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Charles T. DuMars

Salvador M. Rio Del Beltran

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CHARLES T. DuMARS*
SALVADOR BELTRAN DEL RIO M.**

A Survey of the Air and Water Quality Laws of Mexico

INTRODUCTION

This article is the work of two authors—one a Mexican lawyer and law professor, the other an American lawyer and law professor. A word of explanation is necessary. The paper is written in the style of a law review article for a Mexican journal published in the civil law tradition. It contains no references to cases, for precedent as we understand it in the common law system is not relevant in the civil law system. Rather, it quotes at length from the civil law provisions to give the common law practitioner a sense of the breadth and detail of the civil codes that apply throughout Latin America. We apologize in advance for what to some trained in the common law may find to be the too extensive use of quotations from codes and statutory authority. This is not, however, a comparative law piece. This is an article regarding the laws of a civil law country written in civil law style for a reason. The “fabric” of the common law may be found in holdings of cases and interpretations from courts throughout the country, but the “fabric” of the civil law is in the codes themselves.

Likewise, this article makes few references to state and local regulations. Although Mexican state laws sometimes fill areas of jurisdiction unfilled by the federal government, the authors have concluded that, because the fields of air and water pollution have been largely preempted by the federal government, the federalism debates that occasionally arise in Mexico do not deserve attention here. Finally, and most importantly, the translations of the laws are the work of the authors and no one else. They are not meant to quote the laws verbatim and should not be used as technical translations. The authors have translated the laws with brevity and clarity in mind, and, of course, stand behind their interpretations of the provisions cited.

The article has value in two respects. It outlines in the English language and provides full citations to the air and water pollution laws of Mexico,

*Professor of Law, University of New Mexico School of Law, J.D. University of Arizona, Director of International Exchange Program, Universidad de Guanajuato, Guanajuato, Mexico.

**Visiting Professor of Law, University of New Mexico School of Law, Licenciado en Derecho, Universidad de Monterey, M.A., Latin American Studies, University of New Mexico, currently a fellow in an L.L.M. program at Harvard University.

and it places those laws in the perspective of Mexican political and legislative history of the time.

The problems of environmental protection have come to the attention of the world only recently, more or less in the last 25 years. Even within this time, contamination of the environment has been more a political whipping boy than a problem recognized by all as real. In the United States, for example, the federal government did not take significant action in the environmental area until the late sixties when it passed the National Environmental Policy Act. And, it was not until 1972 that the United Nations held its first major conference addressing worldwide environmental protection.

Mexico, too, enacted major protective legislation only in the late sixties when the problems of the environment were called to public attention by experts in the field. Even then, it was years later that authorities took the first measures to prevent and control environmental contamination.

The main objective of this paper is to describe Mexico's current (1982-88) water and air pollution laws, those enacted since President Miguel de la Madrid took office, in the context of related laws passed by his predecessors Jose Lopez Portillo and Luis Escheveria.

In this review, we give particular attention to the Federal Law for Environmental Protection, which was approved at the end of the Lopez Portillo administration and amended by the present administration, as well as to the power and organization of the Secretariat of Urban Development and Ecology [SEDUE], the most powerful environmental protection agency. Finally, we contrast the federal environmental legislation with the reality of life in Mexico, especially in the capital city. With this example, we demonstrate the difficulties in applying the law. As a special postscript, we examine the most current law, the Ecologic Equilibrium and Environmental Protection Act of 1988, and highlight the structural changes.

We have used various sources in writing the article: the Constitution, the laws themselves and their implementing regulations, and various secondary authorities such as articles, studies, and newspaper accounts that include interviews with administrators of environmental protection agencies. The footnotes refer to other authorities that may not be known to common law practitioners who work in this area.¹

LEGISLATIVE HISTORY AND BACKGROUND

Among all national capitals, Mexico City once enjoyed the distinction of having the clearest skies. That reputation, since lost if not turned on

1. See generally S. Mumme, *The Evolution of Mexican Environmental Policy*. Paper from the XII Latin American Studies Association International Congress, Albuquerque, N.M. (Apr. 18-20, 1985). It contains abundant bibliographic references.

its head, began to erode with the city's development as an industrial center. By the middle 1960s, degradation of Mexico City's air from auto and smokestack exhaust had become a serious public concern. In 1968, as the first organized response to this concern, the Mexican Institute of Chemical Engineers assembled the country's environmental specialists for a symposium on air pollution. Spurred by the conclusions and recommendations of the symposium, President Escheveria, who had gained office without any mention of environmental issues, created a government office charged with monitoring and regulating Mexico City's air quality.

The [national legislature] followed suit by amending Article 73 of the Mexican constitution to include, with the reference to health, an assertion of the government's power to protect the environment. In 1971, this constitutional amendment in place, the [national legislature] passed the Federal Law to Prevent and Control Environmental Pollution [LFPCCA].² The object of the new law, expressed in Article 1, was to restore environmental quality by eliminating the causes of pollution. Sweeping in scope, LFPCCA embraced the entire ecological system. Its provisions were said to apply regardless of the origin and basis of the pollution and of whether its effects on public health were direct or indirect. The law defined contaminants as all substances that when placed in the air, water, or soil—independently or in combination—altered the characteristics of the environment. Contaminants thus included all forms of heat production, radioactivity, and noise—in effect, all polluting activities.

LFPCCA delegated to the Secretary of Health and Public Works and the General Council of Health responsibility for enforcing its provisions. These included: a series of measures for controlling contamination of the air, water, and soil; general pollution standards; and government imposed sanctions for violating the standards. Among the sanctions specified were fines (from 50,000 to 100,000 pesos), temporary or permanent appropriation of the sources of pollution, and the closing of factories or other polluting enterprises. The act also stipulated that any person adversely affected by pollution might bring before administrative authorities an action on his own behalf or on behalf of others similarly affected.

Within five years of LFPCCA's enactment, three sets of regulations had been promulgated to implement it: the Regulation for the Prevention and Control of Air Pollution Caused by the Emission of Smoke and Dust

2. See *Diario Oficial de la Federación* ("D.O.") Mar. 23, 1971. See also in *Legislación Ambiental de México*, SSA Subsecretaría de Mejoramiento del Ambiente at 9-17 (México 1977) ("Legislación Ambiental"). For an analysis of the LFPCCA, see generally M.A. Chavez Gonzalez, *Legal Protection of Environment in Mexico* at 291-99, and L. Cabrera Acevedo, *Demographic and Legal Aspects of Pollution in Mexico* at 301-11, in L. Carillo Prieto and R. Nocedal, eds., *Legal Protection of the Environment in Developing Countries*, México, (México, UNAM Instituto de Investigaciones Jurídicas, 1976). See also generally, J. Juergensmeyer and E. Blizzard, *Legal Aspects of Environmental Control in Mexico: An Analysis of Mexico's New Environmental Law* in A. Utton, eds., *Pollution and International Boundaries*, 101-16 (Albuquerque, Univ. of New Mexico Press, 1973).

(1971),³ the Regulation for the Prevention and Control of Water Pollution (1973),⁴ and the Regulation for the Prevention and Control of Sound Pollution (1976).⁵

Passage of LFPCCA set the stage for other environmental protection initiatives. In January 1972, the Mexican government created within the Secretariat of Health and Assistance [SSA] the Subsecretariat for Environmental Improvement [SMA], an agency that was to plan and control environmental improvement projects, coordinate the actions of other agencies, and apply the law. In March 1973, the government adopted a new sanitary code that supplemented the LFPCCA.⁶ Based on Article 34 of the LFPCCA, the new code established regulations aimed at improving the healthfulness of the environment in general and the quality of air and water in particular. Against this legislative background President Lopez Portillo began his term.

Given the scope of the activities just described, it is somewhat surprising that environmental issues did not dominate the Lopez Portillo campaign. Lack of attention to these issues seems particularly odd considering the events of the day, many of which dramatized the consequences of ignoring environmental concerns. An oil spill from the "Ixtoc 1" well in the Bay of Campeche had resulted in serious fires and water pollution, Pemex-sponsored oil development in southeastern Mexico had led to substantial environmental problems, and air pollution in Mexico City and near Mexico's border with the United States also was drawing attention.

During Lopez Portillo's presidency, there was little change in the focus of Mexico's environmental protection programs, although there was institutional restructuring. Notably, the Lopez Portillo administration divided the Subsecretariat of Environmental Improvement [SMA] into three subdepartments, charged, respectively, with control of air, water, and soil pollution; created the department of Urban Ecology under the Secretariat of Human Settlements and Public Works [SAHOP] as part of the Plan for Urban Development; and established an Intersecretarial Commission For Environmental Health that included 16 secretaries of various departments.

In its first five years, the Lopez Portillo administration applied the LFPCCA; in its last year (1982), it reformed this law through passage of the voluminous Federal Law on Environmental Protection.⁷ The new law, like the old, had a broad objective: namely, to achieve the protection,

3. D.O. Sept. 17, 1971. See *Legislación Ambiental* at 19-37 (cited in note 2).

4. D.O. Mar. 29, 1973. See *Legislación Ambiental* at 41-63 (cited in note 2).

5. D.O. Jan. 2, 1976. See *Legislación Ambiental* at 65-84 (cited in note 2).

6. D.O. Mar. 13, 1973. See *Código Sanitario, Leyes y Códigos de México* at 7-120 ("Código Sanitario"), (México: Ed. Porrúa, 1982).

7. D.O. Jan. 11, 1982. See *Código Sanitario* at 139-61 (cited in note 6).

improvement, conservation, and restoration of the environment by controlling the contaminants that affected it. Similarly, the new law was enforced in the same manner as the former: that is, by the SSA and the General Council of Health in coordination with the Secretariats of Agriculture and Water Resources, Navy, Patrimony, Industrial Promotions, Commerce, Human Settlements and Public Works, Communications, Transportation, Education, and Fishing. Other levels of the federal government as well as state and local governments were obligated by the Federal Law on Environmental Protection to work with the SSA in carrying out the law.

The Federal Law on Environmental Protection listed as supplementary to it the Sanitary Code, the Federal Water Law, the General Law on Human Settlements, the Plant and Animal Health Law, and other related legislation. Further, the new law provided that other laws respecting water, air, flora, fauna, soils, and subsoils were subservient to its overall legislative scheme.

As stated in Article 3, the new law had as its animating force the prevention and control by the federal government of all contaminants and their causes, of whatever origin, that directly or indirectly damaged the ecosystems and human health. Article 4 defined the following words as they were to be used in applying the law: environment, protection, utilization, conservation, contamination, control, ecosystem, improvement, restoration, and prevention.

It granted power to the SSA to apply the law. It contained 78 articles and three subsections divided into 13 chapters. Among the more relevant chapters were the second and third. The second chapter (Articles 17–20) dealt with air pollution. The third chapter (Articles 21–28) dealt with water pollution. It also contained provisions that related to protection of the bodies of water, and the soils, and listed causes of pollution such as geothermal energy, noise, vibration, radiation, etc. It also included provisions relating to the protection of food and drink from environmentally caused contamination. It also granted the right to bring before the appropriate administrative authorities the equivalent of a class action, to prohibit whatever type of environmentally contaminating activity that effected the community in common. It also established a system of enforcement that included, *inter alia*, provisions for inspection and surveillance, bonding, hearings, and sanctions including criminal charges. For violation of the act, for the first time, the sanctions were tied to the minimum wage in Mexico City, presumably to keep pace with inflation.

Subarticle 3 stated that until regulations under the new law were enacted, the old regulations under the previous law remained in force. No new regulations relating to air and water pollution were ever enacted under this law.

THE CURRENT POLICIES

The Promise of the Miguel de la Madrid Administration

Unlike his predecessors, who rarely mentioned the environment in their campaigns, Miguel de la Madrid adopted the problem of environmental contamination as one of his primary campaign themes. He stated:

It is our obligation to give importance and political priority to the problems of ecology and environmental preservation, and to care for and protect our rivers, our air, our jungles, our forests, and the flora and fauna.

The government must make clear its political position and examine the current legislative scheme to ensure that it is the best. The government must pass the necessary regulations to implement the laws now on the books. So that we can translate the words of the laws into concrete actions by the responsible officials, we must provide budgetary resources sufficient to set our priorities clearly in the direction of environmental and ecological policy. We must establish adequate coordination between the three levels of government, federal, state, and municipal.⁸

After assuming power, de la Madrid established the National Developmental Plan [PND]. This plan articulated a series of policies and guidelines for resolving environmental problems, with specific emphasis on the control of air, water and soil pollution. With respect to air pollution, the PND provided that the federal government would pay particular attention to the priority areas (generally urban) and establish specific action programs and specific standards.

The plan concludes that it is necessary to inventory the point sources of pollution, adopt standards for air quality, design monitoring systems that include alarm systems, and to promulgate regulations for the most important contaminants. It also concludes the nation should reduce and control the emissions of non-point sources, develop an emergency program, and study the environmental impacts caused by such pollution.

The plan proposes establishment of clear lines of coordination, development of an outline of areas of agreement, and promotion of appropriate activities between the three sectors—public, social, and private. The plan suggests linking together the parastate companies, private companies, and the federal government to prevent future pollution. The plan emphasizes that it is vital in resolving pollution problems that the parties concentrate and coordinate their efforts in the zones of pollution concentration such

8. de la Madrid, Miguel, *Pensamiento Político IV*, Jan. 25 to Mar. 25, 1982 at 390-91 (México, Partido Revolucionario Institucional, Coordinación General de Documentación y Análisis, May 1982).

as metropolitan areas of Mexico City, Monterrey, Guadalajara, Puebla, Ciudad Juárez, and Coatzacoalcos-Minatitlán.⁹

With respect to water pollution, the PND provides:

To arrive at a common vision that gives priority to the protection of both urban and rural groundwater aquifers a strategy should be developed for managing waste waters, including sewage and industrial waste containing toxic materials.

The PND states that the government will reexamine existing laws and adopt a legal framework for establishment of a system for recycling waste waters. To understand the current problems, a national monitoring network for evaluating water quality was proposed. Furthermore, a plan was proposed for promotion of the development of treatment plants for the reuse of water and the evaluation of water quality. It also calls for a review of dam safety and the rehabilitation of existing recycling plants.

The areas listed as priority zones are the valley of Mexico City, the Northern Zone and the Gulf of Mexico, including Tabasco, oil production zones, the rivers Lerma, Alto Balsas, Alto Blanco, and the industrial areas and the border.¹⁰

The Accomplishments of the de la Madrid Administration

At least on paper, the theme of improving the general health of the country and the environment, which was so prominent in the Miguel de la Madrid campaign, has been substantiated throughout his administration by constitutional, administrative, and legislative reforms.

In February of 1983, the Mexican government elevated to constitutional status the right to good health. Article 3 of the Constitution now provides that "every person has the right to protection of his health."¹¹ Administratively, de la Madrid's administration realigned responsibilities and powers between diverse secretaries and departments of the government. Specifically, they created a new secretary in charge of protection of the environment and in January of 1985 converted the Secretary of Health and Assistance [SSA] into the secretary exclusively in charge of health. The de la Madrid Congress approved substantial reforms to the LFPCCA (see above) and approved a new law with respect to health—The General Health Law.

9. Poder Ejecutivo Federal, *Plan Nacional de Desarrollo 1983-1988* at 263-64 (México, Secretaría de Programación y Presupuesto, May 1983).

10. See *id.* at 262-63.

11. *Constitución Política de los Estados Unidos Mexicanos* at 9 (México, Leyes y Códigos de México, Ed. Porrúa, 1985).

Structural Reallocation of Power under the de la Madrid Administration

With the idea of initiating within his administration certain changes for environmental protection, Miguel de la Madrid proposed a series of changes to realign administrative responsibilities for environmental protection within the federal government. These changes redistributed the functions among existing secretariats, created a new secretary level position and eliminated other positions. Among the new positions created was the Secretary of Urban Development and Ecology [SEDUE]. This position, as noted above, replaced the Secretary of Human Settlements and Public Works [SAHOP] and took over the functions that previously had been vested in other subsecretariats with respect to environmental protection. To carry out this change it was necessary to change the fundamental law relating to public administration in several respects. This fundamental structure change can be found in the Federal Law of Public Administration.¹²

Article 37 of this law conferred upon SEDUE the following responsibilities:

I. To formulate and carry out the general policies for human settlements, urbanism, housing, and ecology; [. . .]

V. To promote the development of potable water systems, drainage and sewage system in urban centers; and to provide technical support to local authorities in the protection, construction, administration, operation and conservation of the sites previously determined by the Secretary of Agriculture and Water Resources; [. . .]

XV. To promote and carry out policies of environmental health in coordination with the Secretary of Health and Assistance;

XVI. To establish the ecological criteria for the use and destination of natural resources and to preserve the quality of the environment;

XVII. To determine norms to assure the conservation of the fundamental ecosystems for the community development;

XVIII. To oversee, in coordination with federal, state, and municipal authorities, the enforcement of norms and programs established for the protection or restitution of ecological systems of the country; [. . .]

XXV. To regulate the withdrawal, exploitation, and use of residual waters and the conditions of their discharge in collector nets, watersheds, trenches, and other deposits and water currents; [. . .]¹³

It is now clear that after these fundamental structural changes the responsibility of environmental protection in Mexico rests primarily with

12. D.O. Dec. 29, 1976; amended, D.O. Dec. 29, 1982. See actual text in *Ley Federal de la Administración Pública Federal* at 7-57 (México, *Leyes y Códigos de México*, Ed. Porrúa, 1984)

13. See *id.* at 38-41.

the Secretary of SEDUE. Other branches of government, however, must be consulted because their environmental authority has not expressly been repealed. The connections to other departments turn on the subject matter regulated. For example, the Secretary of Health must still be involved in health issues, and the Secretary of Agriculture and Water Resources must be involved in water resources issues under Articles 35 and 39 of this law.

SEDUE established its own regulations for internal operations.¹⁴ At the head is the Secretary. Immediately below him are three subsecretariats: housing, urban development and ecology. There is also the position of chief administrative officer, comptroller, and coordinator of activities among the 32 various states. Below these positions are 26 general offices, the principle ones relate to the following areas: prevention and control of environmental pollution, contamination of water supplies, and the control of systems relating to potable water supplies, sewage, and drains.

The agencies dealing with potable water supplies and drains fall directly under both the subsecretaries of Urban Development and Ecology, whereas agencies dealing with Environmental protection are directly under the Subsecretary of Ecology. The most important articles for purposes of understanding the breadth of the internal regulations are Articles 27 and 28.

Article 27 of the internal regulations of SEDUE, called the General Directorate for the Prevention and Control of Environmental Pollution, establishes the following goals:

I. To formulate and promote criteria for policies and norms for the prevention and control of air, soil, and noise pollution and for controlling solid residues resulting from other potentially dangerous elements in urban and rural zones, and to coordinate and oversee their application;

II. To identify critical-priority areas of environmental contamination and establish specific action programs and technical control norms; [. . .]

VIII. To enforce the law for the prevention and control of environmental pollution and to oversee its compliance;

IX. To identify violations of the environmental law contained in inspection records issued for that purpose; impose administrative sanctions, ordain and carry out the corresponding authorities. [. . .]¹⁵

With respect to the General Directorate for the Prevention and Control of Water Pollution, Article 28 of SEDUE's internal regulations state that the goals in this area are:

14. D.O. Mar. 29, 1983; amended, D.O. Mar. 8, 1984. See in 3 *Constitución Política Mexicana*, at 538-17 to 538-68 (México, Ed. Andrade, remesa num. 3 of 1984).

15. See *id.* at 538-56 to 538-57.

I. To formulate and promote the criteria for policies and regulations in order to prevent and control water pollution, and to establish programs related with the integral use of residual water; [. . .]

V. To dictate the measures and technical regulations necessary for the prevention and control of water pollution; [. . .]

X. To determine conditions that must be satisfied by residual waters before being discharged into the collecting nets, watershed, vessel and other deposits and water currents, or before infiltration into the subsoil; [. . .]

XIV. To identify violations of the regulation of water pollution and to handle and impose according with the case, the corresponding sanctions; [. . .]¹⁶

The Legal Tools for Pollution Control under the de la Madrid Administration: The Federal Law of Environmental Protection

Not only did the Miguel de la Madrid administration take specific action to realign administrative authority, it also made specific legislative changes with respect to the control and prevention of air and water pollution. At the end of 1983, the de la Madrid administration initiated a series of reforms to the Federal Law of Environmental Protection (LFPA). These measures were designed to adapt the law to the previously mentioned administrative changes and included important substantive changes.¹⁷

Among the most significant changes were those in Articles 1-6, 12, 13, 18, 56, 76 and 77. Also, certain articles were repealed. The repealed provisions, Articles 27, 42-45, and 46-51, concerned the protection of foods and beverages subject to contamination from normal environmental pollution and pollution from radiation. These are regulated elsewhere.

The principal objectives of the new law, like those of its predecessors, were listed as adopting norms for obtaining "conservation, protection, preservation, improvement, and restoration of the environment and its components and for preserving and controlling contaminants and the causes."¹⁸ The law makes clear, as did its predecessors, that no sources of pollution, whether direct or indirect, escape its ambit if they degrade or injure the property of the nation or its natural resources, the health of the population, or the natural beauty.¹⁹

New concepts, however, are defined in Article 4, including ecological norms, environmental impact, demonstrable impact, and environmental framework. It is interesting to analyze these new concepts. Practically

16. See *id.* at 538-58 to 538-59.

17. See the amended text in Decreto por el que se reforman, adicionan y derogan diversas disposiciones de la Ley Federal de Protección al Ambiente in D.O. Jan. 27, 1984. There is an English version of the first text from the U.S. State Department, dated Feb. 28, 1984.

18. See *id.*, art. 1.

19. See *id.*, art. 3.

speaking they extend the power of the government to regulate virtually any kind of pollution. For example, "environment" is defined as: "The complex of natural, artificial, man-made, physical, chemical, and biological elements that interact in the existence, transformation, and development of living organisms."²⁰ The definition of pollutants is equally broad. "Pollutant is any material or energy-producing substance in whatever physical form which, when incorporated into, or present in the atmosphere, water, soil, flora or fauna, or any other environmental elements, alters or modifies its natural form and degrades its quality."²¹

Article 5, in addition to the provisions discussed earlier, delegates the responsibility to carry out the law to SEDUE. If the above definitions are read literally, all activities of any kind impacting on the environment in Mexico would fall under the jurisdiction of SEDUE.

The legal authority granted SEDUE includes the obligation to establish criteria and procedures to carry out the goals of the law and adopt standards for the introduction of pollutants into the environment from both point and non-point sources.

Under the direction of SEDUE, it is possible to have other agencies cooperate in the enforcement of the environmental standards and substantive provisions of the law. These agencies include the Secretaries of Health, Agriculture and Water Resources, Commerce and Industry, Communications and Transportation, Education, Energy, Mining and Parastate Industries, Naval and Fishing. In addition, the government of the federal district and the governments of the states and municipalities are obligated to cooperate in the law's enforcement.

Articles 5 and 11 refer to the possibility of agreements and accords between the states, municipalities, and the federal district government with respect to environmental pollution. Articles 6-10 and Articles 12-16, on the other hand, contain a list of mandatory standards. Article 6 obligates SEDUE to promulgate technical standards applicable to urban development projects, national parks, reserved zones, refuges, and other industrial zones. Article 7 obligates SEDUE to review any projects, whether public or private, that can produce contamination or deterioration of the environment and to exercise the power of project review by approving, modifying, or rejecting proposed projects. SEDUE also has the duty to develop programs which will improve the quality of the air, water, sea, soil, and subsoils. Article 9 states that developing these programs, SEDUE is to ensure that the level of pollution in these areas does not fall to a level that would be dangerous to the public health, the flora, fauna and the ecosystems.

20. See *id.*, art. 4.

21. *Id.*

In addition, the act provides that SEDUE shall propose to the Federal Executive regulations do the following:

[L]ocate, classify, and evaluate types of pollution sources; and specify standards and technical procedures to be applied to emanations, emissions, discharges, deposits, services, transportation, and, in general, to any activity that degrades or damages the environment or national and private resources and assets; determine measures, processes, and appropriate techniques to prevent, control, and reduce environmental pollution and thereby foster the development and beneficial utilization of nationwide technologies.

Prevent and control environmental pollution caused by exploration, exploitation, production, transportation, imports and exports, composition, storage, marketing, use and final disposal of energy sources, minerals, chemicals and other products which by their nature may or do cause environmental pollution. [. . .] (Article 12).

Also to locate areas that require the protection, improvement, conservation, or restoration of their ecological conditions (Article 13).

In cases of environmental pollution with dangerous repercussions on ecosystems, public health, or flora and fauna, SEDUE shall mandate and apply the provisions and corresponding corrective measures immediately, in coordination with the appropriate authorities. (Article 14). SEDUE also shall impose, through the competent authorities, the necessary restrictions on the import, export, production, possession, transformation or processing, transportation, use and final disposal in the environment of poisonous and dangerous substances (Article 15). Finally, to limit or suspend the establishment or operation of industries, commercial enterprises, services, urban developments, or any other activities that may cause or increase degradation of the environment and damage ecological processes (Article 16).

Control of Air Pollution under the LFPA. Chapter two of the LFPA amendments (Articles 17–20) refers to the protection of the atmosphere. It expressly prohibits persons from “emitting or discharging pollutants that alter the atmosphere or can or do cause degradation or impairment that is prejudicial to human health, flora, fauna, and ecosystems, except when it is done following the legal and regulatory provisions (Article 17).”²²

Article 18 distinguishes between different air pollution-emitting sources: natural sources (volcanoes, non-man-induced forest fires, etc.) and man-made sources or artificial sources. Artificial sources are further classified as: a) stationary sources (factories, nuclear installations, thermoelectric

22. See *id.*, art. 17.

plants, petroleum refineries, steel mills, etc.); b) mobile sources (vehicles, aircraft, locomotives, mobile electrical generators, etc.); and c) diverse sources (incinerators, open burning of refuse with dangerous or potentially dangerous residues, discharge of explosives, etc.).

SEDUE is authorized to establish procedures for the prevention and control of atmospheric pollution; to establish permissible levels of polluting emissions from stationary sources, mobile sources, and diverse sources of air pollution. It also authorizes SEDUE to monitor the sources of air pollution so that emissions shall not exceed permissible limits (Articles 19 and 20). It is difficult to imagine broader and more general grants of authority than the ones that are set out in Chapters 1 and 2 discussed earlier.

Control of Water Pollution under the LFPA. Chapter 3 (Articles 21–28) refers to prevention of water pollution. It contains a series of provisions more detailed than the ones relating to air pollution. It prohibits the discharge or infiltration without previous treatment of residual water which may contain pollutants, waste materials, radioactive materials, or any harmful substance in collector nets, rivers, watershed, sea water, etc. SEDUE in coordination with the SSA and the SARH is directed to adopt provisions for the use and utilization of residual water and the conditions for its discharge (Article 21).

It provides that residual waters shall be treated to avoid the contamination of the receiving bodies; interference with the water purification processes; and impediments to the correct utilization of water systems. The law provides further there should not be negative effects on hydraulic capacity of river basins, ditches, vessels, water-bearing and other national property in the form of water resources, nor shall there be negative effects on sewage treatment systems. The law appears to mandate the creation of residual or waste water treatment systems where necessary. Specifically, the law provides (Article 22):

SEDUE shall issue the criteria, guidelines, requirements, and other required conditions to regulate the [storage], exploitation or use of residual waters in order to avoid pollution that may endanger public health or degrade ecological systems, and SEDUE shall be responsible for the evaluation and fulfillment thereof. The Secretary of Agriculture and Water Resources shall pass on the request for authorization, concession, or permit that may be requested for the exploitation and use of said residual waters, taking into account in every case the non-polluting conditions under the criteria, guidelines, requirements, and conditions dictated in such a case by SEDUE and SARH in their respective scope of competence (Article 24).

Residual waters can be used for industrial and agricultural purposes

if they have been treated so as to accomplish SEDUE's regulations (Article 25).

With help from competent authorities, SEDUE shall oversee the enforcement and operation of works, installations and utilization to accomplish the technical provisions in order to avoid water pollution (Article 26). SEDUE shall also establish the regulations to protect river zones, spring water, deposits, and, in general, any water source for the population use, and regulations for the execution of working measures related with lodging, treatment, and destination of residuals—conducted or not—by the sewage systems (Article 28).

Chapter 4 (Articles 29–33) refers to the protection of the maritime environment; Chapter 5 (Articles 34–38) to the protection of soil; and Chapter 6 (Articles 39–41) to the protection of the environment from thermal, noise, and vibratory effects.

Chapter 9 reinforces Chapters 2 and 3 relating to air and water pollution and gives power to SEDUE to conduct inspections and monitoring measures considered necessary for the enforcement of the law and its implementing regulations (Article 52) and to request from individuals and corporations any information that may help to verify their compliance with the law (Article 53).

Chapter 10 establishes a series of safety measures and penalties that will be enforced in order to correct any deficiencies in the control and prevention of pollution. These include confiscation or destruction of polluting substances or products and the temporary or permanent, partial or full closing of the industry or source from which the pollution originates. The confiscation and closing provisions are restricted to cases of imminent danger (Articles 54 and 55).

Chapter 13 of the law establishes criminal liability for violation of the act that include both incarceration or fines. These criminal sanctions are in addition to any civil liability that may exist (Articles 56–78).

Chapter 11 (Articles 64–70) lists the process for appeals. For example, decisions handed down pursuant to the law and its implementing regulations may be appealed within 15 days following the date of notification of the decision. Finally, Chapter 12 (Articles 71–75) allows class actions before the administrative agency for all actions, acts or omissions that produce pollution affecting a class of persons in common.

Even though it might appear to do so, the LFPA does not preempt the field. The General Health Law, the Federal Water Law, the General Law on Human Settlements, the Plant and Animal Health Law, and other legislation on the soil, subsoil, water, air, flora and fauna still contain provisions applicable to the environmental area that may overlap with SEDUE.

Perhaps the General Health Law²³ best illustrates the problem of overlapping jurisdiction in the Mexican environmental legal system. This law contains a series of regulations which refer to the effects of the environment on human health. For example, Article 116 states that the sanitary authorities should establish the regulations, take the measures and activities in order to protect human health against the effects and damages from adverse environmental conditions. It directs the Secretary of Health and Public Assistance (SSA) to work with SEDUE in the formulation and carrying out of sanitary policies affecting the environment (Article 117).

However, the Secretary of Health and Assistance is assigned, among other powers, the right to establish maximum pollutant standards in the environment for protection of human beings; to issue technical regulations for treatment of water for human use and consumption; and to establish sanitary criteria with the goal of avoiding risks and damage to public health (Article 118). The state governments are also assigned the duty of overseeing water quality for human use and consumption (Article 119). Finally, the General Health Law expressly prohibits the discharge residual water or contaminants into any surface or underground body of water which may be for human use or consumption (Article 122).

In summary, the 1982 amendments to the Federal Law of Public Administration restructure pollution control regulation in Mexico vesting substantial power in SEDUE. The reforms to the 1983 Federal Law for the protection of the environment gave substantial general authority to the Secretary of SEDUE to control both air and water pollution. However, substantial authority for control of pollution was vested in the Secretary of Health and Assistance by the General Health Law. All of these provisions, however, required specific regulations for actual enforcement.

A Major Existing Obstacle to Enforcement of the Mexican Environmental Laws—The Absence of Implementing Regulations. While the LFPA is broad in scope and authority, it requires regulations for full implementation. Until new regulations are adopted, the old regulations remain in force. Article 2 of the LFPA provides that with respect to air pollution the 1971 Regulation for the Prevention and Control of Atmospheric Contamination Caused by the Emission of Smoke and Dust remains in force until new regulations are adopted. With respect to water, the 1973 Regulation for the Prevention and Control of Water Pollution which existed under the old Federal Law for the Prevention and Control of Environmental Pollution applies until new and proper regulations are

23. D.O. Feb. 7, 1984. See in *Ley General de Salud* at 7-151 (México, *Leyes y Códigos de México*, Ed. Porrúa, 1986).

approved. No new regulations exist so the old regulations are still in force. These regulations are analyzed below.

The Regulation for the Prevention and Control of Atmospheric Contamination Caused by the Emission of Smoke and Dust²⁴ provides tax incentives to encourage existing industries to manufacture, acquire and install equipment and accessories designed to prevent, control or abate pollution caused by the emission of smoke and dust.²⁵ It gives special attention to the control of waste incineration, refineries, thermoelectric sources, railroads, vehicles, guano processing and fertilizer manufacturing plants and asphalt production as sources of pollution (Article 6).

To establish new industries, whose activities may cause atmospheric pollution through the emission of smoke and dust, or to expand existing industries, a permit from the Secretary of Health and Assistance—in coordination with the Secretary of Industry and Commerce—is required and is granted only if the applicants show that they comply with the norms for the prevention and control of atmospheric pollution, as well as other health measures. It is not clear on the face of this regulation how this provision ties into SEDUE's present structure, since the Secretary of Industry and Commerce authority has in part been shifted to SEDUE.

Chapter 2 of the Regulations (Articles 9–33) establishes a series of measures and standards to establish the maximum level of pollution from certain point sources of smoke. The Regulation follows the scale known as Ringelmann's Smoke Chart (Articles 10–16). It also contains two tables for the evaluation of dust emissions based on volume and density of the pollutant.

It also contains provisions relating to orientation and education with respect to pollution (Articles 34–43), and surveillance and inspection provisions. Articles 44–58 provide for the establishment of testing stations, call for the establishment of a group of fully qualified inspectors, and regulation inspection. Chapter 5 (Articles 59–64), like the LFPA establishes the penalties for the violation of the provisions of this Regulation, including fines and temporary or permanent closure of polluting plants or establishments. Chapters 6 (Articles 65–70) and 7 (Articles 71–74) include the procedures for the application of penalties and the administrative appeal. It also includes administrative class action (Articles 75–78) for attacking major sources of smoke and dust pollution. Finally, it includes a series of definitions relevant to the enforcement of the Regulation: calorie, emission, existing equipment, new equipment, combustion equipment, control equipment, open burning, source of multiple operation, smoke incinerator, opacity, process weight, process weight per

24. See note 3.

25. See note 3, art. 4.

hour, dust, fugitive dust and process. In summary, this regulation regulated only smoke and dust and in no way encompassed the breadth of areas covered by the LFPA. However, since the LFPA has no regulations, this regulation is all that exists in the air pollution area and is of great importance to the environmental regulator.

The Regulation for the Prevention and Control of Water Contamination²⁶ follows the same outline of the previous Regulation, but it is more technical. It contains a series of 70 articles divided into nine chapters. Its objective, as stated in its title, is the prevention and control of water pollution (Article 1). It gives power to the General Health Council to dictate the general regulations in order to prevent and control water pollution; it is applied by the SSA who will also collaborate with the Secretary of Agriculture and Water Resources, who has the power to regulate in areas not covered by this regulation (Articles 2 and 3). Again, the relationship to SEDUE is unclear on the face of the regulation since the regulation antedates the formation of SEDUE by ten years and the enforcement agencies listed in the regulation have been superseded by SEDUE.

The second chapter, titled "Procedure for the Prevention and Control of Water Contamination" (Articles 6-33), contains a series of technical provisions that specify the standards for the levels of water quality needed in order to guarantee a minimum of purity. Several procedures are established in order to receive discharges in the receiving bodies (Article 6); any kind of discharge shall be registered with the exception of simple domestic discharge (Article 7).

Chapters 3 through 8 contain orientation and education measures (Articles 34-40), surveillance and inspection measures (Articles 40-50), sanctions (Articles 51-55), procedures for the applications of sanctions (Articles 56-60), administrative appeal (Articles 61-65), and administrative class actions attacking sources of water pollution (Articles 66-69). The last chapter, 9, contains a series of definitions of different terms used in the Regulation (Article 70). These are different from the definitions contained in the LFPA, yet the LFPA states they remain in force.

With the discussion of these regulations the legal framework for Mexican environmental protection is almost complete. Under the Federal Law of Public Administration SEDUE has been created as a sort of super agency for environmental protection. The Federal Law of Environmental Protection gave SEDUE ample legal authority to regulate pollution, and the General Health Law's Supplemental this provision. However, these laws are not effective until implemented by regulations and new regulations have not been adopted. The existing regulations are therefore still

26. See note 4.

in force; they are over ten years old, narrow in scope, and were enacted under laws that have since been repealed or modified.

THE GREY REALITY

A series of recent events have caused the public interest in the environment in Mexico to increase even more. Among these are the radioactive rebar from the foundry in Ciudad Juarez in December of 1983 that came from a capsule of cobalt 60 that was found in a junkyard. The oil explosion in San Juan Ixhuatepec in November 1984 also has drawn attention. The construction and possible opening of the Laguna Verde Nuclear Power Plant in Vera Cruz has elicited comment. The earthquakes of September 1985 also understandably contributed to concern. The problems of thermal inversions in the Federal District have also aroused the concerns of the population of that city.

The response to these ecological problems has been public protests and the organization in large numbers of various ecological groups such as the Mexican Ecological Movement (which unifies more than 60 different national and regional ecological organizations), the National Ecological Alliance, the Mexican Conservationist Federation, the Hundred Group, and the Ecological Group Pact.

The government has not been silent. It has promulgated even more plans and more formal declarations addressing the problem. For example, on August 21, 1984, the federal government through the former head of SEDUE, Marcello Javelly Girard, announced an ecological program titled "Programa Nacional de Ecologia 1984—1988" that, for the first time, acknowledged the need for an independent, "autonomous" program dealing with this problem. This program, like its predecessors, stated the need for the promulgation of standards for control and prevention of environmental degradation. It states that the government agencies: 1) would join forces to fight environmental contamination, and 2) for the first time suggested the government take action to decentralize the population centers. The specifics of the program are set out below:

[. . .] More attention should be given over the pollution control of the 20 hydrological watersheds out of 218 which present a higher index of detriment. Special attention would be given in the rehabilitation of the sewage water treatment systems and also in the control districts that form part of the industrial and municipal discharge of the mentioned watershed.

With respect to air quality, preference will be given to the large industrial cities that require urgent attention: Mexico City, Monterrey, Guadalajara, Puebla, Tijuana, Toluca, and Coatzacoalcos-Minatitlan-Cosoleacaque.

Action would be taken to control the emissions and discharges of the more pollutant industries, such as: petrochemical, carbon-electric and cellulose and paper, and also to the automobile emissions which are principal pollutants of the atmosphere. [. . .]²⁷

As a result of the above pronouncements and programs the following began to occur. As to the control of the contamination in hydrologic basins, a study was presented to Miguel de la Madrid at the end of 1985, which identified three parastate companies, Pemex, Azucar, S.A. and Fertimex, as the major polluters of water resources in the country. Of the 229 Pemex installations, 62 are located in the 20 most important hydrologic basins of the country. Of the 62 installations, 28 were inspected. Of this 28, only 9 were operating in compliance with the standards—leaving 19 out of compliance. The Pemex refinery in Minatitlan in Vera Cruz was discharging wastes into the Coztacualco River in an amount of 33,035 tons per year. Following this was the refinery in Mexico City, called the Azcapotzalco, and the Tula in the state of Hidalgo. The Mexico City refinery was contributing 32,750 tons per year and the Tula was contributing 19,960 tons per year.

Azucar S.A. had 52 installations of which 25 were found to be in important hydrologic basins. Of these 25, 19 installations were inspected and just one was in compliance. Fertimex has 13 installations, of which 9 are located in important hydrologic basins. Only 2 of these were found to be in compliance.²⁸

ACTUAL OPERATION OF STATUTES AND REGULATIONS

The statutes and regulations in operation present a classic example of bureaucratic stacking. The complexity of attempts at regulation are perhaps best reflected in the following example. Recall that SEDUE has primary control in this area after 1982 in cooperation with other agencies. Superimposed on this is the declaration of 1984 identifying the problem as autonomous and in need of separate attention. In Mexico City, given the increasing gravity of the air pollution problem, another program was stacked on top of the first two. This was the "Programa Nacional de Contengencias Ambientales" of 1984. While one would have thought this program would have come under the jurisdiction of SEDUE, it did not. Rather, it was established under the Interior Minister's Office. And, in 1985, another program was established under the subsecretary of ecology of SEDUE. This is the National Commission of Ecology with respective

27. See in Nacional Financiera, S.A., *El Mercado de Valores* at 892-93 (México, Año XLIV, Num. 36, Sept. 3, 1984).

28. See R. Monje, Pemex, el primer lugar como contaminante del agua in 482 *Proceso* 7 (México, Jan. 27, 1986).

subcommissions that regulate the air pollution in the urban areas and establish a task force to respond to air pollution emergencies.

Notwithstanding all of these commissions, declarations and studies, the situation does not appear to have improved greatly. In January of 1986, a thermal inversion occurred which was extremely dangerous to the population. In response, the government countered with another decree. This decree involved, besides SEDUE, the following other cabinet members—public education, energy, mining and parastate industry, health, commerce and industry, and the government of the federal district as participants in resolving the contamination problems.²⁹

This ambitious plan set out specific goals and measures for accomplishing those goals. For example, the Federal District was given the obligation to put into service within 60 days, 800 new buses with pollution control devices installed, and by 1988 to have put into service 2,000 more. They were also directed to expand noncontaminating urban transportation systems as follows: 1) to expand the Metro System; 2) to expand the electrical bus system by 111 kilometers; 3) during 1986 and 1987 to increase by 300,000 the number of vehicles checked for exhaust contamination; 4) shut down 6,500 clandestine garbage dumps; 5) to modify hours of work so that street work takes place at night and does not tie up traffic; and 6) to plant 36,000 trees in strategic areas to reforest the city. All of the above was assigned exclusively as the responsibility of the government of the Federal District. At the same time the Secretary of Energy, Mining and Parastate Industries was given specific tasks.

The Secretary of Energy, with the participation of the Secretaries of Commerce and Industry, Pemex, and the Federal Commission on Electricity, was given the obligation, among other obligations, of converting the electric generating stations in the Valley of Mexico to natural gas—thereby eliminating the 114 daily tons of sulphur dioxide that was being produced by the other method of generating electricity, and to convert, before the winter of 1986–87, the balance of plants to diesel fuel in such places as hospitals, shops, bakeries, and dry cleaners.

It is impossible to verify how many of these proposals were actually carried out. Mexico City continues to have an extremely serious pollution problem. The children still draw grey skies in their water color paintings. In December 1986, a group of ecological organizations sent a letter to President de la Madrid, in which they reminded him of the promises of his administration to confront directly the problems of pollution in Mexico.

The frustration of the Secretary of SEDUE was manifested perhaps best by the comment that he alone was not responsible for solving the

29. D.O. Feb. 14, 1986. See *Secretaria de Desarrollo Urbano y Ecología*, Decreto. . . .

problems of the city. Rather, the responsibility rested with the Federal District government and the Interior Ministry.³⁰ This comment may be telling. If everyone is in charge, then no one may be in charge.

It may even be argued that the problems have worsened. At the beginning of 1987, several hundred birds died in Mexico City for reasons said to be related to the poor air quality. The problem of the deaths of the birds was studied by the Department of Toxicology of the School of Veterinary Medicine of the National Autonomous University of Mexico (UNAM). They concluded it was an air quality problem. Interestingly enough, at the beginning, SEDUE denied it was air quality, but later admitted the cause was related to air quality.

In February of that same year, the weekly magazine *Proceso* published an article indicating that great quantities of lead were being inhaled by the population of the city. This was based upon an interview with Dr. Rene Rosiles Martinez—a research fellow from UNAM who authored a study entitled “The Epidemiology of Lead—Its Effects on Copper, Iron, Calcium and Zinc in the Circulatory Systems of the Citizens of Mexico.” He concluded that the problem was very serious. The amount of lead, in the form of dust, which is deposited on the soil of the area is around 1,000 parts per million—a quantity much in excess of the standards for protection of human life.³¹

The Secretary of SEDUE himself has explained some of the reasons why his agency may not have had the success expected of it. In a document given to Miguel de la Madrid in December 1985 that described the work of the subsecretary of Ecology, the point made was that there was a consensus (not only within the agencies, but also in the population in general), to combat this problem. Even with this positive consensus, the subsecretary reported that he lacked the specific tools necessary to complete the job. These included: financial resources, specific administrative mechanisms to carry out the work, and finally, the specific legal regulatory authority to act in individual cases.³²

With respect to the legal issue, the document pointed out that SEDUE lacks the specific regulations and standards necessary to carry out the tasks assigned to them. The document suggested reforms to the constitution to involve the different levels of government in the ecological activities, as well as reforms to the Federal Organic Act, reforms to the interior regulation of SEDUE to restructure the secretarial position and

30. See M. Robles, Trece años de planes, estudios, promesas de inactividad contra la infección, in 529 *Proceso* 18-19 (México, Dec. 22, 1986).

31. See M. Cabildo, Alerta de toxicólogos: el plomo ya es amenaza real de muerte in 538 *Proceso* 18-21 (México, Feb. 23, 1987).

32. See R. Monje, Ni siquiera planes contra la contaminación existen, reconoce Sedue in 482 *Proceso* 6-9 (México, Jan. 27, 1986).

make it independent from the development function as it now exists. The document further suggested that a new law of ecology should be passed which would be supported by specific regulations that regulate specific environmental areas.

With respect to the administrative problems, the document pointed out that a number of subagencies from other departments were to be transferred under the control of SEDUE, but this did not take place. While eight administrative offices under the Secretariat of Health were supposed to be transferred to SEDUE, only four were actually transferred. From the Secretariat of Agriculture and Water Resources, seven were designated for transfer, but only one was actually transferred in total and another department was only partially transferred. Even when the transfer of authority from the previous existing Departments did take place, there was confusion. The document indicated one department lost viability in the transfer of SEDUE. In addition, the Secretary of Fishing had not completed the transfer of any of its functions by the date of this report.

Furthermore, the subsecretary of ecology, which at the beginning was divided into six divisions, received a budget adequate to fund only four divisions, so in July 1985 there were only four real divisions. He added also, that only one testing laboratory was functioning when they needed 32.

Of the 1,419 employees, only 45 percent were technical workers capable of doing their jobs. The document concluded: "In summary, there has been the failure to complete the process of transfers of functions, there continues to exist a duplicity of functions, there is more work to be performed but there is insufficient administrative capacity to carry it out."

Finally, regarding the financial problems in 1983, the budget for the ecological sector was dispersed among agencies, not a specific line item. In 1984 the budget was 4.2 billion pesos, in 1985 it was 5.4 billion pesos, and in 1986 it was 5.0 billion pesos. Given inflation, this amounted to severe budget cuts. There was, however, an emergency budgetary allocation made to combat the problem of the thermal inversion of 16 billion pesos. The document states that in fact "there is in reality no financial or budgetary program in existence" to combat the problem.

If the structural problems were not enough, the SEDUE has had numerous personnel turnovers at the top. Since December 1982, SEDUE has had three separate top administrators. From December 1, 1982 to March 11, 1985 the Secretary was Marcel Javelly Girard; from March 11, 1985 to February 17, 1986 it was Guillermo Carrillo Arenas; and from February 17, 1986 to date it has been Manuel Camacho Solis. Mr. Camacho was very involved in the campaign of Carlos Salinas de Gotari—a job which occupied a great deal of his administrative time, and in

August 1988 he resigned to take over the directorship of the Partido Revolución Institucional (PRI), the ruling political party of Mexico. In addition, the subsecretary of Ecology position has been filled twice in its short existence. The first was Alicia Barcena Ibarra from December 1982 to April 1986 and since April 1986 it has been Sergio Reyes Lujan.

CONCLUSIONS

The problems of the environment that surround us form a subject matter that now preoccupies governments, their citizens, and the entire world. This subject includes, within its ambit, air pollution and water quality for industrial, agricultural, and domestic use. What is clear now is the emergence of the search for solutions at the local, national, and international level. This need and concern is perhaps no better demonstrated than in the case of Mexico.

Mexico is a country that faces grave economic problems and political challenges as it moves in the direction of a multi-party political system and social problems as it struggles with a declining currency and inflation. In addition to the above challenges, the capital, Mexico City, may be the largest city in the world, with millions of motor vehicles and more than 100,000 local industries. Some calculate that in current years the residents of the city breathe in over six million tons of toxins, and the problem borders on crisis. Mexico's response to this problem has been vocal but indirect. Mexico has made elaborate plans and created many programs. It has created commissions and subagencies of government and conducted studies and investigations of the problem. In spite of these measures, no clear solution has emerged. Rather, the regulatory schemes are as grey as the atmosphere that at times engulfs the city. According to some, the problem appears to be gaining in severity rather than lessening, affecting the lives of millions of inhabitants of the capital region.

The legislative effort at correcting the problem is clear when the history is examined. The first major steps were amendments to the Constitution and the creation in January 1972 of the Subsecretary for Environmental Improvement as a part of the Secretariat of Health and Assistance. These were followed by the creation of the more powerful position of Secretariat of Urban Development and Ecology in December 1982. This position was further refined and focused with the creation of the Subsecretary of Ecology and the further bifurcation into Directorates of Air Pollution and Water Pollution. Notwithstanding the creation of these positions and agencies, the results have been mixed at best. As demonstrated in the text, the agencies languished from a lack of financial resources and overlapping jurisdiction, leaving the skyscape of jurisdictional power hazy.

The agencies did not suffer from a lack of grants of broad general

authority. The first major piece of legislation was the Federal Law for the Prevention and Control of Environmental Pollution of 1971. It was amplified by a set of regulations called the Regulations for Prevention and Control of Atmospheric Pollution. These regulations were promulgated primarily for the control of smoke and dust and were not broad based. In 1973, similar regulations for control of water pollution were promulgated. The next major legislative steps were the creation of SEDUE, and the reforms to the Federal Law of Environmental Protection. There is now a new law effective in March of 1988 which incorporates much of the material from the previous law; it is discussed in the post script to this article. Unfortunately, the Federal Law of Environmental Protection of 1982 has never been enforced through federal regulations; nor has the new 1988 law.

Jorge Gonzales Torres of the National Alliance of Ecologists points out, as we do, that the Federal Law for the Protection of the Environment "has not been implemented by regulations." He concludes that: "the law relating to the regulation of smoke and dust is fifteen years old and its regulations are obsolete. It is an antiquity."³³ The conference celebrating the Fourth Regional Reunion relating to Federal Environmental Legislation expressed an opinion on this issue as well. That conference was held in the beginning of June 1984 and was organized by the Commission of Ecology of the National Chamber of Deputies. The concluding remarks of the conference suggested that the Federal Law for the Protection of the Environment was confusing, enacted hurriedly, without sufficient information, and may not reflect the interests of the Mexican public.³⁴ The conclusions also suggested that the law was based on models from other countries and did not fully reflect the unique nature of the Mexican Republic. To date, the rhetoric of the groups and of the commission has still not produced specific changes clarifying the act, but it may be in part responsible for the 1988 legislation.

The concern of Mexico for the environment of its citizens has spawned a multitude of positions: secretariats, subsecretariats, departments, executive advisors, and commissions. It has also generated plans and programs at every level. This flurry of activity, however, may have made it more difficult to define responsibility in times of crisis and likewise, made it more difficult to find funding when agencies are in competition with each other to complete the same task. Without specific regulations and with broad sweeping authority for action, it may have been easy for government officials to condemn actions in general but difficult for them to point to a specific violation for which a pollutor could be charged.

33. See Robles at 18 (cited in note 29).

34. See A. Sepúlveda, *Confusa nuestra legislación ambiental in Excelsior* at 1 (México, June 4, 1984).

This lack of regulation may be the explanation for the fact that the responsible parties in SEDUE have promulgated very few maxima for contaminants. For example, as recently as 1986, the authors were unable to find a maxima in Mexico for the air pollutant sulfur dioxide.

While the concern for overall air quality in Mexico is no doubt real, the authors are of the view that a better approach in the future might be to focus on particular sources of pollution which are the most egregious and commit to specific efforts in this regard, rather than to diffuse the efforts among such broad general categories as now exist.

It may also be the case that Mexican officials like those throughout the world, may be uneasy with the dual role of scientist and policeman. Qualified technicians may define standards for pollution, but, according to some authors, they understandably do not relish the role of policeman and enforcing the laws against the polluting industry.³⁵

One explanation offered in the awards ceremony of the first annual reunion relating to the problems of the environment was given by Francisco Vizcaino Murry, then Subsecretary for the Improvement of the Environment. He suggested that the way of dealing with the problem was simply a question of acting with style: "a la Mexicana."³⁶

The problem is clearly more complicated than one of style. The problem may find its roots in fundamental economics. It is easier to fight the enemy one sees rather than the one not seen. Simply stated, the problems of hunger, escalating food prices, and absence of jobs are tangible and real in Mexico. Air quality is an inconvenience but a child is better off living with poor air than suffering from malnutrition because his parents have no jobs. Mexico may have concluded, at least for the short term, that it is better to have factories working, employing people and generating pollution than to have no factories at all. If this is the case, Mexico is not accepting this fate passively.

Herein may lie the true value of much of the legislation discussed in this paper. There has clearly been a raising of the conscious level of the Mexican public with respect to air and water quality. The conferences on the subject and the laws creating cabinet level positions may well be having their effect. Indeed, the minimum cost solutions promoted by the government aid the government in this regard. In Mexico City, people are urged to share rides and to leave their cars at home once a week, and the gasoline is unleaded. Authors from the United States should not be quick to criticize Mexico's efforts as futile. In a country such as the United States with low inflation and a growing economy it is easy to shift the costs of pollution control to the consumer and feel smug when ob-

35. See Mumme at 30 (cited in note 1).

36. See Robles at 18 (cited in note 29).

serving the less successful efforts of others. Certainly, the environmental efforts of the United States would have taken a different shape if the environmental movement had arisen during the Depression of the thirties.

Whether Mexico's efforts succeed depends in great measure on the form of the regulations that are promulgated to enforce the overall federal legal framework and whether the lines of authority can be clearly defined so that the laws can be enforced. There is clear indication of a "will" to solve the problem in government and among the citizenry in general. Whether that "will" can become action when a solution is economically feasible will be the challenge facing future Mexican legislators, regulators and lawyers.

POSTSCRIPT

The body of the article was completed on December 15, 1987. On December 23, 1987, a new law relating to environmental protection in Mexico was passed entitled the "General Law of Ecological Equilibrium and Environmental Protection."³⁷ In the explanation of purpose section, it states that the law provides not only a legal framework for the area, but also addresses the corrective measures necessary in this area. The law is massive. It is divided into six headings and subdivided respectively into 26 chapters with a total of 194 articles.

It is described in its first article as a regulatory law interpreting the diverse constitutional provisions relating to the preservation and restoration of the ecological equilibrium, including the protection of the environment. Its basic objectives are to: a) define general ecological principles and establish the instruments for their application; b) achieve an ecological order; c) preserve, restore, and improve the environment; d) protect the wilderness and the wild and aquatic flora and fauna; e) promote rational enjoyment and use of natural resources; g) promote the preservation of quality air and to control pollution of the air, water and soil; h) promote cooperation of the federal government, the federal entities, and the municipalities in this area; i) to promote the coordination of the various subagencies and entities of the Federal Public Administration; and j) to encourage the shared participation and responsibility of society with respect to the subject matter of this law.

Article 3 of the Act defines thirty terms which include: environment, protected natural areas, rational use of resources, ecological criteria, ecological imbalance, ecological emergencies, and ecological regions. It underlines the necessity of decentralization of the duties appropriate to

37. D. O. (Jan. 28, 1988). See *Ley General Equilibrio Ecológico y la Protección al Ambiente* at 149.

its application and the need to coordinate between all three levels of government: federal, state and municipal.

Title 4, entitled "Environmental Protection," is divided into seven chapters. The first three chapters refer to the prevention and control of atmospheric contamination (Articles 110–116), the prevention and control of pollution of water, aquatic ecosystems (Articles 117–133), and soil (Articles 112–115). It also mentions nuclear contamination by noise explosions, thermal and light energy, and by other forms of contamination as well as visual contamination.

With respect to environmental protection, it assigns responsibility not only to the SEDUE, but also to other agencies including: the Secretaries of Health, of Agriculture and Water Resources, of Commerce and Industrial Growth, of Energy, Mines, and Parastate Industry, of Interior, of Fishing, of Transportation and Communication, of Employment and Social Work, and the National Commission of Nuclear Safety.

It encourages societal participation in the diverse works of environmental protection as are mentioned in the fifth heading "Social Participation" (Articles 157–159) and in Chapter VII of the sixth heading "Popular Outcry" (Articles 189–194).

The statute maintains basically the same kind of criminal sanctions and penalties as the previous law. It was put into effect March 1, 1988. However, as a federal legislator³⁸ pointed out to the Mexican author of this piece, the new environmental legislation will require regulation to define its parameters. It is at this level where the real politicking takes place. Only time will determine whether it will take decades to pass new and adequate regulations. Until the new regulations are adopted, the original regulations from the early seventies, described in the text in detail, still remains the law. Likewise, we will have to wait for the issuance of the appropriate state legislation, municipal laws, and local government laws to determine whether the suggestions for decentralization of Article 6 become reality.

There is no doubt that the new legislation was enacted in good faith with the unified goal of bettering the environment. We do not, however, envision its prompt application by SEDUE until the problems of lack of regulations, financial support, and overlapping jurisdictions, discussed in the text of the article, are resolved.

38. Telephone conversation with diputada Maria Esperanza Morelos Borja, Dec. 7, 1987. Ms. Morelos Borja expressed serious doubts with respect to the ability of authorities to apply the new law.