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## STUDY

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# CONCEPTUAL BASIS AND REFERENCE FRAMEWORK FOR THE DESIGN OF ENVIRONMENTAL POLICIES IN LATIN AMERICA

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This paper argues that Latin America needs to strengthen its capacity to plot its own course in matters of environmental policy and legislation, to allow it to take advantage of the positive aspects of developed countries' experiences, while avoiding their many errors and, finally, achieve environmental goals with locally defined priorities at a minimum cost. The paper has twin aims: firstly, to disseminate the Chilean experience in developing a general conceptual framework, in order to support similar processes in other countries of lesser environmental development; and in a complementary way support the process of institutional consolidation that our country is currently going through.

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*Estudios Públicos*, 57 (verano 1995, "Bases conceptuales y marco de referencia para la elaboración de políticas ambientales en América Latina").

As regards the issue of public- and private-sector participation in environmental development, the authors argue that it is impossible to promote the concept of a free economy without broadening it out to embrace environmental management. Command and control instruments (direct intervention by the State) and market mechanisms, both have the same goal of internalizing external costs, but experience has shown that the former are usually much less efficient than market instruments. The private sector —the authors conclude— should be the “driving force” behind environmental policy and management, promoting the use of efficient and effective market instruments to achieve the desired objective at the lowest possible social and private cost.

### **I. The need for an environmental policy**

**A**ny environmental policy has to respond to some overall conception of man’s place in the world, as well as of freedom and the common good. For this purpose, an integrating framework for environmental issues is required that is consistent with intersectoral policies and which is inserted into a country’s national politics. Sectoral policies are inadequate for dealing with the global problems of environmental issues, whether these affect an entire country or an extensive area of it; still less when they affect a continent or a subcontinent.

An environmental policy should be understood as a dynamic process in which different national actors should participate: the productive sector, the government, legislative power and the community. In addition it should take account of the particular tensions in which the environmental debate unfolds in each society. As a result of this process, environmental policy should establish the desired objectives in this field and set the priorities. It should make explicit the guiding principles that will subsequently orient the corresponding legislation, and harmonize environmental goals with the country’s other problems and needs: extreme poverty, health, housing, education, and infrastructure. In this way an environmental policy should be characterized as integrationist, realistic and gradual, always keeping in mind the different challenges faced by developing countries as regards economic growth, as well as social demands (equity and redistribution issues), competitiveness and efficiency in the use of resources, the characteristics and availability of human, economic and natural resources, integration among the different cultural levels and, finally, the peculiarities of each country’s political and bureaucratic institutions.

Moreover, environmental policy ought to be tightly integrated into the general framework that guides the policies and actions of developing countries. Yet, what we see today is a dissociation between the instruments used in the productive economic, and even the social sector, and those used in environmental conservation policies: as a result, environmental management in general has not achieved the efficiency displayed by other sectoral policies.

Finally, basic elements of an environmental policy include stability over time; consistency, both in relation to the signals that the State sends out and its explicit contents, and the capacity for leadership and political direction existing in the country. The stability of an environmental policy over time is fundamental in view of the time lag that exists between drawing up regulations and the respective solutions. Failure to take this into account means generating unrealistic policies and frustration for the sector benefited by environmental protection measures. As regards consistency, this is a goal that needs to be pursued both by the regulator and the regulated sector.

## **II. Environmental problems**

Like most Latin American countries, the Chilean economy is still largely built on extractive activities and the production of raw materials. Historically, environmental protection has been absent from the management of natural resource production in this country, and this has led to situations of pollution in areas where productive activities have been concentrated, as well as the destruction of habitats, and a depletion, imprecisely quantified, of renewable natural resources. Moreover, a lack of consideration for negative externalities has helped to sustain migratory population flows from the country to the cities, making city centers grow disproportionately and forcing certain sectors of the population to dwell in a precarious habitat. Thus, environmental problems in our countries are closely linked to the problems of poverty and health.

In a historical context of nil, scant or poor environmental management—a situation which in itself can be described as the main cause of the region's environmental problems—the difficulties facing Chile in this area can be grouped in two categories:

- i) deterioration of renewable natural resources and loss of natural habitats (either through exploitation, or the effects of contamination).
- ii) urban and pollution problems (health and human welfare).

Any real chance of devising policies and programs to solve these problems lies in their quantification, and this involves two complementary areas that usually are poorly developed in the region:

a) A physical quantification of the problem

An assessment of environmental realities means developing programs that tend to be highly costly and long-term. Given that available resources for these purposes are usually totally inadequate, there is generally a huge lack of awareness of environmental realities, and this situation translates, in turn, into environmental management lacking clear priorities or goals, and which cannot be assessed or prioritized adequately.

In a complementary way, the relative lack of knowledge of environmental realities in our countries prevents the claims of environmental groups being considered in their real context. This is reflected in solution designs that do not consider the most cost-effective or efficient actions, but those that are most attractive or have the best political image. It is common to hear that “there is no need to carry out studies or design solutions to deal with this problem”, and as a result there is a tendency to develop actions and policies that lack an appropriate conceptual base.

b) Economic quantification of environmental costs

Across the entire spectrum of environmental institutions one can detect a widespread belief that environmental problems cannot be measured in economic terms. As long as this belief persists, environmental management will be at a tremendous disadvantage in relation to other sectoral activities. One cannot pretend to modernize environmental management without making a serious effort to assess environmental costs and, consequently, their benefits in economic terms.

Likewise, there is a need to define what exactly constitutes environmental investment, so as to be able to assess the effectiveness of environmental policies and move towards a calculation of optimum levels of investment in environmental conservation.

Efforts to define environmental investment take the following elements, or a combination of them, into account:

- Investments aimed at satisfying an emission standard or an environmental quality standard, including monitoring costs. For example, treatment plants for liquid industrial waste, or electrostatic precipitators;

- Investments in environmental conservation which are also productive, but which yield a lower rate of return than the minimum stipulated by the firm for its projects. For example, water recycling, or recovery of inputs from gas effluents.
- Investments in environmental conservation in activities not direct related to the firm's business. For example, the reforestation of tailings dams.

Additional parameters could probably be included in the definition, but one cannot pretend to carry out an appropriate environmental management, or develop an efficient environmental policy, without previously defining what "environmental investment" is.

### The institutional and legal reality

In Latin America environmental legislation is heavily influenced by the directives issued by the United States Environmental Protection Agency (EPA). In fact we have tended to copy EPA regulations, standards and norms, despite the fact that the technical consistency of such norms with the reality of natural resource use in our countries is highly doubtful, as are the chances of success in controlling or abating pollution. Moreover, having copied United States legislation means our countries have legislation that is conceived on the basis of direct controls (government control), without considering market instruments. The challenge for our countries, therefore, is to move towards legislation that uses market instruments, encouraging private-sector creativity and minimizing compliance costs.

As regards the institutional framework, in Chile a choice has been made in favor of a coordination structure known as the "National Environmental Commission" (CONAMA), made up of a ministerial committee and an Executive Board. This choice, which is still in a trial phase (it only began official operations in March 1994), may result in a lack of real power for the government, as the available legal and control attributions remain in the hands of sectoral public services (water, land, forests, fauna, health, etc.). Consequently, the challenge for the public sector is to make this institutional framework work as a real instance for defining policies, coordinating institutions, prioritizing actions and allocating resources. However, this challenge also affects the private sector, because inefficient environmental management only results in greater bureaucracy and higher costs for the private sector. The private sector, therefore, has to find ways of

strengthening and supporting CONAMA, and the latter should put forward specific programs and measurable targets.

The big problem for Chile's public institutional framework, as in the other countries of the region, lies in the scant or zero supervisory power of its institutions. Lack of resources and professionalism, an absence of structured programs with quantifiable goals, a scarcity of suitable staff, low wages and, in general, great ignorance of environmental issues on the part of the public sector, redounds in the fact that much of the legislation is either not complied with, or only partially, or else overtly overridden, with a consequent deterioration of respect for environmental legislation.

### **III. Definitions, goals and scope of application**

An environmental policy cannot be conceived in isolation from its thematic reach, geographical scope and social reality. The instruments enshrined in the policy, and the priorities it sets, must be consistent with the natural and social framework of the country and region. Consequently, it is usually necessary to provide a definition for every concept that might be subject to different evaluations according to the reality of each society.

Moreover, anything which is not specifically an environmental issue should be removed from the environmental agenda. This means focusing discussion on strengthening the executive and non-rhetorical nature of environmental issues. Moreover, one should not confuse the requirements of transparency and efficiency that are peculiar to a democratic system with specific demands on the environmental institutional framework.

#### **3.1 Definitions**

In this context, it is a priority of environmental policy to define certain fundamental concepts. Some of these concepts are established below, and the steps needed to make them operational are highlighted.

##### *Environment*

The definition of the environment depends on the social makeup of each country, in which at least the following aspects should be considered:

- a) An anthropocentric focus.
- b) Consideration of the human surroundings: situations of poverty, hygiene, basic sanitation, pollution inside the home, housing, and others.

c) A time-dynamic conception dependent on income levels, progress in knowledge and the country's social structure. Environmental quality is a function of the levels of knowledge and development in the country. It is not an absolute concept that remains static over time.

Public environmental management should try to set bounds on the scope of environmental matters. Indeed, a significant part of the problem of environmental management derives from a lack of appropriate boundaries to the subject in question. This effort should be supported by the private sector. (See below, the section on environmental impact).

### *Contamination*

The term "contamination" should be understood as the product of a convention between social actors (a social compact) expressed through standards. This convention defines the use-capacity of the environment, which is estimated on the basis of the capacity of a recipient medium to dilute or absorb substances. This capacity has a limit, beyond which contamination occurs. In this sense, it could be said that the environment has the characteristics of a "public good". As regards the use-capacity of the medium, it is the government's job to define mechanisms for allocating this good among users.

It is often thought that the mere existence of standards guarantees environmental protection, but this is not so. As was mentioned above, standards are based on the capacity of recipient mediums to dilute or absorb certain substances. This capacity has to be measured using defined methodologies that are agreed on and are reliable. If these requirements are not met, one cannot require polluting activities to show responsibility in environmental conservation. An environmental policy that is serious should be based on objective technical regulations that are clear and transparent.

There should be continuous participation from the private sector in drawing up environmental quality standards.

### *Environmental impact*

In view of the fact that environmental impact assessment is the most widely used tool for authorizing, modifying or preventing the carrying out of projects, plans or policies, the definition of the term should include both positive and negative alterations of biological, physical and social components of a limited area, caused directly or indirectly by an activity or project.

Environmental impact should be assessed in an integrated rather than piecemeal way. This means that account should be taken of the fact that projects have positive impacts that are usually socially and economically evaluated and which must be set against their possible negative environmental impacts. It is not possible to have two parallel channels on this issue, i.e. requiring projects not to have environmental impacts independently of their social and economic profitability. There is also a significant challenge here in terms of developing systems to allow environmental impacts to be integrated with social and economic ones.

The integration being referred to here should consider the following aspects:

- Impacts assessed by reference to quantitative standards should be subject to the same treatment as any technical standard (notwithstanding the need to discuss whether the levels demanded are appropriate or not).
- Impacts qualitatively assessed should be transformable into monetary units. Costs can be easily estimated in terms of the investments carried out to comply with the requirements. In the case of supposed benefits, the authority requiring modifying or mitigating actions should specify the expected benefits and who will receive them. This path to the quantification of externalities is the only way of integrating environmental management into the rest of public administration.

Finally, priority should be given for global policies and governmental actions to be environmentally assessed. The private sector should lobby for the general regulatory and legislative framework also to be subject to an assessment of the environmental impacts it generates, so as to construct a healthy environmental policy, rather than what is normally developed, which consists of trying to generate a suitable environment through individual assessment of specific actions and projects.

In our view, this task is the most relevant modernization that needs to be undertaken in administration and in the system for assessing the environmental impact of projects in our countries.

### *Preservation and conservation*

These two terms limit the scope of environmental resource management programs. Preservation means maintaining a resource free from hu-



man intervention, and conservation means using it while maintaining the resource potential. Preservation is one of the possible uses which permits conservation.

It is important to set targets for the protection of resources and environmental heritage. Their intensity and mode of use should also be defined. Should all a country's resources be preserved or is it sufficient to ensure a sample to build on? In this respect, it is worth mentioning the possibility of limiting such actions to species and ecosystems endemic to the country.

### *Primary environmental quality standards*

Primary environmental quality standards are those defining the quantities of substances, elements, energy or combination thereof, whose presence or absence in the environment during a given period may constitute an unacceptable risk to people's health.

The maximum acceptable risk should be explicitly stated in national legislation, along with the procedures for estimating this.

The determination of acceptable risk is a political decision, based on scientific and economic data; i.e. it is not purely technical. It follows that such decisions cannot be devolved to technical bureaucratic levels alone.

### *Secondary environmental quality standards*

Consistent with the above, secondary environmental quality standards are those which establish values for the protection of the natural and man-made environment.

### *Environmental heritage*

Defining the components of the environment which make up the environmental heritage is of the utmost relevance for prioritizing policies, plans and actions, as well as for evaluating non-quantifiable or non-comparable effects. For example, there are living components of ecosystems which would not necessarily be considered part of our environmental heritage: plagues of animals or plants, for instance.

### *Restoration*

Restoration, a desirable action in a large number of situations, is not always possible in natural systems. Often it is only possible to recover

large-scale ecosystemic functions, or reproduce functions that are analogous: in a forest, for example, in its capacity to retain water or serve as a refuge for animals. Consequently, restoration should take these limitations into account. This means that in some cases restoration will involve nothing more than reestablishing certain basic original conditions, while in other cases it will mean actually replicating the conditions existing prior to the disturbance, or even improving on them.

### 3.2 Aims and scope

An environmental policy needs a clear definition of the goals to be achieved on environmental matters. These objectives, in turn, should be in harmony with the country's other socioeconomic development goals.

In general, neither government nor private-sector economic agencies lobby for this conceptual consistency, which subsequently has to be reflected in concrete plans and actions.

The scope of environmental issues, and thus of environmental policy, should be defined by taking into consideration:

a) Political priorities relating to the use of the country's resources for solving problems. If there is no integration and economic quantification of the environmental costs and benefits, it is impossible to carry out this prioritization.

b) Definition of the limits of property rights with respect to the three characteristics of ownership: use, benefit and disposal. This determines the form of environmental management and defines the relation and boundaries between production, conservation and preservation of renewable natural resources.

## IV. Priority setting

An environmental policy should clearly specify the priorities it will address and, more important still, the non-negotiable aspects that will form the basic nucleus of each national policy, reflecting each country's deepest environmental values.

As a corollary to this, listed below are the minimal stages that need to be considered in an environmental policy that aims to prioritize actions as a function of available financial resources. Whatever the quality of life to which one aspires, there is a cost in achieving it that needs to be financed.

The steps to follow for prioritizing actions in environmental policy are:

- Definition of the components of a country's environment which will be subject to preservation.
- Definition of the quantities of these components to be preserved.
- Definition of methodologies for the quantification of environmental costs and benefits to allow the target levels of environmental quality (environmental quality standards) to be determined.
- Definition of methodologies for economic assessment of costs and benefits arising from projects and actions.

Once these stages have been completed, the allocation of resources needed for environmental management can be discussed. Until this happens, environmental management will be blown along by the political winds of the moment.

## **V. Basis for defining the legal and institutional framework**

Presented below are the guidelines for defining a legal and institutional framework for environmental management. This issue is developed in greater detail in the following sections.

### **5.1 Guiding concepts**

#### *Property rights*

For a social organization to respect individual freedoms, its normative system should contain clearly defined and robust property rights. The most efficient response history has found for the problem of scarcity has been the generation of property rights. The extension of this right to goods which until recently were considered common property, based mainly on the mistaken idea that they were infinite resources (think of pure air, for example), is the only solution to many environmental problems.

In the absence of property rights, the State sets itself up as an all-purpose arbiter and distributor of wealth, with all the consequences that can arise from such an idea. Property rights set limits on the state's remit and avoid waste.

The challenge for public and private sector alike, consists of extending property rights to new goods which formerly were abundant but today are scarce.

*Economic freedom*

Economic freedom, or the right to carry out any licit economic activity under general parameters set by law, is another of the guiding principals that should inspire environmental policy and legislation.

It is with regard to this freedom that one can most appropriately talk of sustainable development. Private-sector creativity is the engine of progress. The state should ensure, through clear and objective norms, that the rights and opportunities of future generations are not harmed by people's current activities, be they individual or collective.

*Environmental protection*

Environmental protection is a principle which should be present in the legislation of any modern state aiming to achieve real levels of development or concrete improvements in the quality of life of its current and future inhabitants, without compromising the long-run viability of the country's economy.

Environmental protection means rules of a repressive or sanctioning nature, as well as incentives for desirable environmental behavior. It means the rational use of natural resources, the existence of clean processes in the production of goods and services, the explication of costs associated with using the environment and the means of protection, participation in defining environmental quality levels so that decisions affecting society are reflected in social and political consensus and optimal resource use.

The fundamental thing is the generation of obligations of a general and objective nature, in which discretionary action by the authority are regulated as far as possible.

It also implies that those responsible for environmental damage should bear the costs of the damage caused, that subsidies leading to a bad use of resources (energy, for example) should be abolished, and that there should be mechanisms for resolving disputes, as well as efficient supervision giving adequate guarantees to the parties involved.

*The role of the State*

The State's participation is decisive in generating regulations governing environmental questions, as it precisely defines the technical, democratic and participatory instances for generating and approving such regulation. The State also has a fundamental role in disseminating the values and

knowledge related to the environment through the process of education among citizens.

On economic matters the State should maintain a subsidiary role, strengthening its supervisory and control capacities while seeking appropriate instruments for achieving the common good. Its actions should be set in a framework of clear and objective rules, which define the scope of its remit, including mechanisms to enable officials' responsibility to be made effective, to evaluate the efficiency and effectiveness of the State's acts and, eventually, discuss decisions of the public apparatus when the rights of individuals are considered to be harmed.

## 5.2 Legal and regulatory system

Judicial systems have a hierarchical structure based on a Constitution or Fundamental Charter. This lays the basis for general laws of a basic or special nature. Usually, more detailed regulations emanate from these laws, specifying the obligations and procedures contained in the general laws.

### *a) Legal norms*

In view of the multisectoral or interdisciplinary nature of environmental problems, at the level of general norms (laws) it is advisable to have a basic or framework law which makes explicit the generic concepts that are most important in relation to the environment. At the same time, and inspired in the basic framework law, special or sectoral laws must be created, or existing ones updated, dealing with the regulation of specific environmental problems for each sector in particular, or their management (forestry, agricultural and livestock, fishing, mining, water, air, land use, industrial waste, domestic waste, etc.).

### *b) Special provisions*

There are some rules of enormous transcendence, notwithstanding their specific nature. Such is the case of norms relating to land ownership which are basically devoted to regulating land use, by determining aptitudes or destinations in the light of the environmental-type targets that society defines.

Their relationships with property rights and economic freedom are highly complex and provide a powerful tool for introducing elements of

planning. This can have enormous redistributive effects and at the same time generate significant economic distortions.

As a result, appropriate regulations on land ownership at the legal level are basically indispensable.

### *c) Rules*

The rules within the framework defined by general laws, should regulate the obligations and rights pertaining to the regulated subjects in a detailed way. As far as possible they should allow for the obligations imposed and rights held by the regulated subjects to be understood simply by reading.

## 5.3 Institutional requirements

### Administrative structure

The institutional framework adopted for the environment presupposes the existence of an environmental policy which determines its specific characteristics.

The application of environmental policy requires suitable public agencies to be defined to undertake environmental management actions that materialize the directives contained in the policy. In this context it is essential to design an institutional framework that is consistent with the political framework determining it.

The institutional structure for dealing with environmental issues should take into account both the ruling judicial system and administrative structures, as well as the particular idiosyncrasies of the country in question. The institutional framework chosen should optimize public environmental administration using the following criteria for evaluating compliance with the target:

- a) Capacity to implement environmental policy;
- b) Capacity to generate specific environmental policies;
- c) Capacity to promote coordinated and joint actions within public administration and among society's actors, and
- d) Capacity to decentralize actions at the sectoral, regional and local level.

Consequently, political analysis of the choice of institutional framework to be adopted should take into account:

- a) The capacity for negotiation that one or other option offers sectors represented in the ruling institutional framework;
- b) Capacity offered by the options for coordinating productive decisions with the environmental issues;
- c) Coordination among the different sectors represented in the ruling institutional framework;
- d) Available human resources: the availability of trained professionals to technically direct the process of institutional consolidation is vital for the process to have continuity and last beyond the initial political mandate;
- e) The political will to learn and put the process into practice.

## **VI. Principles of environmental management**

The choice of instruments for environmental regulation has become a topic of great importance for those in charge of environmental policies. The search for efficient instruments has led to renewed interest in the use of economic incentives for environmental protection. Here we will confine ourselves to listing the instruments and their most relevant characteristics.

### *Criteria for choice of instruments*

From the economic point of view, the most important criteria for choosing environmental management tools are efficiency and equity. As well as environmental criteria, there are ethical considerations, as well as moral and others, which are as valid as the previous ones.

The first of these criteria is that of minimum total cost which, broadly defined, consists of minimizing the sum of abatement costs borne by the sources and the costs of administration, supervision and control borne by the regulatory authorities, from both a static and a dynamic perspective.

The second criterion (distribution) is highly important as its choice leads to a certain allocation of costs and benefits between different members of society.

### *Definition of environmental management instruments*

### *Environmental quality standards*

Environmental quality standards are what define the use capacity of the environment, on the basis of scientific and political criteria. This use

capacity is what, in turn, distinguishes an altered environment from a contaminated one; it is the outcome of a social agreement and, consequently, varies between societies.

### *The system of projects evaluation*

The allocation of public investment resources in a country is based on social project evaluation. Private agencies, in turn, use private evaluation to decide on the profitability of their investments.

Correct environmental management requires structuring a system to enable the economic valuation of projects to be made compatible with their environmental impact. This is the big challenge, especially in that it requires defining procedures and pricing of resources.

### *Market instruments*

#### a) Emission taxes

This consist of applying a tax rate per unit emitted, with economic agents deciding how much to emit. Every source pays a total tax equal to the rate of tax multiplied by the total quantity emitted.

#### b) User charges

These consist of a charge made for using a certain good of collective use, which is basically determined as a function of the real costs of treatment.

#### c) Subsidies

Subsidies oblige the polluting agent to examine in detail and reconsider the full costs of his actions. However, they cause problems of efficiency by introducing perverse incentives which may even worsen the problem they are supposed to be resolving, by improving the profitability of a polluting industry and thereby affecting decisions for entry into the industry. The latter may cause a rise in pollution levels. Nevertheless, subsidies correctly applied to the regeneration of a resource may be successful.



#### d) Tradable emission permits

In a system of tradable emission permits, the regulatory authority determines the aggregate quantity of contaminant emissions in a certain region, but leaves the market to allocate these emissions among the different polluting sources. For this purpose it issues a quantity of emission permits consistent with the total amount of emissions previously decided on, and distributes them among the sources, which can then trade them. The trading of permits in the market determines their price.

#### e) Voluntary agreements

These are agreements between the authority and interested sectors or specific firms to reduce levels of emission of a certain contaminant, or some other environmentally desirable measure (restoration, compensation).

### Command Instruments

#### a) Emission standards

This consists of defining for each source a maximum permissible emission level. The emission source, in turn, may comply with the standards in whatever way it wishes.

#### b) Technological standards

These relate to the regulation of technology. This type of instrument has been very widely used in practice.

### Education and information

Knowledge is indispensable for moral development, and education and culture are the means of disseminating it.

In synthesis, the goal of achieving an environmental culture is linked to other elements of the quality of life, and the mechanism for achieving this is public discussion of what is desired and understood by that. The involvement of formal and informal education in achieving an environmental culture is fundamental.

Definition of channels, instances of representation and levels of citizen participation:

The law may guarantee the right of citizens to express their opinions in different ways. In Latin America generally there are authorities that can be appealed to for this purpose, but there is unequal access to the channels for appealing to them effectively. Lately, non-governmental organizations have taken on the job of representing citizens on environmental issues. This is a long way from covering the needs of community participation and also suffers from the serious bias which non-governmental organization leaders impose on them. To safeguard this participation, states must guarantee expenditures and efficient channels for all citizens to have similar possibilities of expressing their environmental opinions to the authorities.

## **VII. Supervision, follow-up, evaluation and modification of environmental procedures, instruments, objectives and policy**

Enforcement is a key element in the ultimate success of environmental management in the country. Given its importance, the following elements must be present for it to be effective and efficient:

a) Sectoral technical bodies with well defined fields of competence, which are politically independent, and have budgetary autonomy and clear legal attributions and responsibilities:

b) Suitable and technically trained staff;

c) Adequate financial and material resources for the scope of the supervisory task;

d) An expeditious and timely sanctioning procedure including the possibility of appeal on the part of those affected by a sanction imposed, before agencies other than the inspecting and the sanctioning bodies,

e) Sanctions proportional to the gravity of the conduct typified, not excluding sanctions affecting natural persons responsible for activities or projects.

A serious environmental policy should bear in mind that the environmental problems, priorities and situations which are relevant at a given moment, may not be so at another time, because the optimal environmental quality for a society is defined by the point where willingness to pay (demand) for a certain environmental quality is equal to the total costs required to achieve this quality. Suitable environmental quality levels for a

society are different from zero and respond to an equilibrium between the costs and benefits perceived by that society.

The equilibrium point responds to social characteristics, as well as the economic and cultural features of the society. Thus a country with higher income will value certain environmental attributes more highly than another country with a lower income level. The same can be said about the attributes of environmental heritage or protection priorities.

The efficiency and effectiveness of control actions and environmental management programs cannot be taken for granted. There must also be a constant concern to assess the costs arising from environmental problems, as well as the costs of control that are incurred, both by the private and the public sector. Complementary to this, ways must be found to quantify the benefits arising from environmental control actions, so as to be able to justify the relevant regulations.

All of this makes it indispensable (and this is a situation that seldom occurs), to create independent instances for evaluating environmental actions undertaken both by the state and by private individuals.

The independence of the evaluating agencies from the public, planning, operative and control sector is basic, as it is they who must furnish the information for orienting global and sectoral environmental control actions in the future.

To complement this, it is essential for environmental control policies, plans and actions to clearly specify their objectives so that they can be evaluated appropriately and fairly.

Experience has shown that environmental control programs which do not have their goals clearly specified, tend to be badly evaluated and disintegrate and rapidly lose the purpose for which they were created. Furthermore, they lose validity, and their shortcomings or lack of adaptation to new technologies or environmental realities go undetected. ☐