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**Office of International Activities
U.S. Environmental Protection Agency**

January 1977

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Office of International Activities
Environmental Protection Agency
January 1977

Environmental Protection Agency
Region
200 South Dearborn Street
Chicago, Illinois 60604

PREFACE

This is a brief report on the organization and management of environmental activities on the national level in the Federal Republic of Germany. Reports on Japan, Luxemburg, Belgium, Great Britain, the Netherlands, Spain and Australia have already been distributed. Similar reports on other countries will be available soon. These reports, which are background papers for EPA staff involved in international activities, are not for distribution outside the Agency.

Emphasis is on policy and regulatory functions of national environmental agencies. Research and development, often under the auspices of other departments, for example, science and technology, are not covered in these reports.

Source documents for the reports, received under the International Documents Exchange, are available in the EPA Headquarters Library. English summaries of the foreign documents are published in the monthly bulletin "Summaries of Foreign Government Environmental Reports."

TABLE OF CONTENTS

	<u>Page</u>
I. National Organization for Environmental Control	1
II. Environmental Laws	8
III. Standards	21
IV. Enforcement Procedures	36
V. Interrelationships Between Government and Industry	47
VI. Case History	54
Reference Notes	56
Bibliography	60
Appendix	61

E N V I R O N M E N T A L C O N T R O L I N
T H E F E D E R A L R E P U B L I C O F G E R M A N Y

I. National Organization for Environmental Control
overall government structure

The government of the Federal Republic of Germany is organized on a federal basis. The constitution [Grundgesetz] divides power between the federal government [Bund] and the eleven federal Lands [Länder], with the former generally having both legislative and administrative competence in areas of national concern such as defense and interstate transportation and the state governments maintaining control either exclusively or within a general framework set by the federal government in matters of more strictly regional or local concern.

The federal executive function is divided between the Federal President, who as head of state performs chiefly ceremonial functions, and the Federal Chancellor, an elected member of the Federal Diet [Bundestag] and usually the leader of the predominant party in that body. As head of government, the Federal Chancellor heads the nine-member policy-making federal cabinet.

The chief legislative body is the popularly elected Federal Diet [Bundestag]. The Federal Council [Bundesrat], selected by and composed of members of the Land governments, plays a predominantly advisory role, although its approval is required for certain types of legislation as well as for those federally issued regulations and ordinances affecting the interests of the Lands.

national environmental control agency

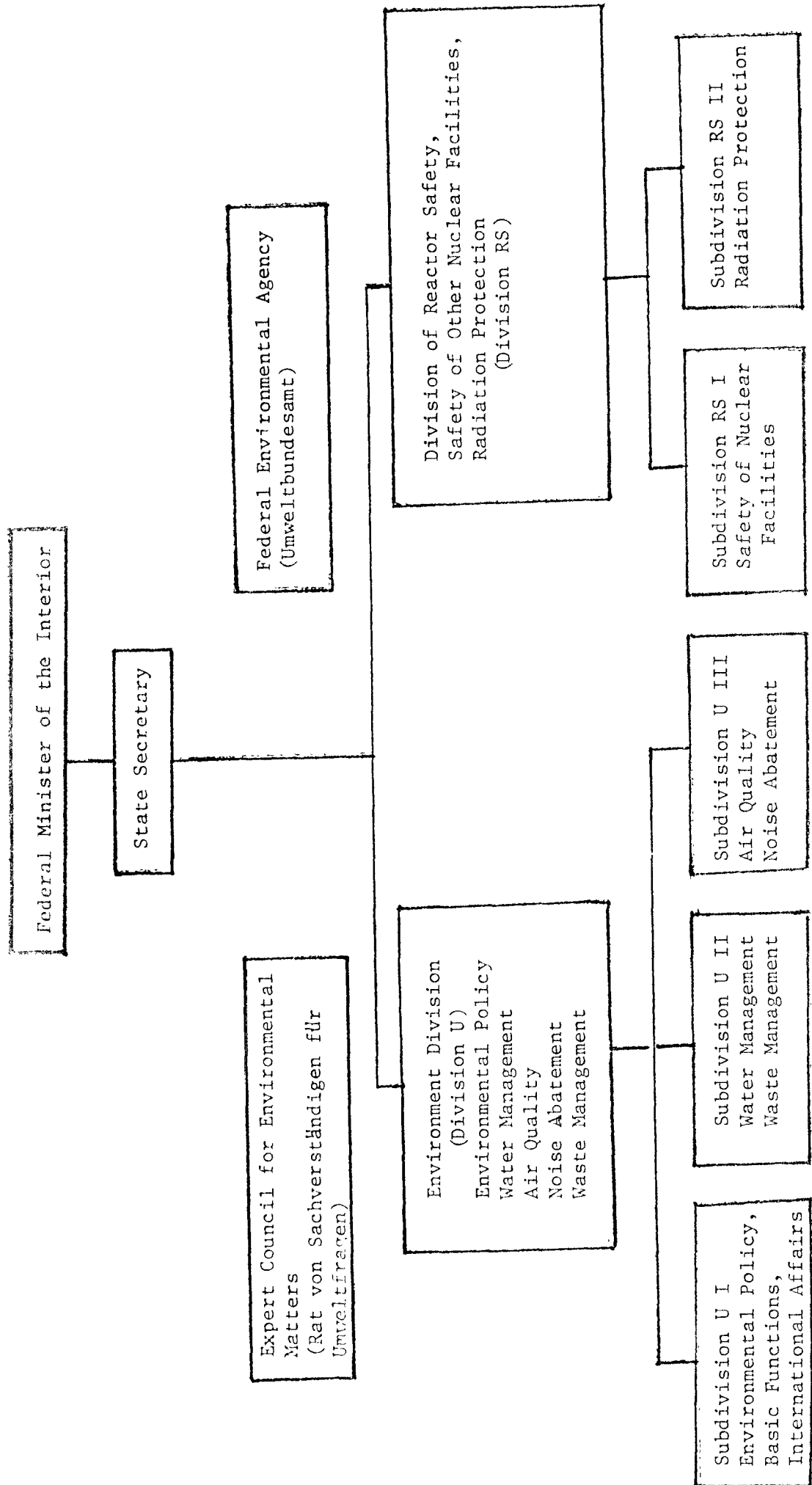
There is in the Federal Republic of Germany no federal environmental ministry, and there are no immediate plans for establishing one. The responsibilities for environmental matters are divided among various ministries, with the Federal Ministry of the Interior having the most important policy-making and

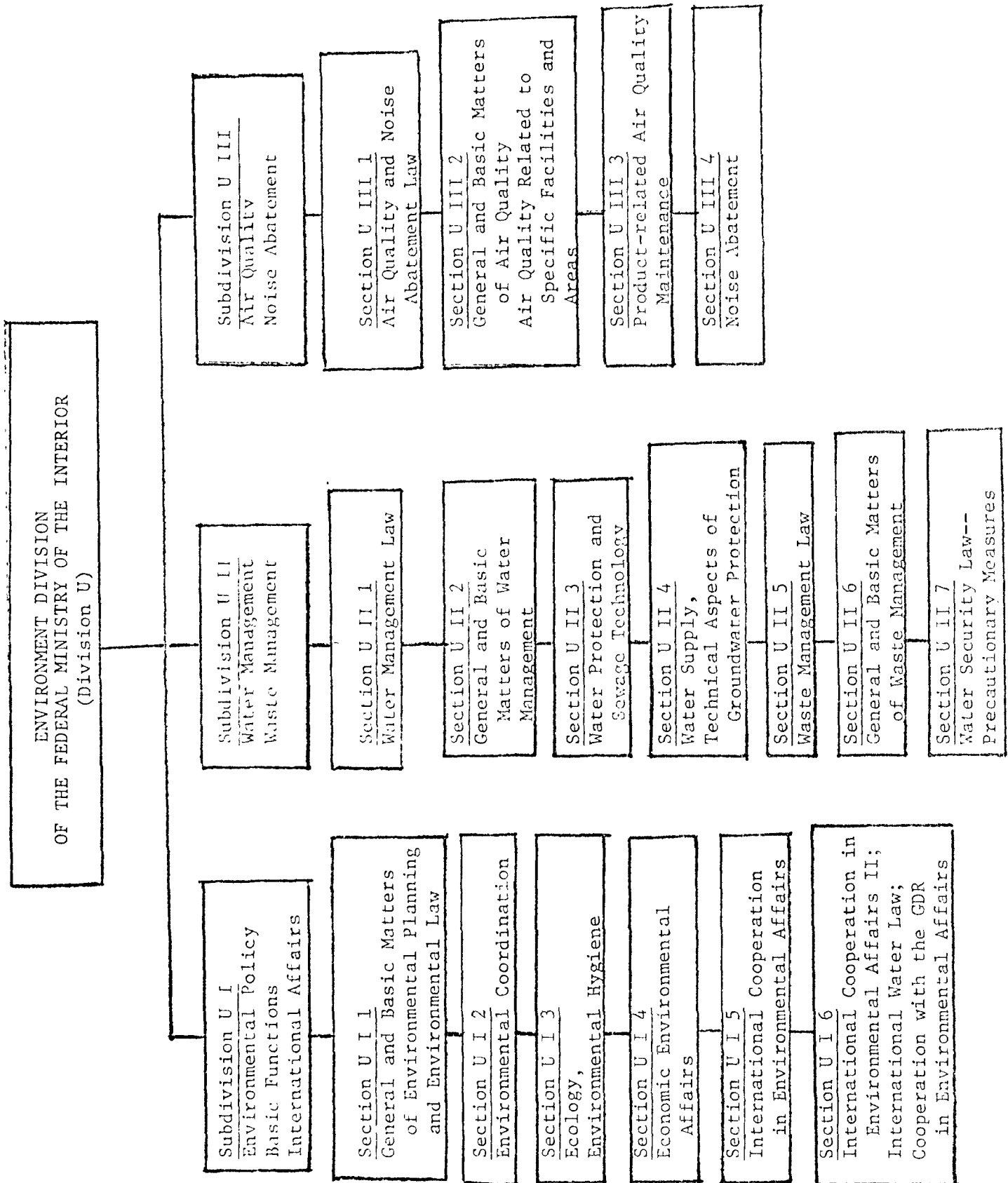
coordinating functions in this area.

The Environment Division (Abteilung-U) of the Federal Ministry of the Interior was established in late 1969, after the Ministry had taken over from the Federal Ministry of Health responsibilities for water management, air quality maintenance and noise control and from the Ministry of Research and Technology responsibility for nuclear reactor safety. Although its initial concerns were of a technical nature, it soon turned its attention to environmental policy and planning, bearing the major responsibility for drafting the federal government's Environmental Program and preparing much of the country's important environmental legislation. The Division is also responsible for working out regulations based on guidelines produced by such organizations as the Association of German Engineers (Verein deutscher Ingenieure-VDI). It has, however, no enforcement functions.

Having undergone several structural changes since its inception, the Environment Division presently consists of three subdivisions. Subdivision I (Environmental Policy Concerns) has six sections, responsible for such matters as: general environmental policy; planning and legal concerns; environmental coordination; ecology and environmental hygiene; economic matters; and international cooperation. The seven sections comprising Subdivision II (Water Management, Waste Management) are variously concerned with: water management law; water management policy, water protection and wastewater technology; water supply and technical aspects of groundwater protection; waste management law; waste management policy; and matters dealing with the Water Security Law. Subdivision III (Air Quality Maintenance and Noise Control) has four sections, dealing with: air pollution and noise control law; general and policy matters of air quality maintenance; product-related air quality maintenance; and noise control. Reactor safety and radiation protection, once a concern of the Environment Division, are now handled by a separate division of the Federal Ministry of the Interior with two subdivisions and a total of eleven sections. [See organizational chart, pages 2a and 2b]

ENVIRONMENT DIVISION AND REACTOR SAFETY DIVISION OF
THE FEDERAL MINISTRY OF THE INTERIOR





Federal Environmental Agency

The Federal Environmental Agency (Umweltbundesamt) was established by law in July 1974 as an independent federal agency within the jurisdictional competence of the Federal Ministry of the Interior. The Agency, located in Berlin, is intended to serve as a central coordinating office to ensure more effective cooperation among existing federal institutions and installations involved in environmental protection. Among the functions assigned to the Agency are: the development and coordination of federally funded environmental research; support and cooperation in testing the environmental impact of federal activities; the development and direction of an environmental information system; and public environmental education. Although the Agency is charged with providing scientific support for the Federal Ministry of the Interior in the development of environmental regulations and standards, it has no regulatory or enforcement powers.

The Agency's Information System for Environmental Planning (Umweltplanungsinformationssystem: UMPLIS) is designed to collect and disseminate information needed by environmental planners in both the public and private sectors. The system is conceived less as a data bank than as a means of directing users to existing information sources or organizations working in the area.^{1*} As part of UMPLIS, the Agency has compiled an Environmental Research Catalog (Umweltforschungskatalog 1975: UFOKAT '75), which lists and gives brief descriptions of approximately 3700 environmentally related research projects and will be updated annually.

The Agency, originally scheduled to employ 800 persons, has now been budgeted for 450 employees. It currently has a staff of 360.²

Expert Council for Environmental Matters

The Expert Council for Environmental Matters (Rat von Sachverständigen

*All reference notes will be found beginning on page 56.

für Umweltfragen), established in December 1971, is an advisory group responsible to the Ministry of the Interior. Consisting of a maximum of twelve members representing various fields of expertise, the Council is charged with assessing the environmental situation, indicating undesirable developments, and making suggestions for eliminating them. The Council has, in this capacity, produced a major assessment of environmental problems and recommendations for dealing with them and specialized reports on the impact of the automobile, the sewage fee, and the problems of the Rhine River.

other federal agencies

Although recent major environmental incentives have come from the Ministry of the Interior, other federal ministries have competencies in important spheres of environmental protection. The Ministry of Transport is active in matters involving air and noise pollution from automobiles and also has the ultimate responsibility for the maintenance, planning, construction and extension of federal waterways. Under this Ministry, for example, is the German Hydrographic Institute, located in Hamburg, which is not only responsible for the detection, measurement and monitoring of pollutants in the marine environment, but also grants permission for the dumping of waste in the open sea. The Ministry for Food, Agriculture and Forestry is involved with problems of possible pollution of water, air and soil by agriculture and forestry as well as in nature conservation and landscape management. Responsible to this Ministry is the Federal Center for Biological Research in Agriculture and Forestry, whose Institute for Pesticide Research analyzes the impact and side effects of pesticides on plants, soil and water and whose Laboratory for the Examination of Chemicals is responsible for the testing of all chemicals used for plant protection and pest control. The Ministry for Youth, Family Affairs and Health has certain responsibilities in the areas of environmental health, control of toxic substances and radiation protection. It works, for instance, through its

research institutions such as the Institute of Water, Soil and Air Hygiene and its Division of Radiation Hygiene. The Federal Ministry for Research and Technology is involved in research and development relating to, for example: the effects of pollutants and their degradation in the air, in water, in the soil and in the sea; measuring techniques; and the development of new processes for the treatment of water, the purification of wastewater, the disposal and recycling of wastes and the management of air quality.

Other federal ministries with some involvement in environmental matters include the ministries for: Foreign Affairs; Finance; Economics; Labor and Social Affairs; Defense; Regional Planning, Building and Urban Development; and Economic Cooperation.

Environmental policies and draft laws of the various ministries are discussed and coordinated in the Committee of Ministers for Environmental Questions (Kabinettausschuss für Umweltfragen), the so-called Environmental Cabinet (Umweltkabinett), chaired by the Federal Minister of the Interior and containing representatives of most of the other federal ministries. Under the Committee is the Permanent Board of the Heads of Divisions for Environmental Questions (Ständiger Abteilungsleiterausschuss für Umweltfragen) consisting of the senior officials working on environmental questions from the various federal ministries and authorities. They may establish committees or working groups to investigate and work out solutions to specific problems relating to the environment. The Federal Minister of the Interior may also participate in the preparation of legislation or administrative policies by other ministries if environmental interests may be involved.³

federal-state relationships

Each of the eleven German Lands (Länder) has its own government, consisting in most cases of a cabinet headed by a Minister-President chosen by members of the popularly elected Land legislature. Although competency in the environmental

field is somewhat dispersed among the ministries within the various Lands, all Lands have designated a particular ministry to be responsible for general environmental policy matters and for coordination of environmental activities. In Baden-Wuerttemberg, for example, it is the Ministry of Food, Agriculture and the Environment, in North-Rhine Westphalia, the Minister of Labor, Health and Social Affairs, and in Bavaria, the Minister of State for Town and Country Development and Environmental Affairs.

As projected by the federal government, environmental tasks in the Federal Republic are to be distributed between the federal and Land governments in such a way that the federal government concentrates on legislation and establishment of standards and regulations, as well as on supra-regional environmental policy and support of research and development, while the Land governments, apart from the task of providing additional legislation or regulations required under federal framework legislation, assume the following responsibilities:

1. law enforcement: recruiting, training and assignment of expert and administrative personnel; organization of the administration of environmental protection; establishing and outfitting the offices as well as the monitoring and measuring institutes;
2. provision of research facilities as advisory bodies of the executive organs;
3. inclusion of environmental protection in the political plans and decisions on federal Land level, regional and local level (including structural and economic planning);
4. issue of environmental protection standards under the federal law for special problems in individual parts of the area of the federation (smog alarm plans; protective measures for regions requiring special protection; cultural treasures, health resorts, etc.).⁴

Although the role of the federal government is limited in the areas of water management and land use, this distribution of functions already largely holds true for the areas of air pollution control, noise control, waste disposal management, radiati

protection and pesticides control.

There are several instances of Federal-Land cooperation in environmental matters. The Federal Ministry of the Interior cites cooperation in numerous federal-Land panels of environmental experts. For the consideration of environmental policy matters, for example, there exists a standing committee composed of departmental representatives of various Land and federal ministries.⁵ There have, furthermore, been several conferences of the Land and federal ministers responsible for environmental affairs. At such a conference in April 1974, the ministers agreed upon a plan for issuing a Catalog of Environmental Fines, which would set a federally uniform system of fines for violations of environmental regulations.⁶

There are also instances of cooperation between the various Land governments in environmental affairs. For example, the Joint Working Panel of the Lands on Water (LAWA) serves as a permanent forum for the exchange of knowledge among the highest Land water authorities and for the formulation of joint solutions in water management.⁷

II. Environmental Laws overall legislative system

German law, like French law and in contrast to British law, is code law rather than case law. Thus statutory laws are designed in such a way as to provide a comprehensive source for court findings.

The power to make laws lies with the Lands, providing that power is not reserved in the Constitution [Grundgesetz] to the federal government. The same situation holds for the implementation of laws.

Federal legislative power is of three sorts. In certain areas such as defense, currency regulation, and the postal service, the federal government has exclusive legislative power. In areas in which concurrent legislative power exists, the Lands have legislative power only to the extent to which it is not utilized by the federal government; this includes the areas of air purity maintenance, noise control, waste disposal, radiation protection, and pesticides control. In other areas, including water management, federal legislative power is limited to the passing of laws designed to serve as a framework for land legislation.

Since the establishment of the Federal Republic in 1949, most federal draft laws have originated in the departmental ministries of the federal government. Such laws must be sent to the Federal Council for comment. Laws may also originate in the Federal Council or in the Federal Diet. All laws are voted on by the popularly elected Federal Diet after preparatory work in the various specialty committees of the Diet. The Interior Committee, for example, played an important role in giving final form to the 1974 Federal Nuisances Control Law. Most laws are passed by a simple majority after three readings, although constitutional changes, such as that which has been sought to grant the federal government concurrent legislative power in the area of water management, demand a two-thirds

majority. However, no law can alter the basic rights granted in the Constitution.

Those laws which affect Land interests, among others, environmental laws, require the approval of the Federal Council. In other cases, Federal Council approval is not required.⁸

highlights of environmental legislation

general

The federal government was granted concurrent legislative power in the area of radiation control by the Law of December 23, 1959 to Amend the Constitution and in the areas of air quality maintenance, noise abatement and waste removal by the April 12, 1972 Thirtieth Law To Amend the Constitution (Article 74 - Environmental Protection).^{*} Since then major federal laws have been passed in these areas. The federal government maintains only framework legislative power in the area of water management, however, so that many important water provisions are contained in Land laws passed in conformance to general provisions of the federal Water Management Law of 1957. For years the federal government has sought an amendment to the Constitution granting it concurrent legislative power in the area of water management in order to obtain increased uniformity in national water legislation.⁹ However, the Lands have been reluctant to relinquish their competence in this area. The federal government's latest attempts in this direction ended in compromise with the April 26, 1976 Fourth Amendment to the Water Management Law, which provides for cooperation between the federal government and the Lands in regulating the discharge of wastewater and in establishing Land water management plans. It is thus regarded as a step toward further national uniformity in water management.¹⁰

water

The July 27, 1957 Federal Water Management Law, as amended, contains general provisions dealing with ground, surface and coastal waters. It defines water use, specifies conditions under which permission for water use is necessary,

^{*}All laws and regulations discussed in this profile are listed in the appendix, beginning on page 61.

provides for the establishment of water protection zones, requires permission from the competent authorities for the construction and operation of pipelines to convey substances harmful to water quality, places conditions on the use and quality maintenance of surface, ground and coastal waters and provides for the establishment of water management plans. The federal government is empowered to issue statutory orders, subject to the approval of the Federal Council, specifying the technical requirements for pipeline installations conveying water-endangering substances.

The most recent changes in the 1957 law are contained in the April 26, 1976 Fourth Law To Amend the Water Management Law. It specifies that permits for the discharge of sewage may only be issued if the quantity and noxiousness of the sewage is held to a minimum using procedures conforming to "generally recognized rules of technology." The federal government, with approval of the Federal Council, may issue general administrative guidelines describing minimum requirements for discharged sewage. Land governments are to establish water management plans for surface waters in their jurisdictions to protect present and future sources of water supply and to allow national observance of international obligations. The federal government, again with approval of the Federal Council, may issue general administrative guidelines in regard to the water quality provisions that should be included in Land water management plans. The amendment also contains regulations for the storage and transfer of water-endangering substances and directs certain installations to employ a company official to oversee water protection measures.

Land water management laws fill in the federal framework provided by the 1957 Federal Water Management Law. The May 22, 1962 Water Law for North Rhine-Westphalia affords an example of the existing Land laws. It designates those authorities entitled to own water bodies; regulates the use of waters, water supply facilities and water purification installations; provides for the maintenance of surface waters, dikes and dams; authorizes compensation for damages; and requires

the maintenance of waste records.¹¹

Provisions intended to encourage potentially polluting establishments to pre-treat their wastewaters are contained in the September 13, 1976 Law Regarding Fees for the Discharge of Sewage Into Water Bodies (Sewage Fee Law), which imposes a fee on the discharged sewage, effective January 1, 1981. The fee, to be collected and administered by the Lands, is to equal 12 marks per polluting entity the first year, and is to increase each year until it reaches 40 marks per polluting entity in 1986. A polluting entity is defined in the law in terms of sewage quantity, percentage of degradable substances present, percent of oxidizable substances present and general toxicity. Proceeds of the fee are to be applied to measures helping to maintain or improve water quality as well as to cover Land administrative costs in regard to the law.

Other national laws regulate specific aspects of water pollution. One such law is the August 20, 1975 Law on the Environmental Compatibility of Washing and Cleaning Agents (Washing Agent Law), which allows the marketing of washing and cleaning agents only if they do not cause any avoidable damage to water quality, especially in regard to drinking water supply, and do not adversely affect the operation of sewage facilities. It permits the federal government to stipulate the maximum phosphate content of washing and cleaning agents, to forbid the sale of such agents if a suitable phosphate substitute exists, and to limit or forbid the sale of agents with other substances causing similar damages. For those products containing phosphate, packaging is to indicate the amount of the agent recommended for use with each of four classes of water hardness.

The December 23, 1968 Law on Measures for Guaranteeing Waste Oil Disposal (Waste Oil Law), another major federal effort in water pollution control, is designed to prevent the discharge of waste oil into waters, either directly or through effluents. The Law provides regulations for the collection and removal of waste oil and

imposes fees on raw products by which the cost of collection and removal of waste oil can be met. Specific provisions about these fees and the subsidization of waste oil removal firms are contained in the January 21, 1969 Regulation for Implementing the Waste Oil Law. The December 2, 1971 Second Regulation for Implementing the Waste Oil Law provides for the maintenance of an oil record book by firms possessing or assuming possession of at least 500 kg of waste oils per year.

Several laws are designed to ensure adequate supplies of pure drinking water and to protect food products originating or processed in water. Among them are:

- 1) the February 6, 1975 Ordinance on Maximum Quantities of Mercury in Fish, Crustaceans, Shellfish and Mollusks (Mercury Ordinance, Fish), passed pursuant to the August 15, 1974 Law on Foodstuffs and Commodities, which forbids the sale of the enumerated fish foods if they contain more than one part per million mercury;

- 2) the January 31, 1975 Ordinance on Drinking Water and Utility Water in Foodstuffs Concerns (Drinking Water Ordinance), passed on the basis of the 1961 Federal Law on Contagious Diseases, which establishes microbiological and chemical standards and guidelines for drinking water quality as well as for water serving utilitarian purposes in concerns producing, processing or introducing foodstuffs onto the market;

- 3) the August 24, 1965 Water Security Law, as amended, which, with its implementing ordinances, is designed to assure and protect water resources for the general population and for the defense effort in the event of a defense emergency.

Finally, the August 15, 1974 Law Regarding Environmental Statistics authorizes the collection of federal statistics on pollution and environmental protection to further environmental planning efforts. Statistics are required in the areas of public and commercial water supply and sewage removal, water supply and sewage removal in thermal power plants which supply the public, and sewage removal in animal husbandry. Statistics are also to be kept on accidents during the

storage or transport of water-endangering substances. In addition, statistics are required for certain aspects of waste removal and for specified sorts of environmental investments. Passed pursuant to this law, the July 10, 1975 Wastewater Harmfulness Ordinance defines the process for determining the noxiousness of wastewater and the form to be used in stating sampling results.

The Federal Republic of Germany is party to numerous international agreements for the protection of water, including: the May 12, 1954 International Convention for the Prevention of Pollution of the Sea by Oil, As Amended April 11, 1962; the October 27, 1960 Agreement on the Protection of Lake Constance from Pollution (signed by the federal states Baden-Wuerttemberg and Bavaria); the December 12, 1961 Protocol on the Establishment of an International Commission for the Protection of the Moselle From Pollution; the April 29, 1963 Agreement on the International Commission for the Protection of the Rhine From Pollution; the June 9, 1969 Agreement for Cooperation in Dealing With Pollution of the North Sea by Oil; September 16, 1969 European Agreement on the Restriction of the Use of Certain Detergents in Washing and Cleaning Products; the November 29, 1969 International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties; the November 29, 1969 International Convention on Civil Liability for Oil Pollution Damage; and the December 18, 1971 International Convention on Civil Liability for Oil Pollution Damage; and the December 18, 1971 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage. The Federal Republic has signed, but not yet ratified, the December 29, 1972 Convention on the Prevention of Marine Pollution by the Dumping of Waste and Other Matter.¹²

air

The major law for the reduction of atmospheric pollution is the March 15, 1974 Law on Protection From Harmful Environmental Influences of Pollution, Noise, Vibrations and Similar Processes (Federal Nuisances Control Law [Bundesimmissionschutzgesetz]). It is designed to protect human beings, animals, vegetation and

objects from harmful environmental influences and serious damage or nuisance as well as to prevent the development of detrimental environmental influences. Provisions of the law apply to the construction and operation of certain facilities, particularly commercial facilities likely to cause large amounts of noise or air pollution; to the production, marketing and import of certain equipment, fuels and propellants, and certain substances and products made from them; to the design, equipment, operation and testing of motor vehicles and trailers as well as rail, air and watercraft; and to the construction of public roads, trains and streetcars.

The law requires certain facilities to obtain operating permits and imposes obligations on other facilities not requiring special permits. The Federal Ministry of the Interior is empowered to issue orders or regulations, subject to the approval of the Federal Council, in implementation of this law. The law obligates state authorities to draw up emissions maps for very polluted areas, to develop clean air plans, and to designate areas requiring special protection from air or noise pollution.

Eight legal regulations (Rechtsverordnungen) and several administrative regulations (Verwaltungsvorschriften) have been issued in implementation of the Federal Nuisances Control Law. Most of these, including the important August 28, 1974 Technical Instructions for Maintaining Air Purity, contain standards, and will thus be considered in detail under the section on standards below. Other regulations are considered in the following paragraphs.

The February 14, 1975 Fourth Regulation on Facilities Requiring Permits defines those categories of facilities requiring official approval in conformance with Sections 8-15 of the Federal Nuisances Control Law and also lists the types of facilities for which simplified permit procedures under Section 19 of the Law suffice.

The February 14, 1975 Fifth Regulation on Immissions Control Officers lists

testing. These standards conform to those developed by the European Economic Community (ECE) of the United Nations and adopted by the European Communities. The June 16, 1975 Ordinance To Amend the Order on Road Traffic adopts more stringent standards for carbon monoxide and hydrocarbon emissions and contains some new procedures for measuring these emissions. The ordinance also sets standards for maximum emissions of polluting substances from diesel engines and describes the procedures and devices to be used in measuring diesel emissions.

The Federal Republic is party to the ECE's 1958 Agreement Concerning Adoption of Uniform Conditions of Approval for Motor Vehicle Equipment and Parts and Reciprocal Recognition Thereof, with the Regulations of March 3, 1958 and the Amendment of the Agreement of November 10, 1967.

noise

Major provisions to prevent noise nuisance are contained in the March 15, 1974 Federal Nuisances Control Law. Until new regulations are issued, the July 16, 1968 Technical Guidelines for Protection Against Noise are to be used in applying provisions of this law. These guidelines prescribe maximum permissible noise levels for seven types of area ranging from exclusively industrial to hospital zones. In addition, the July 28, 1976 Regulation on Lawn Mower Noise, applying to the import, marketing and operation of mowers, was passed pursuant to this law.

Until the adoption of the 1974 Federal Nuisances Control Law, noise from construction sites was controlled by the September 9, 1965 Law for Protection Against Construction Noise. Administrative regulations issued to implement the 1965 Law are to remain in force until replaced by new ones. These set noise emissions standards for various types of construction machinery. Procedures for determining and evaluating the noise from construction sites are contained in the August 19, 1970 Regulations on Noise Immissions, which establishes permissible construction noise levels for various types of zones (such as industrial/commercial, hospital, etc.),

and the December 22, 1970 Regulation on Emission Measuring Methods.

Numerous laws and regulations seek to limit noise from mobile sources or to minimize the effect of such noise on surrounding areas. Significant in the Federal Republic's efforts to combat noise in the vicinity of airfields is the March 30, 1971 Law on the Protection Against Aircraft Noises, which provides for the establishment of noise protection areas for about 50 airports serving commercial airline traffic and for military airports servicing jet aircraft, depending on the extent of anticipated noise nuisance. The protected areas are to be divided into inner and outer zones, with certain types of structure prohibited in one or the other of the zones.

Thus far on the basis of this law, federal ordinances have been issued to establish noise protection areas for the commercial airports of Bremen, Nürnberg, Düsseldorf, Hannover-Langenhagen, Stuttgart, Cologne/Bonn, Hamburg (Fuhlsbüttel), and Munich (Riem). Noise protection zones have been set up for the military airfields of Leipheim, Nörvenich, Gütersloh, Memmingen, Bremsgarten, Erding, Neuburg on the Danube, Söllingen, Zweibrücken, Pferdsfeld and Wittmundhafen. In addition, the April 5, 1974 Ordinance on Structural Noise Reduction Requirements, also passed in implementation of the 1971 law, makes minimum quality demands on the construction and structural components of installations built in noise protection zones so that inside noise level is reduced.

Laws restricting the noise caused by the aircraft itself include: the Air Traffic Regulations in the Version of November 14, 1969; the Air Navigation Laws in the Version of November 1968, and the November 28, 1968 Regulations on Admission to Air Traffic.

Provisions limiting noise from motor vehicle traffic are contained in the Order on Admission to Road Traffic in the Version of November 15, 1974, as well as in the December 19, 1952 Road Traffic Law as amended, the November 16, 1970

Road Traffic Regulations, and the Instructions for the Measurement of Motor Vehicle Noise, New Version of September 13, 1965.

pesticides

Basic legislation to lessen the hazards of pesticides is contained in the May 10, 1968 Plant Protection Law in the Version of October 2, 1975, which is intended to protect plants and stored plant products from pests and diseases and at the same time to prevent damage to human or animal health from plant treatment substances. Plant treatment substances include pesticides and growth regulators. The law empowers the Federal Ministry for Food, Agriculture and Forestry to enact ordinances forbidding or limiting the use of certain plant treatment substances and forbidding or limiting the import of seeds, plants, earth or other culture substrata treated with regulated substances. The law provides that pesticides be licensed by the Federal Biological Institute for Agriculture and Forestry, whose tasks also include providing information on pesticides to the federal government and conducting research in this area.

The information required on license applications for plant protection products is listed in the March 4, 1969 Ordinance on the Testing and Licensing of Plant Protection Products.

The July 23, 1971 Ordinance Concerning Prohibitions and Limitation of Use for Plant Protection Products, in the Version of May 31, 1974, issued in implementation of the Plant Protection Law, lists three classes of substances, the use of which is: a) completely forbidden, b) permitted for specified purposes only, or c) permitted except for purposes expressly forbidden.

Complementing the Plant Protection Law is the August 7, 1972 Law on Traffic in DDT (DDT Law). It prohibits, with certain specified exceptions, the manufacture, import, export, commercial handling, acquisition or use of DDT and DDT preparations. The Federal Ministry for Youth, Health and Family, in cooperation with the Ministry for Food, Agriculture and Forestry, is empowered to set maximum permissible quantities for DDT in meat and cosmetics.

In addition to legislation specifically on the use of plant protection products, there are laws limiting the permitted residue of these substances on food products. For example, the November 30, 1966 Ordinance Concerning Plant Protection Materials, Pesticides and Stock Protection Materials in or on Foodstuffs of Vegetable Origin (Pesticide Tolerances Ordinance), as amended December 14, 1972, limits the marketing of products containing residues of pesticides above tolerance levels established by the law.

The Federal Republic is party to the December 6, 1951 International Convention for the Protection of Plants and Plant Products and the April 18, 1951 Convention for the Establishment of the European and Mediterranean Plant Protection Organization, as amended.

radiation

Basic radiation protection legislation is encompassed in the December 23, 1959 Law Covering the Peaceful Uses of Nuclear Energy and Protection Against Its Hazards (Atomic Energy Law), most recently amended in July 1975. This law is designed to promote nuclear research and development and the use of nuclear energy for peaceful purposes; protect life, health and property from the dangers of nuclear energy and ionizing radiations; prevent danger to the security of the Federal Republic arising from the use or release of nuclear energy; and enable the Federal Republic to meet international obligations in the field of nuclear energy and radiation protection. Individual sections deal with licensing for such activities as the import, export, transportation and storage of nuclear fuels and the supervision of nuclear fuels, radioactive substances and radiation-emitting equipment.

solid waste

The June 7, 1972 Law on the Disposal of Wastes states that wastes are to be disposed of in a manner that does not impair the welfare of the general public; disadvantageously affect the water, soil or useful plants; contribute to environmental

pollution or noise; run counter to the importance of the conservation of nature, agriculture or urban construction; or disrupt or endanger public safety. The law defines waste, cites the obligation to dispose of wastes, specifies disposal methods sets provisions for the control and licensing of the collection and transportation of wastes, and outlines monitoring procedures.

Three ordinances have been issued in implementation of the law. The July 29, 1974 Ordinance on the Recording of Waste (Waste Recording Ordinance) requires the possessor of other than household wastes to keep records as to the nature quantity, origin and disposal of wastes. In fact, those who produce, collect or transport wastes and those who operate waste removal facilities are all required to keep record books and to verify inventory sheets and waybills in a specified fashion at each stage of the waste disposal process. The July 29, 1974 Ordinance on the Collection and Transport of Wastes (Waste Transport Ordinance) establishes the procedures and fee schedules for those seeking a permit to collect or carry wastes. Finally, the July 29, 1974 Ordinance on the Import of Wastes (Waste Import Ordinance) establishes the application procedure and fee schedule for obtaining a permit to bring wastes into the Federal Republic.

The previously mentioned August 15, 1974 Law Regarding Environmental Statistics also provides for collection of federal statistics on public waste removal and waste removal in commerce, trade, transportation, and certain institutions and facilities (such as hospitals and slaughterhouses).

promulgation

The texts of federal legislation appear in the country's official gazette, the Bundesgesetzblatt.

III. Standards

water

Apart from a general prohibition against the disposal of solid materials in water, the Federal Water Management Law contains no standards relating either to water quality or the nature of effluents. Section 27 of the law provides, however, that with regard to surface water, Land authorities may issue either legal or administrative prescriptions dealing with, among other things, minimum water quality requirements, substances which may not be introduced into water, and minimum standards for effluents.

Taken as an example, North Rhine-Westphalia has issued no legal prescriptions pursuant to this section of the Water Management Law. However, general standards on the composition of wastewater are contained in guidelines issued on May 12, 1966 by the North Rhine-Westphalia Ministry of Food, Agriculture and Forestry for authorities granting consent (Erlaubnis) or permission (Bewilligung) for the introduction of effluents into surface waters. These guidelines state that the maximum degree of purification attainable by standard purification processes should be obtained. Other Land governments have classified waters according to desirable water quality levels and have placed varying requirements on effluents discharged into different classes of water.¹³ The April 1976 Fourth Amendment to the Water Management Law of 1957 authorizes the federal government to issue minimum requirements for the nature of wastewater introduced into waters, so that additional national uniformity should be given to water quality standards.

Also in the interest of maintaining water quality, Section 26 of the Water Management Law stipulates that substances stored in the vicinity of a water body must be kept in such a manner as to avoid any danger to water quality. This also applies to pipeline installations for both liquids and gases. Land regulations such as the North Rhine-Westphalia April 19, 1968 Ordinance on the Storage

of Water-Endangering Substances set requirements for installations for the storage of substances that might impair water quality.

A 1964 amendment to the Water Management Law made pipeline installations for conveying water-endangering substances subject to approval procedures, which are detailed in the 1964 Regulations on the Approval of Pipeline Installations for the Conveyance of Water-Endangering Substances. Substances considered water-endangering for purposes of the law, as delineated in a December 19, 1973 ordinance, include: crude oil, gasoline, heating oil, liquid hydrocarbons, acetylene and ethylene, organic acids, aldehydes, alcohols, halogenated hydrocarbons, nitrogenous hydrocarbons, chlorine and ammonia.

Standards dealing with specific aspects of water quality have been issued under legislation other than the Water Management Law. The January 31, 1975 Drinking Water Ordinance, issued pursuant to the 1961 Federal Law on Contagious Diseases, establishes microbiological and chemical standards and guidelines for the quality of drinking water and water used in concerns for producing, processing and marketing food. The ordinance sets limits for both *Escherichia coli* and coliform germs in drinking water and places limits on the following chemicals: arsenic, lead, cadmium, chromium, cyanides, fluorides, nitrates, mercury, selenium, sulfates, zinc and polycyclic aromatic hydrocarbons.

A standard indirectly related to water quality is contained in the February 6, 1975 Ordinance on Maximum Quantities of Mercury in Fish, Crustaceans, Shellfish and Mollusks (Mercury Ordinance, Fish), passed pursuant to the 1974 Law on Foodstuffs and Commodities, which prohibits the sale of fish, crustaceans, shellfish mollusks and products of these seafoods if they contain more than one part per million mercury.

Finally, a standard for the degradability of detergents has been in effect in the Federal Republic of Germany since 1962. It requires the degradability of

anionic detergents used in washing and cleaning agents to be at least 80 percent. Additional standards, to be issued under the 1975 Law on the Environmental Compatibility of Washing and Cleaning Agents, will set limits on phosphates and other substances that produce disadvantageous effects.

air

stationary sources

The single most important set of air pollution standards is contained in the August 28, 1974 First General Administrative Regulation Pursuant to the Federal Nuisances Control Law (Technical Instructions for Maintaining Air Purity), which applies to those facilities required to obtain an operating permit under the Federal Nuisances Control Law. Such facilities are listed in the February 15, 1974 Fourth Regulation for Implementation of the Federal Nuisances Control Law (Regulations on Facilities Requiring Permits).

The Technical Instructions contain both emission standards, which place limits on air pollutants originating from a specific facility, and immission standards, which apply to the pollutants in the air with regard to their effects on humans, animals, plants or other objects; immission standards may generally be equated with ambient air quality standards.

Emission standards fall into three subgroupings: dark smoke, dust in waste gases, and gaseous and vaporous substances.

The general dark smoke standard states that the optical density of stack plumes is to be better than no. 2 on the Ringelmann Scale; however, exceptions to this standard are made for certain facilities. For example, a more stringent standard (no. 1 on the Ringelmann Scale) is placed on incinerators for domestic refuse.

General limits on dust emissions in waste gases are to be calculated in terms of dust mass concentration and waste gas volume flow as specified in a graph contained in section 2.3.3 of the Technical Instructions. Specific standards for

dust emissions are set for waste gas from conveying systems and from pulverizing, sorting and filling facilities as well as for dust and soot emissions in waste gases from oil-fired systems. Furthermore, specific standards are set for three classes of particular dust materials in waste gases. For materials in Class I, which includes arsenic, asbestos, beryllium, lead, cadmium, hexavalent chromium compounds, soluble fluorine compounds, copperas, nickel, and phosphorus pentoxide, emissions are not to exceed 20 mg/m^3 at a mass flow of 0.1 kg/h or more. Class II includes antimony, soluble barium compounds, boron trifluoride, calcium fluoride, fluorspar, iodine and its compounds, quartz with particles smaller than 5 μm (micrometers), soot, strontium and its compounds, tar, cutback pitch, tridymite with particles smaller than 5 μm , zinc and its compounds, and naphthalene. Emissions of substances in this class are not to exceed 50 mg/m^3 at a mass flow of 1 kg/h or more. In Class III are those substances, the emissions of which are not to exceed 75 mg/m^3 at a mass flow of 3 kg/h or more. These include aluminum carbide, aluminum nitride, ammonium compounds, barium sulfate, bitumen, soluble boron compounds, calcium compounds, magnesium hydroxide, magnesium oxide, molybdenum and its soluble compounds, phosphates, ferrosilicon, silicon carbide, bismuth, and tungsten and its compounds, with the exception of tungsten carbide. If materials from Classes I and II occur together, the mass concentration in waste gas may not exceed a total of 50 mg/m^3 , and if materials from Classes I and III occur together, the mass concentration in waste gas may not exceed 75 mg/m^3 .

Emission standards for gases and vapors apply to inorganic gaseous chlorine and fluorine compounds as well as to a large group of organic compounds. The standard for inorganic chlorine compounds states that if gaseous emissions of such compounds amount to 3 kg/h or more, these compounds, expressed in terms of their chlorine content, are not to exceed 30 mg/m^3 in the waste gas. The standard for inorganic fluorine compounds states that if gaseous emission of such compounds

amount to 150 g/h or more, these compounds expressed in terms of their fluorine content are not to exceed 5 mg/m³ in the waste gas.

For the purpose of stating standards for vaporous or gaseous organic compounds in waste gases, such compounds are considered in three broad classes. For Class I, which includes acrolein, acrylonitrile, acrylic acids, ethylacrylate, methylacrylate, formic acid, aniline, phenol, ethylenimine and ethylene oxide, emissions are not to exceed 20 mg/m³ at a mass flow of 0.1 kg/h or more. Class II includes amyl acetate, acetaldehyde, dibromoethane, o-dichlorobenzene, dimethylformamide, methyl methacrylate, naphthalene, tetrahydrofuran, vinyl chloride, and xylene; for these compounds emissions are not to exceed 150 mg/m³ at a mass flow of 3 kg/h or more. Into Class III fall compounds such as acetone, ethanol, ethyl chloride, cyclohexane, diethyl ether, dichloromethane, dimethyl sulfoxide, ethyl acetate, methanol, pinene, tetrachloroethylene, triethylene glycol, and methyl ethyl ketone, emissions of which are not to exceed 300 mg/m³ at a mass flow of 6 kg/h or more. Where organic compounds in several classes are present, mass concentration in the waste gas is not to exceed a total of 300 mg/m³.

Emission standards cited above apply generally to all types of facilities. Contrasting requirements placed on certain types of facilities are stated in Section 3 of the Technical Instructions. This section also contains emissions standards for certain substances not included in the general standards. For example, sulfur dioxide emissions from gas-burning furnaces are not to exceed 50 mg/m³ (referred to a content of 3% oxygen by volume) if natural gas is used, or 100 mg/m³ if coal gas is used. In facilities for non-ferrous rough metal processing, sulfur dioxide emissions are to be limited to 3 mg/m³, if feasible, in waste gases with an SO₂ content of less than 2% by volume. For facilities for the production of SO₂, SO₃ and sulfuric acid, sulfur dioxide emissions are not to exceed 30 mg/m³, if an alkaline scrubber is used. Standards for sulfur trioxide are also stated for facilities engaged in the production of sulfuric acid. The sulfur content of liquid fuels for specific types of furnaces is

also stipulated. For example, in a facility with a stack height of less than 30 meters, fuels used are not to contain more than 0.5% sulfur by mass, while for facilities with a maximum firing thermal power of more than 40 GJ/h to 4 TJ/h, the maximum sulfur content of fuels is restricted to 1% by mass.

Carbon monoxide standards for specific facilities are also included. For example, for liquid fuel-burning furnaces, emissions of carbon monoxide may not exceed 175 mg/m^3 (referred to a volume content of 3% oxygen); and for furnaces for gas fuels, emissions may not exceed 100 mg/m^3 for both natural and coal gas. Carbon monoxide standards for various types of waste incinerators are also stated.

Immissions standards, stated in terms of both long-term and short-term exposure, refer to both dusts and certain gaseous substances in the air. They apply, as a rule, to air pollutants occurring at a height of 1.5 meters above the ground or at the upper limit of vegetation or at a distance of 1.5 meters from the surface of a building.

Standards for dust apply to both dust fall and dust concentration in the air. Non-hazardous dust fall is to be limited to 0.35 grams per square meter per day for the long term and to 0.65 grams per square meter per day for the short term. Mass concentrations in the air of non-hazardous dusts with a particle size of less than 10 μm (micrometers) are subject to a long term limit of 0.10 mg/m^3 and short-term limit of 0.20 mg/m^3 ; however, when dusts having a particle size greater than 10 μm are also included the long-term limit is 0.20 mg/m^3 and the short-term limit is 0.40 mg/m^3 .

The immissions standards for individual gaseous pollutants in the air are given in the following table:

<u>Type of pollutant</u>	<u>Mass concentration</u>	
	<u>mg/m³</u> <u>long term</u>	<u>mg/m³</u> <u>short term</u>
Chlorine	0.10	0.30
Hydrogen chloride (given as inorganic gaseous chlorine compounds)	0.10	0.20
Hydrogen fluoride (given as inorganic gaseous chlorine compounds)	0.0020	0.0040
carbon monoxide	10.0	30.0
sulfur dioxide	0.140	0.40
hydrogen sulfide	0.0050	0.010
nitrogen dioxide	0.10	0.30
nitrogen monoxide	0.20	0.60

All of these standards are not to become immediately effective, however. For four of the pollutants listed above, transitional values are to apply for a period of four years after the publication of the Technical Instructions, as follows:

<u>Type of pollutant</u>	<u>long term</u>	<u>short term</u>
Dust fall in g/(m ² d)	0.50	1.0
Hydrogen fluoride in mg/m ³ - given as inorganic gaseous fluorine compounds	0.0030	0.0060
Sulfur dioxide in mg/m ³	0.140	0.50
Hydrogen sulfide in mg/m ³	0.010	0.020

In addition to the standards already stated, the Technical Instructions specify methods for determining appropriate stack height as well as for calculating the dispersions of pollutants. The Instructions also detail methods for the determination and evaluation of both immissions and emissions.

The August 28, 1974 Technical Instructions apply to installations requiring permits under the Federal Nuisances Control Law, and as such are directed to the

authorities charged with examining applications for the operation of a facility, its construction or a significant change in its location, nature or operation.

Standards applying to facilities not requiring permits under the Federal Nuisances Control Law are contained in a series of regulations issued pursuant to that law; these cover furnaces, chemical cleaning plants, and installations manufacturing or processing wood or wood products.

The August 28, 1974 First Regulation for Implementation of the Federal Nuisances Control Law applies to the design, installation and operation of furnaces using solid or liquid fuels. It stipulates that smoke emissions must be lighter than No. 2 on the Ringelmann Scale. It also sets limits for dust, soot and oil derivatives emitted from oil-burning furnaces with smaller evaporation burners as well as for furnaces with atomization burners and larger evaporation burners. Specifications for fuels for smaller solid-fuel burning furnaces are stated as well as emission limits for dust, soot and tar from large furnaces burning solid fuels.

The August 28, 1974 Second Regulation on Chemical Cleaning Plants, directed towards plants which clean, dry or otherwise treat textiles, leathers or furs, specifies that exhaust gases from such installations are not to contain more than 30 cubic centimeters of trichloroethylene or perchloroethylene per cubic meter of exhaust air.

The December 18, 1975 Seventh Ordinance for Implementation of the Federal Nuisances Control Law applies to facilities processing or manufacturing wood or wood products and emitting wood dust or shavings. It stipulates that such facilities are to be equipped with exhaust air purification systems so that the mass concentration of dust and shavings in exhaust air does not exceed 50 mg per cubic meter exhaust air at 0°C and 1013 millibar if the exhaust air contains dust from grinding or mixtures with grinding dust. Installations beginning operations after January 1,

1977, however, are to limit their emissions to 20 mg per cubic meter. Permissible mass concentration ranges from 150 mg/m³ to 50 mg/m³, depending on the volume flow of exhaust gas per hour, for exhaust gases not containing dust from grinding.

Specifications for the sulfur content of light heating oil and diesel fuel are contained in the January 15, 1975 Third Regulation for Implementation of the Federal Immissions Law, which limits the sulfur content by weight of such fuels to 0.55% beginning May 1, 1975, to 0.50% beginning May 1, 1976, and to 0.30% beginning January 1, 1979.

mobile sources

Standards relating to the construction and operation of automobiles are contained in appendixes to the Order on Admission to Road Traffic in the Version of November 15, 1974, which, as most recently amended by the June 16, 1975 Ordinance To Amend the Order on Admission to Road Traffic, corresponds to the European Communities Council Directive of May 28, 1974 Relating to Air Pollution by Gases From Positive-Ignition Engines of Motor Vehicles.

Section 47 of the order requires motor vehicles to be so constructed that the emission of air-polluting gases is limited according to the latest state of technology. Specific standards apply to carbon monoxide and hydrocarbon emissions from motor vehicles with positive-ignition engines tested under three different conditions. These tests are run for the most part on representative vehicles submitted by the manufacturer to the Exhaust Testing Station of the Rhineland-Westphalian Technical Monitoring Association (Abgasprufstelle beim Rheinisch-Westfälischen Technischen Überwachungs-Verein) in Essen. Test 1 involves vehicles under 3500 kg in weight capable of achieving 50 kilometers per hour on a windless, straight stretch of road. Such vehicles are to conform to the following emission standards in simulated heavy traffic operational conditions during type testing: carbon monoxide emissions per test are not to exceed values ranging from 80 to 162 grams for vehicles

weighing up to 2150 kg and 176 grams for vehicles weighing more than 2150 kg; hydrocarbon emissions per test range from 6.8 to 10.3 grams for vehicles weighing up to 2150 kg and 10.9 grams for vehicles weighing more than 2150 kg. This test may also be run randomly on serial vehicles that have received type approval for conformance to standard; however, standards for these tests are less stringent than those listed above.

During Test II, which is to take place at idling speed, emissions of carbon monoxide in exhaust gas are not to exceed 4.5% by volume. Test III involves the measurement of gaseous emissions from the crankcase; during this test, hydrocarbons emitted from the crankcase and not recycled by the engine are not to exceed 0.15% of the fuel quantity consumed by the engine.

A standard for the lead content of gasoline is contained in the August 5, 1971 Leaded Gasoline Law, which stipulates that as of January 1, 1972 fuels containing more than 0.40 grams per liter of lead compounds are not to be produced, imported or otherwise commercially handled in the Federal Republic. The maximum permissible lead content for gasoline was to be reduced to 0.15 grams per liter as of January 1, 1976. The stringency of this standard was reduced, however, by the November 25, 1975 Law To Supplement the Leaded Gasoline Law, which allows for a transition period during which gasoline with a lead content higher than 0.15 grams per liter may be sold but places a fee on such gasoline. During the period January 1, 1976 to December 31, 1977, persons who have been granted permission to market fuel not meeting the standard, are to pay a fee to the federal government of one German penny per liter for fuel with a lead content of up to 0.25 grams and of two German pennies per liter for fuel with a higher lead content.

noise

The July 15, 1968 Technical Guidelines for Protection Against Noise, issued pursuant to the 1960 Factory Act, are to be used by officials granting permits for industrial installations under the 1974 Federal Nuisances Control Law until new regulations pertaining to noise are issued. They contain upper limit standards for

both daytime and night noise levels for seven types of area ranging from exclusively industrial (70 dB(A) at all times) to hospital zones (days 45 dB(A), nights 35 dB(A)) and prescribe methods and instruments for measuring noise levels. In considering possibilities for noise level reduction, authorities are to take into account the present state of noise control technology, as well as the technical feasibility of implementing control measures in individual plants.

Although the Federal Nuisances Control Law abrogated the September 9, 1965 Law for Protection Against Construction Noise, several ordinances passed pursuant to the 1965 Law are to remain in force until replaced by other standards. One of these, the August 19, 1970 General Administrative Provision on Protection Against Construction Noise--Noise Immissions, applies to noise arising from construction machinery at a construction site and affecting human beings. It sets maximum levels for noise in the vicinity of a construction site for areas ranging from completely industrial to hospital zones. These values are identical to those specified in the above mentioned 1968 Technical Guidelines for noise emitted from factories. Procedures to be used in determining the level of noise emitted by construction machines are contained in the December 22, 1970 General Administrative Regulation on Protection Against Construction Noise--Measuring Methods. Finally, ordinances set maximum emissions levels for cement mixing installations and mixing trucks, wheel loaders, compressors, cement pumps, bulldozers, tracked loaders, and excavators.

Under the March 30, 1971 Law on the Protection Against Aircraft Noises, noise protection zones are to be established in the areas around airports where the equivalent permanent noise level exceeds 67 dB(A). The zones are to consist of inner and outer areas, with the inner zones defined as those areas where the equivalent permanent noise level exceeds 75 dB(A) and the outer zones comprising the remaining area. The construction of hospitals, homes for the aged, convalescent

homes, schools and like establishments is forbidden in these zones. In addition, private housing may not be built in the inner, noisier zone.

Although sections of both the 1974 Federal Nuisances Control Law and the Order on Admission to Road Traffic in the 1974 version authorize the issuance of noise standards for motor vehicles, no definitive standards have been adopted pursuant to these laws.

However, still valid noise emission limits are contained in the September 13, 1966 Instructions for the Measurement of Motor Vehicle Noise. These Instructions establish maximum noise emissions levels on the basis of vehicle weight and power for: private cars and combination vehicles, trucks, buses, traction engines, traction engines used in agriculture and forestry, work engines, motor cycles, and bicycles with auxiliary motors. Emissions limits range from 70 dB(A) (for bicycles with auxiliary motor and maximum speed of 25 km/h) to 92 dB(A) (for trucks, buses, and vehicles with all types of traction engines if their capacity exceeds 200 horsepower as defined by DIN standards). Maximum emissions limits for sound-warning devices and motor-braking are also given.¹⁴

pesticides

Standards have been set governing the use of certain plant protection products; the marketing, import, export and use of DDT; and the maximum residues of plant protection products on foodstuffs of plant-origin.

The May 10, 1968 Plant Protection Law, in the Version of October 2, 1975 empowers the Federal Ministry for Food, Agriculture and Forestry to issue ordinances forbidding or limiting the use of certain plant treatment substances. Passed pursuant to this law, the July 31, 1971 Ordinance Concerning Prohibitions and Limitations of Use for Plant Protection Products in the Version of May 31, 1974, lists three classes of products. The use of products in Class I is completely forbidden. The 14 substances in this Class include aramite, arsenic, lead and cadmium compounds,

chlordane, chloroform, dieldrin and isodrin. Substances in Class II may only be used for the purposes specified in the ordinance. These substances include aldrin, hydrocyanic acid, DDT, endrin, mercury compounds, and toxaphene. Class III substances may be used except as expressly forbidden in the ordinance. Examples of substances in this group are amitrol, crimidine, lindane, silicon dioxide and zinc phosphide.

The August 7, 1972 Law on Traffic in DDT prohibits the manufacture, import, export, commercial handling, acquisition or use of DDT and DDT preparations with certain exceptions specified in the law.

Standards for the maximum quantities of pesticide residues permissible in or on foodstuffs of plant origin are contained in an ordinance issued pursuant to pure food legislation. This November 30, 1966 Pesticides Tolerances Ordinance, as amended December 14, 1972 contains two lists of substances. List 1 names several hundred plant protection substances along with varying maximum quantities of each substance permissible in or on specified foodstuffs. For example, alachlor residues may not exceed 0.1 ppm in or on vegetable corn, grains, cabbage, rape and turnips and 0.02 ppm on other vegetable foodstuffs. Residues of DDT (dicophan), DDD, DDE and their isomeres may not exceed 0.1 ppm in or on fruits and vegetables; 0.2 ppm in or on cocoa beans (through December 31, 1977); and 0.05 on other plant-origin foodstuffs. Atrazin residues are limited to 1.0 ppm in or on vegetables and fruits; 0.5 ppm in or on corn; and 0.1 ppm on other plant-origin foodstuffs. If no limits for residues of a substance are specified for a particular vegetable, fruit, or other foodstuff, then the foodstuff may not contain more than one-tenth of the lowest value given for that substance in regard to any other foodstuff, and in any case, not more than 0.01 ppm.

The ordinance further prohibits altogether the marketing of foodstuffs of vegetable origin if they contain residues of certain substances enumerated in List II.

Such substances include: aldrin; dieldrin; aramite; compounds of arsenic, lead and cadmium; endrin; isodrin; compounds of mercury; and carbon tetrachloride.

how standards are set

Several groups participate in the formation of standards for air and water. Active in setting water standards are the German Association of Gas and Water Management Experts (DVGW), the Sewage Technology Union (ATV), and the Water Division of the German Standards Committee (DNA). In most cases, however, such guidelines and standards are not as yet legally binding on a federally unified basis.¹⁵

Standards for air pollutants have been developed by the Air Quality Maintenance Commission of the Association of German Engineers. The Commission has developed Maximal Nuisance Concentration (MIK) values for a large number of substances. These MIK values were used as the basis for the threshold values that appear in the August 28, 1974 Technical Instructions for Maintaining Air Purity.¹⁶

Noise standards are developed by the Noise Commission of the Association of German Engineers.¹⁷

Finally in some areas, such as detergents, the Federal Republic of Germany has agreed to follow standards recommended by the European Communities.¹⁸

All regulations and standards issued under federal legislation and involving the interests of the Lands are subject to approval by the Federal Council (Bundesrat).

promulgation

Standards contained in laws and ordinances are published in the Bundesgesetzblatt, the Federal Republic's national law gazette. Some standards, such as those for noise emitted by construction machinery, are contained in "official notifications" (Bekanntmachungen) of the ministries and as such appear in the Federal Ministry of Justice publication, the Bundesanzeiger.¹⁹ Finally, certain

administrative provisions, intended primarily for officials implementing legislation, may appear in the official organ of the ministry issuing the provisions. Such was the case in regard to the 1974 Technical Instructions for Maintaining Air Purity, issued by the Ministry of the Interior in the Gemeinsames Ministerialblatt, a joint publication of several ministries, including Interior.

IV. Enforcement Procedures
 government administration

Although the federal government has legislative competence in many areas, it is responsible for the direct implementation of legislation only in matters relating to national defense, postal services, foreign relations, and with regard to the environment, those water bodies designated as federal waterways (Bundeswasserstrassen). Otherwise, responsibility for the implementation of both federal and Land laws falls to the Land governments, which, under the federal constitution, are required to set up the administrative authorities and to determine the administrative procedures to implement and enforce these laws. The federal government, with the consent of the Federal Council, may, however, issue administrative regulations stipulating how federal laws are to be implemented; the specificity of such regulations is dependent on the powers expressly conferred on the federal government by a given law.

Government administration on the federal, and in most cases, the Land level (the city-states of Bremen, Hamburg and Berlin form the exceptions) is carried out on three levels: central, intermediate and lower. Because the federal government does not implement most of its own laws, federal administration takes place primarily at the central level, including supreme federal authorities (such as the Federal Chancellery and the ministries) and superior federal authorities (bureaus such as the Federal Environmental Agency in Berlin). Intermediate and lower federal authorities exist only in those legislative areas that the federal government implements itself. In the area of the environment, the only such authorities are the Water and Shipping Directorates (intermediate) and the Water and Shipping Offices (lower), administering federal waterways.

On the Land level, central authorities are the Land ministries and various higher authorities immediately responsible to the ministries. The intermediate level is formed by the regional (Bezirk) governments, which are responsible for most

administrative tasks within their geographical areas. Lower level authorities are, in most cases, the local authorities, consisting of both municipal (Gemeinde) and district (Kreis) officials. Local authorities have dual functions, since they not only act as lower level Land authorities but also function as autonomous administrators in certain matters delegated to them by law for independent administration, including water supply, sewerage and the construction of purification plants, refuse disposal, and supervisory construction planning. The lower and intermediate level Land authorities constitute the first and second instances of enforcement in regard to most environmental laws.²⁰

In North Rhine-Westphalia, for example, the Land Minister for Food, Agriculture and Forestry is the central and highest Land water authority. On the intermediate level are the water authorities of the six regional government presidents, while the lower level is formed by the district and local water authorities. Administrative surveillance and enforcement functions under both federal and Land water law, including the issuance of permits for water use, are generally performed by the intermediate and lower level authorities, with lower level authorities being responsible for less important water bodies and intermediate level authorities for more important ones. The regional government president, as the chief intermediate level Land authority, issues fines against those committing infractions of administrative regulations of both federal and Land water laws. Water boards and the Land Office for Water Protection serve in an advisory capacity to the various water authorities. In addition there are public water corporations (Wasserverbände), which bear the responsibility for water supply and sewage purification in certain river basin areas.²¹

The central land authority for air quality maintenance and noise control in North Rhine-Westphalia is the Ministry of Labor and Social Security. Administrative enforcement functions with regard to larger industrial installations, including the issuance of permits, are performed by the factory inspectorates, lower level

administrative offices located in the larger urban areas. It was the factory inspectorate in Duisburg, for example, which took the initiative in ordering the closing of an excessively noisy blast furnace in that city.²² Pollution from mining operations, however, is the concern of the mining offices. Technical assistance is supplied by the State Institute for Immissions and Land Use Protection and the Technical Control Association, both located in Essen.

court system

The Federal Republic of Germany has a single integrated system of regular courts, with Land courts at the lower level and federal courts at the top. The local courts (Amtsgerichte) handle minor actions. District courts (Landgerichte) serve as courts of appeal from the local courts as well as courts of original jurisdiction; the superior courts (Oberlandesgerichte) are, except in rare cases, strictly courts of appeal. The Supreme Court (Bundesgerichtshof) is concerned almost exclusively with appeals and serves chiefly to ensure a uniform interpretation among the Land courts.

Courts are presided over by a varying number of judges, ranging from one in the local courts to five in the various sections of the Federal Supreme Court. Judges are civil servants appointed for life on good behavior, usually by the Land Ministers of Justice.

Land courts are used to try federal as well as Land cases, and, in fact, most cases originate in a Land court. Most environmental cases involving criminal charges originate in such courts as do suits brought against polluters under civil law. Trials are preceded by pretrial investigations which may or may not result in further prosecution.

To handle questions arising from the administrative acts of government officials, the Federal Republic has a three-level system of administrative courts. The court of first instance is the Administrative Court (Verwaltungsgericht), and the

court of second instance is the Higher Administrative Court (Oberverwaltungsgericht). Both of these courts are established by Land laws. The Federal Administrative Court (Bundesverwaltungsgericht) is the highest court of appeals in such matters. Appeals against the administrative acts of government authorities can be raised in these courts; such acts include, for example, fines (Geldbuße) imposed by local water authorities. In general, administrative measures or penalties instituted by authorities under environmental laws, such as the 1974 Federal Nuisances Control Law, fall within the scope of the administrative courts.

enforcement mechanisms to control

A major preventive device in enforcing environmental laws is the permit or licensing system. Permission for designated activities is required under laws relating to: water, air, pesticides, radioactive materials, and waste disposal. Certain laws, such as those pertaining to waste oil and waste disposal require the maintenance of record books, noting the nature, quantity, source and disposition of waste materials. Other enforcement mechanisms include monitoring, measuring and inspection programs. Enforcement provisions in the 1957 Water Management Law and the 1974 Federal Nuisances Control Law will be discussed in detail.

water

Under the 1957 Water Management Law, authorization must be obtained for a wide range of water uses, including discharges of substances into surface, ground and coastal waters, and any other measures which might cause harmful changes in the physical, chemical or biological composition of water. Restrictions can be placed on water-use authorizations, including standards for effluents; and authorizations can be withdrawn if these conditions are not met. Conditions placed on authorizations for discharges into groundwater tend to be stricter than those placed on discharges into other types of water. Additional conditions may be placed on discharges after an authorization has been issued, and an authorization may be cancelled if it is found

necessary for the protection of the general public.

The Water Management Law also prescribes the licensing of pipeline installations for the conveyance of water-endangering substances. As with water-use authorizations, conditions can be placed on such licenses, and the licenses may be cancelled if the needs of water protection necessitate it.

Supervision of water use is provided for in section 21 of the Water Management Law, which requires all those who make more than general use of water to submit to supervision by the authorities. The competent authorities must accordingly be granted access to land and property to the extent that such access is necessary for the performance of their supervisory functions; requisite data and materials must be placed at their disposal; and they must be allowed to perform technical tests and measurements. Similar provisions apply to the operation of pipeline installations for conveying water-endangering materials.

Dischargers may also be required to carry out their own measurements as a condition of their authorization, and special officers must, in some cases, be appointed by an industrial concern to carry out these functions.

Both authorization and licensing procedures provided for in general in the Federal Water Management Law are presented in more detailed form in the Land water laws. The North Rhine-Westphalia law, for example, requires dischargers to undertake at their own cost investigations of discharges and to convey their findings to the water authorities. Water purification installations are subject to the same obligations. North Rhine-Westphalia has also issued an ordinance placing conditions on the storage of water-endangering substances.

The Federal Water Law further provides for the establishment by the Lands of water protection areas in which certain activities or installations can be restricted or prohibited. Specific provisions for such areas are found, for example, in articles 24 and 25 of the North Rhine-Westphalia water law.

air

The most important means of fulfilling the stated purpose of the Federal Nuisances Control Law to protect humans, plants, animals and objects against harmful environmental influence is the permit system outlined in sections 4 to 21 of the law. Regulations issued in pursuance of the law list 58 types of installations which, because of the potential dangers of their activities to the environment, must obtain a license to be constructed, to operate or to undertake essential changes in their operations or size. These include: furnaces for solid, liquid and gaseous fuels yielding more than stipulated quantities of heat per hour; cooling towers of a given capacity; various types of incinerators, composting works and scrap-grinding facilities; stone, clay and mineral processing works; plants producing or processing iron, non-ferrous metals or steel; production processes involving chemical transformation; plants for the distillation, refining or other processing of petroleum and some petroleum products; large-scale poultry and swine raising facilities; slaughterhouses; and animal-body facilities.

Forty additional smaller types of installations, whose activities are considered less dangerous, are subject to a simplified permit procedure in conformance with section 19 of the Federal Nuisances Control Law. These include smaller furnaces for solid and liquid fuels; facilities producing such standard metal parts as bolts, rivets, screws and nuts; facilities producing certain types of brick and block; certain ceramic works; glass polishing works; large-scale food preparation facilities (with the exception of restaurants); grain or tobacco drying facilities; bottle cleaning, filling or packing plants; stationary facilities for the transfer of dust-producing goods, such as ores, bauxite, coals; facilities for the production of medicines using plant, animal or micro-organic products; quarries using explosives; motor sports facilities; and shooting ranges and grounds serving other than military purposes.

Those installations subject to licensing must be operated in such a way that

harmful influences are avoided; take measures to prevent pollution; and, if possible under the present state of technology, recycle their waste materials. These installations may be required to meet specific requirements as laid down by the federal government with regard to their construction and the nature of their emissions. Administrative regulations specifying emissions limits for the use of authorities issuing permits to such installations are contained in the Technical Instructions for Maintaining Air Quality (see pages 24ff above), and the general procedures to be followed in the licensing process are contained in the law. Under certain circumstances, additional restrictions may be placed on licenses once they have been issued. Furthermore, licenses may be withdrawn under certain specified circumstances, for example: if the holder of a license has failed to comply with restrictions; if under amended regulations the license could no longer be issued; or in order to prevent or remove serious disadvantages to the general public.

Installations found to be operating without a license may be shut down or removed, and installations not fulfilling the restrictions contained in their license may be shut down until the restrictions have been complied with.

To ascertain the presence of harmful substances in the air as well as to establish if the conditions set in licenses are being complied with, measurements may be taken under the provisions of the Federal Nuisances Control Law. In certain instances, authorities may require licensed installations or even those not requiring licenses to take their own measurements and report them to the proper officials. In other instances, public officials take the measurements. In these cases, the competent authorities and their agents are to be granted access to both industrial sites and residences for the purpose of conducting emissions and air quality tests.

Various Land governments have conducted air quality measurement programs for some years. In North Rhine-Westphalia, for example, such a program has functioned under the aegis of the Land Institute for Nuisance and Land Use Protection.²³

Officials in North Rhine-Westphalia have also carried out unannounced inspections of industrial concerns throughout the Land to see whether required environmental measures had been taken.²⁴

other program areas

To ensure the maintenance of certain basic protective measures, licensing is also required by several other environmental laws. The May 10, 1968 Plant Protection Law, in the Version of October 2, 1975, stipulates that pesticides be licensed by the Federal Biological Institute for Agriculture and Forestry. The law includes labelling requirements for pesticides and requires persons using pesticides to inform the authorities at the time operations are begun.

The December 23, 1959 Atomic Energy Law, as variously amended, requires licensing of certain activities related to the import, export, transport, storage, processing, preparation or splitting of nuclear fuels.

A more limited type of permit is required by the June 7, 1972 Law on the Disposal of Wastes for those desiring to collect or transport waste materials. According to provisions of the July 29, 1974 Waste Transport Ordinance, permits may be issued for a single collection or for repeated collections of waste over a given period of time. Permits are also needed to bring waste materials into the Federal Republic. Fees are levied on those desiring permits for these purposes.

record books

In order to ensure that measures relating to the safe disposal of wastes are observed, the 1972 Law on the Disposal of Wastes requires anyone possessing wastes other than household refuse to maintain a record book and related vouchers as to the nature, quantity, origin and disposal of the materials, provided that local authorities also require maintenance of the records. The producer and the collector and/or carrier of such wastes as well as the operator of the waste removal facility are all required to keep records books and to verify the inventory sheets and waybills included

as part of the record in a specified fashion at each stage of the waste disposal process. Record books must be kept five years after the date of the last entry.

A similar provision for government supervision is contained in the December 23, 1968 Waste Oil Law. Under this law and its implementing ordinances, any firm possessing or assuming possession of at least 500 kg of certain waste oils per year must keep an official record book designating the nature, quantity and location of the waste oil at any given time. Certain documents must be maintained in support of record book entries.

environmental compatibility of federal government measures

To provide for the implementation of sound environmental practices at federal level, the Federal Minister of the Interior adopted on September 9, 1975, Principles for Testing the Environmental Compatibility of Public Measures of the Federal Government. The procedures are to be used by all federal authorities and direct federal bodies, institutes and establishments of public law, and are to be introduced by the various federal ministers into their areas of competence in a suitable manner. Public measures are defined as: drafts of statutory regulations and general administrative orders; administrative acts, contracts and other actions in fulfillment of public duties; and public programs and plans. The competent authorities are to test as often as possible during the work preliminary to public measures to determine whether harmful environmental results are precluded, and if not, what environmental effects may be expected, and how they may be prevented or reduced.

enforcement actions

For the more efficient handling of those environmental offenses involving possible criminal charges, all Lands in the Federal Republic, with the exception of Hamburg, had, by the beginning of 1973, set up a special environmental department within the public prosecutor's office.²⁵

As explained by the environmental prosecutor in the city of Düsseldorf,

environmental offenses, especially those involving pollution of the Rhine by waste oil dumped from ships, are initially brought to the attention of his office by the police, although environmental offenses are also reported by ordinary citizens.²⁶

In many circumstances the prosecutor was able to proceed on the basis of the information received from the police; in others, further preliminary investigations were necessary. In 1972 the various environmental prosecutors in North Rhine-Westphalia, the highly industrialized Land in which Düsseldorf is located, handled over 1100 cases; in the first half of that year at least 100 of these resulted in a summons or a bill of indictment.²⁷ In the first half of 1975 environmental prosecutors in North Rhine-Westphalia conducted 887 preliminary investigations dealing with offenses against environmental regulations. Over half of the 653 completed investigations involved offenses against water protection regulations; ten percent dealt with air pollution and noise.²⁸ In Lower Saxony there were 72 environmentally related criminal indictments in the period 1970-1972. Of these, at least four resulted in criminal fines; others resulted in fines for infractions of administrative regulations, non-criminal penalties imposed by the courts as well as by the various administrative authorities.²⁹

Despite some success, however, environmental prosecutors are seen as facing great difficulties in carrying out their functions, since they must often handle non-environmental cases as well. They also tend to lack the technical support necessary for adequate performance of their duties.³⁰

penalties

Most environmental offenses are considered infractions of administrative regulations (Ordnungswidrigkeiten), for which administrative fines are specified in the individual laws and ordinances. These fines (Geldbuße), which bear no criminal taint, can be levied by the competent administrative officials without the involvement of the regular court system. As listed in a table prepared by the North

Rhine-Westphalian Minister of Labor, Health and Social Affairs for the use of factory inspectors and regional government presidents, administrative fines range from as low as 5 DM for offenses against the norms for automobile motors to 100,000 DM for the unauthorized construction, operation or alteration of a waste disposal installation. Fines specified in the Federal Nuisances Control Law also run as high as 100,000 DM. Among the administrative infractions listed in this Law are the establishment of an installation without a license as required in article 4 of the law and failure to submit to authorities an emission report for a heavily polluted area, as required in article 27.

In contrast to earlier environmental legislation, both the 1972 Federal Waste Disposal Law and the 1974 Federal Nuisances Control Law designate certain offenses as criminal acts (Straftaten). The 1957 Water Management Law and the 1959 Atomic Energy Law also delineate certain criminal acts. In general, such acts are those which might endanger the life or health of the population. If serious, they can result in imprisonment for up to five years in the case of the Waste Disposal Law, and for up to ten years in the case of the Federal Nuisances Control Law. Criminal fines (Geldstrafen) may also be imposed. Criminal acts specified in the Federal Nuisances Control Law include operating an installation without the required license or contravening an ordinance issued by a Land government pursuant to the law regarding areas requiring special protection from pollution.

Also subject to criminal prosecution and possible imprisonment or criminal fines are those acts, which because they result in bodily injury, damage to property or disturbing noise, can be handled under the Criminal Code.³¹

V. Interrelationships Between Government and Industry
major industries

Manufacturing accounted for about 43 percent of the domestic product in the Federal Republic in the early 1970's, thus constituting the major sector of the economy, with services accounting for the next most important economic sector. Mechanical engineering, electrical engineering, chemicals, textiles, clothing and transport equipment were the largest manufacturing industries in terms of employment, income and expenditures.³² Mining and quarrying have also been important economic activities, although they currently constitute 4 percent or less of the domestic product.³³

Today 60 percent of the Federal German population lives in industrialized, urbanized areas in which the concentration of inhabitants and industry poses special problems.³⁴ The ten major metropolitan areas are the Rhine-Ruhr, Rhine-Main, Hannover-Braunschweig, West Berlin, Stuttgart, Hamburg, Munich, Bremen-Oldenburg, Mannheim-Ludwigshafen, and Saar regions.³⁵

The Ruhr region, where heavy and light industries of all sorts are located, has not only the Federal Republic's but Europe's, largest concentration of heavy and light industries. The area, located in North-Rhine Westphalia and roughly triangular in shape, is defined by Cologne at the south, Dortmund at the northeast and Duisburg at the northwest. It has plentiful deposits of coal and formerly possessed rich iron ore deposits. Major industries in the area include steel, machinery, oil refining, chemicals, glass, ceramics, and textiles. As might be expected, this area has suffered particularly serious pollution problems. The Rhine-Main area possesses certain heavy industries and is also a commercial and transportation center. The Federal Republic's major concentration of small-to-medium industries is located in the Stuttgart area. The Saar basin, like the Ruhr area, is rich in coal and iron deposits of a high grade and employs large numbers of persons in mining, iron and steel production and machine and steel construction.³⁶ This area too has had special pollution problems.

overall relationship of government to industry

A general policy of cooperation in overcoming environmental problems is pursued by government and industry in the Federal Republic. In the Environment Report '76--Follow-up to the Environmental Programme of the Federal Government, issued July 14, 1976, the federal government states "willingness to cooperate with employers and employees in industry and with the citizens concerned, including their associations."³⁷

who pays the cost of clean-up?

The federal government subscribes to the principle that the polluter should pay the costs involved in cleaning up pollution (Verursacherprinzip). After years of effort, the government has finally succeeded in institutionalizing this principle through passage of the September 13, 1976 Sewage Fee Law, which imposes a fee of 12 marks per polluting entity, as defined in the law, on sewage discharges beginning January 1, 1981. Proceeds of the fee, which is to increase each year until it reaches 40 marks per polluting entity in 1986, are to be used for measures to maintain or improve water quality and to cover administrative costs of the Lands in implementing the fee. Although the present law represents a compromise between opponents of the fee and the government, which had hoped for an immediately effective charge of 40 marks per polluting entity,³⁸ it is hoped that the fee will encourage polluters to limit pollution by removing the economic advantage that they might have realized by not taking environmental protection measures.

Industry has, however, spent and will continue to spend, substantial sums to prevent or reduce pollution of various sorts. A 1975 Battelle Institute survey, conducted on behalf of the Federal Ministry of the Interior, revealed that a total of 111.2 billion DM, representing 2 percent of the anticipated gross national product, will be spent by government and industry combined between 1974 and 1980. This may be compared to 66.7 billion DM, constituting 1.5 percent of GNP, spent by government and

industry from 1970-1974.³⁹ Of the total expenditures anticipated for 1974-1979, 17.3 billion DM will be investments in pollution abatement measures by industry and 18.3 billion DM will be government investments. Environmentally related operating costs will be 48.6 billion DM for industry and 28.6 billion DM for government.⁴⁰ The study revealed that of industry's expected investment in pollution control, 35 percent will be allocated to wastewater purification and cooling, 3 percent to groundwater conservation, 47 percent to clean air measures, 7 percent to solid waste removal and 8 percent to noise abatement. Industry's environmental operating expenses will amount to 35 percent for wastewater treatment, 37 percent for air pollution control, 9 percent for solid waste disposal, and 2 percent for protection of groundwater and noise abatement.⁴¹ Industry's investment in pollution control equipment will constitute 8 to 9 percent of its total investment, and its pollution related operating costs will amount to approximately 1 percent of total industrial turnover for the period involved.⁴² Branches of industry most affected by pollution control activity will be those involved in chemicals, stone and earth products, iron, steel and base metals.

While subscribing to the polluter-pays principle, the government provides some economic incentives and aids for pollution control. For example, the February 21, 1975 Law To Amend the Income Tax Law and the Investment Allowance Law provides for more rapid depreciation than usual of capital goods serving environmental purposes. The law allows full depreciation of goods within five years of purchase or manufacture. Up to 60 percent of costs may be written off the first year and up to 10 percent each year thereafter until full depreciation. This applies to goods for the prevention of air and water pollution, reduction of noise and vibrations, solid waste removal and reclamation of raw materials from wastes, providing the goods are acquired between December 31, 1974 and January 1, 1981. The accelerated depreciation provisions produce a tax-delaying effect, which results in an interest savings and increased liquidity.⁴³

The federal government also makes available under the credit provisions of the European Recovery Plan some funds for environmental investments, such as the construction of clean air facilities. Guidelines for the issuance of such loans, which have lower interest rates than other sources of money, have been issued by the Minister of Economics.⁴⁴

Finally, in individual instances, other federal assistance may be granted for pollution control projects as part of general economic incentive programs.⁴⁵

monitoring

The 1974 Federal Nuisances Control Law requires certain installations for which permits are necessary to appoint one or more plant immissions officers. The functions of the immissions officer, who is an employee of the installation concerned, include the encouragement of the development and introduction of environmentally compatible procedures and products; participating in the development and introduction of these procedures and products; monitoring ambient air quality and emissions to ascertain whether the plant is in compliance with provisions of law; and informing management of environmental damage produced by the installations and of measures necessary to prevent such damage. Management is responsible for appointing properly qualified officers in line with provisions of the 1975 Sixth Regulation in Implementation of the Federal Nuisances Control Law, which contains guidelines as to the qualifications of these employees. Management is, moreover, required to supply the officers with the help and equipment necessary for carrying out their functions, and to refrain from disadvantaging them in any way. Provisions for similar officers are found in the Water Management Law.

In addition to requiring the appointment of immissions control officers, the Federal Nuisances Control Law also allows government to require industry to take certain measurements. Under special circumstances, for example, if it is feared that the emissions from a certain installation may cause harmful environmental effects,

the operator of the installation may be ordered to appoint an agent, designated by the highest Land implementing authority, to measure both the emissions from the installation and the ambient air quality in its immediate area. This may apply to licensed installations as well as to those which do not require a license. Under some circumstances, such measurements may be ordered even if there appears to be no immediate danger from the emissions.

In heavily polluted areas (Belastungsgebiete), licensed installations are obliged to inform the competent authorities of the nature, volume and distribution in terms of area and time of air pollution emanating from the installation over a specific time period as well as of the conditions of the emissions. Such emission reports, which are to be updated annually, may also be required of installations in non-heavily polluted areas.

Furthermore, competent authorities may also order that licensed installations or, in some cases, installations not requiring licenses, undertake continuous measurements of specific emissions or nuisance levels by means of recording measuring equipment.

For the most part, measurements taken under these provisions are to be paid for by the installations involved, and the results of the measurements are to be transmitted to the competent enforcement authorities.

In addition to legally required measures, some firms have taken their own initiative in tackling environmental problems. The Bayer chemical firm, for example, in its Leverkusen plants, has a department responsible for clean air and water. It employs 167 professional workers.⁴⁶

liaison practices

Contact between government and industry takes place in a variety of ways. Representatives of industry may serve on special government committees, offer written opinions to the authorities, or participate in formally organized exchanges of

information. Of course, there are also many routine informal instances of cooperation, particularly in the area of the environment.⁴⁷

Industry may submit its opinions through its various interest associations. For example, the Chambers of Industry and Commerce, bodies of public law in which membership for the affected groups is mandatory, commonly submit advisory proposals, studies and reports to the authorities. This includes the presentation of views on environmental issues. The comparable Chambers of Trades and Crafts carry out similar functions, but on a somewhat more limited scale.⁴⁸

Other interest groups, such as the Federation of German Industries, although not legally guaranteed a voice in the administrative or legislative processes, are often consulted in the preparation of laws, statutory orders and regulations, and administrative provisions by ministries or by legislative committees at the various levels of government.

Consultation with affected groups is now required by some laws. The Federal Nuisances Control Law, for example, stipulates that "concerned circles" be consulted prior to the issuance of implementive orders.

Industry also contributes experts to serve on government committees. During the development of the Federal Government's Environmental Program in 1970-71, for example, experts from industry, as well as those from government, science and other social spheres served on 10 project groups to lay much of the initial groundwork for the program.⁴⁹

Industry has also assisted government in given research efforts. In 1973, for instance, the Dornier Industrial Complex reported on research in the recycling of wastes carried out under contract to the Federal Ministry of Research and Technology.⁵⁰

Industry, as well as other interest areas of society, may be asked to discuss or help form policy on specific problems. A policy discussion of this sort

took place in July 1975 at Castle Gymnich, near Bonn, when the Federal Chancellor called a meeting of representatives of federal and state governments, industry, the unions and leading scientists to discuss the economic recession and environmental activity.⁵¹

Finally, the Federal Government's 1971 Environmental Program provides for a regular exchange of information between various areas of society, including representatives of federal, state and municipal governments, industry and other economic interests. The forum enables 210 delegates, chosen proportionally to represent the various involved areas, to meet twice a year to verbalize their varying interests in the environmental area and to work for a harmonization of these interests.⁵² The first meeting took place November 27, 1973.

VI. Case History

A recently resolved court case involved improper disposal of wastes, pollution of groundwater, fraud and falsification of documents.⁵³ Discovery of this situation in 1973 led to an "environmental scandal," during which the Hessian Land minister of the environment was forced to resign.⁵⁴

The defendant, Siegfried Plaumann, operator of a waste removal firm in Hesse, contracted with various chemical firms to collect and to dispose of wastes, primarily liquid wastes, in conformance with the new Law on the Disposal of Wastes. He furnished his customers with documents showing that the wastes were to be incinerated. In actuality, he had most of them dumped on old refuse heaps, in fields and even in the gullies of sewerage systems. Groundwater pollution resulted through seepage. Prosecutors sought to convict him of offenses against Section 38 of the Water Management Law, which provides that anyone who intentionally or carelessly deposits substances so as to cause dangerous pollution or any other detrimental alteration of water quality is subject to imprisonment, fine or both. The High Criminal Court in Hanau found insufficient evidence to convict Plaumann on this count, however. It ruled that the prosecution would have to prove first that wastes dumped on Plaumann's orders had actually caused the existing pollution⁵⁵ and secondly that only these substances had polluted the waters.⁵⁶ In the end, Plaumann was sentenced to two and one-fourth years imprisonment on 14 counts of fraud, based on the fact that he had charged contracting firms for incineration of wastes but had actually dumped the wastes at considerably less cost. He had thus defrauded these firms of nearly 160,000 marks.⁵⁷

The ruling in this case regarding the Water Management Law has shown that it could be extremely difficult to convict an individual of polluting water under the provisions of section 38, since it may be difficult to provide concrete evidence that a particular person has caused a given instance of pollution.⁵⁸ To close such

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gaps in existing legislation, the Federal Ministry of Justice has proposed a draft Sixth Law To Reform the Criminal Code, which would make the act of polluting in itself a punishable offense.

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APPENDIX

ENVIRONMENTAL LAWS AND REGULATIONS OF THE
FEDERAL REPUBLIC OF GERMANY
INCLUDED IN THIS REPORT

NATIONAL PROVISIONS

<u>GENERAL</u>	<u>I.D. NO.*</u>
April 12, 1972 Thirtieth Law Amending the Constitution (Article 74 - Environmental Protection)	00384A
July 22, 1974 Law Establishing a Federal Environment Office	02233A
August 15, 1974 Law Regarding Environmental Statistics	02283A
February 21, 1975 Law To Amend the Income Tax Law and the Investment Allowance Law	03594A
September 9, 1975 Principles for the Testing of the Environmental Compatibility of Public Measures of the Federal Government	03679A

AIR

March 15, 1974 Law on Protection From Harmful Environmental Influences of Pollution, Noise, Vibrations, and Similar Processes (Federal Nuisances Control Law) [in German]	02033A
[in English]	02033H
August 28, 1974 First Regulation for Implementation of the Federal Nuisances Control Law (Regulation of Furnaces)	02033F
August 28, 1974 Second Regulation for Implementation of the Federal Nuisances Control Law (Regulation on Chemical Cleaning Plants)	02033C
January 15, 1975 Third Regulation for Implementation of the Federal Nuisances Control Law (Regulation on the Sulfur Content of Light Heating Oil and Diesel Fuel)	02033K
February 14, 1975 Fourth Regulation for Implementation of the Federal Nuisances Control Law (Regulation on Facilities Requiring Permits)	02033L
February 14, 1975 Fifth Regulation for Implementation of the Federal Nuisances Control Law (Regulation on Immissions Control Officers)	02033M
April 12, 1975 Sixth Regulation for Implementation of the Federal Nuisances Control Law (Regulation on the Immissions Control Officer)	02033N

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December 18, 1975 Seventh Regulation for Implementation of the Federal Nuisances Control Law (Ordinance To Limit Emissions of Wood Dust)	02033P
August 28, 1974 Technical Instructions for Maintaining Air Purity (TA Air)	[in German] 02033G [in English] 02033J
April 8, 1975 Administrative Regulation on Determination of Air Quality in Heavily Polluted Areas	02033R
August 5, 1971 Law To Reduce Air Pollution From Lead Compounds in Fuels for Motor Vehicles (Leaded Gasoline Law)	01312A
December 7, 1971 Ordinance for the Implementation of the Leaded Gasoline Law	01312B
November 25, 1975 Law To Supplement the Leaded Gasoline Law	01312D
Order on Admission to Road Traffic in the Version of November 15, 1974	
June 16, 1975 Ordinance To Amend the Order on Admission to Road Traffic	03348A
<u>NOISE</u>	
July 16, 1968 Technical Guidelines for Protection Against Noise	02727A
March 30, 1971 Law on the Protection Against Aircraft Noises	00919A
1974 Ordinances Establishing Noise Protection Areas for Commercial Airports in the Federal Republic of Germany	00919E
March 4, 1974 Ordinance Establishing a Noise Protection Area for the Commercial Airport of Duesseldorf	00919D
1974 Ordinances Establishing Noise Protection Areas for Military Airports in the Federal Republic of Germany	00919F
1975 Ordinances Establishing Noise Protection Areas for Commercial Airports in the Federal Republic of Germany	00919G
1975 Ordinances Establishing Noise Protection Areas for Military Airports in the Federal Republic of Germany	00919H
April 5, 1974 Ordinance on Structural Noise Reduction Requirements Pursuant to the Law on Protection Against Aircraft Noise	00919B
Air Traffic Regulations in the Version of November 4, 1968, as Amended	00914B
Air Navigation Law in the Version of November 14, 1968	00912A
November 28, 1968 Regulations on Admission to Air Traffic	00913A

July 28, 1976 Eighth Regulation for Implementation of the Federal Nuisances Control Law (Lawn Mower Noise)	02033X
August 19, 1970 General Administrative Provisions on Protection Against Construction Noise - Noise Immissions	00917B
December 22, 1970 General Administrative Provision on Protection Against Construction Noise - Measuring Procedure for Emissions	00917C
December 6, 1971 General Administrative Provision on Protection Against Construction Noise - Emission Standards for Cement Mixing Installations and Cement Mixing Trucks	00917D
August 16, 1972 General Administrative Provision on Protection Against Construction Noise - Emission Standards for Wheel Loaders	00917E
October 24, 1972 General Administrative Provision on Protection Against Construction Noise - Emission Standards for Compressors	00917F
March 28, 1973 General Administrative Provision on Protection Against Construction Noise - Emission Standards for Cement Pumps	00917G
May 4, 1973 General Administrative Provision on Protection Against Construction Noise - Emission Standards for Bulldozers	00917H
May 14, 1973 General Administrative Provision on Protection Against Construction Noise - Emission Standards for Tracked Loaders	00917J
December 17, 1973 General Administrative Provision on Protection Against Construction Noise - Emission Standards for Excavators	00917K
December 19, 1952 Road Traffic Law, as Amended	00907A
November 16, 1970 Road Traffic Regulations	00908B
Instructions for the Measurement of Motor Vehicle Noise, New Version of September 13, 1966	00910A

PESTICIDES

May 10, 1968 Plant Protection Law in the Version of October 2, 1975	00589E
March 4, 1969 Ordinance on the Testing and Licensing of Plant Protection Products	00589B
July 23, 1971 Ordinance Concerning Prohibitions and Limitations of Use for Plant Protection Products in the Version of May 31, 1974	00589F
August 7, 1972 Law on Traffic in DDT (DDT Law)	00313A
November 30, 1966 Ordinance Concerning Plant Protection Materials, Pesticides, and Stock Protection Materials in or on Foodstuffs of Vegetable Origin (Pesticides Tolerances Ordinance), As Amended December 14, 1972	00590A

RADIATION

Law of December 23, 1959 for Amending the Constitution	00692A
December 23, 1959 Law Covering the Peaceful Uses of Nuclear Energy and Protection Against Its Hazards (Atomic Energy Law), as Amended	00693A

SOLID WASTE

June 7, 1972 Law on the Disposal of Wastes	00114B
July 29, 1974 Ordinance on the Recording of Solid Wastes (Solid Waste Recording Ordinance)	00114H
July 29, 1974 Ordinance on the Collection and Transport of Solid Wastes (Solid Waste Transport Ordinance)	00114J
July 29, 1974 Ordinance on the Import of Solid Wastes (Solid Waste Import Ordinance)	00114K

WATER

July 27, 1957 Water Resources Management Law, as Amended	00478A
April 26, 1976 Fourth Law To Amend the Water Management Law	00478H
September 13, 1976 Law Regarding Fees for the Discharge of Sewage Into Water Bodies (Sewage Fee Law)	03887A
August 20, 1975 Law on the Environmental Compatibility of Washing and Cleaning Agents (Washing Agent Law)	03343A
December 23, 1968 Law on Measures for Guaranteeing Waste Oil Disposal (Waste Oil Law)	02028A
January 21, 1969 Regulation for Implementing the Waste Oil Law	02028B
December 2, 1971 Second Regulation for Implementing the Waste Oil Law	02028C
February 6, 1975 Ordinance on Maximum Quantities of Mercury in Fish, Crustaceans, Shellfish and Mollusks (Mercury Ordinance, Fish)	02806B
January 31, 1975 Ordinance on Drinking Water and Utility Water in Foodstuffs Concerns (Drinking Water Ordinance)	03551A
August 24, 1965 Water Security Law	00479A
March 31, 1970 First Water Security Ordinance	00479B
September 11, 1973 Second Water Security Ordinance	00479C

I.D. NO.

July 10, 1975 Ordinance Pursuant to...the Law Regarding
Environmental Statistics (Wastewater Harmfulness Ordinance)

02283B

STATE PROVISIONS

WATER

May 22, 1962 Water Law for North Rhine-Westphalia

00501A

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