

LEGAL PROTECTION OF THE ENVIRONMENT IN MEXICO

LUCIO CABRERA ACEVEDO*

Mexico and developing countries are in a double bind which is difficult to balance and coordinate with the need to protect the environment. On the one hand, Mexico grants incentives for industrialization and approves laws known as development laws to achieve that end. On the other hand, Mexico is acutely aware of the dangers of contamination brought about by industrialization and, therefore, laws have been enacted for the protection of the environment. Yet, if the standards of protection for the environment become as high as in the well developed countries, investments may be discouraged resulting in the lessening of competitive prices for manufactured goods. For example, Japan has been criticized for engaging in "pollution dumping",¹ meaning unfair competition, because of the advantageous prices they can charge by reducing the cost of pollution control. Mexico, and all the developing countries, face the problem of reducing the costs of pollution control if they intend to increase exports of competitively priced manufactured goods. This is a problem that must be resolved with caution and well balanced policies, but, in the meantime, it seems certain that developing countries will experience more contamination than developed countries.²

* Licenciado en Derecho; Ph.D., History; Member Institute of Legal Research of the National University of Mexico.

1. Kanazawa, *Environmental Regulation for Foreign Trade and Investment in Japan*, in LEGAL PROTECTION OF THE ENVIRONMENT IN DEVELOPING COUNTRIES 129 (I. Prieto & R. Necedal eds. 1976) [hereinafter cited as LEGAL PROTECTION]. Mr. Kanazawa is a member of the Central Council for Environmental Pollution Control of Japan. He states that:

Internationally, Japan has been criticized for "pollution dumping"—unfair competition due to advantageous prices as a result of bearing no cost for pollution control—or for "pollution export"—destruction of the environment in foreign countries by Japanese industries and capital.

2. United Nations Conference on Human Environment 27 U.N. GAOR, A/PV (2112th Mtg.) 1-4, U.N. Doc. A/PV.2112 (1972) [hereinafter cited as Stockholm Conference]. At the United Nations Stockholm Conference, the Secretary General expressed the opinion, which was accepted by a great majority of the participants, that there should not be a dichotomy between "development" and "environment", and that protection of human environment should not be an excuse for the limitation of development. The statement that developing countries are experiencing more contamination than developed countries refers primarily to Latin American countries, such as Mexico.

Nevertheless, developing countries are becoming increasingly concerned with environmental pollution primarily as a health problem. Hitherto, they had been satisfied with minimal control standards, because they were unable to afford the costs of effective environmental control to the same extent as the developed countries. Mexico is emerging from a trend where industrialization was carried out with no consideration for the dangers of pollution. Recently, however, the necessity to protect the environment has come to the fore, mainly because of the extremely dangerous situation in the Valley of Mexico, which is the heart of the country.

Thus, in July, 1971, article 73 of the federal Constitution of 1917, was amended in response to the urgency of protecting the physical health of the people. This amendment gives more power to the General Health Council (*Consejo de Salubridad General*) which is an administrative body of the Health Department. The amendment states that the General Health Council, which is directly under the President of the Republic, can command immediate obedience throughout the country and is empowered to order

measures which the Council shall put into effect . . . to prevent and combat environmental pollution, [and] shall afterwards be examined by the Congress of the Union, in cases within its competency.³

This amendment to the Constitution reflects the recent concern of Mexico regarding pollution control. The problem is considered so urgent to the health of the people, that the text of the new amendment is accorded the same priority and consideration as the text which refers to "consumption of substances which poison the individual and degenerate the race."⁴ The purpose of this article is to supply the reader with

The reasons are varied and complex. Unbalanced industrialization, inadequate anticontaminant technology, erosion caused by erroneous farming practices, improper forestry development, lack of education and hygienic habits in many sectors of the population are but a few.

3. Constitution of Mexico (*Constitución Políticas de los Estados Unidos Mexicanos*) art. 73, as amended, in Official Daily of Mexico (*Diario Oficial*), July 6, 1971 [hereinafter cited as MEX. CONST.].

4. Article 73, paragraph XVI (1)(2)(3) refer to powers of the General Health Council in the event of serious epidemics or dangers of invasion of the country by exotic diseases. In these cases the amendment's preventive measures are subject to subsequent approval by the President of the Republic. MEX. CONST. art. 73, para. XVI (1)(2)(3). In the case of measures to prevent and combat environmental pollution under article 73, paragraph XVI (4), Congressional approval rather than Presidential is required. MEX. CONST., art. 73, para. XVI (4). The important point is that the Constitution approaches the protection of the environment from the viewpoint of physical health.

information about the legal protection of the environment within the national territory of Mexico. This shall be accomplished by first discussing some common problems in the field of environmental law followed by a discussion of the relationship between population and pollution. Reference then shall be made to Mexico's legal approach to environmental protection which is through prevention or compensation. International implications shall be omitted, although the interdependence of national and international problems is recognized. It should be kept in mind that, because Mexico is a developing country,⁵ its environmental laws seek social, economical and human ends, rather than scientific goals.

I. SOME PROBLEMS OF ENVIRONMENTAL LAW

It seems appropriate to discuss the unique problems peculiar to the field of environmental law. These problems explain, to some extent, the limitations surrounding recent environmental regulations in Mexico.

Sweigert and Gessner have pointed out that:

[o]ne basic requirement of all juridical thinking is yet missing: the knowledge of the typical forms of the social phenomenon to be regulated. There is no such thing as 'the environmental damage', rather a number of very different damage situations. Injuries from explosions have little in common with the killing of fish in the Rhine; smog damages little with the loss of recreation facilities due to urbanization. The next step to be taken is the determination of appropriate indicators which can serve to structure and comprehend reality as specifically as possible. Another step would be to delineate those claims that are judicially cognizable and modify the substantive and procedural law accordingly.⁶

In developing countries, damage situations affecting the health of the people are paramount, while those affecting areas such as recrea-

5. "Developing country" is the expression used in official documents such as those of the United Nations. Nevertheless, the expression is confusing. The main problem of developing countries consists of determining the type of evolution it wants. The term applies whether the aim is for a quantitative-supertechnical developed community, or for a quantitative-qualitative development by men and for men.

6. Sweigart & Gessner, *The Environmental Damage: Sociological Background and Means for Prevention and Compensation*, in LEGAL PROTECTION 83, 104 (I. Prieto & R. Nocedal eds. 1976) [hereinafter cited as *Environmental Damage*]. The authors support the necessity of social-economic planning within a capitalistic free enterprise economy for the purpose of protecting the environment.

tional facilities are secondary. In Mexico, careful study of the different damage situations in order to classify them according to priorities is essential. The environmental law protects human values and rights at a different level than, for example, the right to recreation.

Another problem in the field of environmental law pertains to the necessity of using extralegal information. The difficulties of translating scientific and social data into legal norms is obvious; the law is reflective of this data in a variety of matters. In Mexico, the data relates to population, urbanization, education, and, periodically, to such technical and scientific areas as nuclear reactors or explosions.⁷

Environmental law also deals with such important factors as pure water, clean air, noise abatement, conservation of such natural resources as forestry, the quality of the soil, fish and wild life. The problem is that legal protection of these essential elements surrounding human life often contradict such traditional legal institutions and values as private property concepts in urban centers. To balance and coordinate these new environmental laws with traditional legal institutions is an extremely delicate and difficult task.⁸

Because pollution has the potential of causing irreparable damage to humans and the essential natural resources, environmental law must be, as far as possible, preventive. Yet, it is necessary that environmental protection also be compensatory and, perhaps, even repressive. Without these sanctions, environmental law will suffer severe limitations and even its preventive role will be hampered. Nevertheless, any measure of damages is extremely difficult, particularly when one considers that such items as water and air are not marketable. Repres-

7. According to Professor Untermaier, provisions concerning the environmental regulation aimed at natural resources and human activities, constitute a heterogeneous and inorganic whole. The legal texts must cope with the problem of superabundance, contradictions, and confusion in this field. This has the effect of hindering the application of these environmental protections in spite of its excellent content. J. UNTERMAIER, *LA CONSERVATION DE LA NATURE ET LE DROIT PUBLIC*, 15 (1972) [hereinafter cited as UNTERMAIER].

8. A number of specialists underscore the close interdependence of environmental law and "heavily national sources", such as land and real property law. Stein, *Assimilation of National Laws as a Function of European Integration*, 58 AM. J. INT'L L. 1 (1964). This makes the unification or approximation of national laws between neighboring countries difficult at best and at times even impossible. Land and real property usually rank low as subjects susceptible to regional unification. In the case of Mexico, this is because of the traditional - cultural roots within the various regions of the country. See, Limpens, *Les Constantes de l'unification du Droit Privé*, 10 REVUE INTERNATIONALE DE DROIT COMPARÉ 277 (1958); Sand, *Legal Means to Control and Avoid Trans-Frontier Pollution*, in LEGAL PROTECTION 189, 211 (1974).

sive sanctions also have serious problems, but the scope of this report will not cover the criminal aspects of this area.⁹

When it comes to legal protection of the environment, much more power is vested in the executive branch than is the case with other fields of law. The enforcement of environmental statutes and regulations is almost impossible under the traditional and routine procedures of the Mexican judiciary. Environmental acts and regulations have been extremely declarative and give much discretionary power to the administration. Consequently, judicial review does not work, for judges cannot replace the experts of the administration. The judiciary may adopt a supervisory role if one agency of the administration absorbs more power than the law permits. According to the 1971 Mexican Constitutional amendment to article 73,¹⁰ the General Health Council is given total discretion. This is so even if a previous law or statute exists to authorize the action. In any other circumstances, articles 14 and 16 of the Constitution would authorize the action. The new trends in the civil procedure systems of common law countries, such as class or representative actions, might be utilized to prevent dangerous situations and actions. Such devices also may be used to reinforce the law and provide compensation for damages.¹¹

One final problem in this area of environmental law concerns the questionable legal nature of environmental rules. Frequently there is not an enforcement or remedy available. Thus, it has been suggested that the field lacks such fundamental common law principles as "rem-

9. The most famous case of compensation for environmental damage is the Trail Smelter Arbitration, 3 U.N. R. Int'l Arb. Awards 1905 (1949); 35 AM. J. INT'L L. 684 (1941). The Tribunal held Canada responsible under international law for the contamination caused by a trail smelter and awarded \$78,000 to the United States for the damage it sustained between 1932 and 1937. The difficult fields of criminal law and environmental law is beyond the scope of this article. The International Academy of Comparative Law will hold its tenth Congress at Budapest in August of 1978. Section V of that Congress intends to consider two topics: *La protection pénale de l'environnement*, as reported by Professeur Hirano of Tokyo, and *La responsabilité pénale non individuelle*, as reported by Professeur Constant of Belgium.

10. MEX. CONST., art. 73, para. XVI (4).

11. Professor Jolowicz of Cambridge, England, states that:

No special difficulty exists, it is believed, when the claim is for declaratory or preventive relief (in class or representative actions); it is in relation to claims for damages on behalf of very large numbers of people, many of whom may be unidentified and unidentifiable, that the major problems present themselves.

Jolowicz's report is in the process of being printed and translated into Spanish. Address by J. Jolowicz to Coloquio Internacional sobre 75 años de Evolución Jurídica en el Mundo, *Civil Procedure at Common Law: Some Twentieth Century Developments in England and the U.S.A.*, at 66, Sept. 25, 1976 [hereinafter cited as Jolowicz] (on file with CALIF. W. INT'L L.J.).

edies precede rights”, or “no remedy, no law”. A French professor was moved to express that environmental law is a “plat scientifique”, with a “sauce juridique”.¹² The result is that a problem of worldwide scope exists which is extremely complex and, yet, traditional legal institutions cannot resolve it.

II. THE INTERRELATIONSHIP BETWEEN DEVELOPMENT AND THE ENVIRONMENT

The interrelationship between development and environment was emphasized at the 1972 United Nations Stockholm Conference on Human Environment.¹³ The Bucharest Conference on Population in 1974,¹⁴ and the Vancouver Conference on Human Settlements in 1976,¹⁵ both addressed problems regarding the interdependence between population and contamination. Some interesting points were covered at the 1974 Colloquium of the International Association of Legal Science which was held during August in Mexico City. The general problems pertaining to contamination within developing countries, on the national and international level, were discussed.¹⁶

A book entitled *The Limits to Growth*¹⁷ has had quite an impact in Mexico. It was translated into Spanish and its conclusions are apocalyptic. Although it was severely criticized in Mexican magazines and editorials, the concepts stating the interrelationship among population,

12. M. DESPAX, *LA POLLUTION DES EAUX ET SES PROBLEMES JURIDIQUES* (1968) [hereinafter cited as DESPAX]. In the prologue, Jean Rostand points out the increasing importance of collaboration between specialists devoted to natural sciences and jurists for the purpose of preventing the degradation of renewable resources.

13. Stockholm Conference, *supra* note 2, at 3.

14. At this conference, resolution IX stressed the interrelationship between population, development, resources and environment. It recognized that the preservation of the human environment and available natural resources is a multidimensional problem, of which population dynamics is an important element. United Nations World Population Conference, 29 U.N. GAOR, C.2 (1636th Mtg.) 365, U.N. Doc. A/C.2/SR. 1636 (1974); See also, *U.S. Statement and Text of the World Plan of Action*, 71 DEP'T STATE BULL. 429 (Sept. 30, 1974).

15. United Nations Conference on Human Settlements, 31 U.N. GAOR A/C (101st, 107th Mtg.), U.N. Doc. A/C/SR. 107 (1976).

16. As a result of this colloquium, the Institute of Legal Research of the National University of Mexico published a collection of essays in the book, *LEGAL PROTECTION*, *supra* note 1.

17. J. FORRESTER, *LOS LIMITES DEL CRECIMIENTO* (1st ed. 1972). A group of Argentine scientists are working on a parallel research project of the MIT. Their project is based on a Latin American model. The Argentine group warns about the dangers of encouraging consumption as a value in itself. Rotman, *Environmental Law in the Argentine Republic*, in *LEGAL PROTECTION* 335, 349 (1974).

food production, industrialization, natural resources and contamination were accepted. Industrial production and population have an "exponential" increase, and both cause contamination.

It is recognized that damage to the environment is due primarily to technical-industrial factors such as chemicals, motor vehicles, and airplanes, or the atom as a source of energy. Yet, the population explosion within Mexico is also a primary contributor to contamination and is related to industrialization.¹⁸ Ironically, the population explosion is the very reason for seeking industrialization within developing countries. Such countries are pressured to find ways not only to improve agricultural production, but also to create more employment for the people. The industrialization, then, increases the population due to improved living conditions and increased life expectancy. In Mexico, there is no question but that population and industrialization are the main factors causing pollution.¹⁹

III. POPULATION AND THE ENVIRONMENT

Traditionally Mexico has espoused the point of view that "*gobernar es poblar*" which means that "to govern is to populate".²⁰ Recently, however, studies on environment and population have pointed out that the ecological situation has suffered because of population pressures and urbanization. The following aspects provide a focus for analyzing the population explosion and its impact upon the environment.

18. It is generally thought that pollution produced by developing countries is less than that produced by fully industrialized nations. One inhabitant in a fully industrialized nation uses more electricity than 55 people in the average developing country. A citizen of a fully industrialized nation consumes a much greater amount of detergents, fungicides, defoliant sprays, and radioactive substances than hundreds of citizens of a developing nation. A sociological theory espoused about developing countries suggests that a dual society exists within these countries. One is developed and the other is underdeveloped. The developed section pollutes like industrialized nations, and the second section contributes to pollution with its lack of education and its population growth. The theory of a dual society within developing countries may help to understand why the interaction between the developed section and the underdeveloped section tends to produce a worse environment than the environment created within fully industrialized nations.

19. At the Stockholm Conference, *supra* note 2, at 2, the general point of view was that the doctrine of "zero growth" was unacceptable.

20. The expression "to govern is to populate" is from the Argentine Alberdi. Most nineteenth century thinkers in Mexico were pronatalists and the Revolution of 1910 can be considered a pronatalist movement, although this problem was not underlined. Moreover, the first General Population Law (*Ley General de Población*) in *Official Daily of Mexico (Diario Oficial)*, Dec. 23, 1947, was, in its general rhetoric, pronatalist.

A. *Population Increase*

Life expectancy in Mexico is now sixty-five years, although there are marked deviations from this figure, depending upon whether one is referring to the developed centers of Mexico or the rural areas and poverty belts within the towns. In 1973, the population growth rate was estimated at 3.5% per year. Then new programs of family planning and the new Population Law²¹ started to take effect; so that the 1977 annual growth rate is estimated at 3.2%. President López Portillo has declared that one of the goals his administration has set for 1982 is to reduce the annual rate of increase to 2.5%.²² Most experts predict that by the year 2000, Mexico will have approximately 110 million inhabitants, depending upon the rate of growth.²³

In spite of the rhetoric of some laws, past Mexican legislation generally did not favor the increase of births. For example, there have never been tax incentives and sterilization is legal for both males and females. Moreover, sterilization is not considered a felony as long as the concerned party gives full consent.²⁴ The sale, use, importation, and manufacture of contraceptives is legal. Actually, lack of education has been one of the main reasons for demographic increase. Thirteen to eighteen percent of the school age children never attend school, and of those that do, only forty-four percent finish.²⁵ Current programs under

21. The new General Population Law supports family planning to decrease population growth, protection of the environment, incorporation of women into national life, better regional distribution of population, and respect for human rights and liberties. This law created the National Population Council (*Consejo Nacional de Población*), with a view towards reinforcing the main goals of the law. The Chairman of the Board of the Council is the Secretary of the Interior (Secretario de Gobernación). The General Population Law (*Ley General de Población*) in Official Daily of Mexico (*Diario Oficial*), Dec. 11, 1973.

22. In 1976, when the current presidential administration began, Mexico had approximately 62 million inhabitants. By 1982, there will be around 75 million based on an annual growth rate of 3.2% or 3.1%. In other words, about a 13 million increase will occur during those six years. The main structure of the population will reflect those active age groups that are seeking employment and cultural services. Report of the Secretary General of the National Population Council, May 3, 1977 [hereinafter cited as Population Council Report].

23. The figures given by experts do not often coincide and vary from 100 to 135 million, depending on annual growth.

24. G. CORNEJO, A. KELLER, S. LERNER, & L. AZUARO, *LAW AND POPULATION IN MEXICO (Ley y Población en México)* (No. 23, 1975) [hereinafter cited as *LAW AND POPULATION*].

25. *Id.* at 84. Article 4 of the Mexican Constitution was amended for the purpose of improving the condition of women and to establish family planning as a human right. It states:

Men and women are equal before the law. The law shall protect the organization of the family and its development. Every person has the right to decide in a

the aegis of the National Population Council stress the interrelationship between education, women rights and population.

B. Urbanization

Population growth within the large cities of the Republic has played a very important role in environmental pollution. The metropolitan area of Mexico City has 8.8 million inhabitants.²⁶ The growth of Mexico City is due to the natural increase of the city population, which is 56.8%, and migration from the rural areas to the city, which is 43.2%. Some estimations state that approximately seventy-five families with an average of 5.5 members per family arrive daily in the metropolitan area. By the year 1980, it is expected that Mexico will have three metropolitan areas, each featuring a population of over one million people. Those areas are Mexico City, with an urban population ranging from 12.5 to 13.8 million; Guadalajara, which is expected to surpass 2.5 million; and Monterrey, which will have over 2 million.²⁷ Because of unemployment factors, these three main cities attract the rural and rural-urban population. Other cities that attract population are those that are located close to the United States border, are tourist centers, or have a special economic activity. These growing cities include Poza Rica, Coahuila de Zaragoza, Minatitlán, Las Truchas, Ciudad Obregón, Hermosillo, Tijuana, Mexicali, Reynosa, Matamoros, Ciudad Juárez, Acapulco, Cuernavaca and those in

free, responsible and informed manner about the number and timing of his children.

MEX. CONST. art. 4, as amended, in Official Daily of Mexico (*Diario Oficial*) Dec. 31, 1974. The Mexican Constitution also amended articles 5, 30, and 123; regarding equality to work, equality in obtaining Mexican nationality, and the establishment of leave in time of pregnancy. These articles also favor the equality of women and were amended on the same date as article 4. *Id.* art. 5, 30, 123. Several laws were also amended to promote women's rights. They include the Law of Nationality and Naturalization, the Federal Labor Law, the Federal Labor Law of Workers and Employees of the Government, the Civil Code, the Commercial Code, and the Civil Procedural Code. *See* Official Daily of Mexico (*Diario Oficial*) Dec. 31, 1974. It is suggested that women's rights diminishes the birth rate. The new Sanitary Code of Mexico, also favors family planning and facilitates the use of contraceptives. Sanitary Code of Mexico (*Código Sanitario*) in Official Daily of Mexico (*Diario Oficial*) Mar. 13, 1973.

26. L. UNIKEL, LA DINAMICA DEL CRECIMIENTO DE LA CIUDAD DE MEXICO 13, 24 (1972) [hereinafter cited as UNIKEL]. Of the 1.7 million vehicles that clog the streets of Mexico City, 30,000 of them have been banned by traffic chief General Arturo Duranzo Moreno for causing "accidents, bottlenecks and air pollution." These are the old Detroit models, such as Chryslers, Studebakers and Hudsons, referred to as "dinosaurs" and the "principle cause of the catastrophic traffic problems in Mexico City." *Mexico City Bans Detroit 'Dinosaurs,'* The San Diego Evening Tribune, Feb. 3, 1978, § A, at 1, Col. 5-6.

27. *Id.* at 13-24.

close proximity to the new oil fields, such as Villahermosa. These cities increase their population rate about five to eleven percent each year.²⁸ In September of 1977, the National Committee for Urban Development (*Comisión Nacional de Desarrollo Urbano*) was established for the purpose of observing these urban problems.

C. Rural Dispersion

The small villages of Mexico do not have water or services, and they suffer great land erosion. Approximately 16 million Mexicans live in these small villages of less than 1000 inhabitants. By 1982, approximately 17.4 million will inhabit these small villages, and this figure embraces seventy percent of the rural population. The other thirty percent will be located in somewhat larger villages of 1000 to 2500 inhabitants. In 1976, the total rural population was 22.7 million and by 1982, it should increase to 24.9 million. This increase is not substantial because of the considerable migration to the towns.

The rural-urban centers are those that feature a population of 2,500 to 15,000 inhabitants. There are approximately 2000 of such rural-urban centers in the territory of Mexico and their population is expected to increase from 9.8 to 11.5 million people. These centers also will experience a migration loss to larger towns and, yet some of them exemplify the best human settlements in Mexico, when focusing on environmental conditions. In 1977, approximately fifteen percent of the total Mexican population inhabits these centers and current policy is to try to make some of them "poles" of attraction. This would require rehabilitation and considerable investment.²⁹

D. Migration

As noted *supra*, there is a strong rural to urban migration pattern in Mexico and this trend is expected to continue over the next several years. Of the expected thirteen million person increase during the years from 1976 to 1982, 9.4 million shall be located within urban centers. Small villages with a population of no more than 1000, increase their population no more than one percent annually.³⁰ The inhabitants of these villages are unemployed and do not participate in the economic activity of the country. When they settle in the large urban centers, they contribute to pollution by living in the "poverty belts." This is so because they are not beneficiaries of such Federal welfare programs as

28. Population Council Report, *supra* note 22, at 11.

29. *Id.* at 17-22.

30. *Id.*

Social Security due to the fact that they have never been employed. It is possible that this group of people comprises the bulk of those that migrate to the northern border.

E. Regional Distribution

Fifty percent of Mexico's entire population lives within fifteen percent of the total territory of the Republic. Within the short time frame of 1976 to 1982, that area will accommodate seven million more people. Essentially these people are living within seven states of the Republic. Those states are Veracruz, Mexico, Jalisco, Puebla, Michoacán, Guanajuato and the Federal District. The southeast area of the republic is expected to increase its population due to oil exploitations. Deterioration of the natural resources in this area will be more intense and, therefore, the new oil and petrochemical installments should be handled properly to avoid excessive polluting.

Another fifteen percent of Mexico's territory will house ten percent of the total population by 1982. This is an increase of 1.2 million people. This area is located in the southeast states of Yucatán, Quintana Roo, Campeche and Tabasco. This does not include the oil growth areas and most of the territory within the states of Baja California, Nayarit, Colima, Aguascalientes and the eroded zones of Querétoro, Morelos, and Tlaxcala. Although difficult, it would be desirable to attract more of the population to the empty areas of these states.

The rest of the territory of the Republic comprises seventy percent of the total and includes fourteen states. Sixty percent of the population will reside in this area, which represents an increase of almost five million people for the period between 1976 and 1982.³¹

F. Some Pollution Aspects Within the Valley of Mexico

The *Zona Metro politana de la Ciudad de Mexico* (ZMCM) is located in the Mexican Valley and suffers from terrible environmental conditions. The only positive consequence of these conditions is that it has awakened public opinion to the dangers of pollution and the interdependence between environment and population increase. Air pollution has reached serious levels in the Valley. More than one million vehicles are in circulation in the ZMCM area³² and seventy percent of the contamination is caused by these vehicles that expel

31. *Id.* at 15, 21.

32. Institute de Ingeniería, *La Contaminación Atmosférica y su Relación con el Flujo de Vehículos en la Ciudad de México*, UNAM (1969). See also, *La Contaminación Atmosférica*, Gaceta Medica (Mar. 1970).

carbon monoxide and lead tetrathylene. Those vehicles utilizing diesel produce less carbon monoxide, but more smoke; and, unfortunately, there are no devices to eliminate it.

Industries, such as the oil refinery, are also major contributors to contamination, particularly in the form of sulphur oxides and other chemical elements. Those factories that produce cement, paper or steel, soil the air with their fumes. It should be noted that forty-five percent of Mexico's industry is located within the ZMCM area.³³ Netzahualcōyotl city is located within the valley of Mexico, and has two million inhabitants. With no water supplies, the living conditions within this area are miserable.³⁴

Unfortunately, there is no "green belt" in the ZMCM. The government delegations of the Federal District, such as Cuajimalpa, Magdalena Contreras, Tláhuac, Tlalpan, Xochimilco and Milpa Alta were formerly of a rural or semi-rural nature with an abundance of water and forestry, but these delegations have become absorbed by the city. Water for general consumption in Mexico City comes from the high courses of the Lerma River and, at present contain high levels of contamination. Yet, great demands remain and this has led to the exploitation and extinction of such natural lakes, rivers and channels as Xochimilco and Chalco. Finally, unchecked urbanization has been destroying the forestry on the hills surrounding Mexico City.

IV. PREVENTION AND COMPENSATION IN MEXICO

Legal protection of the environment in Mexico has been approached through prevention or compensation.³⁵ The first approach is the most relevant and the second is an "open research problem".³⁶ In Mexico the compensation approach almost exclusively relies on the traditional rules of the Civil Code.

A. *Prevention*

Planning policies and administration could be the most important avenue in Mexico for protecting the environment. Mexico is a free enterprise system with a mixture of important state corporations.³⁷

33. See generally, L. UNIKEL, *EL DESARROLLO URBANO DE MEXICO: DIAGNOSTICO E IMPLICACIONES FUTURAS* (1st ed. 1976).

34. *Excelsior*, Sept. 29, 1977, at 1, col. 3.

35. See Appendix, *infra*, for a list of laws dealing with the environment in Mexico.

36. *Environmental Damage*, *supra* note 6, at 101.

37. Mexican economy is often referred to as *economía mixta*, which means that a free-market-private economy exists alongside a state group of enterprises. It is generally held that the latter supports the former and results in an essentially capitalistic economy.

Attempts to solve environmental problems through motivation, discouragement, and economic stimulus are being tested.

Various elements are characteristic of Mexico's planning policies. First, policies pertaining to environmental law take human rights into consideration. At the opening of the new Urban Development National Committee (*Comisión Nacional de Desarrollo Urbano*), the President of Mexico stated that "urbanization of the country must try to improve the quality of life, with total respect to freedom of transit and location."³⁸ The human rights elements of the present Constitution are rooted in eighteenth and nineteenth century ideals, but also contain twentieth century social trends. Therefore, the Mexican Constitution grants flexibility to Congress and the Executive.

Secondly, within the Federal Government, the Under-Secretariat of Environmental Improvement operates under the Health Department. Yet, other governmental agencies are involved which could foster a lack of efficient coordination. Finally, at the present time, protection of the environment is being accomplished through population and urbanization policies. A secondary approach embraces technological and scientific aspects. For example, this type of approach can be seen in the present policy on population and its control.

Year	1976	1982	1988	1994	2000
Annual growth	3.2%	2.5%	1.7%	1.2%	1.0% ³⁹

The National Commission of Energy (*Comisión Nacional de Energéticos*) relies heavily on the technological and scientific approach. Their environmental policies are not being made public at the present time. An indirect, but efficient, policy to protect the environment in the Mexican Valley has been the increase of gasoline and automobile prices.

There is room to criticize the Mexican Government in this field of environmental law. Mexican governmental agencies do not separate politics and administration. Duverger⁴⁰ remarked about the importance of separating political agencies from administrative agencies. The

38. The Urban Development National Committee was established by a governmental order. Official Daily of Mexico (*Diario Oficial*), July 16, 1977. See, Excelsior, Sept. 29, 1977, at 1, col. 3.

39. This information was given to the author through a report from the Secretariat of the National Population Council dated, Oct. 28, 1977.

40. M. DUVERGER, *DROIT CONSTITUTIONNEL ET INSTITUTIONS POLITIQUES* 161 (1962).

political should make the main decisions and the administrative should carry out such decisions. It seems that this division is lacking in Mexico. The four main administrative Government agencies, according to functions,⁴¹ are those that consult, decide, execute and control. Because environmental protection is so complex, and interrelates among so many fields, strict separation of political and administrative agencies should be the rule in this area.

In environmental law, a problem arises when drawing distinctions between administration and law. The *Schechter Poultry Corp. Case*⁴² makes it clear that wide discretionary powers granted to the government that are not well specified are incompatible with the concept of law. Although the granting of wide discretionary powers to the government without proper definitions and limitations make an efficient administration, it also creates a serious threat to human rights. Perhaps it may be necessary to create new courts within the administration that are more accessible to individuals within the field of environment. They could be similar to the early equity courts before they merged into the common-law court system; or they could emulate labour courts in Mexico that are within the Executive branch in spite of the fact that they perform judicial tasks.⁴³

Civil procedure is of special importance in environmental protection particularly preventive and declaratory reliefs. "Even the mass class action for damages in the United States seems to have more of a deterrent, that is forward looking, than a compensatory purpose."⁴⁴ Mexico may adopt this trend in civil procedure in an attempt to surmount traditional obstacles.

B. Compensation

The United States scientist Bennett once stated that:
in the old agricultural areas of the Andes and on portions of
the Mexican Plateau, soil erosion and continuous cropping
. . . have ruined or impoverished a very large area of land

41. *Id.*

42. *Schechter Corp. v. United States*, 295 U.S. 495 (1935). Many United States jurists are of the opinion that law is not compatible with the granting of wide discretionary powers to the administration. A. DICEY, *THE LAW OF THE CONSTITUTION* 198 (8th ed. 1915). Pound refers to those countries where administration predominates and those countries, such as the United States, where the administration is often stopped by judicial orders and the courts predominate. Pound, *Justice According to Law*, 14 *COLUM. L. REV.* 1, 12 (1914).

43. In Mexico, the Labor Courts, the Tax Courts, and soon the Agrarian Courts, work within the executive branch. Nevertheless, they decide conflicts as the judiciary.

44. JOLOWICZ, *supra* note 11.

. . . [E]rosion across the centuries has disastrously affected a large total area, forcing [the] abandonment of thousands of acres and [the] migration of thousands of farm people. . . .⁴⁵

This statement reveals the great legal problem pertaining to one of the most serious damage situations to the environment. In Mexico the Civil Code rules are the only rules that could be applied in this situation. Yet, the civil rules refer to civil liability except in the case of a contract situation, where one person or several commit a wrong upon another person or property.⁴⁶ An act is the cause and damage is the consequence of the act. A space and time distance exists between the act and the damage. Yet, in the field of environment, the distance between the act and the damage has the potential of being enormous in both space and time aspects. How can a proper compensation be determined when there are thousands of miles and several centuries between the causative act and the consequential damage? As previously exemplified, the erosion of land took centuries and many people who are impossible to identify caused the erosion. The victims of such erosion are essentially the heirs of the beneficiaries of the harmful acts. Not all damage situations are as serious as the problem of erosion. Nevertheless, developing countries are faced with the problem of rehabilitating the environment at a cost considerably higher than the benefits obtained. Some specialists have suggested that developing countries "import pollution", but this statement is not always correct, for the natives also contribute to their own pollution.

Under the civil law, when a contract situation is not involved, the burden of proof is on the victim, who must demonstrate that the obligor has neglected a public duty resulting in damage to the victim. The problem is that the victims of pollution do not have evidence nor can they identify the polluters. Mexico's Civil Code is similar to the Codes in Continental Europe because it embodies the concept of *responsabilidad objetiva*, which means that the owners of machines, substances or instruments assume the risk of liability. They are liable

45. H. BENNETT, PLANTS AND PLANT SCIENCE IN LATIN AMERICA: SOIL CONSERVATION IN LATIN AMERICA 165-166 (1945). The First United Nations Conference on Desertification was held in Nairobi from August 29, 1977 to September 9, 1977. The conference, sponsored by the United Nations, recommended the rehabilitation of soils *via* the reforestation of eroded and desertic lands. See M. NICHOLSON, THE ENVIRONMENTAL REVOLUTION 42 (1971).

46. Civil Code of Mexico (*Código Civil para el Distrito y Territorios Federales, en materia común y para toda la República en materia federal*) arts. 1910-1934 and 1987-1990 (Editorial Porrúa, Mexico 1977) [hereinafter cited as MEX. CIV. C.]. This field of law is similar to tort law.

because of the incidental dangers to these items. It is not necessary that the owner be aware of such dangers, and the victims, in such cases, do not have the burden of proof.

Experts contend that the environment is polluted continuously in the sense that it is never totally free from contamination. Yet, it is obvious that in some circumstances dangerous factors raise the contamination to the point where damage to the ecosystem results in an excess of pollution. In most cases, there are several factors that cause environmental damage and they are interrelated. Many problems arise from this interrelationship. First, damage to air, soil, or water is difficult to estimate in terms of money. It is also necessary for the damage to be a direct consequence of the act under the Civil Code, and there are times in environmental pollution that the damage is too remote. New acts can intervene, making the damage an even more indirect consequence of the act. Finally, liability for concurrent actions that are committed by several persons can be identified as joint or solitary obligations (*responsabilidad solidaria o mancomunada*). The Mexican Civil Code establishes the solitary obligation and, thus, the victim can recover the total amount of damages from any single pollutor.⁴⁷

In this field of environmental law, there is an interdependence between the civil and administrative law of Mexico. Governmental authorities must approve any transfer of technology and sale of products. They also grant concessions and permissions to factories. If the approved technology produces dangerous pollution, or if the approved product damages the environment, the victims cannot recover from the polluters because they have fulfilled governmental requirements. The victims must bring their action against the negligence of the authorities and must carry the burden of proof. This problem requires careful study because the law obviously is lacking. Of course, the government has the power to revoke the grants and concessions and to close the factories, but the victims still are left without relief.

In most countries, and Mexico is no exception, the civil courts are not prepared to handle this kind of environmental litigation. Zweigert and Gessner⁴⁸ state that lower income persons suffer disproportionate-

47. The author has attempted to translate joint obligation as *obligación mancomunada*, and solitary obligation as *obligación solidaria*.

48. Compensation claims can only be vindicated in the civil courts—an institution which is, in no way, prepared for such litigation. In all legal systems, there is a lack of legal and financial assistance for lower-income persons who regularly suffer most from environmental pollution. Their access to the courts has always been limited but they are at a total disadvantage when the adversary is an industrial enterprise. *Environmental Damage*, *supra* note 6, at 103.

ly from environmental pollution and they lack the means and the capacity to obtain evidence against a polluter who is likely to be a wealthy organization.

In this field of environmental law there have been three main types of actions. The first is an individual action, and this is the only type existing in Mexico for compensatory purposes. Unfortunately, it is inefficient. The second type is the class or representative action that exists in the common law countries. This type of action does not exist in Mexico. The third type of action refers to compensation available from certain funds. Under this type of action, the victim obtains compensation from a fund that is handled by the government or other entity.⁴⁹

V. CONCLUSION

While legislation pertaining to the environment in Mexico is becoming abundant, it is also rhetorical. This is so in spite of the excellence of the purposes embodied in these laws. Yet, this seems to be the case in most countries. Attempts to codify environmental law in Mexico have had doubtful success. The most important element lacking is a clear specification of damage situations.⁵⁰

The Under-Secretary of Environmental Improvement of Mexico operates under the aegis of the Health Department, and is primarily interested in protecting human health standards. Although the Under-Secretary is allowed to coordinate his work with other government agencies, the establishment of a central board within the Federal Government would be more effective. This board could take such factors as economics, technology and population into consideration and is a desirable step, in spite of prevailing skepticism in Mexico regarding administrative entities.⁵¹

49. Holland has established a compensation fund for victims of air pollution. Dutch Air Pollution Act, art. 64 (1970); noted in *Environmental Damage*, *supra* note 6, at 102.

50. UNTERMAIER, *supra* note 7, at 15. Professor Jaro Mayda's project was the establishment of a code for the purpose of protecting the environment of Colombia. Professor Mayda is a United States professor at the University of Puerto Rico. The National Institute for Environmental Protection in Uruguay undertook another environmental project for codification.

51. For example, Sweden has a Central Board for Environmental Protection and has elected not to allow local authorities the power to deal with the problem because it is considered too complex. Since 1973, a consulting agency within the Mexican State Department has been functioning for the purpose of informing the various departments and agencies of international conventions and meetings regarding environmental concerns.

Environmental control is a heavy burden on developing countries because it is based on ethical and political values that often contradict economic values. These values must be balanced. Those economic activities that pollute less, such as tourism, could be emphasized. Additionally, antipollutant technology should be introduced to the extent possible. The interrelationship between environment, population and urbanization is well recognized in Mexico.⁵²

The well developed countries protect the "quality of life" by increasing recreation areas, sport courts, and generally encouraging a cultivated and enjoyable life. These goals seem impossible to reach in developing countries and, therefore, the inhabitants of Mexico City would be satisfied with the effective protection of human health. In developing countries, environmental protection is often considered "comme un luxe des pays surdéveloppé."⁵³

Mexican legal traditions are used to judicially reinforce the law so that individuals or groups can bring claims. The experiences of other countries in the area of class or representative actions might be very helpful in specific damage situations. The intervention of the judiciary, within the limits of logical and practical foundations, would be important for the protection of human rights.

Mexico has not yet paid enough attention to the problem of "pollution import" in the field of transferring technology and foreign investments. This is an open research problem which requires a balancing of values.

The problems posed by environmental pollution in developing countries are enormous indeed, but with recognition, determination, and the development of well balanced policies, the challenge can be met.

52. DESPAX, *supra* note 12, at 447.

53. Translated this phrase means that environmental protection is a luxury that only over developed countries can afford. Despax, *Les Effets de la Réglementation Nationale de L'environnement sur le Commerce International et les Investissements a L'étranger*, in LEGAL PROTECTION 107, 110 (1976).

APPENDIX

LEGISLATION AND GOVERNMENTAL ORDERS IN MEXICO

There are three main types of legislation and government orders in Mexico that deal, either directly or indirectly, with the environment. They are the development and planning laws and orders, those laws and orders attempting to protect specific damage situations, and those laws and regulations that attempt to codify environmental protection.

I. DEVELOPMENT AND PLANNING LAWS AND ORDERS

The idea of planning in Mexico is not new and actually dates back to the post-revolutionary era, when the western countries were facing the economic crisis of 1929. President Pascual Ortiz Rubio promulgated the first and single Law on General Planning of the Republic (*Ley General Para el Plan de la República*). See Official Daily of Mexico (*Diario Oficial*), July 12, 1930 [hereinafter referred to as D.O.]. The idea was that a national committee would create a national plan for Mexico designating such geographical zones as mining areas and oil areas. Actually, the law never worked and later laws on general planning have never been promulgated.

State group enterprises have been the subject of some legislation, such as the Laws for Decentralized Entities and Corporations with Stock State Participation (*Ley Para el Control, por Parte del Gobierno Federal, de los Organismos Descentralizados y Empresas de Participación Estatal*) (D.O. August 21, 1947, January 7, 1966, December 31, 1970).

Some decrees on aspects of planning are: Decree on Economic and Social Planning of the Country (*Decreto Para el Plan Económico y Social Para el País*) (D.O. August 21, 1961), Trust for the Study and Development of Complexes, Parks and Industrial Cities at the Federal Entities of the Republic (*Fideicomiso para el Estudio y Fomento de Complejos, Parques y Ciudades Industriales en las Entidades Federales de la República*) (D.O. December 24, 1970), Inter-Secretarial Committee for Economic Development of the Border Area of the North Into Free Zones (*Comité de Secretarías Para el Desarrollo de la Frontera del Norte en Zona Libre*) (D.O. May 11, 1972), National Committee for Regional Development (*Comité Nacional Para el Desarrollo Regional*) (D.O. January 28, 1975), and Urban Development National Committee (*Comité Nacional Para el Desarrollo Urbano*) (D.O. July 16, 1977).

Some laws in the field of technology and foreign investment are: Scientific and Technological National Council (*El Consejo Nacional de Ciencia y Tecnología*) (D.O. December 29, 1970), Law to Promote

Mexican Investment and Regulate Foreign Investment (*Ley Para Promover la Inversión Mexicana y Regular la Inversión Extranjera*) (D.O. March 9, 1973), Law on the Registration of the Transfer of Technology and the Use and Exploitation of Patents and Trademarks (*Ley Sobre el Registro de la Transferencia de Tecnología y el Uso y Explotación de Patentes y Marcas*) (D.O. December 30, 1972), and the Mexican Institute of Foreign Trade (*Instituto de Comercio Exterior*) (D.O. December 31, 1970). Actually, these laws do not deal with the problem of the possible importation of pollutant technology. Such problems are dealt with by the Industrial Board of Directors of the Department of Industry and Commerce which regulates the Agreement Regarding the Manufacture of Pollution Control Equipment (*Acuerdo Que Fija las Bases a las Que se Sujetará la Fabricación de Equipos y Dispositivos Para Prevenir y Controlar la Contaminación Ambiental*) (D.O. July 14, 1972).

Since 1935, laws for secretaries and departments of the Federal Government exist for coordinating government work. They imply some planning. The latest is the Organic Law of the Federal Public Administration (*Ley Orgánica de Administración Pública Federal*) (D.O. December 29, 1976), which was issued at the beginning of President López Portillo's administration. This law contains two important points. One is the creation of the Human Settlements and Public Works Department, which is entitled to make policy on human settlements, regional distribution of population on general plans and to promote poles of attraction in urbanization and migration. The other is the establishment of the Programming and Budget Department, which is empowered to make national, regional and sectorial plans for economic and social development, to obtain statistics and information, and make the national expense plan for the annual federal budget.

Regarding the Human Settlements Law, the following constitutional amendments were made to articles 27, 73 paragraph 29(c), and 115 paragraph 4 (D.O. February 6, 1976). These amendments provide that private ownership of land can be regulated for the protection of the soil, water, forestry, and for the planning of population centers and for a better distribution of rural and urban people. The federal congress and the federal executive increased their power regarding land ownership, with the resultant decrease in state and municipal authority to plan urbanization. The amendments also subordinated state and municipal officers to follow federal plans on human settlements and urbanization. These constitutional amendments were the basis for the Law on Human Settlements (*Ley de Asentamientos Humanos*) (D.O. May 26, 1976). The general ideas related to the United Nations Vancouver Conference of 1976. Of course, there are many other laws, such as the ones on Planification of the Federal District, that cannot be covered in this article.

II. LAWS AND ORDERS ATTEMPTING TO PROTECT SPECIFIC ENVIRONMENTAL SITUATIONS

The Sanitary Code (*Código Sanitario*) (D.O. March 13, 1973), aims at protecting the environment and has a chapter on possession, commerce, use of radioactive isotopes, nuclear reactors, neutrons, and x-ray instruments.

The Forestry Law (*Ley Forestal*) (D.O. January 16, 1960), the Water Law (*Ley Federal de Aguas*) (D.O. January 11, 1972), and the Law That Regulates Article 27 of the Constitution on Oil (*Ley Reglamentaria del Artículo 27 Constitucional en el Ramo del Petróleo*) (D.O. Dec. 30, 1977), try to protect several environmental situations.

The Federal Law on Civil Liabilities for Nuclear Damages (*Ley de Responsabilidad Civil por Daños Nucleares*) (D.O. December 31, 1974), establishes the liability of the operator of nuclear reactors or the factories that use nuclear elements in the event of accident. Total liability is imposed regardless of intention or negligence even if there are other factors in the accident. The Energetic Commission (Comisión Energéticos) (D.O. Feb. 27, 1973), was established to deal primarily with electricity, oil, and nuclear power.

III. ATTEMPTS TO CODIFY ENVIRONMENTAL LAWS

The main attempt at codification is the Federal Law for the Prevention and Control of Environmental Pollution (*Ley Federal Para Prevenir y Controlar la Contaminación Ambiental*) (D.O. March 23, 1971). This was mainly the work of graduates from the school of Environmental Engineering and Health Engineering and of the National Scientific and Technological Council. Article 14 of this law defines contamination as the presence of any pollutant in the environment that might damage or disturb the health or welfare of people, plants, animals, or reduce the quality of the air, water, soil, or natural resources, regardless of whether they are private property or national property. The law applies to nearly all branches of the Federal Executive and is aided by state and municipal governments. It refers to urban development, industrial decentralization, and educational and informative programs. Reference is made to three kinds of pollution: air, water and soil. Air and water pollution has been the subject of amended regulations. Soil pollution has unique problems that, in the opinion of the author, are insurmountable.