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***SYNOPSIS OF THE STUDY OF THE INSERTION OF ENVIRONMENTAL
MANAGEMENT IN SECTORIAL POLICIES: The energy and industry case in
Mexico***

WORKING PAPER

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Introduction

The insertion of environmental management in sectorial policies is defined as the inclusion of environmental considerations in the decision-making of various economic sectors so as to make them compatible with general environmental goals at the lowest social cost possible, something essential to reach sustainable development. Such insertion must be achieved to guarantee the effectiveness of environmental policies and as a response to the problems created by market and government failures.

The study contains a methodology to establish the bases of a program for an effective environmental management insertion in sectorial policies and uses this conceptual framework to analyze Mexico's experience in the energy and industrial sectors in Mexico.

According to this methodology, the following elements must be identified:

1. Options for generic public policy instruments in environmental management.
2. Authorities, agents and responsibilities in environmental management.
3. Specific instruments for environmental management insertion.
4. Coordination mechanisms for environmental management.
5. Challenges and goals of environmental management.

Options for generic public policy instruments in environmental management

The decisions of economic agents may be modified in the following ways:

First, by changing the regulatory framework, that is, redefining what is permitted and what is not. The instruments that use this way are known as *command and control*. Second, by changing the preferences of the agents, through distribution of information, education, etc. These instruments are known as *voluntary*. Third, by changing incentives, that is costs and benefits, of the agents. These instruments are known as *economic* instruments. Fourth, by influencing the characteristics of the goods and services produced by the government (fuel quality in the case of Mexico) or that require its participation in order to offer these services (for instance, the authorizations to build and operate hazardous waste treatment and disposal plants). These instruments generally called *infrastructure*. Finally, by spreading information on the consequences of consumption and production activities on the environment. These instruments are known as *information and dissemination*.

Environmental management authorities, agents and responsibilities

The main groups that play or may play an important role in achieving environmental goals in the industrial and energy sectors are:

- The federal government: Secretariat of the Environment and Natural Resources (*Secretaría de Medio Ambiente y Recursos Naturales*); Secretariat of Energy (*Secretaría de Energía*); Secretariat of Economy (*Secretaría de Economía*);

Secretariat of the Revenue and Public Credit (*Secretaría de Hacienda y Crédito Público*, or *SHCP*) (prices, fees, taxes, subsidies, investments); Secretariat of Government (*Secretaría de Gobernación*) (*NIMBY*); Office of the Presidency (*Oficina de la Presidencia*) (regulations),

- The federal Congress,
- The state governments,
- The state congresses,
- The municipal governments,
- International agencies,
- Business groups and
- Non-governmental organizations.

The responsibilities of environmental management in sectorial policies include:

i) Planning.

- Evaluation of the environmental impacts of the sector's activities.
- Consultations with those involved in the sector to discuss objectives and types of insertion.
- Preparation of environmental indicators (state, pressure, response) for the sector.
- Establishment of priorities.
- Establishment of goals.

ii) Instrumentation.

- Preparation and approval of programs to reach the established goals.
- Assignment of resources, attributions and responsibilities according to the programs.

iii) Monitoring and evaluation.

- Preparation and approval of a follow-up mechanism (including indicators).
- Preparation and approval of and evaluation mechanism.

iv) Supervision

- Formalization of the sectorial authorities' commitments.
- Follow-up of the actions.
- Performance evaluation.

Specific Instruments for the Insertion of Environmental Management

Command and Control

These are the more traditional instruments in environmental policy. The regulations are instruments that attempt to align private and public interests. Controls can be of two types: those that limit the permissible emission levels and those that impose the use of a particular equipment or process. Of this group of instruments the best known are laws, regulations and norms. The cases when direct controls are essential for an effective environmental policy are:

- When the measurement of emissions is impossible or impractical, and therefore regulation of processes are more attractive.
- When dealing with particularly dangerous substances.
- In emergency conditions.
- To create an awareness in the regulated community.

Environmental management practices within the industrial and energy sectors have been dominated in great part by regulatory instruments, that is, command and control instruments. In Mexico's case the following stand out:

- The General Law on Ecologic Equilibrium and Environmental Protection (*Ley General del Equilibrio Ecológico y la Protección Ambiental*)
- The Official Mexican Norms (*Normas Oficiales Mexicanas, NOM*), which are binding and in the case of environmental norms these are classified as NOM-ECOL.
- The licenses and permissions, and
- The Environmental Impact Statement (*Manifestación de Impacto Ambiental, MIA*) and the inspection and enforcement process

The process for creation of official Mexican regulations includes mechanisms for interested party participation, which are established by the Federal Law of Metrology and Standardization (*Ley Federal de Metrología y Normalización*). In principle, this process leads to regulations that are congruent with the environmental protection necessities and the technical capacities of economic agents that perform, but carry certain disadvantages that may curtail their effectiveness. Common problems include the delay in the process itself and its bureaucratization, which causes a lag in the regulatory activity and generates uncertainty for the businesses. In addition, there is a risk of "regulatory capture," especially when the regulations are directed to highly concentrated industries.¹ Finally, generally only the large businesses or business organizations participate in industry, so small business interests are not properly represented. Coordination problems between authorities can result in regulations that address secondary environmental aspects leaving aside more important environmental problems, which also affect the authorities' inspection and vigilance capacity.

¹ We do not mean there is evidence of regulatory capture, rather that the rules of the regulation process create the possibility of observing this result.

Since the *PROFEPA* started its functions, several coordination mechanisms for inspection and vigilance have been developed jointly with industry. Perhaps the most notable ones refer to environmental audits and other voluntary instruments.

However, there are institutional obstacles that diminish the regulations' effectiveness. The best-known case refers to the division of functions regarding the enforcement of environmental legislation between *PROFEPA* and the National Water Commission (*Comisión Nacional de Agua*, or *CNA*). The environmental impact of productive processes and activities can occur due to various reasons, which suggests that the authority in charge of inspection and vigilance must have jurisdiction over all of them. In the specific case of water, many residues are liquids discharged into the sewage, so an inadequate inspection of water pollutants will lead to the establishment of high polluting activities. In other words, a division of functions in the enforcement of environmental regulations, whether to control water quality or other media, leads to an ineffective environmental protection, aside from the economic costs it produces.

It should be mentioned that coordination between *PROFEPA* and the *CNA* with respect to the inspection visits made by each of them to industrial plants is not effective. Also, the *CNA* has main functions, which are not the inspection of environmental regulations in matters of water, which affects its capacity to accomplish this task. There are also coordination problems between *PROFEPA* and the *INE*.

An additional problem is that the penalties contained in the legislation do not reflect environmental costs nor do they include mechanisms to cover the caused damages, so the expected amount of the fine charged in case of infringement after considering the probability of detection, can be less than the costs incurred in enforcing the law.

Voluntary Instruments

Due to the rigidity of command and control instruments and the institutional and juridical barriers faced by economic instruments, in the recent past instruments based on voluntary agreements have seen significant growth in medium and high-income countries.

Voluntary agreements provide more flexibility both to economic agents and to the authorities. Voluntary agreements are attractive to the industry because they avoid the imposition of regulations and the costs associated with economic incentives. These instruments are also attractive to the environmental authority because they carry a low administrative cost and require less institutional presence for applying regulations.

In recent years various voluntary compliance and self-regulatory instruments have been developed for the Mexican industry. This policy reflects a change of vision, from command and control-dominated instruments to less punitive instruments based on verifiable commitments towards cleaner processes and the adoption of international environmental

standards. The latter are frequently more rigorous than those established by Mexican regulations or which are not locally regulated yet.

The voluntary compliance instruments developed in Mexico lately include:

- The environmental audits program
- The Environmental Management Voluntary Program (*Programa Voluntario de Gestión Ambiental, PVG*)
- The development of voluntary application Mexican Norms
- The signing of Voluntary Agreements between the authority and the businesses

The industry has also developed and adopted a series of instruments focused on improving their environmental performance without requiring actions from the environmental authority. These have had different degrees of success. A sample of such instruments include:

- Environmental administration systems: adoption of ISO 14001
- Programs developed by business groups, such as the chemical industry
- Global environmental management initiative
- Mexican Center for Cleaner Production (*Centro Mexicano de Producción más Limpia*)

Economic Instruments

Economic instruments modify the costs and benefits of the economic agents in such a way that their decisions are beneficial to the environment. The tendency in the OECD member countries is towards an extensive use of economic incentives, explained by various factors. On one hand, the fact that there is already a large number of regulations means that additional regulations bring increasing costs both to the authority and business. On the other hand, economic instruments offer more flexibility to economic agents. Likewise, economic instruments are occasionally a source of additional funds for the environmental authority and in many cases they are cost-effective, that is, they minimize the costs of pollution reduction.

In Mexico, the economic instruments that have been used with a direct or indirect effect on environmental management are:

- Prices and fees of goods and services offered by the public sector.
- Gasoline surcharge.
- Residual waters discharge fees.
- Zero tariffs on imports of pollution control equipment.
- User fees of public goods.
- Accelerated depreciation of pollution control equipment.
- Financial instruments to support the forest sector.

- Environmental insurances and securities
- Reimbursement/Deposit Systems (*Sistemas de depósito reembolso, SDR*)
- Property rights

Prices and Rates of Public Goods and Services

The Secretariat of the Revenue exercises the faculty of establishing and revising prices and fees for public goods and services, or else, the bases to set them with the participation of the involved government branches. In the case of *PEMEX* and *CFE*, the *SHCP* promoted the inter-institutional operative committees that are in charge of establishing general guidelines and revising these bodies' proposals with regard to prices and fees.

In the hydrocarbons sector, an inter-institutional pricing committee with the participation of the Secretariat of Energy, the Secretariat of the Revenue, *PEMEX*, the *CRE*, the offices of the Presidency of the Republic, among others, establishes criteria and mechanisms for the monthly determination of the products' domestic prices referenced to international markets. On the other hand, the prices set in recent years –except in 1995 during the macroeconomic crisis- have been adjusted according to the expected annual inflation.

The electrical sector's rates policy is defined in an Interinstitutional Group for the Analysis of Electric Rates, established since 1995. The group is presided by the *SHCP* and includes the Secretariat of Energy, the *CFE*, *LFC* and the *CNA*.

In the case of water rates, these are approved by the local legislatures (of the states), therefore their level and structure by user types respond in great part to political criteria; hence, the cost of services is usually not taken into account properly. Additionally, in many cities residential users, and in some cases commercial users as well, do not have water metering so they pay a fixed rate independently of the level of consumption. This clearly creates incentives for an uncontrolled and excessive water use. Additionally, the water operators, whether public or private, lack in many cases the legal power to establish fines or cancel service when there is no payment.

Other Economic Instruments

For the rest of the economic instruments, their legal basis is defined by the General Law on Ecologic Equilibrium and Environmental Protection, which incorporates the figure of “environmental management economic instruments.”

In practice, the application of this sort of instruments has required coordination mainly between the *Semarnat* (formerly the *Semarnap*) which prepares studies and concrete proposals and 1) the Secretariat of the Revenue and Public Credit which studies the proposals and appropriately authorizes and prepares initiatives to modify the main fiscal laws and the budgets of the government entities; 2) the Secretariat of Economy (formerly of Commerce and Industrial Promotion) which reviews the proposed schemes and their effects on competition and the regulatory framework; 3) the business groups and organizations which participate and lobby the proposals; 4) the governments of the Federal District and

the federal states, when the instruments' realms apply to this level of government; 5) the municipal authorities, when appropriate; and 6) the Secretariat of Government for the analysis of the political effects of certain schemes.

The main coordination problem has been between the different incentives of the involved institutional agents. The strong budgetary restrictions that have been imposed on the public revenue during the last 18 years cause that economic saving criteria and the elimination of most fiscal incentives influence a great deal the revenue authorizations. On the other hand, free trade agreements and especially NAFTA limit the possibilities to offer subsidies. Furthermore, the Secretariat of Economy –through the Federal Competition Commission– ensures that the proposed schemes do not violate competition conditions or cause high inefficiencies. Finally, the state and municipal government agendas do not match environmental management priorities in time or substance.

No less importantly, in general there is a conflict of interests between 1) the long term economic benefits of using concrete instruments such as eliminating subsidies or including environmental considerations in public sector goods and services prices, which are generally fragmented among the society as a whole and are often only slightly perceptible and 2) the political costs of raising fees or eliminating subsidies, which are perceived by the general public opinion as onerous impositions and used by the political opposition to condemn the government in office, and therefore are visible and concrete to the authorities that are responsible of implementing them. In the Mexican case, the latter considerations have frequently dominated and cause postponement or cancellation of modifications to the rates structures. (Recall the outcome of the proposals to eliminate higher education subsidies in the *UNAM* that resulted in a cease of activities for almost one year, after which the objective was not achieved.)

Infrastructure

Production and consumption decisions made by economic agents do not always have a direct impact upon environmental quality. Infrastructure works can change the impact. There are at least three situations in which public infrastructure is attractive to environmental policy making:

- There are sectors where private sector participation is restricted.
- Pollution control technologies enjoy economies of scale.
- When dealing with a public good.

In the last decade the hydrocarbons sector has seen growing investments to meet national demand. The re-configuration of the national oil refining industry and productivity improvements has led to significant environmental improvements.

As it pertains to the electric sector, in the period between 1997 and 2000 the *CFE* initiated or finished 32 power generation projects, for an increase of over 12.000 MW in installed generation capacity. It is important to mention that every large project (plants with over 200 MW capacities) uses top of the line combined cycle technology based on natural gas and

have been undertaken under new financial formulas (the so-called *Pidiregas*, or long-term infrastructure investment projects with deferred impact on the spending accounts) and with the participation of private investors based on the Independent Energy Producer scheme.

In the Mexican energy sector the main coordination mechanism for the construction of infrastructure in general, and for environmental improvement in particular, is the administrative (or government) councils of the three para-statal companies in the sector. Within them, government agencies such as the Secretariat of Energy, the Secretariat of Treasury, the Secretariat of the Comptroller and Administrative Development, the Secretariat of Economy, the *Semarnat* (in the case of electric companies) and the National Water Commission, participate.

Experience indicates that investment decisions have been severely slowed in recent years due to budgetary limitations; the businesses' fiscal regimes (which in the case of *PEMEX* meant that last year its operation profits before taxes were absorbed by the Secretariat of Treasury, so these resources were not re-invested); and the lack of autonomy of public company management in the sector. Therefore the authorities in the energy sector have insisted upon the need to find a new fiscal regime for *PEMEX* and *CFE* and an administrative reform that may permit more flexibility in the management of these bodies.

Information and Dissemination

Environmental culture may play a fundamental role in the care of the environment. For this reason public information campaigns promote more participation of society in decision making. It is necessary to strengthen environmental education, as well as research in technologic development related to environmental protection and natural resource management.

The main schemes that have been used in Mexico to communicate environmental information are the following:

Emissions and Pollutants Transfer Registry (Registro de Emisiones y Transferencia de Contaminantes, or *RETC*). The *RETC* is a component of the National Environmental Information System, in which information on air, water and soil pollutants is integrated by means of relational databases, geographic information systems and estimation methods for atmospheric emissions, residual waters discharges and hazardous materials generation. It allows going beyond the segmented vision in artificially dissociated means (water, air, soil) which are subject to different regulation instances, with the objective of increasing administrative efficiency and identifying problems derived from pollutant transfers and environmental impacts.

National Crusade for a Clean Mexico. A campaign which, in coordination with the application of Mexican environmental regulations, seeks to reduce solid waste volumes being disposed. This campaign is complemented by public awareness events on

maintaining clean the streets, parks, rivers, lakes, and open areas. It promoted cleanness as a public responsibility among every Mexican.

Environmental Management Coordination Mechanisms in Mexico

In Mexico there is no single institutional procedure to coordinate the insertion of environmental management in the different public policy areas and regulatory frameworks. Instead, various formal and informal mechanisms have been developed, including the following:

- Cabinets that gather several Government Secretariats for the formulation and discussion of specific subject policies (for example, the “Growth with Quality Cabinet” and the “Cabinet for Social and Human Development”)
- Inter-secretarial Commissions
- Commissions with explicit powers to advise on certain issues (such as the Federal Commission for Regulatory Improvement and the Federal Competition Commission)
- Inter-governmental coordination processes
- Insertion of the environmental dimension through the National Development Plan
- Insertion of the environmental dimension through the federal spending programmatic structure
- Environmental management decentralization

Table 1 contains a matrix with the federal authorities involved in environmental management in Mexico between 1994 and 2000. The columns indicate the authorities involved: economic, social and other governmental and environmental; the rows indicate the instruments considered: command and control, voluntary and of information dissemination, economic and of infrastructure construction. Note that after the environmental authority, then *SEMARNAP*, follows the broad participation of the Secretariat of the treasury in developing almost every measure. Other dependencies participating include the Secretariat of Commerce and Industrial Promotion (currently of Economy) and the Secretariat of Energy.

Table 1. Instruments and Public Institutions for Environmental Management in Mexico, 1994-2000

Instruments/ Institutions	ECONOMIC					SOCIAL			OTHERS			ENVIRONMENTAL
	SE	SECOFI	SCT	SAGAR	SHCP	SSA	SEDESOL	SEP	SEDENA	SEGOB	INEGI	SEMARNAP
Regulatory and voluntary instruments												
Legal norms				•								•
Technical rules		•	•	•	•	•				•		•
Regulatory frameworks	•	•	•	•		•						•
Coordination understandings and/or agreements	•		•	•	•	•	•	•	•			•
Understandings and/or agreements	•	•				•						•
Presidential agreements and/or instructions	•											
Environmental audits	•	•	•									•
Self-regulation		•										•
Economic Instruments												
Fiscal incentives		•		•	•							•
Tariff incentives		•			•							
Taxes	•				•							•
Surcharges	•				•							•
Rates				•	•		•					•
Credits					•							
Civil liability insurance					•							
Tradable permits					•							•
Trusts			•		•							
Eco-labeling		•										•
Subsidies/transfers				•	•		•					•
Information and dissemination												
Ecologic accounts system												•
Specialized information		•	•	•		•		•				•
Global natural disasters network			•			•			•	•		•
Inventories	•	•		•		•			•	•		•
Technological research and education						•		•				•
Information and dissemination	•	•		•		•				•	•	•
Infrastructure												
Hydrocarbons	•	•	•		•				•	•		•
Electricity	•	•	•		•		•		•	•		•
Water		•	•	•	•	•	•		•	•		•

Source: *Avances y retos de México en la atención a la agenda 21. Informe 1995-2000, Semarnap, Mexico, 2000.*

Environmental Management Challenges and Goals

The challenges and goals are defined in terms of environmental management priorities, both in general as well as for the various sectors analyzed. The proposals and potential reform plans that deserve full discussion must be made explicit. Also, the institutional, technical, economic and financial resources required for a better performance of environmental policies must be taken into account. Finally, it is fundamental to consider the most outstanding opportunities and limitations of the management in its social, economic, financial and political aspects.

Regardless of the focus to achieve it, a successful insertion of environmental management in sectorial policies requires:

- A mechanism for establishing priorities.
- Early integration, in the planning stage, of environmental considerations in public policy cycles.
- Development and use of indicators.
- Establishment of concrete goals and measures.
- Performance evaluation and follow-up
- Clear assignment of responsibilities and accountability mechanisms.
- Institutional strengthening, including training of personnel and financial resources.

Recommendations for the Integration of Environmental Considerations in Sectorial Policies in the Medium and Long Terms

The environmental management challenges and goals faced by Mexico's energy and industrial sectors are organized in the following points: 1) priorities in environmental management issues; 2) possible improvements of the utilized schemes; and 3) opportunities and challenges in implementation. These recommendations are based on the proposed methodology and the environmental management results and effectiveness of instruments and mechanisms analyzed.

Priorities in Environmental Management

In general terms, to achieve a better insertion of the environmental dimension in sectorial policies it is necessary to increase the relevance of environmental management in the definition of national policies. This requires a strengthening of the coordination mechanisms within the environmental sector organisms and between these and the government agencies within the three government levels and the private sector. In reference to the environmental sector organisms, coordination between the *INE*, *PROFEPA*, *CNA* and *SEMARNAT* itself, has presented problems derived from organizational factors and division of functions between them, which must be reviewed.

With regard to the energy sector, the priorities in environmental management matters are as follows. First, to sufficiently supply the energy inputs and control the environmental impact of public enterprise activities. Second, to create incentives for a rational use of energy resources. Third, to participate as a nation in the global environmental responsibility and the use of international cooperation mechanisms in energy and environmental issues.

With regard to the industrial sector, measures to strengthen and develop management instruments to improve the environmental performance of micro, small and medium enterprises must be created. Better economic environmental management and voluntary compliance instruments must also be developed. In the case of the sugar industry, it is necessary to eliminate the obstacles and protections that affect competitiveness in the sugar industry. In the case of the chemical industry, as in the rest of the productive activities, it is necessary to eliminate bureaucratic ties, apply fiscal incentives for adoption of clean technologies when the environmental externalities justify them and promote the production of inputs produced by government enterprises, be them electric as well as gas and petrochemical with better quality and environmental characteristics.

Proposals for Environmental Management Improvement in the Mexican Energy and Industrial Sectors

In general terms, proposals may be grouped as follows: those that require structural changes in environmental management matters and those that refer to coordination mechanisms. In relation to structural change, it would be necessary to analyze the convenience of restructuring *SEMARNAT* and its organisms, so as to prevent the inefficient separation of functions between organisms, facilitate coordination between the organisms and separate from *SEMARNAT* the functions related to the promotion of productive activities such as forestry. In addition, it would be convenient to study the feasibility of creating an autonomous commission following the model of the Federal Commission for Regulatory Improvement. This commission would be in charge of reviewing and evaluating bills of law, regulations, norms and other regulatory instruments to determine their environmental impact and give opinion on the plans and programs of the federal dependencies and organisms. Both structural changes, the restructuring of *SEMARNAT* and the creation of a new Regulatory Commission, would generate benefits and costs that require further analysis.

With regard to intersectoral coordination, it is necessary to reform the programmatic structure of public environmental spending in order to distinguish more clearly the amount and use of resources spent to achieve environmental objectives, as well as their source. Additional changes include : (i) Perform miscellaneous improvements in environmental management, (ii) Establish quantifiable objectives for the policies; (iii) A more effective coordination in price definition so they reflect opportunity costs; (iv) Establish finance mechanisms to support the environmental policies; (v) Create incentives so that small and medium enterprises comply with environmental regulations; (vi) Increase the use of regulations based on carrying capacity of natural systems and environmental impacts.

Specific Proposals by Type of Instrument

In reference to “command and control” instruments, regulatory activities must be improved, including inspection and enforcement, to increase compliance. In this respect, there must be a modification in the process of creation and revision of regulations to make it more expedite, which includes improving the coordination mechanisms between the parties involved and the revision, and when appropriate, establish maximum terms for the different parties involved in the process. Another important measure is improving efficiency in the task of inspection and vigilance, and transferring CNA’s water pollution control responsibilities to *PROFEPA*. To facilitate compliance, it is necessary to strengthen the administrative simplification effort and accelerate the Single Environmental License procedures.

Regarding voluntary compliance instruments, it is necessary to develop mechanisms based on complementarity between environmental administration systems and environmental audits. Likewise, it is necessary to strengthen the Environmental Audit so that it better responds to the capacities and needs of micro, small and medium enterprises.

Prices and rates of public sector goods and services have important environmental effects and can be an economic instrument for environmental management. Thus, it is recommended that to future subsidies that distort economic decisions be eliminated, including energy, transportation, fuels, and predatory agricultural practices. In respect to other economic instruments, the following is recommended: (i) boost differential taxes on new cars according to their environmental effects; (ii) eliminate water charge exemptions and charge adequately for water consumption and treatment; (iii) induce municipalities to apply water treatment charges and recycling fees; (iv) introduce economic instruments for atmospheric emissions controls applied to vehicles in circulation; (v) implement an economic instrument to reduce volumes and promote recycling of packages and packaging materials; (vi) introduce economic instruments to promote the adequate disposal of pesticide containers; (vii) introduce economic instruments to promote the adequate disposal of spent oils; (viii) economically assess natural resources and those goods and services generated by Mexican ecosystems.

For better infrastructure development in the energy sector, it is proposed to boost private participation in electric generation through the creation of a market for electricity, as well as legal reforms that allow the sale of electricity by private electric companies to large industrial users. Likewise, to permit private investments in natural gas exploration, given the growth in energy demand and the scarcity of budgetary resources. Also to provide more management authority and a new fiscal regime to *PEMEX* to permit better investment planning and provide the necessary resources for the construction of a new oil infrastructure.

For the industrial sector, it is proposed to facilitate private investment participation in the construction of waste areas and increase the participation of private investments in hydraulic infrastructure construction under a regulatory and rates framework that ensures efficiency in providing the service.

To improve environmental management in the Mexican sectors of energy and industry, human and technical resources are required to launch efficient management systems in order to promote and evaluate the creation of programs based on results, budgets and human teams. It is also required to expand public financing to protecting and preserving the environment, including increasing investments in environmental sanitation and investments in diffusing regulations and promoting a culture in favor of the environment. In addition, it is necessary to have more economic and political resources that give environmental authorities more political influence and facilitate a coordinated development and application of environmental management instruments.

Opportunities for Environmental Management in the Mexican Energy and Industrial Sectors

Currently some windows of opportunity are opening up for the application of environmental management instruments. There is, for example, a new environmental consciousness in the public sector as well as in many private and para-statal enterprises, as demonstrated by the constitution of environmental units within the economic staffs, as well as the willingness of many businesses to adopt voluntary compliance instruments. There are also better perspectives for economic development in the mid- and long-terms given the current economic conditions, which will facilitate the adoption of cleaner technologies. Revenue authorities are more receptive to proposals for fiscal instruments and pricing policies that are congruent with preserving and protecting the environment; some actions in this direction have already been taken which, in spite of being insufficient, are a step in the right direction. The drive for structural reform in the electric sector also represents a window of opportunity for new environmental policies in this sector. Finally, there are ample possibilities to develop an environmental infrastructure in water issues and waste management.