: How Time-Based Competition is Reshaping Global Markets*. New York, NY: The Free Press, 1990.
- Walton, Mary. *The Deming Management Method*. New York, NY: Putnam, 1986.

Figure 1. Total quality environmental management primer (continued).

---



---

## **APPENDIX C**

# ***TQM STUDY PARTICIPANTS***

**W**e would like to thank the following companies for participating in our study of the uses of TQM in environmental management.

3M	ICI Americas, Inc.
Allied Signal Inc.	John Fluke Manufacturing Company, Inc.
American Electric Power Company	Johnson Yokogawa Corporation
Amoco Corporation	Kansas Gas and Electric Company
AT&T	Kawasaki Motors Manufacturing Corporation, USA
Barnes Group, Inc.	Kentucky Utilities Company
Basin Electric Power Cooperative	Kiewit Holdings Group, Inc.
Baxter Healthcare Corporation	Masco
Calcomp, Inc.	Merck & Company
Central Illinois Public Service Company	National Semiconductor Corporation
Champion International Corporation	New York Power Authority
Cobe Laboratories, Inc.	Nipsco Industries, Inc.
Deere & Company	Occidental Petroleum Company
Dentsply Holdings, Inc.	Pall Corporation
Digital Equipment Corporation	Procter & Gamble Company
Dow Chemical Corporation	Sinclair Oil Corporation
Duke Power Company	Smith & Nephew, Inc.
E.I. du Pont de Nemours & Company	Sun Microsystems
Eastman Kodak Company	Texaco Chemical Company
Florida Power & Light Company	Union Carbide Corporation
Foxboro Company	Union Oil Company of California
G. Heileman Brewing Company	Uno-Ven Company
General Chemical Corporation	W.R. Grace & Company
General Dynamics Corporation	Warner-Lambert Company
Genlyte Group, Inc.	Xerox Corporation
Goulds Pumps, Inc.	

Figure 1. Total quality environmental management primer (continued).

## **VOLUNTARY ENVIRONMENTAL INITIATIVES AND ENVIRONMENTAL POLICY: ENVIRONMENTAL MANAGEMENT SYSTEMS, AUDITING, AND ENFORCEMENT**

KENNEDY, NADINE<sup>1</sup> and GREENE, ADAM<sup>2</sup>

<sup>1</sup> Director of Environmental Affairs

<sup>2</sup> Manager of Environmental Affairs

United States Council for International Business, United States affiliate of the International Chamber of Commerce, New York, NY, U.S.A.

### **1 INTRODUCTION**

National strategies for environmental protection have evolved with an improving scientific understanding of environmental impacts and risks and with increased direct experience with the most effective methodologies. These developments track a broader shift in the regulatory paradigm from release control and end-of-pipe capture to source reduction. This trend is echoed in the attention increasingly accorded by regulators, not just in a company's environmental impacts, but also in the way that a company manages the environmental aspects of its day to day operations.

Consequently, frameworks of national and international environmental policy have become a combination of government regulation, economic and market-oriented instruments, voluntary industry initiatives, and public-private cooperation. Among such measures, voluntary initiatives by businesses and industries, which encompass the full range of innovative management tools and processes, have been found to be an effective means to address environmental concerns.

The over-all goal of voluntary environmental initiatives is to foster continuous improvement in environmental management, increasingly by utilizing a properly designed and implemented environmental management system (EMS). According to the International Chamber of Commerce "Guidelines on Environmental Auditing," the objective of an environmental management system is:

"to provide a structured and comprehensive mechanism for ensuring that the activities and products of an enterprise do not cause unacceptable effects in the environment. All stages are considered from initial planning and conception, to final termination."

Unlike many government-initiated voluntary agreements with businesses, voluntary industry initiatives do not usually call for reduction targets or mandate specific actions. For the most part, voluntary industry initiatives are environmental management system-oriented, eschewing specific targets or prescribing activities which would hamper creativity and innovation. An approach based on flexibility in application ensures that these initiatives are broadly effective in many different sectors and sizes of enterprises, and recognizes that environmental management programs in companies must advance from different points of origin.

Environmental auditing, a fundamental building block of environmental management system, has generated particular interest because of its verification and certification aspects. Additionally, environmental reporting, communicating a company's environmental performance with its stakeholders, has received significant attention from those governments considering what role environmental management system-based policies might play in national environmental regulations.

This paper will describe International Chamber of Commerce-initiated voluntary industry initiatives which exemplify the advantages of voluntary environmental management system, environmental auditing and environmental reporting: achieving primary benefits for environmental protection, and providing alternatives and complements to regulation. First, guidelines and codes of conduct such as the International Chamber of Commerce Business Charter for Sustainable Development and the International Chamber of Commerce Environmental Auditing Guidelines provide frameworks for environmental management system, environmental auditing and environmental

reporting based on continuity of purpose and improvement. Second, the paper will summarize the United States Council for International Business' partnership, based on the International Chamber of Commerce Business Charter, with the Mexican Confederation of Chambers of Industry. Third, the paper will discuss some initiatives underway to harmonize and standardize environmental management system, environmental auditing and environmental reporting, while maintaining their voluntary attributes, including the European Union Environmental Management and Audit Scheme and the International Standardization Organization efforts to produce a series of voluntary environmental management standards.

## 2 INDUSTRY GUIDELINES

While not replacements for government regulation, innovative voluntary initiatives, when broadly and strategically applied, bring measurable results which often surpass the regulated minimum. Additional benefits include enhanced cooperation among and between businesses and governments and improved dialogue with communities and other stakeholders. Such voluntary environmental management system-oriented initiatives are also attractive to governments as they are cost effective and, when successful, both non-bureaucratic and non-adversarial.

### 2.1 International Chamber of Commerce Business Charter for Sustainable Development

The International Chamber of Commerce Business Charter for Sustainable Development was developed by a working group of international business representatives, following a commitment made by the business community at the UN ECE Bergen Environmental Conference. The Charter sets out 16 principles on the full range of corporate activities linked to environmental performance, including management priorities and processes, environmental auditing, employee training and education, product development and manufacture, and community concerns.

The Charter was introduced at the International Chamber of Commerce's Second World Industry Conference on Environmental Management in April 1991 and was the International Chamber of Commerce's primary contribution to the United Nations Conference on Environment and Development. Endorsed by over 1,200 major companies worldwide, the Charter has been published in 24 languages, and has received messages of support from international environmental groups such as the WorldWide Fund for Nature and the International Union for the Conservation of Nature, as well as from inter-governmental organizations such as United Nations Environment Programme, the OECD and GATT.

#### 2.1.1 The Charter provides a general mission statement and commitment for environmental improvement. Furthermore, the Charter calls for the need to establish management practices to put this commitment into action.

While environmental and public health regulations have grown exponentially in both number and complexity, many companies, especially the vast numbers of small and medium sized ones, had heretofore lacked an organizing principle for environmental management other than meeting minimum compliance requirements. At their best, voluntary initiatives aggregate diffuse and seemingly unrelated activities into a system and provide that system with a goal of continuous improvement. Continuous improvement is the process by which a company devotes its resources over time to achieve a constant aim, such as those set out in the Charter's 16 principles.



- 2.1.2 The Charter has been effective in providing the framework on which companies can base such improvement beyond compliance, creating a global alignment of all types of businesses around the world to common objectives.

The Charter provides a basis for companies and associations to develop their own policies and programs, using legal regulations as a starting point. The broad nature of the Charter principles allows thousands of business and plant managers around the world to pursue good environmental management, regardless of where each company finds itself on the "learning curve" when it first endorses the Charter. It also provides a network for companies in developed and developing countries to share expertise and experience in their efforts to strengthen environmental management and practice.

- 2.1.3 The Charter has served as a coordinating force among companies worldwide which have produced innovative environmental management tools in their pursuit of the Charter.

- In the United Kingdom, International Chamber of Commerce UK companies, in conjunction with others, compiled the methods they had independently developed to implement Principle 11 of the Charter pertaining to contractors and suppliers. The product, "Buying into the Environment: Guidelines for Integrating the Environment into Purchasing and Supply," has been disseminated widely through the International Chamber of Commerce network.
- In the United States, companies of the Global Environmental Management Initiative developed the "Environmental Self-Assessment Program" based on the Charter. The Environmental Self-Assessment Program is a tool which companies can use to improve an existing environmental management system by measuring and analyzing environmental performance across the 16 Principles. A number of versions have been produced to compensate for regional differences in order to increase its effectiveness and applicability.

In other parts of the world, similar products have been developed to expand upon the Charter to meet industry needs. Projects by individual companies are continuing to add to the growing library of specific programs created to support the Charter's 16 Principles.

- 2.1.4 The Charter is a vehicle for public-private sector partnership and dialogue.

On April 28, the United Nations Environment Programme-International Chamber of Commerce High-Level Advisory Panel on the Charter will hold its inaugural meeting, bringing together chief executives and environment ministers to review the Charter's progress over the last two years, and seek ways to work together in support of the Charter in the future. This meeting will also address issues of technology cooperation, sustainable consumption patterns and environmental reporting.

- 2.1.5 Endorsing the Charter is a public commitment on the part of companies to carry out its principles, which includes "fostering openness and dialogue with employees and the public."

The International Chamber of Commerce published a first progress report on the International Chamber of Commerce Charter, "From Ideas to Action," in which companies provided examples of Charter implementation. A number of International Chamber of Commerce national affiliates are also working with corporate members to gather information about Charter activities.

Because the Charter is *not* a commitment made by the International Chamber of Commerce or International Chamber of Commerce National affiliates, it is up to individual companies and business organizations to implement the Charter and report on that implementation.

## 2.2 International Chamber of Commerce Auditing Guidelines

The International Chamber of Commerce Auditing Guidelines were developed by an international working group of business representatives, and subsequently finalized in 1989. The International Chamber of Commerce guidelines begin by setting out their objectives, including:

- Defining environmental auditing as:

"A management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organization, management and equipment are performing with the aim of helping to safeguard the environment by:

1. Facilitating management control of environmental practices.
2. Assessing compliance with company policies, which would include meeting regulatory requirements."

- Stressing the benefits of environmental auditing as a highly desirable and cost-effective means of assessing the functioning of a company from the environmental viewpoint.
- Emphasizing to regulatory authorities that such audits can be a reliable and efficient means of assisting compliance with regulations.
- Suggesting a standard practical methodology for personnel charged with undertaking environmental audits.

The International Chamber of Commerce Auditing Guidelines were intended to establish environmental auditing as a credible and trustworthy instrument in the minds of stakeholders. Just as environmental management system should reflect the nature of the organization, culture and products of individual businesses, environmental auditing programs should be individually designed and operated to best meet the specific needs and objectives of the business served.

## 3 VOLUNTARY PROGRAMS IN PRACTICE

### 3.1 United States-Mexican business partnerships

During the North American Free Trade Agreement debate, many critics stated that increased trade and inter-action between the United States and Mexico would damage the environment, and result in United States companies crossing the border to pollute.

The United States Council for International Business, the United States affiliate of the International Chamber of Commerce, established a program of cooperation with Mexico's Confederation of Chambers of Industry to demonstrate that companies can collaborate, and in so doing, share best practices in environmental, health and safety management and promote exchanges of training and information relating to environmental services, technologies and management.

Both the United States Council for International Business and Mexico's Confederation of Chambers of Industry have endorsed and are promoting the International Chamber of Commerce's Business Charter for Sustainable Development, which is supported by over 40 Mexican, over 70 United States and over 20 Canadian companies and business groups.

The partnership, originally based on United States corporate implementation of Principle 13 of the Charter dealing with the transfer of technology and management methods, has created a number of specific programs. Activities of the partnership have included:

- Information exchanges.
- Seminars on environmental management by industry specialists.
- Joint ventures in infrastructure development.

- Redesign and expansion of internal United States corporate training programs to include foreign companies, business groups and governments.
- Personnel education and training.
- Environmental management conferences.

This partnership highlights one way in which United States companies are: promoting the adoption of Charter principles by contractors and suppliers; contributing to the development of public policy and programs to enhance environmental awareness and protection; and continuing to improve company environmental performance.

#### 4 STANDARDIZATION AND REGULATORY APPROACHES

As businesses and governments shift away from compliance-driven environmental policies to strategically oriented environmental management system approaches, companies, divisions, and individual facilities have established management systems for their environmental activities. As a result, numerous environmental management system programs developed at the national, industry or company level now exist. These environmental management system, and their component environmental auditing and environmental reporting procedures, differ in a number of respects, including level of specificity, issues covered, and degree of flexibility. The different approaches to environmental management system have posed a number of challenges, including:

- Difficulty of comparison between product for environmental criteria.
- Merging management efforts in total quality and environmental quality.
- Supplier approval.
- Comparisons by institutional and other investors of environmental performance.

In this connection, some organizations are working to harmonize and set definitions for the primary elements of environmental management system, introducing issues of certification and enforcement into the field of what are normally voluntary activities. In addition, some governmental organizations, such as the E.U. and United Nations Environment Programme, are developing accepted guidelines and even regulations relating to environmental management system, environmental auditing and environmental reporting.

The International Chamber of Commerce understands environmental management system and its components to be crucial internal voluntary management tools. So while certification requirements to standardize these aspects of environmental management system serve a purpose in setting environmental management system norms, and therefore do not detract from their usefulness, regulating and enforcing the use of a specific environmental management system, environmental auditing and environmental reporting would indeed seriously compromise their effectiveness.

##### 4.1 International Standardization Organization 14,000 Series

As a way of addressing these developments, companies worldwide have pressed for the international harmonization of environmental management system, environmental auditing and other elements of environmental management, and have been active participants in drafting the International Standardization Organization environmental management system standards. The standards, currently under development through international negotiations, will include standards for environmental management system, environmental auditing, environmental labelling, environmental performance evaluation, and life-cycle analysis.

While environmental management system standards can address the problems discussed above, companies working within the International Standardization Organization process believe that they will do so most effectively when voluntary. The standards will be most useful if based on principles of flexibility and adaptability in recognition that the standard criteria will be blended into an existing

internal management structure. To ensure maximum effectiveness of an international standards scheme, the standards should specify only the key elements of an environmental management system, providing a basic level of organizational structure and policy process upon which to base corporate environmental management. Thus, the environmental management system can be designed and utilized in the most effective manner for that company, reflecting that company's industry, existing infrastructure, and management structure.

The International Standardization Organization standards for environmental auditing will provide company management with the necessary information to determine the performance of its environmental management system, and take the necessary actions for improvement; as such, they follow the approach set out in the International Chamber of Commerce Auditing Guidelines. While the environmental audits will include standardized elements and follow specified steps, the International Standardization Organization standards will probably allow each company to decide for itself how the resulting information will be acted upon, in terms of both international corporate management and external reporting.

It is important to note that the *International Standardization Organization 14,000* standards under development have been inspired by and have incorporated additional principles of the voluntary initiatives described above, including continuous improvement and the use of the environmental management system as an internal management tool. The United States International Standardization Organization delegation has presented six guiding principles on environmental management systems in the International Standardization Organization negotiations on environmental management system standards which encompass the issues discussed above:

- Sustainable development can be advanced by the development of international environmental management system standards that all institutions, including both businesses and governments, could use to improve environmental performance.
- To encourage and accelerate the acceptance of international standards, and by extension improved environmental performance, the International Standardization Organization standards must work with a staged evolution of requirements. Thus, proven concepts and methods would be included immediately and others in development would be added as they became demonstrably viable.
- The standard must allow for self-certification to maximize internal benefits.
- Environmental management system standards should present primary requirements without prescribing the methods of achieving those requirements, instead leaving it to the institution to determine the course of action.
- International environmental management system standards, in order to advance sustainable development, must be developed in a way which promotes free trade, and does not create a trade barrier which would slow development.
- The standards must recognize that additional environmental initiatives, in government and industry, are under development, and must not preclude their viability.

#### 4.2 European Union Environmental Management and Audit Scheme

The Environmental Management and Audit Scheme, approved at the end of 1991 as a European Council Regulation, and published in March 1992, balances a number of elements drawn from both voluntary and regulated policy approaches. Participation in the Environmental Management and Audit Scheme is voluntary; it sets out basic parameters for site-specific—as opposed to company-wide—environmental management system, environmental auditing and environmental reporting. An environmental statement, based on the environmental audit, is prepared and validated by a certified party. Once a company has been certified, it can display an eco-audit “logo” on its stationery and for other internal uses.

Coming into force in 1995, the Environmental Management and Audit Scheme is currently in a pilot program stage in which a companies have volunteered to follow its procedures and report

their experience. Some International Standardization Organization 14,000 standards on environmental auditing, when completed, will be "plugged into" the Environmental Management and Audit Scheme.

Although industry continues to be concerned that the Environmental Management and Audit Scheme regulation will become mandatory for companies, it is also confident that the experience gained from its "trial" run will be convincing to governments of the benefits of allowing it to retain its voluntary nature.

Many challenges remain in creating harmonized environmental management systems, including the process of certification, preventing new trade barriers, the possibility that such voluntary standards be regulated by national governments, and the feasibility for small and medium sized companies. The full development of the standards and harmonized structures presented above will set a starting point from which industry and government can collaborate to resolve such issues.

## 5 CONCLUSIONS

The growing interest in and importance placed on environmental management system by international organizations, governments and companies will further advance management systems as an integral component of environmental protection. It is also clear that the effectiveness of voluntary initiatives results from their role as alternatives and complements to strictly regulatory approaches.

The business community has reached a number of conclusions based on its own experience with environmental management system—in both voluntary initiatives and in standardization activities:

- Business recognizes that good environmental management and good management are one in the same.
- Environmental management system, environmental auditing, environmental reporting and other management-oriented approaches are most effective when voluntary.
- Environmental management is an area in which increased business-to-business and business-to-government cooperation would be beneficial and desirable.
- Such voluntary and/or cooperative approaches are more effective when promoted by governments and multilateral organizations, such as the North American Free Trade Agreement Commission on Environmental Cooperation, United Nations Environment Programme's Cleaner Production activities, the OECD Pollution Prevention and Control Group and others.
- Governments should continue to encourage and respect business-to-business partnerships to improve environmental management.

The experiences of industry groups and governments with voluntary approaches are by no means comprehensive, and many challenges remain:

- How should voluntary initiatives be extended to include small and medium sized companies? What technical and management assistance is necessary to do so?
- How can voluntary initiatives be designed to be effective for companies in developing countries and in countries in transition?
- How can voluntary initiatives build trust and partnership between the private and public sector, and extend this working relationship to include other stakeholders?

These are but a few of the unresolved issues which demonstrate that additional work and discussion is necessary. Industry associations and their members must continue to design and utilize voluntary programs to offer benefits to the companies that implement them and the society in which those companies operate. As government agencies consider their role in improving corporate environmental management and practices, close attention should be given to the programs which industry has set in place voluntarily and the priorities which industry has assigned itself in those programs.

---

**ENDNOTE**

1. The United States Council for International Business is the United States affiliate of the International Chamber of Commerce, the Business and Industry Advisory Committee to the OECD, and the International Organisation of Employers. The Council formulates policy positions on issues affecting the increasingly globally-oriented United States business community through committees and other working bodies drawn from its membership of some 300 major multinational corporations, service companies, law firms and business associations. It advocates these positions to the United States Government and such international organizations as the OECD, the GATT, ILO, United Nations Environment Programme and other bodies of the U.N. system with which its international affiliates have official consultative status on behalf of world business.

## ROLE OF POLICE

Facilitator: Jan Peters

Rapporteurs: Matt Low (TLI) and Tiffin Shewmake (TLI)

### GOALS

This topic addressed the following issues:

- What roles can police play in environmental enforcement?
- Why might police be called upon to play those roles?
- What contributes to the success of having police carry out that role?
- What are the challenges of and solution to police involvement?

Some goals for these sessions were to share visions, form networks, and make acquaintances.

### 1 INTRODUCTION

More than 30 participants from approximately 20 countries and international organizations met in two separate sessions. Participants in this session represented a broad cross-section of backgrounds and experiences. There was also a broad range in the current level of police involvement in environmental enforcement. In some countries there is minimal involvement of the police, others utilize civil police to identify when environmental crimes have occurred, while other countries have police units specializing in environmental crimes. Generally, it was recognized that the police have valuable role to play in environmental enforcement by helping maximize scarce resources and provide expertise in specific areas.

### 2 PAPERS

Two papers are in the Proceedings Volume 1 (pages 561-571). Ed Neafsey describes in "The Role of Local, County, and State Police Officers in New Jersey in Environmental Enforcement" the work of these officers. He concludes that each level of law enforcement in New Jersey has a distinct role to play in fighting environmental crime. Rob Hessing states in "The Task of the Police" that the police can play an important role in enforcing environmental laws. The police have a key position with regard to the execution of policies. It is however a relatively new task for which a special infrastructure has to be created.

### 3 DISCUSSION

#### 3.1 What roles should police have?

The exact role that police may have in environmental enforcement varies depending on the specific circumstances. In general, the police are viewed as a potentially large resource since there are usually many more police than environmental inspectors and they are widely distributed. Thus, scarce resources can be maximized through the use of police. Roles that the police can fulfill include:

- Issuing on-site citations for simple civil environmental offenses.
- Focusing on special types of offenses or offenses in protected areas.

- Supporting environmental agencies by identifying environmental crimes and contacting the appropriate agency.
- Supporting special criminal units in prosecuting particularly complex environmental cases.
- Supporting enforcement of crimes such as hazardous waste transportation and dumping, that require international cooperation.

In addition to civil police, some countries have developed units that specialize in the enforcement of environmental crimes or train police officers in more specialized areas such as conducting sampling. In other countries, the police may currently have little to no role in environmental enforcement. This may be because of a lack of resources in police departments.

The military may also be used to identify environmental crimes and problems. This may be useful in countries where resources are very limited. The military may be equipped for this role because of a wide distribution of manpower and advanced equipment. However, it was cautioned that the military may not be the appropriate organization for environmental enforcement and may not recognize the significance of environmental enforcement or may try to use additional responsibilities for other purposes.

The role of the police may also depend on the level; federal, state, or local. Federal police, especially a unit specialized for environmental crimes, may provide training and technical support to state and local police forces.

### 3.2 Why might police be called upon to play these roles?

Because there are more police than environmental inspectors, the use of police will expand resources devoted to environmental enforcement. The police can act as the "eyes and ears" of the environmental agency. The police are often better suited to investigate some specific areas where the environmental crime, such as hazardous waste dumping, involves criminals. Police can lend credibility to procedures for detection and prosecution, or supplement environmental staff when a potentially dangerous situation is expected.

Special units or constables with proper training, can be helpful for specific environmental laws, or areas which require special protection (e.g., parks). Inspectors in agencies may be trained as police and authorized to arrest and carry firearms.

### 3.3 What contributes to success?

Training, cooperation, and funding are important elements for success in utilizing police. Without training, police may not view environmental crimes as important as more traditional crimes and may not identify when an environmental crime has occurred. Basic training may include awareness of environmental crimes. More detailed training can enable police to conduct sampling or issue citations. Training in health and safety issues related to hazardous chemicals is also important.

Training goals may be set incrementally, with priorities determined to make the most efficient use of the police. The approach taken by some jurisdictions is to initiate a minimal awareness training for as many police as possible and train a small number of police in more detail. The future goal is a more complete training of a majority of police.

Funding is also important. Some countries have set aside a percentage of police department budgets for environmental enforcement.



#### 4 CONCLUSIONS

Many police do not view environmental crimes as important as traditional crimes. Education is needed to change police attitudes to view environmental crime as an important area. Police are also taught to fight "crime" and not enforce regulations and may not want to take on this role.

It is also important to ensure that police units at all levels work together and also have police units assigned to areas that they are best equipped to handle, including areas where highly technical procedures must be followed to develop cases. Federal funds can be helpful in developing skills at local level.

International cooperation among police, especially the sharing of information, is increasingly important, particularly in areas such as hazardous waste dumping and trading in endangered species. It is also important that countries share information on companies that routinely violate environmental laws and move to operate in countries with less stringent enforcement. Interpol now identifies environmental crime as major and is developing methods to exchange information.

There also was agreement that education of the public is important, since the public can give information to the police on activities that may represent environmental offenses. Police can have a role in public education, particularly if police management attitudes are changed to recognize the importance of environmental enforcement. The Federal Crimes unit in the U.S. has received many tips from workers and, more recently, from citizens. It was agreed that the public may find it easier to report observations to local police, who could then recognize whether an environmental offense has occurred and take appropriate steps to deal with it.

The U.S. and The Netherlands have training materials, such as videos to help train police at any level.



**CLOSING REMARKS FOR THE THIRD INTERNATIONAL  
CONFERENCE ON ENVIRONMENTAL ENFORCEMENT**

HERMAN, STEVEN A.<sup>1</sup> and VERKERK, PIETER<sup>2</sup>

<sup>1</sup> Assistant Administrator, Office of Enforcement and Compliance Assurance, U.S. Environmental Protection Agency, 401 M Street, SW (LE-133), Washington, DC 20460, USA

<sup>2</sup> Directorate-General for Environmental Protection, Inspectorate for the Environment, Ministry of Housing, Spatial Planning and the Environment (VROM), IPC 680, P.O. Box 30945, 2500 GX DEN HAAG, The Netherlands

Ladies and Gentleman, we come to the close of what has been by all accounts a very successful and productive conference. On behalf of the Executive Planning Committee for the Third International Conference on Environmental Enforcement, we want to thank the speakers, facilitators, those who prepared papers, and of course, participants for your contributions which made this Conference a success. Who could have imagined a better exchange than seeing representatives from the several countries represented here joining forces in the workshops to solve environmental problems, design compliance strategies and enforcement programs, and play roles in enforcement negotiations so effectively. We explored institution building options, shared information, and reached new conclusions on special topics of great interest to environmental enforcement policy makers throughout the world.

We are all committed to return to our respective countries and regions of the world to achieve our ultimate conference objectives: to enhance existing or to develop new compliance and enforcement programs so that our ultimate mission of protecting human health and the environment and ensuring sustainable economic development are realized.

Conference sponsors, the United States Environmental Protection Agency, the Netherlands Ministry of Housing, Spatial Planning and the Environment, the United Nations Environment Program IE/PAC, the World Wildlife Fund, and Mexico's Social Development Ministry, SEDESOL, assisted by the Executive Planning Committee (including the sponsors as well as officials from Canada, Chile, Costa Rica, Jamaica, Indonesia, and Nigeria) prepared this Conference as part of a continuing international collaboration to enhance environmental enforcement.

We look forward to your conference evaluations to see how we can best keep up the momentum of these conferences in regional and international networks, workshops, continued exchanges, and development of useful materials. In particular, we ask each of you to review the workshop materials and technical support documents to comment on how we can improve upon them to make them most useful to you. Please tell us: if something has been left out, what changes should be made, how you liked the workshops themselves, and what you think of the format. We need to know. We need your help.

In response to comments at our previous conferences, these past four days included many opportunities for small group discussions and workshops as well as plenary sessions. We would like to highlight some of the key conclusions that have come out of our discussions:

## **1 SIGNIFICANCE OF ENVIRONMENTAL COMPLIANCE AND ENFORCEMENT TO ACHIEVING SUSTAINABLE DEVELOPMENT, GLOBAL AND DOMESTIC ENVIRONMENTAL GOALS**

Our opening speakers highlighted the significant and crucial role environmental enforcement can and must play if we are to succeed in achieving the goals of international efforts such as Capacity 21 from the United Nations Conference on Environment and Development, NAFTA, GATT, and Basel. We must always remember that economic prosperity, sustainable development, enhanced trade opportunities and environmental protection are inextricably linked and dependent on each other.

## **2 AFFIRMATION OF A COMMON SET OF DEFINITIONS, PRINCIPLES AND FRAMEWORK FOR ENVIRONMENTAL ENFORCEMENT**

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 and deforestation. In those case examples we often bridged the gap between traditional pollution control and sustainable development. We also were inspired by hearing today of the experience of the United States, the Netherlands, Barbados, and Guyana in actually addressing those problems.

## **3 CHALLENGES TO ENVIRONMENTAL COMPLIANCE**

Three speakers from Nigeria, Argentina and Poland shared their experiences on the challenges of environmental enforcement from three regions of the world. There are challenges which are common regardless of whether one is establishing a national environmental enforcement program or enforcing at a regional level, whether starting from scratch or improving the implementation of an existing program. First, a catalyst is needed to break the inertia of inaction about compliance problems. Second, there is a constant search for funding and trained personnel. Third, interagency conflicts and provincial/federal jurisdictional conflicts must be resolved or they will impede progress. Fourth, political instability in particular plagues the advances in many programs. Fifth, creative and even courageous interpretation of laws are often necessary to begin constructive response to environmental problems. Finally, national commitments have to be supported by international cooperation.

## **4 INSTITUTION BUILDING: DESIGNING COMPLIANCE AND ENFORCEMENT PROGRAMS**

During the plenary sessions we heard examples from three programs: Norway, Mexico, and the Netherlands, on how they are building institutional capacity. Norway's program has evolved from an integrated permit and compliance program in which personnel had multiple roles to an independent enforcement and inspection function to achieve improved professionalism. They also fund their program using fees and third party audits to supplement their inspections. Mexico has established extensive training programs for their inspectors and is working hard improving interagency coordination and decentralization of enforcement. The Netherlands has established coordinating councils to organize response to violations among several agencies at different levels of government efficiently and to address all aspects of the problem.

The four UNEP workshops: on organizing, resources for, design of compliance monitoring and enforcement programs, and permit processing enabled participants to explore these topics

starting from case studies of increasing complexity and sharing experiences among themselves. The repeated four UNEP workshops were well attended demonstrating the relevance and usefulness of this UNEP training initiative. With this experience, UNEP will now further develop the training material.

## **5 SPECIAL TOPIC WORKSHOPS**

Our eight special topic workshops were lively and informative.

### **5.1 Export/Import of illegal shipment**

Several obstacles to gaining strong controls on the export and import of illegal shipments of hazardous waste, toxic chemicals and contaminated product still exist. In particular, the search for a clear and consistent definition of hazardous waste continues to be a challenge, and detection requires extensive coordination of departments within governments and internationally. Exporting nations need to take more responsibility for promoting compliance given the lack of full understanding of international requirements. Lack of strong requirements in some developing countries, sufficient to protect them from improper disposal of hazardous waste is still a problem. To effectively control export and illegal import there is a need to continue the ongoing international efforts to share information and develop regulatory and institutional frameworks through Interpol, Basel Convention implementation and local regional cooperative arrangements.

### **5.2 CFC controls to implement the Montreal Protocol**

Several developed nations have begun aggressive enforcement programs aimed at implementing the goals of the Montreal Protocol. However, many developing countries and some developed countries have not yet begun to achieve the international goals set by the Montreal Protocol due to lack of support, lack of funding and lack of capacity. As CFC containing materials are banned, illegal exports, particularly to developing countries are increasing and there is a particular need for cooperation and transfer of knowledge.

### **5.3 Role of police**

Police offer significant potential to serve as additional eyes and ears for detecting environmental violations given their significant number and distribution and lack of sufficient resources in environmental departments. Police may play a particularly valuable role in uncovering and solving environmental crimes and some countries have developed specialized police to investigate this sort of criminal activity. Training is essential to make police aware of environmental infractions, civil and criminal, and to enhance their appreciation of their significance as crimes. Given the need for technical skills and know-how, the role of police must be carefully coordinated with that of the environmental department, using different means applicable to respective countries.

### **5.4 Criminal enforcement**

Countries employ criminal enforcement very differently, some reserving it for the worst offenses, while the majority of environmental offenses are criminal in other countries. Most countries recognize the particular deterrent value of criminal enforcement in the potential and actual application of jail terms to violators. Education of judges and hearing officers can be a key factor in the successful prosecution of environmental crimes. Criminal enforcement mechanisms can deliver a full range of potential sanctions and consequences for responding to environmental violations, and not just jail terms and fines in many countries. It is increasingly being viewed as an important enforcement tool best utilized in an enforcement scheme which contains multiple response options.

### 5.5 Government owned and operated facilities

It is essential for the credibility of compliance and enforcement programs and achievement of environmental goals that government owned and operated facilities be held accountable for compliance just in the same manner as private sector facilities. Although there is significant public support for the idea that governments should live up to the environmental standards they set for their citizens, legal and political barriers make this idea very hard to implement. A variety of approaches and institutions are necessary to produce environmental compliance and cleanup at government facilities. Most important are an independent judiciary, funding for compliance and cleanup, public awareness and involvement and enforceable requirements.

### 5.6 Voluntary compliance

Voluntary compliance programs are important to achieving compliance, especially as a complement to a regulatory framework and strong enforcement program. Countries which are just developing their regulatory and enforcement framework may only be able to begin with voluntary compliance efforts but such initiatives are strongly encouraged, even though their effectiveness will be far greater once enforcement and regulatory frameworks are in place. Approaches need to examine all aspects of compliance, using all motivations, particularly public pressure and concern for market share. The role of media is important in raising public awareness.

For small or economically marginal business, the goal of voluntary programs might be compliance with the law, whereas large or more profitable businesses can be encouraged to go beyond compliance to reduce waste and prevent pollution. There are significant benefits to promoting environmental auditing by companies and policies should avoid discouraging self audits. Environmental education can change behavior in early years, establish environmental values, and provide for public pressure for compliance.

### 5.7 Field citation

Empowerment of field officers to take complete enforcement action when confronting certain types of environmental violations was widely viewed as a desirable feature of an enforcement program. Field citations were felt to have a great deal of potential for streamlining lengthy administrative enforcement procedures which have proven to be very frustrating to enforcement officials around the world. There were a wide variety of approaches among countries to the authorities given to field officers, ranging from assessment of a small fine to closure of the facility. Field officers can include a variety of personnel including inspectors, park rangers and police officers.

### 5.8 Economic instruments

World-wide experience with economic instruments for environmental protection is still quite limited although a wide range of economic instruments have been used in developing as well as developed nations. Success The potential is significant, and actual results have been felt particularly in boosting recycling programs, but there are costs also. Experience to date indicates that some types of economic instruments, especially the more complex ones such as tradeable permits, can require at least as much enforcement and monitoring as do the more traditional command-and-control regulations. Economic approaches in fact require good information and monitoring systems which can also raise costs for regulated entities. There is real interest in the potential of economic instruments to address environmental issues more efficiently. However, this interest is tempered with caution, particularly in developing countries, given the difficulty of implementation and the fact that a firm regulatory and enforcement base is often required.

## **6 EXPERIENCES IN COMPLIANCE AND ENFORCEMENT**

Many of the conference participants volunteered their experiences to achieve compliance and environmental results using a range of approaches from promoting voluntary compliance, to use of economic instruments, to enforcement of statutory and regulatory mandates. Each of these experiences adds to our knowledge of what can work or not work in a variety of settings. We have much more to do to capture and define compliance and enforcement success, and to document our experiences so we all can share what we have found to be more commonality among our nations than differences.

## **7 ROLE OF COMMUNICATIONS**

There is widespread agreement that an informed and supportive citizenry is essential to achieve the political support for enforcement, and communication of enforcement actions is essential to gain the deterrent impact of enforcement response. Public disclosure led to major pollution prevention efforts instead of cleaning up pollution at the end of the pipe. The press can be a major ally in helping to improve compliance and implement enforcement programs.

## **8 BUILDING INTERNATIONAL ENFORCEMENT NETWORKS**

It has been enormously inspiring to see the representatives from almost 80 countries and international organizations meeting here in Oaxaca around common problems and challenges. Since 1990, and every two years since, we have doubled the number of countries and international organizations participating in the International Conferences, from Utrecht to Budapest, and now Oaxaca. We have shifted our locations to build a stronger regional as well as international networking capacity from Western Europe, to Central and Eastern Europe to Latin America. In two years, we hope to take the conference networking to focus in Asia, and in the interim, to build on the relationships that have been made here within the Caribbean basin, South and Central America, Africa and Asia.

Within Europe, the legacies of the first International workshop in Utrecht and the second Conference in Budapest have begun to realize their promise. The European Community and its member states have established workgroups and exchanges on compliance and enforcement issues. There is enormous activity now in Central and Eastern Europe to enhance environmental enforcement. Interpol has been strengthened as an institutional mechanisms for exchange of information on environmental crime, the Caribbean basin is coordinating efforts to protect the Gulf of Mexico and its fragile ecosystems.

The historic North American Free Trade Agreement and its environmental side agreements have established an unprecedented level of international cooperation and mutual support in enforcing environmental laws.

Let us leave here with a new commitment and resolve to work with and help each other achieve even greater success.

Personal remarks of Mr. Steven Herman:

I would like to add a personal note. At the beginning of the Conference, I expressed the hope that our experience here would reap both practical and inspiring benefits. My own perception is that it has. First, there was representation at this conference from almost 70 countries. We had very distinguished officials from the largest and the smallest nations, the richest and poorest nations, industrialized and nonindustrialized countries. We spoke many different languages and we have different forms of government.

Despite these differences, anyone who had the privilege of participating in any of the workshops or other activities could not help but be struck by the open mindedness, depth of knowledge, and seriousness of purpose of all of you.

Everyone acknowledged that the problems which some of us have been wrestling with for many years, and others of us are just starting to confront, are complex and controversial. There are no right answers, and there certainly are no easy answers. Not one of us has the silver bullet.

Every single person here is a pioneer. Every day we are tackling new problems and questions for those answers. No one has a more difficult mission than we do. The consequences of our actions will be felt by our children and all succeeding generations. The most we can do is think openly, creatively, honestly, with each other and share what we know and what we do not know. On this level we were a smashing success.

We have set an example of how people who come from different countries with different languages, different histories, different political systems can work together. The big can listen and learn from the small. The small can benefit from, without being dominated by or from, the big. Most importantly this conference has encouraged and fostered civilized listening. It has allowed relationships to form which will be of benefit to each of us. And it has reinforced the very basic truth that we must work together if any of us are going to enjoy life on this planet.

On behalf of Pieter Verkerk and myself, we bring this Conference to a close. We have a very important effort to undertake. I am confident this Conference has made a major contribution to the ultimate success of that effort. You should all be very pleased with your colleagues and with yourselves.

Congratulations. We look forward to working with you all in the coming years.



## CONFERENCE EVALUATION

At the end of the Conference, participants were asked to fill out an evaluation form to enable Conference organizers to take into account participants' particular interests when planning subsequent gatherings on environmental enforcement. The form also solicited suggestions on the focus of future Conferences.

Of the 169 Conference participants, 148 (88%) submitted evaluation forms. To better assess the evaluations of such a diverse group, Tables 1, 2, and 3 categorize Conference respondents and participants by region, organization type, and area of expertise, respectively.

**Table 1. Regional Response to the Evaluation**

Region	Respondents		Participants	
	No.	%	No.	%
Central America/South America/Caribbean	(31)	21	(37)	21
Asia	(10)	7	(11)	7
Africa	(11)	7	(11)	7
Western Europe/Central/Eastern Europe/NIS	(42)	28	(48)	28
North America	(44)	30	(49)	29
International Organizations and Industry Affiliations	(10)	7	(13)	8
Total	(148)	100	(169)	100

**Table 2. Organization Types**

Region	Respondents	
	No.	%
International	(10)	7
National	(92)	64
State/Province	(27)	19
Municipal/Local	(2)	1
Nongovernment	(7)	5
Industry	(2)	1
Other	(5)	3
Total	(145)	100

**Table 3. Areas of Expertise**

Region	Respondents	
	No.	%
Legal	(46)	32
Technical	(47)	33
Policy/Management	(45)	31
Other	(6)	4
Total	(144)	100

## 1 GENERAL COMMENTS

Respondents generally praised the Conference. Many considered it a truly educational experience and an excellent forum for international environmental information sharing and networking (40 respondents\*); others expressed the hope that workshops, training, and information sharing would continue until the next conference (30). Some respondents (5) indicated regret at being unable to attend all the workshops, others asked to have the workshops expanded. Respondents praised the high-quality of the research and analysis evident in the materials and encouraged their widespread distribution (40). It was suggested that, in the future, more translation and interpretation support be

\* Throughout this chapter we identify in parentheses the number of respondents who commented.

provided to participants and that additional countries participate in the organization of the Conference and the presentation of poster and exhibition materials. Many respondents remarked that they look forward to participating in the next Conference.

## 2 CONFERENCE PURPOSE AND GOALS

Eighty-nine percent (131) of those who responded to the evaluation question concerning the appropriateness of the Conference purpose and goals gave a rating of very good to excellent. A breakout of responses is shown in Figure 1. Indeed, a number of respondents (9) expressed appreciation for the opportunity to hear the views of representatives from countries around the world, allowing the importance of institutional differences between developed and developing nations to be recognized. Some respondents (2) suggested that, while it was too much to expect meaningful institutional capacity building in such a short time, the Conference succeeded in highlighting the important issues involved.

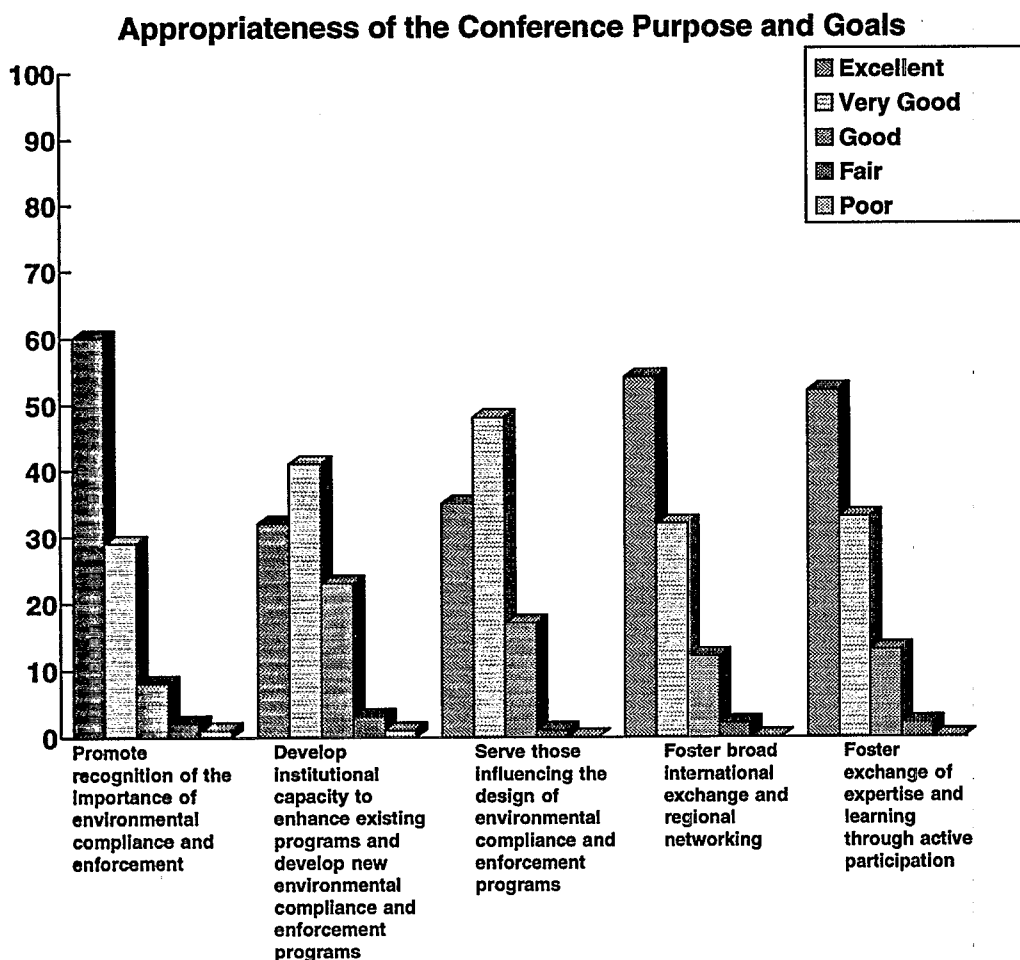


Figure 1. This figure shows the overall percentage ratings given by respondents who evaluated the appropriateness of the Conference purpose and goals.

Most respondents to the evaluation felt the Conference was timely and relevant given what was generally regarded as the urgent need for governments to improve compliance and monitoring. A number of respondents (7) felt that the focus on the development of domestic compliance and enforcement programs was particularly appropriate for countries still developing a national enforcement policy. Some respondents (5), however, suggested that they might benefit from even greater emphasis on situations in developing nations and nations in transition.

Respondents were primarily interested in keeping subsequent Conferences focused on significant global enforcement issues and the sharing of experiences (80). Indeed, the desire to network among each other was raised repeatedly in evaluation commentary. Other suggestions included organizing additional environmental enforcement conferences as well as regional workshops and training; accessing electronic bulletin boards already in existence and creating new ones; and creating magazines, fact sheets, and newsletters to reach a wider audience. The recommended audience for these forums include representatives of developed and developing nations, industry, government and nongovernment organizations, and private citizen groups.

### **3 SUCCESS IN ACHIEVING CONFERENCE PURPOSE**

Eighty-six percent of participants (127) 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 responses is shown in Figure 2. More specifically, some respondents (6) commented that the Conference was very successful in achieving its main purpose, and other respondents considered the exchange of experiences invaluable (3). One also encouraged more focus on the host country and the role of citizens, observing that citizen action is behind environmental protection wherever it occurs. Respondents (2) who felt that the Conference was too brief, nonetheless felt that the materials would enable them to continue to study on their own. Some respondents (3) felt that, while only long-term activity could significantly develop institutional capacity, the opportunity to learn from other participants heightened the awareness of issues of concern to developing nations. This aspect of the Conference also increased the group's commitment to fostering international exchange, regional networking, and the sharing of expertise.

### **4 CONFERENCE PARTICIPATION**

Eighty-five percent of participants (125) who responded to the evaluation question concerning the number of attendees and the representation of countries throughout the world gave a rating of very good to excellent. A breakout of responses is shown in Figure 3. Respondents highlighted the professionalism of participants and the variety of expertise. A number of respondents (10) suggested that more participation from nongovernment organizations, industry/business, and developing nations, and from Asia, southern Europe, and Middle Eastern countries should be encouraged.

### **5 STRUCTURE OF CONFERENCE**

Eighty-seven percent of participants (129) who responded to the evaluation question concerning the structure of the Conference gave a rating of very good to excellent. A breakout of responses is shown in Figure 4. Respondents remarked that the plenary sessions, Day Two and Day Three workshops, the poster session, the exhibition, and evening events were all productive and enjoyable, if somewhat tiring.

Respondents generally agreed on the usefulness of the format of plenary sessions, workshops, the poster session, and the exhibition. Many participants (20), however, suggested that the schedule was too full, and that either the Conference should be extended (4) or fewer topics should be included in the agenda. Also, many (20) felt there should be some free time during the Conference, and one

### Success in Achieving Conference Purpose

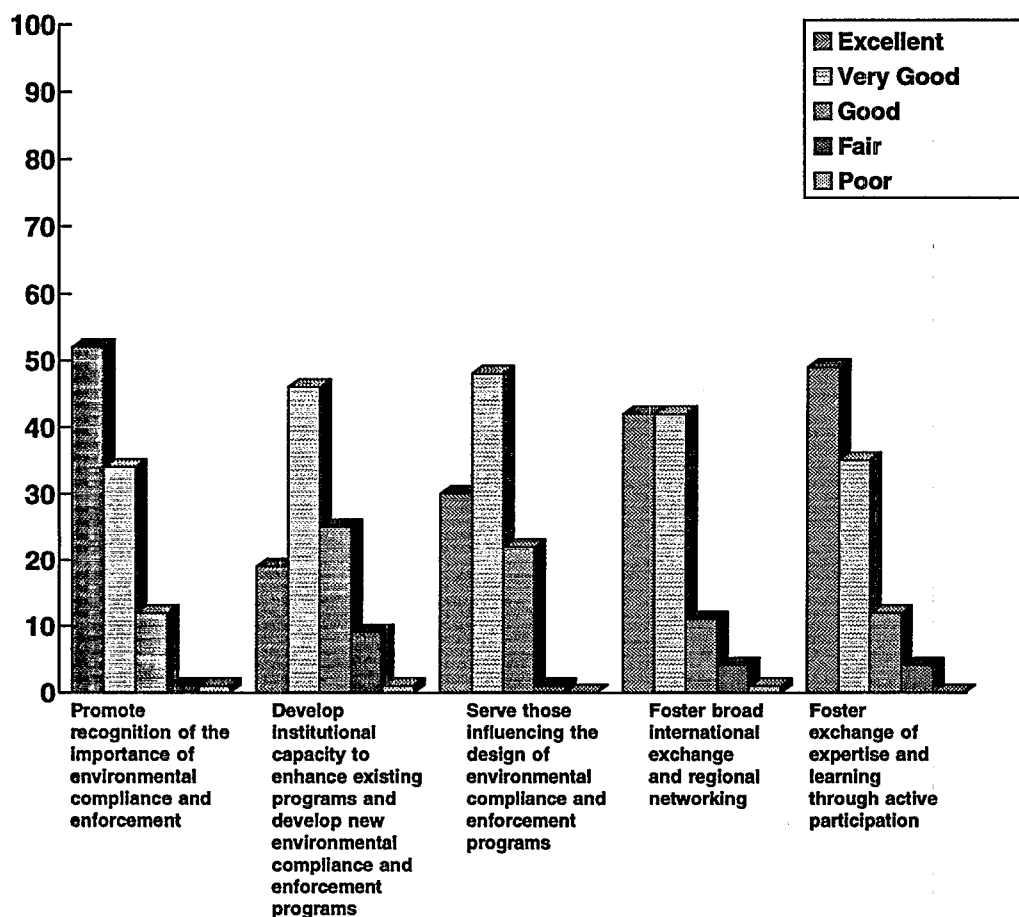


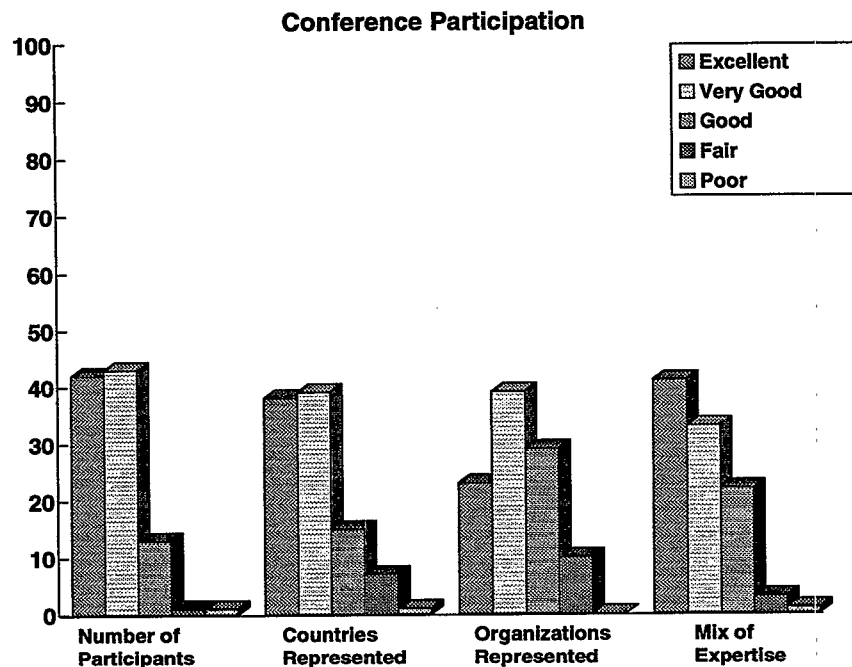
Figure 2. This figure shows the overall percentage ratings given by respondents who evaluated the success in achieving Conference purposes.

avored field visits (i.e., to sewage plants, forest sites, or wetland/wildlife refuges). Other respondents (10) suggested shortening the plenary sessions and increasing question-and-answer periods and small group discussions to allow for more information exchange among participants.

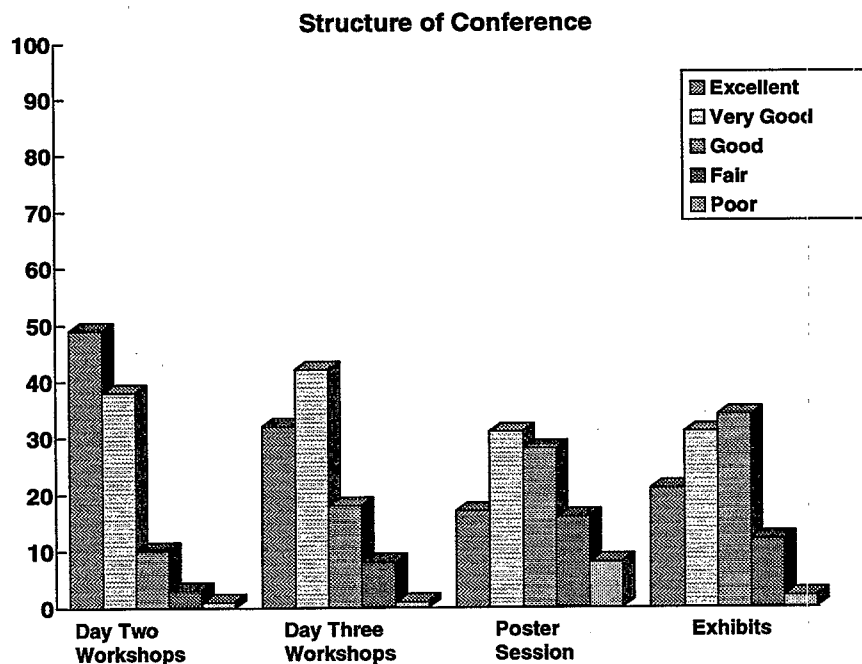
It was also suggested (2) that a dinner be organized specifically to encourage networking among various regions. Other suggestions advocated enhancing the poster session and exhibition by providing more information on additional countries and providing technical staff to answer questions (10); and providing demonstrations of electronic technology, including on-line access, CD learning packages, interactive learning devices, and electronic bulletin boards (5). Some respondents (3) also suggested that the support materials be made available sooner prior to the Conference and that the materials should be translated into other languages.

#### 5.1 Day Two and Day Three Workshops

Small group workshops were considered to be the best aspect of the conference structure, enabling participant interaction on a personal and professional basis. A few respondents suggested



**Figure 3.** This figure shows the overall percentage ratings given by respondents who evaluated Conference participation.



**Figure 4.** This figure shows the overall percentage ratings given by respondents who evaluated the structure of the Conference.

that the Principles of Environmental Enforcement and the UNEP Institution-Building workshops were an excellent educational format (3) and a useful means of evaluating different points of view (4). Some participants (10) suggested allowing more time for discussion during the Principles of Environmental Enforcement Day Two workshops, similar to that provided on Day Three, to accommodate improved understanding of cultural and social differences among participants. Certain respondents (6) found that at times the language barrier prevented full understanding of the issues. Other respondents suggested that the number of workshops be increased (3).

## 5.2 Poster Session

Many respondents (20) found the poster session useful as an important means of exchanging information. Some respondents (2) even commented that the Conference would not have been as impressive without the posters, and that the organizers should try to increase attendance at such sessions in the future. Some participants (2) also suggested that it would be interesting to have all or most countries describing their enforcement systems in the poster session.

## 5.3 Exhibits

Approximately 30 respondents felt that the exhibits allowed participants to obtain excellent materials, information, and documentation that would benefit their respective countries and organizations. Some respondents (3) thought that, based on the materials available, the exhibition was possibly the best part of the Conference. Respondents also praised the informality of the exhibition. A few respondents (2) suggested including additional materials from other countries.

# 6 CONFERENCE TOPICS

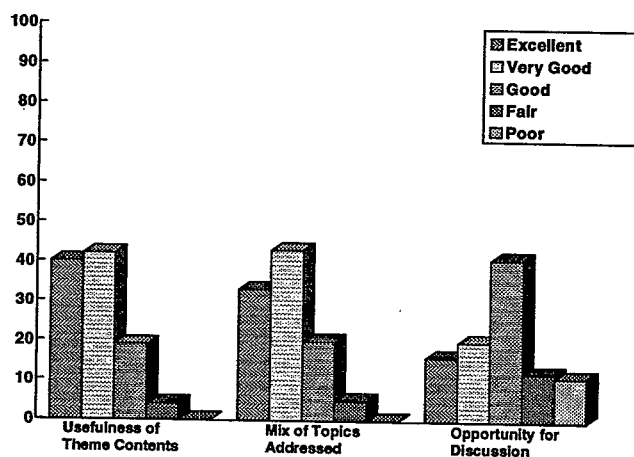
The range of topics presented and discussed at the Conference was widely praised in the evaluations. Many respondents agreed that the workshops provided a valuable forum for comparing experiences, saying that this is where much of the learning took place. Change or improvements suggested by respondents included creating more detailed case studies that address national and regional successes and mistakes (7), along with the strengths and weaknesses of public involvement (1). It was also suggested that there be more focus on Latin America and the Caribbean (8) and on dispute resolution, enforcement methods, permitting (1), hazardous waste and transborder problems (2), and consumption patterns and economic growth (3). A focus on environmental education and environmental management was also suggested (2), along with a concentration on how to incorporate enforcement and inspection activities into the legislative process.

## 6.1 Day One- and Day Four-Specific Conference Plenary Themes

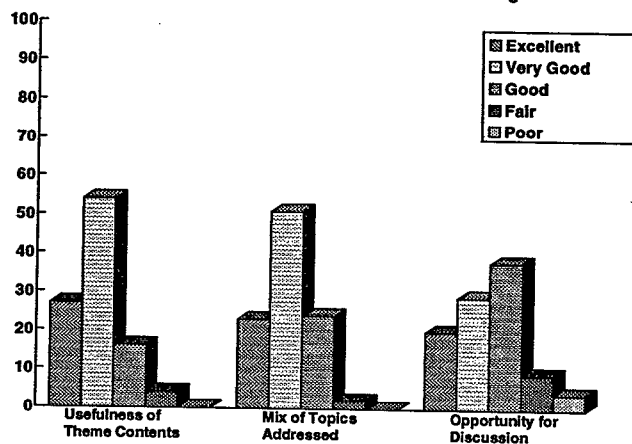
For each theme the evaluation included a question regarding the usefulness of the session's theme content, the mix of topics addressed, and the opportunity for discussion. Figure 5 and Table 4 show the range of ratings given for Conference themes. Themes 1, 2, and 3 were discussed on Day One and were especially well received; however, opportunity for discussion was rated only average (good) by 38% of participants. Numerous respondents (25) said that discussion and experience-sharing were particularly informative components of the presentations and that more time for this should be scheduled. It also was suggested that more sharing of experiences from developing countries would be useful.

Theme presentations continued on Day Four with Themes 4, 5, and 6. While the presentations received high ratings (see Figure 6 and Table 4) for the usefulness of theme contents and the mix of topics addressed, 75% of respondents (111) felt that the opportunity for discussion was too limited and should be increased.

## Theme #1: Principles of Environmental Enforcement



## Theme #2: Environmental Enforcement Challenges



## Theme #3: Country Experiences in Designing Elements of an Enforcement Program

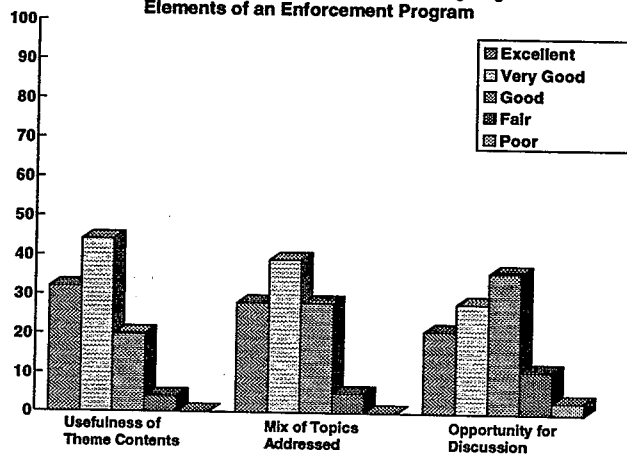


Figure 5. This figure shows the overall percentage ratings given by respondents who evaluated the Day One plenary themes.

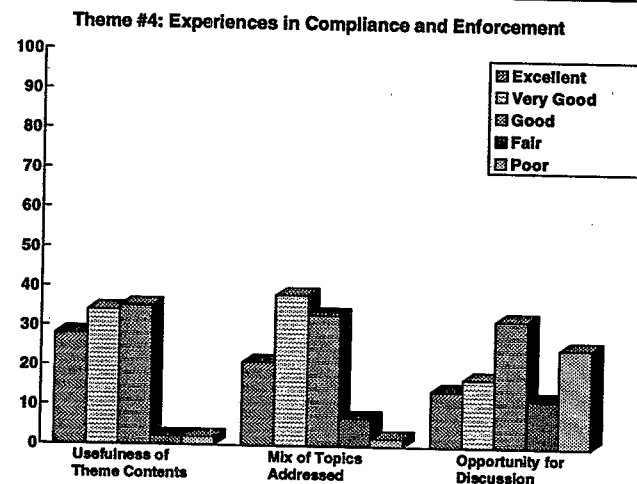
**Table 4. Day One- and Day Four-Specific Conference Plenary Themes**

	Excellent No.	%	Very Good No.	%	Good No.	%	Fair No.	%	Poor No.	%
<b>Theme #1: Principles of Environmental Enforcement</b>										
Usefulness of theme contents	(54)	40	(57)	42	(19)	14	(5)	4	(0)	0
Mix of topics addressed	(44)	33	(57)	43	(26)	20	(6)	5	(0)	0
Opportunity for discussion	(21)	16	(26)	20	(55)	41	(16)	12	(15)	11
<b>Theme #2: Environmental Enforcement Challenges</b>										
Usefulness of theme contents	(36)	27	(73)	54	(21)	16	(5)	4	(0)	0
Mix of topics addressed	(31)	23	(69)	51	(32)	24	(3)	2	(0)	0
Opportunity for discussion	(27)	20	(38)	29	(51)	38	(12)	9	(5)	4
<b>Theme #3: Country Experiences in Designing Elements of an Enforcement Program</b>										
Usefulness of theme contents	(42)	32	(58)	44	(27)	20	(5)	4	(0)	0
Mix of topics addressed	(37)	28	(52)	39	(37)	28	(7)	5	(0)	0
Opportunity for discussion	(28)	21	(37)	28	(48)	36	(15)	11	(4)	3
<b>Theme #4: Experiences in Compliance and Enforcement</b>										
Usefulness of theme contents	(36)	28	(44)	34	(46)	35	(2)	2	(2)	2
Mix of topics addressed	(27)	21	(49)	38	(43)	33	(9)	7	(2)	2
Opportunity for discussion	(17)	14	(21)	17	(39)	32	(15)	12	(31)	25
<b>Theme #5: The Role of Communication in an Enforcement Program</b>										
Usefulness of theme contents	(40)	31	(48)	37	(38)	29	(2)	2	(2)	2
Mix of topics addressed	(36)	28	(43)	33	(45)	35	(3)	2	(2)	2
Opportunity for discussion	(14)	12	(27)	23	(30)	25	(19)	16	(29)	24
<b>Theme #6: Establishing International Networks</b>										
Usefulness of theme contents	(57)	47	(42)	34	(20)	16	(3)	2	(0)	0
Mix of topics addressed	(47)	39	(50)	41	(23)	19	(2)	2	(0)	0
Opportunity for discussion	(19)	17	(35)	31	(32)	29	(13)	12	(13)	12

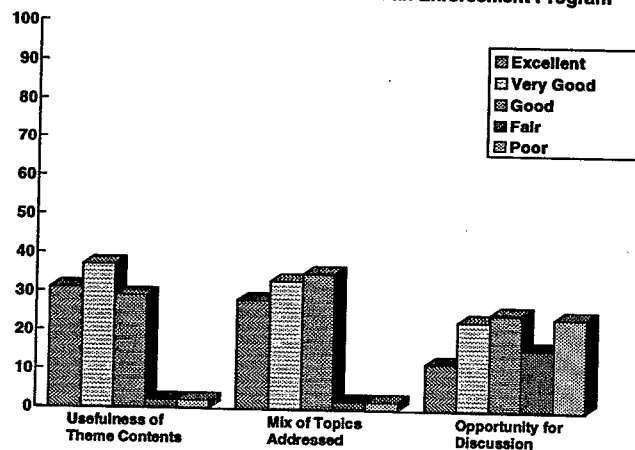
## 6.2 Day Two Workshops on Principles of Environmental Enforcement

The number of participant evaluations from the Principles of Environmental Enforcement workshops was as follows for the five possible case study subject areas: Mining (9), Petrochemical/Refining (22), Deforestation (19), Residential and Industrial Waste (52), and Tourism (12). Respondents evaluated each workshop according to the following criteria: ability to apply principles of environmental enforcement in a realistic setting; quality of the workshop materials;

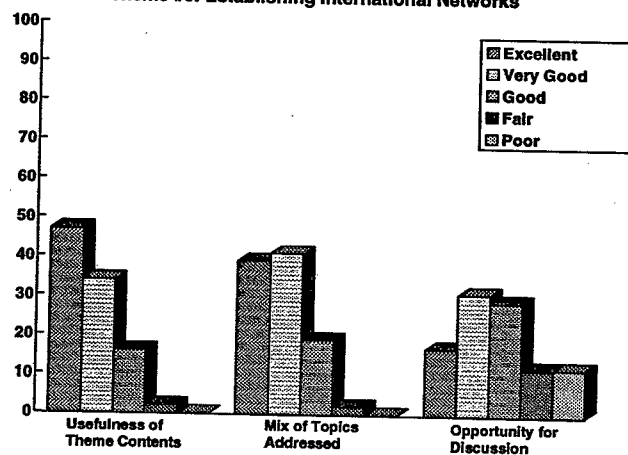




**Theme #5: The Role of Communication in an Enforcement Program**



**Theme #6: Establishing International Networks**



**Figure 6.** This figure shows the overall percentage ratings given by respondents who evaluated the Day Four plenary themes.

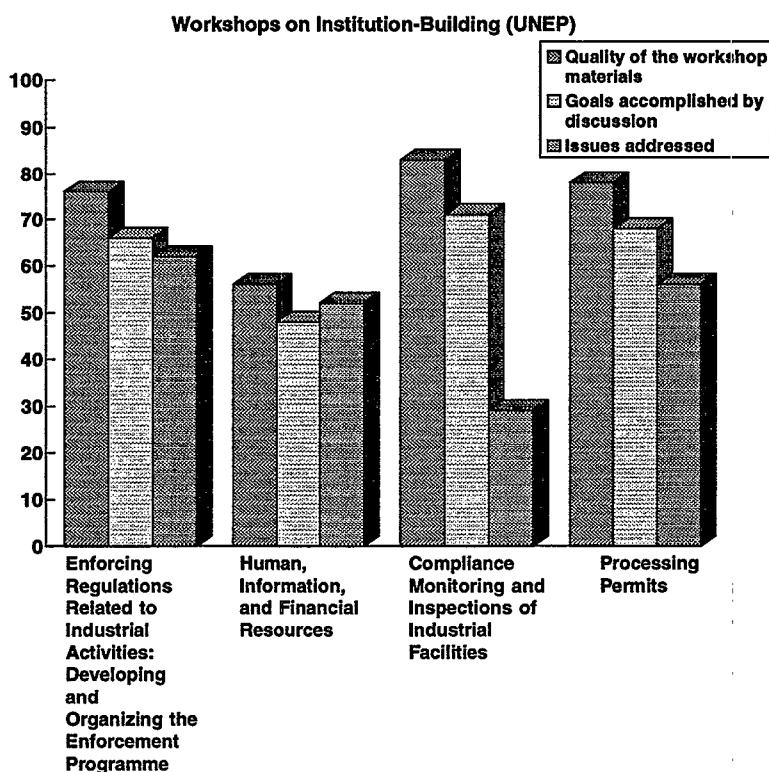
usefulness of the technical support package; and usefulness of contents. A number of respondents (12) rated the workshops as excellent. Some respondents (3) were particularly pleased with the role-playing format that allowed participants to consider the application of principles within their own national context. Other respondents (5) suggested that more time should be spent in the workshops. Two respondents thought additional time should have been spent on the Principles of Environmental Enforcement themselves and on in-depth analysis of each case from different perspectives. In general, however, the case studies workshops were given high marks and a number of respondents (10) expressed an interest in having them expanded on in the future. The evaluation of workshops for each of the case study subject areas is shown in Table 5.

**Table 5. Case Studies**

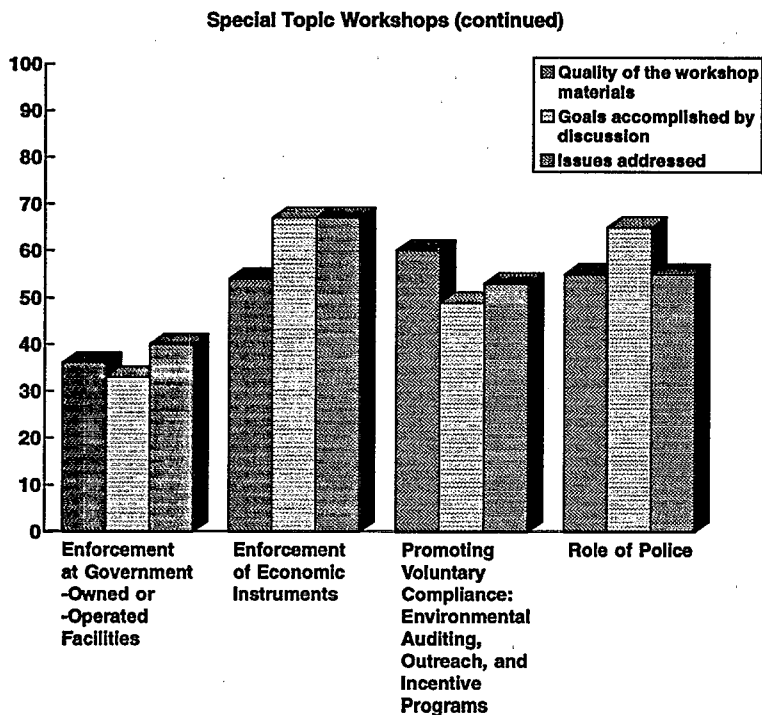
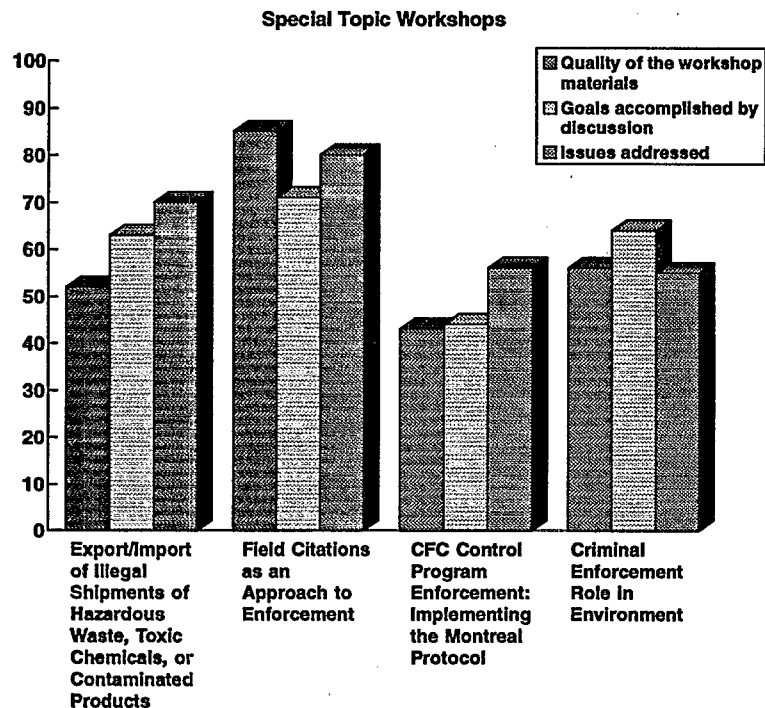
	Excellent No. %	Very Good No. %	Good No. %	Fair No. %	Poor No. %
<b>Mining</b>					
Ability to apply Principles of Environmental Enforcement in a realistic setting	(4) 44	(4) 44	(0) 0	(1) 11	(0) 0
Quality of the workshop materials	(1) 11	(6) 67	(1) 11	(1) 11	(0) 0
Usefulness of technical support package	(4) 44	(3) 33	(2) 22	(0) 0	(0) 0
Usefulness of contents	(2) 22	(5) 56	(2) 22	(0) 0	(0) 0
<b>Petrochemical/Refining</b>					
Ability to apply Principles of Environmental Enforcement in a realistic setting	(13) 59	(4) 18	(5) 23	(0) 0	(0) 0
Quality of the workshop materials	(13) 59	(7) 32	(2) 9	(0) 0	(0) 0
Usefulness of technical support package	(12) 55	(7) 32	(3) 14	(0) 0	(0) 0
Usefulness of contents	(10) 45	(8) 36	(4) 18	(0) 0	(0) 0
<b>Deforestation</b>					
Ability to apply Principles of Environmental Enforcement in a realistic setting	(6) 32	(8) 42	(3) 16	(2) 11	(0) 0
Quality of the workshop materials	(3) 16	(10) 53	(6) 32	(0) 0	(0) 0
Usefulness of technical support package	(2) 11	(12) 63	(5) 26	(0) 0	(0) 0
Usefulness of contents	(3) 17	(10) 56	(4) 22	(1) 6	(0) 0
<b>Residential and Industrial Waste</b>					
Ability to apply Principles of Environmental Enforcement in a realistic setting	(23) 44	(18) 35	(8) 15	(2) 4	(1) 2
Quality of the workshop materials	(25) 49	(15) 29	(10) 20	(1) 2	(0) 0
Usefulness of technical support package	(19) 37	(19) 37	(10) 19	(3) 6	(1) 2
Usefulness of contents	(17) 34	(20) 40	(10) 20	(2) 4	(1) 2
<b>Tourism</b>					
Ability to apply Principles of Environmental Enforcement in a realistic setting	(5) 42	(5) 42	(8) 8	(1) 8	(0) 0
Quality of the workshop materials	(4) 33	(6) 50	(1) 8	(0) 0	(1) 8
Usefulness of technical support package	(5) 42	(4) 33	(2) 17	(0) 0	(1) 8
Usefulness of contents	(3) 27	(4) 36	(1) 9	(3) 27	(0) 0

### 6.3 Day Three Workshops on Institution-Building (UNEP) and on Special Topics

Many respondents (50) who completed the section of the evaluation form on the Day Three sessions felt that the quality of the workshop materials and the discussion of issues were notable. Figure 7 shows the range of ratings given for the Workshops on Institution-Building (UNEP). Figure 8 shows the range of ratings given for the Workshops on Special Topics. Some respondents (8) commented that the small groups were an excellent format for promoting discussion. These respondents suggested holding fewer workshops each day and providing additional pre-Conference materials. Other respondents (8) commented that they learned a great deal from the workshops and were impressed with the level of participation in the discussions. A few respondents (4), however, suggested that the Workshops on Special Topics, in particular, might be more effective if topics are addressed on a regional basis, since some individual country contributions did not generate discussion among participants. Table 6 lists respondents' ratings for Day Three Workshops on Institution-Building (UNEP) and on Special Topics.



**Figure 7.** This figure shows the overall percentage ratings for "very good" to "excellent" given by respondents who evaluated the Workshops on Institution-Building (UNEP).



**Figure 8.** This figure shows the overall percentage ratings for "very good" to "excellent" given by respondents who evaluated the Special Topics Workshops.

Table 6. Day Three Workshops on Institution Building (UNEP) and on Special Topics

Third International Conference on Environmental Enforcement  
Evaluation Response Totals/Percentages

## UNEP Workshops

Title	Total	Quality of the workshop materials					Were your goals accomplished by the discussion?					Were the issues addressed adequately?				
		Excellent No./%	Very Good No./%	Good No./%	Fair No./%	Poor No./%	Excellent No./%	Very Good No./%	Good No./%	Fair No./%	Poor No./%	Excellent No./%	Very Good No./%	Good No./%	Fair No./%	Poor No./%
Enforcing Regulations Related to Industrial Activities: Developing and Organizing the Enforcement Programme. Case Study 1.	53	(21)/40	(19)/36	(9)/15	(9)/6	(0)/0	(12)/23	(22)/43	(8)/15	(7)/13	(1)/2	(16)/30	(17)/32	(12)/23	(6)/9	(1)/2
Use of Modules 1 and 2—UNEP																
Human, Information, and Financial Resources: Case Study 2.	44	(9)/20	(19)/36	(14)/32	(1)/2	(2)/4	(10)/23	(11)/25	(12)/27	(6)/14	(3)/7	(10)/23	(13)/29	(12)/27	(9)/7	(3)/7
Use of Module 2—UNEP																
Compliance Monitoring and Inspections of Industrial Facilities. Case Study 3.	42	(18)/43	(17)/40	(6)/14	(1)/2	(0)/0	(17)/40	(13)/31	(8)/19	(1)/2	(1)/2	(19)/45	(10)/24	(8)/19	(2)/5	(1)/2
Use of Module 3—UNEP																
Processing Permits. Case Study 4.	25	(9)/36	(12)/48	(4)/16	(0)/0	(0)/0	(8)/32	(9)/36	(8)/24	(1)/4	(0)/0	(8)/32	(6)/24	(9)/36	(1)/4	(0)/0
Use of Module 4—UNEP																

## Special Topic Workgroups

Title	Total	Quality of the workshop materials					Were your goals accomplished by the discussion?					Were the issues addressed adequately?				
		Excellent No./%	Very Good No./%	Good No./%	Fair No./%	Poor No./%	Excellent No./%	Very Good No./%	Good No./%	Fair No./%	Poor No./%	Excellent No./%	Very Good No./%	Good No./%	Fair No./%	Poor No./%
Export/Import of Illegal Shipments of Hazardous Wastes, Toxic Chemicals, or Contaminated Products	44	(11)/25	(12)/27	(10)/23	(3)/7	(4)/9	(13)/29	(16)/34	(11)/25	(1)/2	(3)/7	(18)/41	(13)/29	(8)/18	(2)/4	(2)/4
Field Citations as an Approach to Enforcement	21	(7)/33	(11)/52	(1)/5	(0)/0	(0)/0	(6)/28	(9)/43	(4)/19	(0)/0	(0)/0	(5)/23	(11)/52	(2)/9	(0)/0	(0)/0
CFC Control Program Enforcement: Implementing the Montreal Protocol	23	(6)/26	(4)/17	(5)/22	(4)/17	(1)/4	(6)/26	(5)/22	(10)/43	(3)/13	(0)/0	(6)/26	(7)/30	(6)/26	(3)/13	(0)/0
Criminal Enforcement Role in Enforcement	34	(5)/15	(14)/41	(10)/29	(3)/9	(1)/3	(12)/35	(10)/29	(9)/18	(1)/3	(9)/9	(9)/26	(10)/29	(9)/26	(2)/6	(2)/6
Enforcement at Government-Owned or -Operated Facilities	30	(7)/23	(4)/13	(10)/33	(7)/23	(0)/0	(3)/10	(7)/23	(9)/30	(7)/23	(2)/7	(4)/13	(6)/27	(11)/37	(2)/7	(1)/3
Enforcement of Economic Instruments	40	(11)/27	(11)/27	(10)/25	(5)/12	(1)/2	(8)/20	(18)/45	(9)/22	(0)/0	(2)/5	(10)/25	(17)/42	(8)/20	(2)/5	(1)/2
Promoting Voluntary Compliance: Environmental Auditing, Outreach, and Incentive Programs	43	(9)/21	(17)/39	(12)/28	(2)/5	(1)/2	(8)/14	(15)/35	(15)/35	(4)/9	(0)/0	(7)/16	(10)/23	(18)/37	(2)/5	(0)/0
Role of Police	20	(4)/20	(7)/35	(6)/40	(0)/0	(0)/0	(4)/20	(9)/45	(4)/20	(1)/5	(0)/0	(8)/30	(5)/25	(7)/35	(0)/0	(0)/0

## 7 ORGANIZATION OF THE CONFERENCE

The majority of the respondents lauded the efforts of the Conference organizers, calling the Conference a great success. Many respondents (30) remarked that the Conference was extremely well organized and professional. In general, respondents were pleased with the accommodations and found the location convenient; however, some remarked that air-conditioning was inadequate and that the meeting rooms were too noisy. Most respondents enjoyed the food, but some (20) requested more variety in the future. In particular, some respondents wanted more continental variety, while others suggested a focus on different types of regional cuisine. Additionally, some participants suggested including a midweek rest break during the Conference.

A breakout of responses to evaluation questions concerning the organization of the Conference is shown in Figure 9.

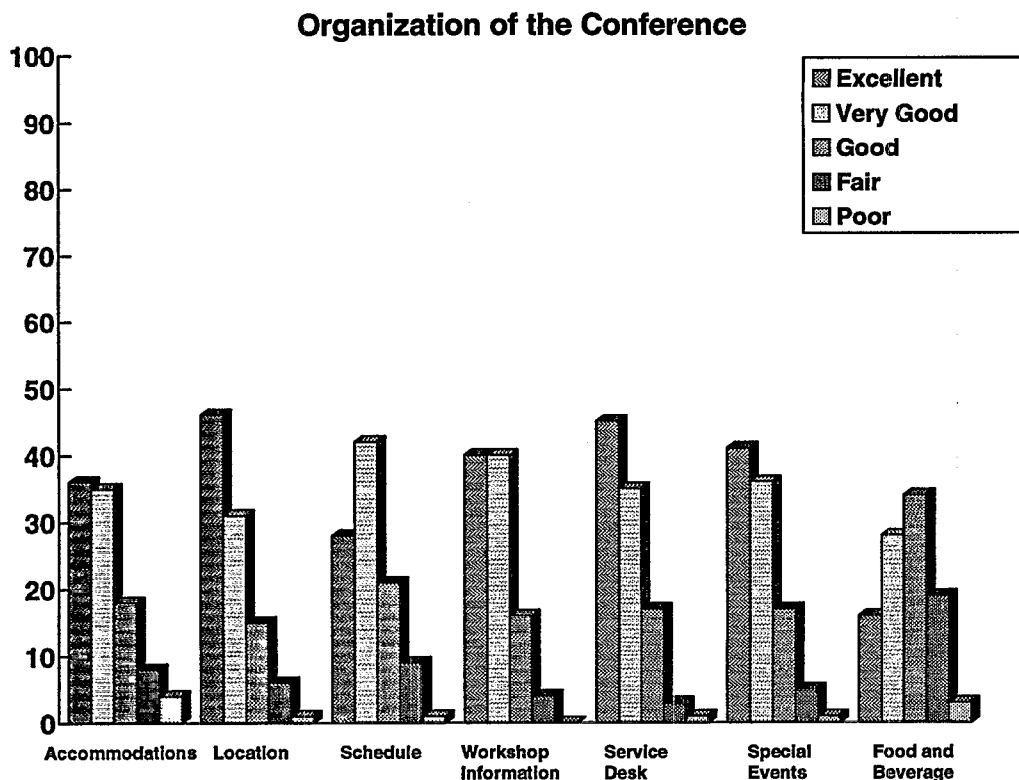


Figure 9. This figure shows the overall percentage ratings given by respondents who evaluated the organization of the Conference.

## 8 FOLLOWUP TO THE CONFERENCE

Most respondents expressed an interest in followup to this Conference. Seventy-five percent (111) of respondents were in favor of holding subsequent Conferences every two years, while 19% (28) advocated meeting annually. Six percent (9) of respondents expressed no opinion on the frequency of future Conferences. Asia was recommended as the site for the next Conference by 79% (117) of the respondents, and Africa was recommended by 22% (33). Other suggestions included Ecuador, the Caribbean, and Central or Eastern Europe.

Many respondents (50) suggested distributing the Conference proceedings as widely as possible. Suggestions for distribution included:

- International development agencies.
- Government and nongovernment organizations.
- Enforcement agencies.
- Public, academic, and law school libraries.
- Professional institutions.
- Member countries of the United Nations.
- Constituent groups of Conference participants.

Suggestions for distribution mechanisms included:

- Technical magazines.
- Newsletters.
- The National Technical Information Service (NTIS) (in the United States).
- U.S. Government Printing Office/Superintendent of Documents.
- Electronic bulletin boards.

Numerous respondents (40) suggested the following initiatives related to dissemination of information:

- Creating a network and using those that currently exist (such as E-law, E-mail, Internet, UNEP, OECD, USAEP).
- Creating a one-page fact sheet with a tear-off address form for distribution at other conferences and forums.
- Translating the proceedings into other languages.
- Providing an order form in the proceedings.
- Organizing regional conferences on a yearly basis and providing regional network support.
- Organizing workshops on environmental legislation.
- Developing mailing lists.
- Videotaping selected portions of the Conference for future use.
- Writing to participants after one year to ask them to report on whether any of the things they learned at the Conference have been implemented in their countries.
- Creating an advisory council of the Conference to provide guidance on the implementation of capacity building in the area of compliance and enforcement.
- Developing more in-depth materials.





## PARTICIPANT LIST

**Dr. Adegoke Adegoroye**

Deputy Director and  
Head of Enforcement  
Federal Environmental  
Protection Agency  
Independence Way South  
PMB 265  
Garki-Abuja FCT  
Nigeria  
Tel: 234-952-33378  
Fax: 234-161-4299

**Dr. Alao Yekini Akala**

Chief, Studies and  
Legislation Department  
Ministerie de l'Environnement  
de l'Habitat et de l'Urbanisme  
Boite Postal 01-3621  
Cotonou  
Benin  
Tel: 229-315-596  
Fax: 229-315-081

**Mr. Arturo Alcocer Lujambio**

Subprocurador de Participación  
Social y Quejas  
Procuraduría Federal de  
Protección al Ambiente  
La Secretaría de Desarrollo Social  
(SEDESOL)  
Boulevard del Pipila #1  
Tecamachalco, Naucalpan  
53950, Edo. de México  
México  
Tel: 525-589-8559  
Fax: 525-294-2687

**Mr. Hans Alders**

Environment Minister  
Ministry of Housing, Spatial  
Planning and the Environment  
Rijnstraat 8  
2515 XP DEN HAAG  
The Netherlands  
Tel: 31-70-339-4621  
Fax: 31-70-339-1298

**Mr. Michael Alushin**

Director, International  
Enforcement Program  
Office of Enforcement  
U.S. Environmental  
Protection Agency  
401 M Street, SW (MC-2247)  
Room 1203  
Washington, DC 20460  
United States  
Tel: 1-202-260-3217  
Fax: 1-202-260-9833

**Mr. Lamex Omara Apitta**

Assistant Secretary  
Environmental Protection  
Headquarters  
Ministry of Natural Resources  
Kitante Road  
P.O. Building-10th Floor-Room 4  
Kampala  
Uganda  
Tel: 256-41-245623  
Fax: 256-41-236819

**Mr. Arthur Archer**

Project Manager  
Sewage and Solid Waste  
Project Unit  
Ministry of Health  
28 Garrison - Block C  
St. Michael  
Barbados  
Tel: 1-809-427-5910  
Fax: 1-809-426-2510

**Mr. Gabriel Arenas Flores**

Director General de la  
Unidad de Verificación  
La Secretaría de Desarrollo Social  
(SEDESOL)  
Boulevard del Pipila #1  
Tecamachalco, Naucalpan  
México City 53950  
México  
Tel: 525-589-4398  
Fax: 525-589-4397

**Mr. Francisco****Bahamonde Torres**

Subprocurador de  
Verificación Normativa  
Procuraduría Federal de  
Protección al Ambiente  
La Secretaría de Desarrollo Social  
(SEDESOL)  
Boulevard del Pipila #1  
Tecamachalco, Naucalpan  
México City 53950  
México  
Tel: 525-589-4398  
Fax: 525-589-4398

**Prof. Gyula Bándi**

Professor of Law  
University Eotvos Lorand  
Hungarian Academy of Attorneys  
Egyetem ter 1-3  
H-1053 Budapest  
Hungary  
Tel: 36-1-266-4156  
Fax: 36-1-266-4091

**Mr. Hu Baolin**

Director  
Department of Policy and Law  
National Environmental  
Protection Agency  
No. 115, Xizhimennel Nanxiaojie  
Beijing 100035  
People's Republic of China  
Tel: 86-1-832-9911  
Fax: 86-1-832-8013

**Mr. Richard Belisle**

Acting Chief Forest Officer  
Forest Department  
Government of Belize  
Belmopan  
Belize  
Tel: 501-8-220-79  
Fax: 501-8-220-83

**Ms. Renée Bergkamp**

Deputy Director of  
Legal Department  
Ministry of Agriculture, Nature  
Management and Fisheries  
Bezuidenhoutseweg 73  
Postbus 20401  
2500 EK Den Haag  
The Netherlands  
Tel: 31-70-379-2457  
Fax: 31-70-347-7096

**Dr. Eberhard Bohne**  
Head, Office of General  
Environmental Law  
Federal Ministry for the Environment  
Kennedy Allee 5  
53048 Bonn  
Germany  
Tel: 49-22-8305-2250  
Fax: 49-22-8305-3225

**Dr. Mikhail Brinchuk**  
Doctor of Juridical Sciences  
Center for Environmental  
Legal Studies  
Institute of State and Law  
Russian Academy of Sciences  
Znamanka 10  
Moscow 119841  
Russia  
Tel: 7-095-173-6288  
Fax: 7-095-291-8574

**Ms. Susan Bromm**  
Formerly: Director, RCRA  
Enforcement Division  
New Position: Director, Chemicals,  
Commercial Services and  
Municipal Division  
Office of Enforcement and  
Compliance Assurance  
U.S. Environmental  
Protection Agency  
401 M Street, SW  
Room M2714  
Washington, DC 20460  
United States  
Tel: 1-202-260-4808  
Fax: 1-202-260-4100

**Mr. Louis Brown**  
Advisor  
Department of Public Housing,  
Physical Planning & Environment  
Island Government of  
St. Maarten N.A.  
Administration Building - Pondfill  
P.O. Box 143  
Philipsburg  
St. Maarten  
Tel: 599-5-22-233  
Fax: 599-5-24-884

**Dr. Douglas Bryce**  
Director  
Pollution Policy Division  
Her Majesty's Inspectorate  
of Pollution  
Romney House - Room A507  
43 Marsham Street  
London SW1P 3PY  
England  
Tel: 44-71-276-8088  
Fax: 44-71-276-8562

**Mr. José Luis  
Calderón Bartheleuf**  
Subprocurador de  
Auditoría Ambiental  
La Secretaría de Desarrollo Social  
(SEDESOL)  
Insurgentes Sur #1480 - 7o piso  
Barrio Actipan,  
Del. Benito Juárez  
03230, Distrito Federal  
México City 03230  
México  
Tel: 525-534-8808  
Fax: 525-534-5877

**Mr. Fred Campbell**  
Deputy Executive Director  
Environment and Compliance  
Natural Resources  
Conservation Authority  
53½ Molyneux Road  
Kingston 10  
Jamaica  
Tel: 1-809-923-5155

**Mr. Norbert Campbell**  
Chief Public Health Inspector  
Ministry of Health  
61 Halfway Tree Road  
LOJ Building - 4th Floor  
Kingston 10  
Jamaica  
Tel: 1-809-929-4305  
Fax: 1-809-926-2673

**Ms. Julia Carabias**  
President  
Ecology National Institute  
Rio Elba 20, 16o. piso  
Cuauhtemoc  
México City 06500  
México  
Tel: 525-553-9538  
Fax: 525-286-6625

**Mr. Stefan Carlyle**  
Head, Environmental  
Assessment and Planning Policy  
Pollution Policy Division  
Her Majesty's Inspectorate  
of Pollution  
Romney House - Room A513a  
43 Marsham Street  
London SW1P 3PY  
England  
Tel: 44-71-276-8088  
Fax: 44-71-276-8562

**Mr. Luis Carrera de la Torre**  
Presidente  
Comisión Asesor Ambiental de  
la Presidencia de la República  
Ave. 10 de Agosto 3560  
Edif. Metrocar 4o piso  
Quito  
Ecuador  
Tel: 593-2-540455  
Fax: 593-2-565809

**Ms. Julian Sigbert Caruth**  
Chief Environmental  
Health Officer  
Ministry of Health  
and Environment  
Ministerial Building  
Kingstown  
St. Vincent  
Tel: 1-809-457-1729  
Fax: 1-809-457-2684

**Mr. Marcelo Cousillas**  
Legal Advisor  
Dirección Nacional del  
Medio Ambiente (DINAMA)  
Ministerio de Vivienda  
Ordenamiento Territorial y  
Medio Ambiente  
Misiones 1424 piso 2  
Zabala 1427  
Montevideo 11000  
Uruguay  
Tel: 598-296-5859  
Fax: 598-296-5863

**Mr. Ricardo Cronembold**  
Director  
Ministerio Desarrollo Sostenible y  
Medio Ambiente  
Av. Arce #2147  
P.O. Box #3116  
La Paz  
Bolivia  
Tel: 591-2-35-4522  
Fax: 591-2-39-2892

**Mr. Christopher Currie**

Acting Chief, Enforcement  
Management Division  
Office of Enforcement  
Environment Canada  
351 St. Joseph Boulevard  
Place Vincent Massey-17th Floor  
Hull, Quebec K1A 0H3  
Canada  
Tel: 1-819-953-3882  
Fax: 1-819-953-3459

**Mr. Hashim Daud**

Director  
Department of Environment  
Ministry of Science, Technology  
and Environment  
Wisma Sime Darby - 17th Floor  
Jalan Raja Laut  
Kuala Lumpur 50662  
Malaysia  
Tel: 603-559-4787  
Fax: 603-559-4788

**Mr. Alfred Faud David Gidi**

Director General de la Unidad de  
Programacion y Apoyo Tecnico  
La Secretaria de Desarrollo Social  
(SEDESOL)  
Boulevard del Pipila #1  
Tecamachalco, Naucalpan  
México City 53950  
México  
Tel: 525-589-4398  
Fax: 525-589-4398

**Ms. Clarisa Vega de Ferrera**

Abogada y Notaria  
Bufete Ferrera Vega  
Bo. la Palzuela  
100 Metros al Sur de  
Banco Futuro #1201  
Tegucigalpa  
Honduras  
Tel: 504-38-63-72  
Fax: 504-38-63-73

**Ms. Michele de Nevers**

Principal Environment Coordinator  
México and Central America  
Environment Department  
World Bank  
1818 H Street - Room 1-1815  
Washington, DC 20433  
United States  
Tel: 1-202-473-3299  
Fax: 1-202-676-1464

**Mr. Nelson Vieira  
de Vasconcelos**

Director/President  
Saneamiento Ambiental  
Companhia Estadua de Tecnica  
de Saneamiento Ambiental  
Ave. Frederico Hermann, Jr. #345  
Alto de Pinheiros  
Sao Paulo 05489-900  
Brazil  
Tel: 55-11-210-1485  
Fax: 55-11-813-6451

**Mr. Jorge Mario del Valle Cruz**

Jefe del Departamento de  
Planificacion y Proyectos  
Comision Nacional del Medio  
Ambiente (CONAMA)  
Avenida Petapa 25-59  
Zona 12  
01012 Ciudad de Guatemala  
Guatemala  
Tel: 502-2-76-0055  
Fax: 502-2-76-0055

**Ms. Clare Delbridge**

Consultant  
United Nations  
Environment Programme IE/PAC  
5 Dryden Street (PDA Int'l)  
Covent Garden  
London WC2E 9NW  
England  
Tel: 44-71-829-8396  
Fax: 44-71-240-5600

**Ms. Ann DeLong**

Environmental Scientist  
Office of Enforcement and  
Compliance Assurance  
International Enforcement Program  
U.S. Environmental  
Protection Agency  
401 M Street, SW (MC-2245)  
Washington, DC 20460  
United States  
Tel: 1-202-260-8870  
Fax: 1-202-260-9833

**Mr. Andriy Demydenko**

Director  
Department for  
International Relations  
Division of International Relations  
Ministry for Environmental  
Protection of Ukraine  
5 Khreschatyk Street  
Kiev 252001  
Ukraine  
Tel: 7-044-228-7798  
Fax: 7-044-220-7108

**Mr. Earl Devaney**

Director  
Office of Criminal Enforcement  
U.S. Environmental  
Protection Agency  
401 M Street, SW (LE-133)  
Room W1041  
Washington, DC 20460  
United States  
Tel: 1-202-260-9724  
Fax: 1-202-260-0268

**Dr. Luis Miguel Diaz González**

Legal Consultant of the Secretary of  
Foreign Relations  
Flores Magon No. 1, 11o. piso  
Tlatelolco, Del. Cuauhtemco  
México City 06995  
México  
Tel: 525-327-3061  
Fax: 525-327-3006

**Dr. Olga Dubovic**

Doctor of Juridical Sciences  
Center for Environmental  
Legal Studies  
Russian Academy of Sciences  
Institute of State and Law  
Znamanka 10  
Moscow 119841  
Russia  
Tel: 7-095-291-3827  
Fax: 7-095-291-8574

**Ms. Linda Duncan**

Assistant Deputy Minister  
Department of  
Renewable Resources  
Government of the Yukon  
P.O. Box 2703  
Yukon Y1A 2C6  
Canada  
Tel: 1-403-667-5460  
Fax: 1-403-667-2438

**Mr. William Eichbaum**  
Vice President, International  
Environmental Quality  
World Wildlife Fund  
1250 24th Street, NW  
Washington, DC 20037-1175  
United States  
Tel: 1-202-778-9645  
Fax: 1-202-293-9211

**Dr. Ossama El-Kholy**  
Professor Emeritus  
Cairo University  
13, Street 265 New Maadi  
Cairo 11742  
Egypt  
Tel: 20-2-352-1325  
Fax: 20-2-378-0222

**Mr. Marcel Fevrier**  
Chief Environmental  
Health Officer  
Ministry of Health  
Chaussee Road  
Castries  
St. Lucia  
Tel: 1-809-452-2859  
Fax: 1-809-452-5655

**Dr. Sándor Fülöp**  
Attorney at Law  
Ruttner & Partners  
37 Desewffy u.  
Margit Krt. 58 v. 4  
H-1027 Budapest  
Hungary  
Tel: 361-2-014-534  
Fax: 361-1-326-141

**Mr. Paul Gavrel**  
Office of Enforcement  
Environment Canada  
351 St. Joseph Boulevard  
Place Vincent Massey-17th Floor  
Hull, Quebec K1A 0H3  
Canada  
Tel: 1-819-953-0762  
Fax: 1-819-953-3459

**Dr. Istvan Gellerthegy**  
Permanent Legal Counsel  
Faculty of Law  
Chief Environmental  
Inspectorate of Hungary  
University Eotvos Lorand  
Alkotmany U. 29.  
H-1054 Budapest  
Hungary  
Tel: 36-1-132-3929  
Fax: 36-1-111-5826

**Mr. Jo Gerardu**  
Inspector  
Inspectorate for the Environment  
Ministry of Housing, Spatial  
Planning and the Environment  
IPC 681  
P.O. Box 30945  
2500 GX DEN HAAG  
The Netherlands  
Tel: 31-70-339-1166  
Fax: 31-70-339-1300

**Mr. Vincent Gillett**  
Fisheries Administrator  
Fisheries Department  
Ministry of Agriculture & Fishing  
P.O. Box 148  
Belize City  
Belize  
Tel: 501-2-32623  
Fax: 501-2-32983

**Mr. Robert Glaser**  
Inspector, International Affairs  
HIMH/VROM  
Ministry of Housing, Spatial  
Planning and the Environment  
Seissingel 4  
4330 AJ Middleburg  
The Netherlands  
Tel: 31-11-803-3792  
Fax: 31-11-802-4126

**Mr. Cuauhtémoc González Pacheco**  
Delegado de la PFPA  
SEDESOL en Oaxaca  
La Secretaría de Desarrollo Social  
(SEDESOL)  
Avenida Independencia No. 709  
Palacio Federal (Altos)  
Oaxaca 68000  
México  
Tel: 52-951-41991  
Fax: 52-951-60078

**Dr. Aleksander Grigorievich Veprev**  
Department Head  
Oblast Committee for  
Environmental Protection  
Mammina-Sibirjaka 36  
Ekaterinburg,  
Sverdlovsk Oblast 620219  
Russia  
Tel: 7-3432-562-549  
Fax: 7-3432-562-549

**Mr. John Hall**  
Chairman  
Texas Natural Resources  
Conservation Commission  
1700 North Congress Avenue  
Suite 125  
Capitol Station  
Austin, TX 78701  
United States  
Tel: 1-512-463-7901  
Fax: 1-512-475-2332

**Mr. Leo Heileman**  
Programme Officer  
Regional Office for Latin America  
and the Caribbean  
United Nations  
Environment Programme  
Boulevard de los  
Virreyes No. 155  
Col. Lomas Virreyes  
11000 México City  
México  
Tel: 525-202-4841  
Fax: 525-202-0950

**Mr. Livingston Hepburn**  
Acting Deputy Director  
Department of Environment  
Health Services  
P.O. Box N3729  
Nassau Court, Nassau  
Bahamas  
Tel: 1-809-322-8029  
Fax: 1-809-322-3607

**Mr. Steven Herman**  
Assistant Administrator  
Office of Enforcement and  
Compliance Assurance  
U.S. Environmental  
Protection Agency  
401 M Street, SW (MC-2211)  
Washington, DC 20460  
United States  
Tel: 1-202-260-4134  
Fax: 1-202-260-0500

**Ms. Patricia Hollett**  
Investigations and  
Enforcement Branch  
Ontario Ministry of Environment  
250 Davisville Avenue - 5th Floor  
Toronto, Ontario M4S 1H2  
Canada  
Tel: 1-416-440-3508

**Mr. Zhang Hongjun**

Deputy Director  
Laws Division  
Office of Environmental  
Protection Committee  
National People's Congress  
Xi Huang Cheng  
Gen Bei Jie No. 2  
Beijing 100034  
People's Republic of China  
Tel: 86-1-309-8334  
Fax: 86-1-309-8439

**Mr. Damien Houeto**

Directeur Direction de  
l'Environnement  
Ministerie de l'Environnement de  
l'Habitat et de l'Urbanisme  
Boite Postal 01-3621  
Cotonou  
Benin  
Tel: 229-312-065  
Fax: 229-315-081

**Mr. Miguel A. Irabien**

Technical Support Inspectors  
La Secretaria de Desarrollo Social  
(SEDESOL)  
Boulevard del Pipila #1  
Techamchalco, Naucalpan  
México City 53950  
México

**Mr. Jalaluddin Bin Ismail**

Director  
Department of Environment  
Malacca and Negeri Sembilan  
2nd Floor, Graha Maju  
Jalan Graha Maju  
75300 Malacca  
Malaysia  
Tel: 60-3-247-825  
Fax: 60-6-247-845

**Mr. Brian James**

Chief Forest and Land Officer  
Forest and Land Department  
Ministry of Agriculture  
NIS Building  
Castries, Waterfront  
St. Lucia  
Tel: 1-809-450-2078  
Fax: 1-809-450-2287

**Mr. Sebastian Jara**

Ingeniero Químico  
Servicio Nacional de  
Saneamiento Ambiental  
(SENASA)  
Mariscal Estigarribia y  
Tacuary #796  
Asuncion  
Paraguay  
Tel: 595-21-444-182  
Fax: 595-21-449-262

**Mr. Ole Kaae**

Head of Section  
Danish Environmental  
Protection Agency  
Miljøstyrelsen  
29, Strandgade  
DK-1401 Copenhagen K  
Denmark  
Tel: 45-32-660100  
Fax: 45-32-660479

**Mr. Henry Muganwa Kajura**

Cabinet Minister  
Ministry of Natural Resources  
Kampala Road - Amber House  
P.O. Box 7270  
Kampala  
Uganda  
Tel: 256-41-233-331  
Fax: 256-41-230-220

**Mr. Zbigniew Kamiński**

Director of Control Department  
State Inspectorate for  
Environmental Protection  
ul. Wawelska 52-54  
00-922 Warsaw  
Poland  
Tel: 48-22-251-524  
Fax: 48-22-251-509

**Mr. Bruce Kay**

Enforcement and  
Emergencies Branch  
Environment Canada  
224 West Esplanade  
North Vancouver, BC V7M 3H7  
Canada  
Tel: 1-604-666-2736

**Mr. Huub Kesselaar**

Director  
Inspectorate for the  
Environment/IPC 681  
Ministry of Housing, Spatial  
Planning and the Environment  
Willem Witsenplein 6  
2596 BK Den Haag  
The Netherlands  
Tel: 31-70-339-1167  
Fax: 31-70-339-1300

**Mr. David Kinyanjui**

Senior Ecologist  
Natural Resources  
Management Division  
National Environment  
Secretariate  
Kencorn House - P.O. Box 67839  
4th Floor - #471  
Nairobi  
Kenya  
Tel: 254-2-229-262  
Fax: 254-2-338-272

**Mr. Wout Klein**

Regional Inspectorate Gelderland  
Ministry of Housing, Spatial  
Planning and the Environment  
Pels Rijkensstraat 1  
Postbus 9013  
6800 DR Arnhem  
The Netherlands  
Tel: 31-85-528-880  
Fax: 31-85-528-256

**Mr. Soren Harald Klem**

Specialized Officer  
Economic Crime Group  
I.C.P.O. - INTERPOL,  
General Secretariate  
50 Quai Achille Lignon  
B.P. 6041  
Lyon Decex 0669006  
France  
Tel: 33-72-44-7190  
Fax: 33-72-44-7163

**Mr. Ludwig Krämer**

Lawyer  
Commission of the  
European Communities  
DG Environment, Nuclear Safety  
and Civil Protection  
5, rue Beaulieu  
Brussels 1160  
Belgium  
Tel: 322-299-22-65  
Fax: 322-299-10-70

**Mr. Jeffrey Lacey**  
 Director  
 Division of Environmental  
 Enforcement  
 New York State Department of  
 Environmental Conservation  
 50 Wolf Road - Room 609  
 Albany, NY 12233-5500  
 United States  
 Tel: 1-518-457-4348  
 Fax: 1-518-485-8478

**Ms. Inga Birgitta Larsson**  
 Head of the Chemical  
 Industry Section  
 Swedish Environmental  
 Protection Agency  
 S-171 85 Solna  
 Sweden  
 Tel: 46-8-799-1142  
 Fax: 46-8-989-902

**Mrs. Marianne Lassen**  
 Head of Section  
 International Division  
 Danish Environmental  
 Protection Agency  
 29, Strandgade  
 DK-1401 Copenhagen K  
 Denmark  
 Tel: 45-32-660-207  
 Fax: 45-31-573-577

**Mr. Daniel Hugo Llermanos**  
 Juzgado de lo Criminal y  
 Correccional #10  
 Del Departamento Judicial de  
 Lomas de Zamora  
 Talcahuano 278, 1 er piso  
 Banfield 1828  
 Buenos Aires  
 Argentina  
 Tel: 54-1-242-7204  
 Fax: 54-1-202-2154

**Mr. Edwin Lowry**  
 Deputy Attorney General  
 California Department of Justice  
 1515 K Street - Suite 511  
 Sacramento, CA 94244-2550  
 United States  
 Tel: 1-916-327-7876  
 Fax: 1-916-324-2960

**Mr. Anatoli Ivanovich Lychyov**  
 Deputy Chief of Main State  
 Ecological Expertise  
 Ministry of Ecology and  
 Bioresources  
 Panfilov Street 106  
 480091 Almaty  
 Kazakhstan  
 Tel: 7-3272-631-751  
 Fax: 7-3272-631-207

**Ms. Cristina Elena Maiztegui**  
 Coordinadora General  
 Direccion Provincial del  
 Medio Ambiente  
 Ministerio de Salvo y Accion  
 Social de la Provincia  
 Calle 68 #541 Dto B  
 La Plata 1900, PCIA BS. AS.  
 Provincia de Buenos Aires  
 Argentina  
 Tel: 54-21-241-829  
 Fax: 54-21-534-214

**Mr. Yuri Leonidovich Maksimenko**  
 Director  
 Department of the Environmental  
 Legislation & Regulations  
 Legal Department  
 Ministry for Environment and  
 Natural Resources  
 Bolshay Grazinskay Street 4/6  
 Moscow 123812  
 Russia  
 Tel: 7-095-254-7165  
 Fax: 7-095-254-8283

**Mr. Grandersio Marizán Ubiña**  
 Director, Nacional de Parques  
 Division de Parques  
 Avenida Independencia  
 Esquina Cervantes #359  
 Santo Domingo  
 Dominican Republic  
 Tel: 1-809-221-5340  
 Fax: 1-809-685-1316

**Ms. Luz Maria Martínez Armendariz**  
 Biología - Subdirectora  
 Procuraduría Federal de  
 Protección al Ambiente  
 La Secretaría de Desarrollo Social  
 (SEDESOL)  
 Río Elba 20, 4o. piso  
 Cuauhtemoc  
 México City 06500  
 México

**Mr. Wilson Masilingi**  
 Senior Legal Officer  
 National Environment  
 Management Council  
 Sokoine Drive - Tancot House  
 63154 Dare es Salaam  
 Tanzania  
 Tel: 255-51-34603  
 Fax: 255-51-34603

**Mr. Thomas Maslany**  
 Director  
 Air, Radiation and Toxics Division  
 Region III  
 U.S. Environmental  
 Protection Agency  
 841 Chestnut Building  
 Philadelphia, PA 19107  
 United States  
 Tel: 1-215-597-9390  
 Fax: 1-215-580-2011

**Ms. Liliana Maslarova**  
 Legal Expert  
 Bulgarian Ministry  
 of Environment  
 67 William Gladstone Street  
 1000 Sofia  
 Bulgaria  
 Tel: 359-2-81-4354  
 Fax: 359-2-52-1634

**Mr. Andrew Mastrandonas**  
 Executive Director  
 Global Environmental  
 Management Initiative (GEMI)  
 2000 L Street, NW - Suite 710  
 Washington, DC 20036  
 United States  
 Tel: 1-202-296-7449  
 Fax: 1-202-296-7442

**Dr. Winston McCalla**  
 Natural Resources  
 Conservation Authority  
 40 East Street  
 Kingston  
 Jamaica  
 Tel: 1-809-922-1217  
 Fax: 1-809-922-5202

**Mr. Václav Mezick**

Director/Professor  
Faculty of Law  
Environmental Law Institute  
Charles University  
nam. Curieových 7  
110,00 Praha 1  
Czech Republic  
Tel: 42-2-232-8072  
Fax: 42-2-248-10472

**Mr. Edis Milare**

Secretary of State  
Secretary of the Environment of  
the State of Sao Paulo  
Rua Tabapua #81  
14 piso  
Sao Paulo 04533-010  
Brazil  
Tel: 55-11-822-0766  
Fax: 55-11-822-8291

**Ms. Anne Mitchell**

Canadian Institute for  
Environmental Law and Policy  
517 College Avenue - Suite 400  
Toronto, Ontario M6G 4A2  
Canada  
Tel: 1-416-923-3529  
Fax: 1-416-923-5949

**Mr. Pak Moestadji**

Lawyer  
State Ministry for Environment  
North Medan Merdeka Barat 15  
Jakarta 10110  
Indonesia  
Tel: 62-21-374-627  
Fax: 62-21-384-7075

**Ms. Sandra Urbina Mohs**

Directora de Asesoría Jurídica  
Department of Legal Counseling  
Ministerio de Recursos  
Naturales, Energía y Mines  
Calle 25 Ave. 8 y 10  
Barrio Peralta  
Frente Iglesia Sagrabo  
Corazon de Jesus  
10104-1000 San Jose  
Costa Rica  
Tel: 506-55-1492  
Fax: 506-55-1492

**Ms. Ignacia Moreno**

Special Assistant to the  
Assistant Attorney General  
Environment and Natural  
Resources Division  
U.S. Department of Justice  
10th & Constitution Avenue, NW  
Room 2608  
Washington, DC 20530  
United States  
Tel: 1-202-514-5243  
Fax: 1-202-514-0557

**Mr. Branimir Natov**

Deputy Minister  
Bulgarian Ministry  
of Environment  
67 West Gladstone Street  
1000 Sofia  
Bulgaria  
Tel: 359-2-88-1440  
Fax: 359-2-52-1634

**Mr. Guillermo Navarette Lopez**

Secretaria Ejecutiva del  
Medio Ambiente (SEMA)  
Final 91 Ave. Norte  
Entre 11 y 13 Calle Poniente  
Colonia Escalon, San Salvador  
El Salvador  
Tel: 503-79-3673  
Fax: 503-23-9083

**Mr. Ed Neafsey**

Chief, Environmental  
Crimes Bureau  
Division of Criminal Justice  
New Jersey Attorney  
General's Office  
25 Market Street  
Hughes Justice Complex  
(CN-085)  
Trenton, NJ 08625  
United States  
Tel: 1-609-984-4470  
Fax: 1-609-292-1533

**Mr. Kwesi Nkofi**

Director of Environment Division  
Guyana Agency for Health,  
Education and Environment  
(GAHEF)  
Liliendaal, Georgetown  
Guyana  
Tel: 592-2-57523  
Fax: 592-2-57524

**Mr. Gil Nolet**

Legal Specialist  
Inter-American  
Development Bank  
1300 New York Avenue, NW  
Washington, DC 20577  
United States  
Tel: 1-202-623-3640  
Fax: 1-202-623-1315

**Dr. Modupe Taiwo Odubela**

Assistant Director  
Inspectorate &  
Enforcement Department  
Federal Environmental  
Protection Agency  
Street E, Flat 105, 1004 Complex  
Victoria Island  
Lagos PMB 3150  
Nigeria  
Tel: 234-1-611-094  
Fax: 234-1-614-299

**Mr. Rodolfo Ogarrio**

Director General  
Fundacion Mexicana para la  
Educacion Ambiental, A.C.  
Carretera Circunvalacion S/N  
Tepetzotlan 54600  
México  
Tel: 525-876-0222  
Fax: 525-876-0217

**Ms. Titilayo Iyabo Ojo**

Assistant Director  
Inspectorate &  
Enforcement Department  
Lagos State Secretariat  
Office of Environment and  
Physical Planning  
274 Kofo Abayomi Street  
53326 Ikoyi Post Office  
Victoria Island  
Lagos PMB 12620  
Nigeria  
Tel: 234-1-618-651  
Fax: 234-1-497-0474

**Mr. Menno Olman**

Director of Regional Directorate  
of Rijkswaterstaat  
Ministry of Water Management  
and Traffic  
Postbus 2301  
8901 JH Leeuwarden Den Haag  
The Netherlands  
Tel: 31-70-58-929394  
Fax: 31-70-58-929259

**Mr. Oritsetimeyin  
Omagbemi Uwejamomere**  
Housing and Environment  
Correspondent  
The Guardian  
Guardian Newspapers, Ltd.  
Rutam House, Isolo  
Oshodi  
Lagos PMB 1217  
Nigeria  
Tel: 234-152-4080  
Fax: 234-152-2027

**Mr. LeRoy Paddock**  
Director of Environmental Policy  
Minnesota Attorney  
General's Office  
102 State Capitol  
St. Paul, MN 55155  
United States  
Tel: 1-612-296-6597  
Fax: 1-612-297-4193

**Mr. Gary Page**  
Director  
Loss Prevention & Audits  
American Cyanamid  
1700 Valley Road  
Wayne, NJ 07470

**Mr. Dean Paige**  
Industrial Waste Superintendent  
City of Santa Rosa  
4300 Llano Road  
Santa Rosa, CA 95407  
United States  
Tel: 1-707-543-3369  
Fax: 1-707-543-3399

**Mr. Germán Sarmiento Palacios**  
President  
FUNDEPUBLICA  
Calle 71 - No. 5-83  
Bogota  
Colombia  
Tel: 57-1-210-4737  
Fax: 57-1-210-4685

**Mr. Salvador Penacta**  
Procuraduría Federal de  
Protección al Ambiente  
La Secretaría de Desarrollo Social  
(SEDESOL)  
Insurgentes Sur 1480, 7o. piso  
Barrio Actipan,  
Del. Benito Juárez  
03230, Distrito Federal  
México

**Ms. Ana Maria Perez Patraca**  
La Secretaria de Desarrollo Social  
(SEDESOL)  
Rio Elba 20, 4o. piso  
Cuauhtemoc  
México City 06500  
México

**Mr. Jan Peters**  
Commissioner  
Regional Police Midden en  
West Brabant  
Noordhoekring 186  
5038 GG Tilburg  
The Netherlands  
Tel: 31-13-428-303  
Fax: 31-13-428-300

**Mr. Jellis Peters**  
Directorate General Environment/B  
Ministry of Housing, Spatial  
Planning and the Environment  
Rijnstraat 8 - IPC 660  
Postbus 30945  
2500 GX Den Haag  
The Netherlands  
Tel: 31-70-339-4026  
Fax: 31-70-339-1303

**Ms. Lynn Peterson**  
Chief, Solid Waste and  
Emergency Response Branch  
Office of Regional Counsel  
U.S. Environmental  
Protection Agency  
77 West Jackson Boulevard (C-3T)  
Chicago, IL 60604-3507  
United States  
Tel: 1-312-886-0556  
Fax: 1-312-886-0747

**Dr. Dumitra Popescu**  
Professor of Law  
Institute of Legal Research  
Str. Ciurea ur. 14, Bly1  
Lc. G, et. III, ap. 54  
Bucharest, Section 2 cod 73296  
Romania  
Tel: 401-621-1625  
Fax: 401-312-4816

**Mr. Robert Porter**  
Environmental Support Services  
Nova Scotia Department  
of Environment  
P.O. Box 2107  
Halifax, Nova Scotia B3J 3B7  
Canada  
Tel: 1-902-424-6301

**Mr. Jose Luis Pulliafito**  
Director de Saneamiento y  
Control Ambiental  
Ministerio de Medio Ambiente  
9 de Julio #875  
5500 Mendoza 5500  
Argentina  
Tel: 54-61-240-960  
Fax: 54-61-240-960

**Dr. Manfred Pütz**  
Professor, Dr.-Ing/Under  
Secretary of State  
Ministerium für Umwelt  
Raumordnung & Landwirtschaft  
des Landes Nordrhein-Westfalen  
Schwanns Str. 3  
Dusseldorf 40476  
Germany  
Tel: 49-211-4566550  
Fax: 49-211-4566388

**Mr. Luis Quezada**  
Director de Area  
La Secretaria de Desarrollo Social  
(SEDESOL)  
Boulevard del Pipila #1  
Techamchalco, Naucalpan  
México City 53950  
México

**Mr. Oscar Ramirez**  
U.S./México Border Coordinator  
México Task Force  
Region VI  
U.S. Environmental  
Protection Agency  
1445 Ross Avenue - Suite 1200  
Dallas, TX 75202-2733  
United States  
Tel: 1-214-655-2100  
Fax: 1-214-655-6648

**Mr. John Rasnic**  
Formerly: Director, Stationary Source  
Compliance Division  
New Position: Director,  
Manufacturing, Energy and  
Transportation Division  
Office of Enforcement and  
Compliance Assurance  
U.S. Environmental  
Protection Agency  
401 M Street, SW  
Room 8FL  
Washington, DC 20460  
United States  
Tel: 1-703-308-8600  
Fax: 1-703-308-8739



**Mr. Róbert Reiniger**

Head  
National Authority for  
the Environment  
Fo Utca 44-50  
Alkotmany u. 29  
H-1011 Budapest  
Hungary  
Tel: 36-1-201-1725  
Fax: 36-1-201-4282

**Mr. Bruno Enrique Reverchon**

President  
Comision Nacional de Ecologia,  
Recursos Naturales,  
Medio Ambiente  
Avenida Republica y Chile  
Palacio Legislativo/  
Camara de Diputados  
Asuncion  
Paraguay  
Tel: 595-21-2941  
Fax: 595-21-44-9089

**Mr. Joel Reynolds**

Senior Attorney  
Natural Resources  
Defense Council  
6310 San Vicente Boulevard  
Suite 250  
Los Angeles, CA 90048  
United States  
Tel: 1-213-934-6900  
Fax: 1-213-934-1210

**Mr. Quirino B. Richardson**

Head of Environmental Services  
Environmental Service  
Groot Davelaar K 22-23  
Willemstad  
Curacao  
Tel: 599-9-369042  
Fax: 599-9-369195

**Ms. Gro Rødland**

Head of Department  
State Pollution Control Authority  
Statens Forurensningstilsyn  
Stromsveien 96  
0032 Oslo  
Norway  
Tel: 47-22-573400  
Fax: 47-22-67-6706

**Mr. Arsenio Rodriguez Mercado**

Director/Regional Representative  
Regional Office for  
Latin America and the Caribbean  
United Nations  
Environment Programme  
Blvd. de los Virreyes No. 155  
Col. Lomas Virreyes 11000  
México D.F. 11000  
México  
Tel: 525-202-4841  
Fax: 525-202-0950

**Mr. Hugo Romero**

Coordinador  
Programa del Medio Ambiente  
Departamento Technico  
de Investigacion  
Universidad de Chile  
Diagonal Paraguay 265  
Torre 15 piso 16 - Oficina 1602  
Santiago  
Chile  
Tel: 56-2-222-9512  
Fax: 56-2-635-3951

**Mr. John Rothman**

Senior Attorney  
Multimedia Enforcement and  
International Activities  
Region IX  
U.S. Environmental  
Protection Agency  
75 Hawthorne Street (RSC-1)  
San Francisco, CA 94105  
United States  
Tel: 1-415-744-1353  
Fax: 1-415-744-1041

**Mr. Yuriy Ruban**

First Deputy Minister  
Division of International Relations  
Ministry for Environmental  
Protection of Ukraine  
5 Khreschatyk Street  
Kiev 252001  
Ukraine  
Tel: 7-044-226-2501  
Fax: 7-044-228-8181

**Mr. Hector Russe Martínez**

Chairman  
Office of the President  
Puerto Rico Environmental  
Quality Board  
Avenue Ponce  
d'Lion 431 Hatcrey - 12th Floor  
Santurce 00910  
Puerto Rico  
Tel: 1-809-767-8056  
Fax: 1-809-766-2483

**Ms. Cristina Saldívar**

Director of the  
Planning Department Office  
Direccion de Ecologia Municipal  
Abasolo No. 313 Centro Oaxaca  
Oaxaca 68000  
México  
Tel: 52-951-64629  
Fax: 52-951-63058

**Mr. Achmad Santosa**

Executive Director  
Indonesian Center for  
Environmental Law  
JL. Kerinci IX No. 34  
Kebayoran Baru  
Jakarta  
Indonesia  
Tel: 62-21-712-482  
Fax: 62-21-828-4

**Mr. Richard Saunier**

Environment Management Advisor  
Organization of American States  
1889 F Street, NW  
Washington, DC 20006  
Tel: 1-202-458-3228  
Fax: 1-202-458-3560

**Mr. Carlos Silva**

Engineer  
Technical Support Inspectors  
La Secretaria de Desarrollo Social  
(SEDESOL)  
Boulevard del Pipila #1  
Techamchalco, Naucalpan  
México City 53950  
México

**Mr. Joseph Govinda Singh**

Brigadier  
Guyana Defense Forces  
Camp Ayanganna  
Thomas Lands  
Georgetown  
Guyana  
Tel: 592-2-69304  
Fax: 592-2-66049

**Mr. John Skinner**  
Senior Advisor  
United Nations  
Environment Programme IE/PAC  
39-43 Quai Andre Citroen  
Tour Mirabeau  
75739 Paris, Cedex 15  
France  
Tel: 33-1-44-371427  
Fax: 33-1-44-371474

**Dr. David Slater**  
Director/Chief Inspector  
Her Majesty's Inspectorate  
of Pollution  
Romney House - Room A538  
43 Marsham Street  
London SW1P 3PY  
England  
Tel: 44-71-276-8080  
Fax: 44-71-276-8562

**Mr. Carl Francis Smith**  
First Assistant Secretary  
Ministry of Health  
and Environment  
East Hill Street  
7th Floor Post Office  
P.O. Box N3730  
Nassau  
Bahamas  
Tel: 1-809-327-5826  
Fax: 1-809-327-5806

**Mr. Ján Smolen**  
Director  
Department of  
Environmental Projects  
Ministry of the Environment of  
the Slovak Republic  
Hlboka 2  
Bratislava 81235  
Slovak Republic  
Tel: 42-7-492-532  
Fax: 42-7-497-267

**Mr. Antonio Solis**  
Lawyer  
La Secretaria de Desarrollo Social  
(SEDESOL)  
Mier y Pesado 324-1  
México City 03100  
México

**Ms. Lucia Solorzano Constantine**  
Sub-Secretaria del  
Medio Ambiente  
Ministerio de Energia y Minas  
Santa Prisca 223 y Manuel Larrea  
Quito  
Ecuador  
Tel: 593-2-570-341  
Fax: 593-2-583-719

**Mr. Michael Stahl**  
Formerly: Director, Office of  
Enforcement  
New Position: Deputy Assistant  
Administrator  
Office of Enforcement and  
Compliance Assurance  
U.S. Environmental  
Protection Agency  
401 M Street, SW (EN-342)  
Room E713  
Washington, DC 20460  
United States  
Tel: 1-202-260-4134  
Fax: 1-202-260-0500

**Ms. Sulistyowati**  
Chemical Engineer  
Environmental Impact  
Management Agency  
JL. Jendral Sudirman #2  
Arthaldka Building - 11th Floor  
Jakarta 10220  
Indonesia  
Tel: 62-21-570-3419  
Fax: 62-21-570-3365

**Ms. Shelda Sutton-Mendoza**  
Health Program Manager  
Underground Storage  
Tank Bureau  
New Mexico  
Environmental Department  
1190 St. Francis Drive  
Room N2150  
Santa Fe, NM 87503  
United States  
Tel: 1-505-827-2910  
Fax: 1-505-827-0310

**Mr. Piotr Syrczynski**  
Coordinator  
Interministerial Ecological Unit  
Ministry of Privatization  
ul. Krucza 36 Wspolna 6 p.482  
00-522 Warszawa  
Poland  
Tel: 48-2-625-2551  
Fax: 48-2-229-8097

**Ms. Maria Teresa Szauer**  
Deputy Director, Environmental  
Enforcement Office  
Ministry of Environment  
Calle 91 - No. 9-11 - A102  
Bogota  
Colombia  
Tel: 57-1-336-1166  
Fax: 57-1-616-9265

**Mr. Pornchai Taranatham**  
Deputy Director General  
Department of Pollution Control  
539/2 Sri-Ayudhya Road  
16/17th Floor  
Gypsum Metropolitan Tower  
Rajdhavee  
Bangkok 10400  
Thailand  
Tel: 662-248-5182  
Fax: 662-642-5025

**Mr. Rodrigo Tarte**  
Director Ejecutivo  
Fundacion NATURA - Panama  
Calzada de Amador 154E  
Apartado 2190  
Panama 1  
Panama  
Tel: 507-28-1935  
Fax: 507-28-1934

**Ms. Karin Thoran**  
Head of Inspection Division  
National Chemical Inspectorate  
Sundbybergsvagen 9  
P.O. Box 1384  
S-17127 Solna  
Sweden  
Tel: 46-8730-6779  
Fax: 46-8735-7698

**Dr. Jan J.M. Tindemans**

Gedeputeerde Provincie Limburg  
Provincial Government  
of Limburg  
Limburglaan 10  
Postbus 5700  
6202 MA Maastricht (NL)  
The Netherlands  
Tel: 31-43-897-039  
Fax: 31-43-897-109

**Mr. Mikhail V. Tolkachev**

Deputy Minister  
Ministry for Environment  
and Natural Resources  
Bolshay Grazinskay Street 4/6  
Moscow 123812  
Russia  
Tel: 7-95-254-3270  
Fax: 7-95-254-8283

**Mr. Richard Trinidad**

Special Assistant to the Director  
Office of Criminal Enforcement  
U.S. Environmental  
Protection Agency  
401 M Street, SW (MC-2231)  
Washington, DC 20460  
United States  
Tel: 1-202-260-4398  
Fax: 1-202-260-0268

**Mr. Ariel Vaccaro**

Deputy General Director  
Instituto Nacional de Recursos  
Renovables (INRENARE)  
Paraiso, Ancon 2016  
Panama  
Tel: 507-32-4209  
Fax: 507-32-4917

**Mr. Jaap van Dyk**

Gedeputeerde Provincie  
Groningen  
Provincial Government  
of Groningen  
Martinijkhof 12  
Postbus 610  
9700 AP Groningen  
The Netherlands  
Tel: 31-50-164127  
Fax: 31-50-185615

**Mr. Paul A.E. van Erkelens**

Waterschap Regge En Dinkel  
Kooikersweg 1  
Postbus 5006  
7609 PZ Almelo  
The Netherlands  
Tel: 31-54-90-32529  
Fax: 31-54-90-21176

**Mr. Robert Van Heuvelen**

Director  
Office of Regulatory Enforcement  
Office of Enforcement  
U.S. Environmental  
Protection Agency  
401 M Street, SW (2241)  
Room W1039  
Washington, DC 20460  
United States  
Tel: 1-202-260-4540  
Fax: 1-202-260-6848

**Mr. Joost van Kasteren**

Journalist  
Laan van Oostenburg 45  
2271 AN Voorburg  
The Netherlands  
Tel: 31-70-387-1434  
Fax: 31-70-387-1434

**Ms. Gisèle van Zeben**

Public Prosecutor  
Stafbureau Openbaar Ministerie  
Prinsessegracht 28  
2500 EH Den Haag  
The Netherlands  
Tel: 31-70-36-00846  
Fax: 31-70-36-58915

**Mr. Waldo Vargas Ballester**

Sub-Secretario de  
Calidad Ambiental Sustainable  
Development Ministry  
Calle Louis Urilla de  
la Oliva #2786  
Esquina Vincenti  
Zona Sopocachi  
La Paz  
Bolivia  
Tel: 591-2-369-383  
Fax: 591-2-390-335

**Ms. Rachel Vasquez**

Assistant Director  
Environmental  
Management Bureau  
Philippine Heart Center  
East Avenue  
Quezon City  
Philippines  
Tel: 63-2-973-254  
Fax: 63-2-973-254

**Mr. William J. Vaughan**

Senior Economist  
Inter-American  
Development Bank  
1300 New York Avenue, NW  
(E-0809)  
Washington, DC 20577  
United States  
Tel: 1-202-623-1252  
Fax: 1-202-623-1786

**Mr. Jan C.M. Veenman**

Head  
Information and  
Public Relations Department  
Ministry of Housing, Spatial  
Planning and the Environment  
Rijnstraat 8 - IPC 120  
Postbus 20951  
2500 EZ Den Haag  
The Netherlands  
Tel: 31-70-339-3739  
Fax: 31-70-339-1351

**Mr. Pieter T. Verkerk**

Inspector General  
Inspectorate for the  
Environment/IPC 680  
Ministry of Housing, Spatial  
Planning and the Environment  
Rijnstraat 8  
2515 XP Den Haag  
The Netherlands  
Tel: 31-70-339-4621  
Fax: 31-70-339-1298

**Mr. Stanislaw Wajda**

Legal Advisor,  
EC Phare Programme  
Ministry of  
Environmental Protection  
ul. Wawelska 52-54  
Warsaw 00-922  
Poland  
Tel: 48-22-25-4141  
Fax: 48-22-39120049

**Ms. Cheryl Wasserman**  
Associate Director for  
Policy Analysis  
Office of Federal Activities  
Office of Enforcement and  
Compliance and Assurance  
U.S. Environmental  
Protection Agency  
401 M Street, SW (MC-2254)  
Washington, DC 20460  
United States  
Tel: 1-202-260-4486  
Fax: 1-202-260-0129

**Mr. W.A.D.D. Wijesooriya**  
Senior Environmental Scientist  
Environment Protection Division  
Central Environmental Authority  
Parisara Mawatha - Maligawatte  
New Town  
Colombo 10  
Sri Lanka  
Tel: 994-1-439-073  
Fax: 994-1-439-076

**Mr. John Wise**  
Deputy Regional Administrator  
Region IX  
U.S. Environmental  
Protection Agency  
75 Hawthorne Street  
San Francisco, CA 94105  
United States  
Tel: 1-415-744-1001  
Fax: 1-415-744-2499

**Ms. Zhao Ying**  
Program Officer  
National Environmental  
Protection Agency  
115, Xizhimennei  
Nan Xiacjie  
Beijing 100035  
People's Republic of China  
Tel: 86-1-832-9911  
Fax: 86-1-832-8013

**Ms. Lubomíra Zimanova**  
State Secretary  
Ministry of the Environment of  
the Slovak Republic  
Hlboka 2, 812 35 Bratislava  
Bratislava  
Slovak Republic  
Tel: 42-7-49-2520  
Fax: 42-7-49-2101

**Mr. Janis Zirnitis**  
Deputy Director of  
Projects Department  
Ministry of the Environment and  
Regional Development  
25 Peldu Street  
Riga LV-1494  
Latvia  
Tel: 371-2-226-578  
Fax: 371-8-820-442

**PARTICIPANTS BY COUNTRY**

Country	Name	Title	Organization
<b>NORTH AMERICA</b>			
Canada	Mr. Christopher Currie	Acting Chief, Enforcement Management Division	Environment Canada
Canada	Ms. Linda Duncan	Assistant Deputy Minister	Government of the Yukon
Canada	Mr. Paul Gavrel	Office of Enforcement	Environment Canada
Canada	Ms. Patricia Hollett	Investigations and Enforcement Branch	Ontario Ministry of Environment
Canada	Mr. Bruce Kay	Enforcement and Emergencies Branch	Environment Canada
Canada	Ms. Anne Mitchell		Canadian Institute for Environmental Law and Policy
Canada	Mr. Robert Porter	Environmental Support Services	Nova Scotia Department of Environment
México	Mr. Arturo Alcocer Lujambio	Subprocurador de Participacion Social y Quejas	La Secretaria de Desarrollo Social (SEDESOL)
México	Mr. Gabriel Arenas Flores	Director General de la Unidad de Verificacion	La Secretaria de Desarrollo Social (SEDESOL)
México	Mr. Francisco Bahamonde Torres	Subprocurador de Verificacion Normativa	La Secretaria de Desarrollo Social (SEDESOL)
México	Mr. José Luis Calderón Bartheueuf	Subprocurador de Auditoria Ambiental	La Secretaria de Desarrollo Social (SEDESOL)
México	Ms. Julia Carabias	President	Ecology National Institute
México	Mr. Alfred Faud David Gidi	Director General, Unidad de Programacion/Apoyo Tecnico	La Secretaria de Desarrollo Social (SEDESOL)
México	Dr. Luis Miguel Diaz González	Legal Consultant of the Secretary of Foreign Relations	
México	Mr. Cuauhtémoc González Pacheco	Delegado de la PFPA - SEDESOL en Oaxaca	La Secretaria de Desarrollo Social (SEDESOL)
México	Mr. Miguel A. Irabien	Technical Support Inspectors	La Secretaria de Desarrollo Social (SEDESOL)
México	Ms. Luz Maria Martínez Armendariz	Biología - Subdirectora	La Secretaria de Desarrollo Social (SEDESOL)
México	Mr. Rodolfo Ogarrio	Director General	Fundacion Mexicana para la Educacion Ambiental, A.C.
México	Mr. Salvador Penacta		La Secretaria de Desarrollo Social (SEDESOL)
México	Ms. Ana Maria Perez Patraca		La Secretaria de Desarrollo Social (SEDESOL)
México	Mr. Luis Quezada	Director de Area	La Secretaria de Desarrollo Social (SEDESOL)
México	Ms. Cristina Saldivar	Director of the Planning Department Office	Direccion de Ecologia Municipal
México	Mr. Carlos Silva	Engineer, Technical Support Inspectors	La Secretaria de Desarrollo Social (SEDESOL)
México	Mr. Antonio Solis	Lawyer	La Secretaria de Desarrollo Social (SEDESOL)

Country	Name	Title	Organization
United States	Mr. Michael Alushin	Director, International Enforcement Program	U.S. Environmental Protection Agency
United States	Ms. Susan Bromm	Formerly: Director, RCRA Enforcement Division New Position: Director, Chemicals, Commercial Services and Municipal Division	U.S. Environmental Protection Agency
United States	Ms. Ann DeLong	Environmental Scientist	U.S. Environmental Protection Agency
United States	Mr. Earl Devaney	Director, Office of Criminal Enforcement	U.S. Environmental Protection Agency
United States	Mr. John Hall	Chairman	Texas Natural Resources Conservation Commission
United States	Mr. Steven Herman	Assistant Administrator	U.S. Environmental Protection Agency
United States	Mr. Jeffrey Lacey	Director, Division of Environmental Enforcement	New York State Department of Environmental Conservation
United States	Mr. Edwin Lowry	Deputy Attorney General	California Department of Justice
United States	Mr. Thomas Maslany	Director, Air, Radiation and Toxics Division	U.S. Environmental Protection Agency
United States	Ms. Ignacia Moreno	Special Assistant to the Assistant Attorney General	U.S. Department of Justice
United States	Mr. Ed Neafsey	Chief, Environmental Crimes Bureau	New Jersey Attorney General's Office
United States	Mr. LeRoy Paddock	Director of Environmental Policy	Minnesota Attorney General's Office
United States	Mr. Dean Paige	Industrial Waste Superintendent	City of Santa Rosa
United States	Ms. Lynn Peterson	Chief, Solid Waste and Emergency Response Branch	U.S. Environmental Protection Agency
United States	Mr. Oscar Ramirez	U.S./México Border Coordinator	U.S. Environmental Protection Agency
United States	Mr. John Rasnic	Formerly: Director, Stationary Source Compliance Division New Position: Director, Manufacturing, Energy and Transportation Division	U.S. Environmental Protection Agency
United States	Mr. Joel Reynolds	Senior Attorney	Natural Resources Defense Council
United States	Mr. John Rothman	Senior Attorney	U.S. Environmental Protection Agency
United States	Mr. Hector Russe Martínez	Chairman, Office of the President	Puerto Rico Environmental Quality Board
United States	Mr. Michael Stahl	Formerly: Director, Office of Enforcement New Position: Deputy Assistant Administrator, Office of Enforcement and Compliance	U.S. Environmental Protection Agency
United States	Ms. Shelda Sutton-Mendoza	Health Program Manager	New Mexico Environmental Department
United States	Mr. Richard Trinidad	Special Assistant to the Director	U.S. Environmental Protection Agency
United States	Mr. Robert Van Heuvelen	Director, Office of Regulatory Enforcement	U.S. Environmental Protection Agency
United States	Ms. Cheryl Wasseman	Associate Director for Policy Analysis	U.S. Environmental Protection Agency
United States	Mr. John Wise	Deputy Regional Administrator	U.S. Environmental Protection Agency

Country	Name	Title	Organization
<b>SOUTH AMERICA</b>			
Argentina	Mr. Daniel Hugo Llermanos	Juzgado de lo Criminal y Correccional #10	Del Departamento Judicial de Lomas de Zamora
Argentina	Ms. Cristina Elena Maiztegui	Coordinadora General	Ministerio de Salvo y Accion Social de la Provincia
Argentina	Mr. Jose Luis Puliafito	Director de Saneamiento y Control Ambiental	Ministerio de Medio Ambiente
Bolivia	Mr. Waldo Vargas Ballester	Sub-Secretario de Calidad Ambiental	Sustainable Development Ministry
Bolivia	Mr. Ricardo Cronembold	Director	Ministerio Desarrollo Sostenible y Medio Ambiente
Brazil	Mr. Nelson Vieira de Vasconcelos	Director/President	Companhia Estadua de Tecnica de Saneamiento Ambiental
Brazil	Mr. Edis Milaré	Secretary of State	Secretary of the Environment of the State of Sao Paulo
Chile	Mr. Hugo Romero	Coordinador	Universidad de Chile
Colombia	Mr. Germán Sarmiento Palacios	President	FUNDEPUBLICA
Colombia	Ms. Maria Teresa Szauer	Deputy Director, Environmental Enforcement Office	Ministry of Environment
Ecuador	Mr. Luis Carrera de la Torre	Presidente	Comision Asesor Ambiental de la Presidencia de la Republica
Ecuador	Ms. Lucia Solorzano Constantine	Sub-Secretaria del Medio Ambiente	Ministerio de Energia y Minas
Guyana	Mr. Kwesi Nkofi	Director of Environment Division	Guyana Agency for Health, Education and Environment (GAHEP)
Guyana	Mr. Joseph Govinda Singh	Brigadier	Guyana Defense Forces
Paraguay	Mr. Sebastian Jara	Ingeniero Quimico	Servicio Nacional de Saneamiento Ambiental (SENASA)
Paraguay	Mr. Bruno Enrique Reverchon	President	Comision Nacional de Ecologia, Recursos Naturales, Medio Ambiente
Uruguay	Mr. Marcelo Cousillas	Legal Advisor	Ministerio de Vivienda Orenamiento Territorial y Medio Ambiente
<b>CENTRAL AMERICA</b>			
Belize	Mr. Richard Belisle	Acting Chief Forest Officer	Government of Belize
Belize	Mr. Vincent Gillett	Fisheries Administrator	Ministry of Agriculture & Fishing
Costa Rica	Ms. Sandra Urbina Mohs	Directora de Asesoría Jurídica	Ministerio de Recursos Naturales, Energia y Mines
El Salvador	Mr. Guillermo Navarette Lopez		Secretaría Ejecutiva del Medio Ambiente (SEMA)
Guatemala	Mr. Jorge Mario del Valle Cruz	Jefe del Departamento de Planificación y Proyectos	Comision Nacional del Medio Ambiente (CONAMA)
Honduras	Ms. Clarisa Vega de Ferrera	Abogada y Notaria	Bufete Ferrera Vega.
Panama	Mr. Rodrigo Tarte	Director Ejecutivo	Fundacion NATURA - Panama
Panama	Mr. Ariel Vaccaro	Deputy General Director	Instituto Nacional de Recursos Renovables (INRENARE)

Country	Name	Title	Organization
<b>CARIBBEAN</b>			
Bahamas	Mr. Livingston Hepburn	Acting Deputy Director	Department of Environment Health Services
Bahamas	Mr. Carl Francis Smith	First Assistant Secretary	Ministry of Health and Environment
Barbados	Mr. Arthur Archer	Project Manager	Ministry of Health
Curacao	Mr. Quirino B. Richardson	Head of Environmental Services	Environmental Service
Dominican Republic	Mr. Grandersio Marizán Ubriña	Director, Nacional de Parques	Division de Parques
Jamaica	Mr. Fred Campbell	Deputy Executive Director	Natural Resources Conservation Authority
Jamaica	Mr. Norbert Campbell	Chief Public Health Inspector	Ministry of Health
Jamaica	Dr. Winston McCalla		Natural Resources Conservation Authority
St. Lucia	Mr. Marcel Fevrier	Chief Environmental Health Officer	Ministry of Health
St. Lucia	Mr. Brian James	Chief Forest and Land Officer	Ministry of Agriculture
St. Maarten	Mr. Louis Brown	Advisor	Island Government of St. Maarten N.A.
St. Vincent	Ms. Julian Sigbert Caruth	Chief Environmental Health Officer	Ministry of Health and Environment
<b>EUROPE</b>			
Denmark	Mr. Ole Kaae	Head of Section	Danish Environmental Protection Agency
Denmark	Mrs. Marianne Lassen	Head of Section	Danish Environmental Protection Agency
England	Dr. Douglas Bryce	Director, Pollution Policy Division	Her Majesty's Inspectorate of Pollution
England	Mr. Stefan Carlyle	Head, Environmental Assessment and Planning Policy	Her Majesty's Inspectorate of Pollution
England	Dr. David Slater	Director/Chief Inspector	Her Majesty's Inspectorate of Pollution
Germany	Dr. Eberhard Bohne	Head, Office of General Environmental Law	Federal Ministry for the Environment
Germany	Dr. Manfred Pütz	Professor, Dr.-Ing/Under Secretary of State	Raumordnung & Landwirtschaft des Landes Nordrhein-Westfalen
Norway	Ms. Gro Rødland	Head of Department	State Pollution Control Authority
Sweden	Ms. Inga Birgitta Larsson	Head of the Chemical Industry Section	Swedish Environmental Protection Agency
Sweden	Ms. Karin Thoran	Head of Inspection Division	National Chemical Inspectorate
The Netherlands	Mr. Hans Alders	Environment Minister	Ministry of Housing, Spatial Planning and the Environment
The Netherlands	Ms. Renée Bergkamp	Deputy Director of Legal Department	Ministry of Agriculture, Nature Management and Fisheries
The Netherlands	Mr. Jo Gerardu	Inspector, Inspectorate for the Environment	Ministry of Housing, Spatial Planning and the Environment
The Netherlands	Mr. Robert Glaser	Inspector, International Affairs	Ministry of Housing, Spatial Planning and the Environment
The Netherlands	Mr. Huub Kesselaar	Director, Inspectorate for the Environment	Ministry of Housing, Spatial Planning and the Environment
The Netherlands	Mr. Wout Klein	Regional Inspectorate Gelderland	Ministry of Housing, Spatial Planning and the Environment
The Netherlands	Mr. Menno Olman	Director of Regional Directorate of Rijkswaterstaat	Ministry of Water Management and Traffic
The Netherlands	Mr. Jan Peters	Commissioner	Regional Police Midden en West Brabant
The Netherlands	Mr. Jelis Peters	Directorate General Environment/B	Ministry of Housing, Spatial Planning and the Environment



Country	Name	Title	Organization
The Netherlands	Dr. Jan J.M. Tindemans	Gedeputeerde Provincie Limburg	Provincial Government of Limburg
The Netherlands	Mr. Jaap van Dyk	Gedeputeerde Provincie Groningen	Provincial Government of Groningen
The Netherlands	Mr. Paul A.E. van Erkelens		Waterschap Regge En Dinkel
The Netherlands	Mr. Joost van Kasteren	Journalist	
The Netherlands	Ms. Gisèle van Zeben	Public Prosecutor	Staatsbureau Openbaar Ministerie
The Netherlands	Mr. Jan C.M. Veenman	Head, Information and Public Relations Department	Ministry of Housing, Spatial Planning and the Environment
The Netherlands	Mr. Pieter Verkerk	Inspector General, Inspectorate for the Environmental	Ministry of Housing, Spatial Planning and the Environment

**CENTRAL/EASTERN EUROPE**

Bulgaria	Ms. Liliانا Maslarova	Legal Expert	Bulgarian Ministry of Environment
Bulgaria	Mr. Branimir Natov	Deputy Minister	Bulgarian Ministry of Environment
Czech Republic	Mr. Václav Mezick	Director/Professor	Charles University
Hungary	Prof. Gyula Bánci	Professor of Law	University Eotvos Lorand/Hungarian Academy of Attorneys
Hungary	Dr. Sándor Fülöp	Attorney at Law	Ruttner & Partners
Hungary	Dr. Istvan Gellerthegy	Permanent Legal Counsel	University Eotvos Lorand
Hungary	Mr. Róbert Reiniger	Head	National Authority for the Environment
Poland	Mr. Zbigniew Kamiński	Director of Control Department	State Inspectorate for Environmental Protection
Poland	Mr. Piotr Syrczynski	Coordinator	Ministry of Privatization
Poland	Mr. Stanislaw Wajda	Legal Advisor, EC Phare Programme	Ministry of Environmental Protection
Romania	Dr. Dumitra Popescu	Professor of Law	Institute of Legal Research
Slovak Republic	Mr. Ján Smolen	Director, Department of Environmental Projects	Ministry of the Environment of the Slovak Republic
Slovak Republic	Ms. Lubomíra Zimanová	State Secretary	Ministry of the Environment of the Slovak Republic

**NEWLY INDEPENDENT STATES OF THE FORMER SOVIET UNION**

Kazakhstan	Mr. Anatoli Ivanovich Lychyov	Deputy Chief of Main State Ecological Expertise	Ministry of Ecology and Bioresources
Latvia	Mr. Janis Zirnis	Deputy Director of Projects Department	Ministry of the Environment and Regional Development
Russia	Dr. Mikhail Brinchuk	Doctor of Juridical Sciences	Russian Academy of Sciences
Russia	Dr. Olga Dubovic	Doctor of Juridical Sciences	Institute of State and Law
Russia	Dr. Aleksander Grigorievich Veprev	Department Head	Oblast Committee for Environmental Protection
Russia	Mr. Yuri Leonidovich Maksimenko	Director	Ministry for Environment and Natural Resources
Russia	Mr. Mikhail V. Tolkachev	Deputy Minister	Ministry for Environment and Natural Resources
Ukraine	Mr. Andriy Demydenko	Director, Department for International Relations	Ministry for Environmental Protection of Ukraine
Ukraine	Mr. Yuri Ruban	First Deputy Minister	Ministry for Environmental Protection of Ukraine

Country	Name	Title	Organization
<b>AFRICA</b>			
Benin	Dr. Alao Yekini Akala	Chief, Studies and Legislation Department	Ministère de l'Environnement de l'Habitat et de l'Urbanisme
Benin	Mr. Damien Houeto	Directeur Direction de l'Environnement	Ministère de l'Environnement de l'Habitat et de l'Urbanisme
Egypt	Dr. Ossama El-Kholy	Professor Emeritus	Cairo University
Kenya	Mr. David Kinyanjui	Senior Ecologist	National Environment Secretariate
Nigeria	Dr. Adegoke Adegoroye	Deputy Director and Head of Enforcement	Federal Environmental Protection Agency
Nigeria	Dr. Modupe Taiwo Odubela	Assistant Director	Federal Environmental Protection Agency
Nigeria	Ms. Titilayo Iyabo Ojo	Assistant Director	Office of Environment and Physical Planning
Nigeria	Mr. Oritsetimeyin Omagbemi Uwejamomere	Housing and Environment Correspondent	The Guardian
Tanzania	Mr. Wilson Masilingi	Senior Legal Officer	National Environment Management Council
Uganda	Mr. Lamex Omara Apitta	Assistant Secretary	Ministry of Natural Resources
Uganda	Mr. Henry Muganywa Kajura	Cabinet Minister	Ministry of Natural Resources
<b>ASIA</b>			
China	Mr. Hu Baolin	Director, Department of Policy and Law	National Environmental Protection Agency
China	Mr. Zhang Hongjun	Deputy Director, Laws Division	National People's Congress
China	Ms. Zhao Ying	Program Officer	National Environmental Protection Agency
Indonesia	Mr. Pak Moestadji	Lawyer	State Ministry for Environment
Indonesia	Mr. Achmad Santosa	Executive Director	Indonesian Center for Environmental Law
Indonesia	Ms. Sulistyowati	Chemical Engineer	Environmental Impact Management Agency
Malaysia	Mr. Hashim Daud	Director, Department of Environment	Ministry of Science, Technology and Environment
Malaysia	Mr. Jalaluddin Bin Ismail	Director	Department of Environment
Philippines	Ms. Rachel Vasquez	Assistant Director	Environmental Management Bureau
Sri Lanka	Mr. W.A.D.D. Wijesooriya	Senior Environmental Scientist	Central Environmental Authority
Thailand	Mr. Pomchai Taranatham	Deputy Director General	Department of Pollution Control
<b>INTERNATIONAL</b>			
	Ms. Clare Delbridge	Consultant	United Nations Environment Programme IE/PAC
	Ms. Michele de Nevers	Principal Environment Coordinator	World Bank
	Mr. William Eichbaum	Vice President, International Environmental Quality	World Wildlife Fund
	Mr. Leo Heileman	Programme Officer	United Nations Environment Programme-Mexico
	Mr. Soren Harald Klem	Specialized Officer	I.C.P.O. - INTERPOL, General Secretariate
	Mr. Ludwig Krämer	Lawyer	DG Environment, Nuclear Safety and Civil Protection
	Mr. Andrew Mastrandonas	Executive Director	Global Environmental Management Initiative (GEMI)

Country	Name	Title	Organization
	Mr. Gil Nolet	Legal Specialist	Inter-American Development Bank (IADB)
	Mr. Gary Page	Director of Loss Prevention and Audits	American Cyanamid Company
	Mr. Arsenio Rodriguez Mercado	Director/Regional Representative	United Nations Environment Programme-México
	Mr. Richard Saunier	Environmental Management Advisor	Organization of American States (OAS)
	Mr. John Skinner	Senior Advisor	United Nations Environment Programme IE/PAC
	Mr. William J. Vaughan	Senior Economist	Inter-American Development Bank (IADB)



---

**MEMBERS OF THE EXECUTIVE PLANNING COMMITTEE****Dr. Adegoke Adegroye**

Head of Enforcement & Inspectorate Department  
Federal Environmental Protection Agency  
PMB 265  
Garki-Abuja, FCT  
Nigeria

Tel: 234-9168-0308

Fax: 234-161-4299

**Mr. Mariano Palacios Alcocer**

Federal Attorney  
Procuraduría Federal de Protección al Ambiente  
La Secretaría de Desarrollo Social (SEDESOL)  
Boulevard del Pípila #1  
Techamchalco, Naucalpan  
53950, Estado de México  
México

Tel: 525-589-5539

Fax: 525-589-0775

**Dr. Santiago Oñate Laborde**

former Federal Attorney

**Mr. Mario Aguilar**

Embajada de México  
Oficina de SEDESOL  
1911 Pennsylvania Avenue, NW  
Washington, DC 20006  
USA

Tel: 1-202-728-1777

Fax: 1-202-728-1781

**Mr. Arturo Alcocer Lujambio**

Subprocurador de Participación  
Social y Quejas  
Procuraduría Federal de Protección al Ambiente  
La Secretaría de Desarrollo Social (SEDESOL)  
Boulevard del Pípila #1  
Techamchalco, Naucalpan  
53950, Estado de México  
México

Tel: 525-589-8559

Fax: 525-294-2687

**Mrs. Jacqueline Aloisi de Lardere**

Director, IE/PAC  
United Nations Environmental Programme  
39-43 Quai André Citroën  
Paris Cedex 15 75739  
France

Tel: 331-4437-1450

Fax: 331-4437-1474

**Mr. William M. Eichbaum**

Vice President, International Environmental Quality  
World Wildlife Fund  
1250 24th Street, NW  
Washington, DC 20037-1175  
USA

Tel: 1-202-778-9645

Fax: 1-202-293-9345

**Ms. Nancy Hopps**

Project Officer

Tel: 1-202-778-9716

Fax: 1-202-293-9211

**Mr. Steven A. Herman**

Assistant Administrator  
Office of Enforcement and Compliance Assurance  
U.S. Environmental Protection Agency  
401 M Street, SW (MC-2211)  
Washington, DC 20460  
USA

Tel: 1-202-260-5145  
Fax: 1-202-260-0500

**Mr. Scott C. Fulton**

Deputy Assistant Administrator

Tel: 1-202-260-4137  
Fax: 1-202-260-0500

**Ms. Cheryl Wasserman**

Associate Director for Policy Analysis

Tel: 1-202-260-4486  
Fax: 1-202-260-0129

**Ms. Nadine Levin**

Office of Enforcement  
Environment Canada  
551 St. Joseph Boulevard  
18th Floor P.V.M.  
Hull, Quebec K1A 0H3  
Canada

Tel: 1-819-953-0331  
Fax: 1-819-953-3459

**Dr. Jorge Litvak**

Scientific Attaché  
Embassy of Chile  
1717 Massachusetts Avenue, NW  
Suite 802  
Washington, DC 20036  
USA

Tel: 1-202-588-0033  
Fax: 1-202-588-0036

**Dr. Winston McCalla**

40 East Street  
Kingston  
Jamaica

Tel: 1-809-922-1217  
Fax: 1-809-922-5202

**Mr. Pak Moestadji**

State Ministry for Population and Environment  
N. Medan Mendeka Barat 15  
Jakarta 12440  
Indonesia

Tel: 6221-374-4563  
Fax: 6221-570-3365

**Mr. Luis R. Padrón**

Dirección General Sectorial de Vigilancia y Control Ambiental  
Ministerio del Ambiente y de los  
Recursos Naturales Renovables  
Piso 19, Torre Sur Centro Simón Bolívar  
Caracas  
Venezuela

Tel: 582-408-1461  
Fax: 582-483-3190

**Ms. Sandra Urbina Mohs**

Ministerio de Recursos Naturales,  
Energía y Minas  
Buzón 10104-1000  
San José  
Costa Rica

Tel: 506-55-14-92

Fax: 506-57-06-97

**Mr. Pieter J. Verkerk**

Inspector General  
Inspectorate for the Environment  
Ministry of Housing, Spatial Planning and  
the Environment (VROM)  
IPC 680  
P.O. Box 30945  
2500 GX DEN HAAG  
The Netherlands

Tel: 3170-339-4621

Fax: 3170-339-1298

**Mr. Jo Gerardu**

Inspector  
Inspectorate for the Environment  
Ministry of Housing, Spatial Planning and  
the Environment (VROM)  
IPC 681  
P.O. Box 30945  
2500 GX DEN HAAG  
The Netherlands

Tel: 3170-339-1166

Fax: 3170-339-1300

**Mr. Rob Glaser**

Inspector  
International Affairs  
HIMH/VROM  
Ministry of Housing, Spatial Planning and  
the Environment (VROM)  
P.O. Box 7073  
4330 GB Middelburg  
The Netherlands

Tel: 3111-803-3792

Fax: 3111-802-4126

**Mr. Huub F. Kesselaar**

Ministry of Housing, Spatial Planning and  
the Environment (VROM)  
IPC 681  
P.O. Box 30945  
2500 GX DEN HAAG  
The Netherlands

Tel: 3170-339-1167

Fax: 3170-339-1300

---

**EXECUTIVE PLANNING COMMITTEE STAFF****Ms. Cheryl Wasserman**

Associate Director for Policy Analysis  
U.S. Environmental Protection Agency  
401 M Street, SW (MC-2251)  
Washington, DC 20460  
USA

Tel: 1-202-260-4486  
Fax: 1-202-260-0129

**Ms. María T. Malavé**

Tel: 1-202-260-7341

**Mr. Jo Gerardu**

Inspector  
Inspectorate for the Environment  
Ministry of Housing, Spatial Planning and  
the Environment (VROM)  
IPC 681  
P.O. Box 30945  
2500 GX DEN HAAG  
The Netherlands

Tel: 3170-339-1166  
Fax: 3170-339-1300

**Ms. Nancy Hopps**

Project Officer  
World Wildlife Fund  
1250 24th Street, NW  
Washington, DC 20037-1175  
USA

Tel: 1-202-778-9716  
Fax: 1-202-293-9211

Logistics Coordinator:

**Ms. Trisha L. Hasch**

Vice President and Manager  
Conference Services  
Eastern Research Group, Inc.  
110 Hartwell Avenue  
Lexington, MA 02173-3198  
USA

Tel: 1-617-674-7384  
Fax: 1-617-674-2906



## ACKNOWLEDGMENTS

The Third International Conference of Environmental Enforcement in Oaxaca, México, was made possible by the personal and financial contributions of many organizations and individuals. An Executive Planning Committee (EPC), whose membership is listed in these Proceedings, provided leadership and direction in the design of the program, selection of the speakers and topic experts, and identification of individuals from a range of nations who would be in the best positions to share practical experience in environmental enforcement and to improve or develop domestic compliance and enforcement programs. The Executive Planning Committee included representatives from U.S. Environmental Protection Agency (U.S. EPA), the Netherlands Ministry of Housing, Spatial Planning and the Environment (VROM), the World Wildlife Fund U.S. (WWF), United Nations Environment Program (UNEP IE/PAC), México's Procuraduría Federal de Protección al Ambiente (SEDESOL), and Environment Ministries of Canada, Chile, Costa Rica, Venezuela, Jamaica, Nigeria, and Indonesia.

The World Wildlife Fund U.S. served as the umbrella organization for conference funding and organization. Funding of the conference logistics, planning, and workshop development was provided by the conference sponsors: U.S. EPA, VROM, UNEP IE/PAC, and WWF. In addition to the conference sponsors, funding of participants was gratefully received from the U.S. Asia Environmental Partnership for participants from Asia and from Environment Canada for participants from other regions in the world. The U.S. Agency for International Development also contributed to preparation of the Principles of Environmental Enforcement workshop and technical support documents. Special hospitality also was graciously offered by the government of México as host country. In particular, we want to offer a note of thanks to Mr. Arturo Alcocer for his generous support, his time and effort on behalf of SEDESOL, to make this conference a success, and to the Oaxaca City Tourism Office and Cantera Tours for their assistance and support in planning the conference logistics.

A centerpiece of this conference was the launching of several new international workshops. A special acknowledgment to the World Wildlife Fund subgrantees Apogee Research (Mr. Ken Rubin, Principal; Mr. Rick Sturgess; and Mr. Mark Corrales), and TLI Systems (Mr. Matt Low, Principal; Ms. Tiffin Shewmake; and Ms. Marda Mayo) for the development of the five new Principles of Environmental Enforcement Workshop case studies and technical support documents with the primary technical support of Ms. Cheryl Wasserman and other reviewers from the EPC and U.S. EPA. Special recognition for the development of the UNEP IE/PAC workshop manual and training materials go to VROM/UNEP subcontractors PRC Environmental Management Inc., (Mr. Firouz Rouani, Principal; Ms. Sue Patterson; Mr. Andy Johnson; and Mr. Mark Evans), under the direction of Mrs. Jacqueline Aloisi de Larderel, UNEP IE/PAC and Mr. Rob Glaser and Mr. Jo Gerardu of VROM in cooperation with U.S. EPA and an Advisory Group including Dr. Rene Altamirano, SEDESOL, México; Dr. Ossama El-Kholy, Egypt; Mme. Odile Gauthier Natta, Ministère de l'Environnement, France; Mr. Jo Gerardu, VROM, the Netherlands; Mr. Rob Glaser, VROM, the Netherlands; Mr. Zbigniew Kamienski, State Inspectorate for Environmental Protection, Poland; Mrs. Jacqueline Aloisi de Larderel and Ms. Nancy Bennett, UNEP IE/PAC; Mr. Sun Li, Environmental Law Institute/PAC; and Ms. Cheryl Wasserman, U.S. EPA.

Finally, a note of thanks to the conference speakers, topic experts, moderators, facilitators, and rapporteurs, and those who volunteered to prepare papers, all of whom are colleagues making a special effort to share their experiences and help facilitate our exchanges at the conference. Special thanks to those contributing materials for the conference exhibits, and to EPA's Region 6 staff in Dallas, Texas, for the display on inspection equipment.

Primary staff support to the Executive Planning Committee and to the World Wildlife Fund was provided by Mr. Jo Gerardu of VROM and Ms. Cheryl Wasserman of U.S. EPA who were responsible for creating and staffing the Executive Planning Committee, drafting the conference program and materials, editing the proceedings, and preparing concluding remarks. Ms. Nancy Hopps (WWF), Ms. María Malavé

(U.S. EPA), and Mr. Jo Gerardu (VROM) served as project managers under the funding agreements. A special note of appreciation for the excellent support for complex EPC meeting and conference logistics, assistance to the EPC in researching possible candidates for conference participant invitations, communications with officials from over 100 countries and organizations, and preparation of the proceedings for publication, directed by WWF subgrantee Eastern Research Group, Inc. (Ms. Trisha Hasch, Principal; Ms. Susan Abbott; Ms. Elaine Brenner; Mr. David Bronkema; and Mr. Christopher Murray).

*Cover design based on an original concept by Joke Krul, The Netherlands  
Desktop publishing by Ms. Mary Mahoney, Eastern Research Group, Inc.  
Printing by Mr. Richard Harding, Universal Congraf Printing*