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FROM POLLUTER PAYS PRINCIPLE TO BENEFICIARY PAYS PRINCIPLE: NEW ECONOMIC INSTRUMENTS FOR ENVIRONMENTAL PROTECTION

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ABSTRACT

Economic instruments for environmental protection have been increasing, especially during last ten years and its use has been growing all around the countries. There are a lot of techniques and approaches to these kind of instruments. This study aims to offer a look focused on the principles which serve as a guide for these economic instruments. The work also underline the most recently developed economic instruments, like paying for ecosystem services, exhanging debt by nature or conservation bonds.

Key words: Economic instruments; polluter pays principle; beneficiary pays principle

DEL PRINCIPIO QUIEN CONTAMINA PAGA AL PRINCIPIO QUIEN SE BENEFICIA PAGA: NUEVOS INSTRUMENTOS ECONÓMICOS EN MATERIA AMBIENTAL

RESUMEN

El uso de instrumentos económicos al servicio de las políticas públicas ambientales se ha ido generalizando en todos los países especialmente durante los últimos 10 años. Existen un buen número de técnicas y aproximaciones a este tipo de instrumentos. En este trabajo ofrecemos un estudio que se centra en los principios que los rigen y hacemos énfasis en los instrumentos económicos más recientes como es el pago por servicios ambientales, el intercambio de deuda por naturaleza o los bonos de conservación.

***Palabras clabe**: Instrumentos económicos; quien contamina paga; quien se beneficia paga*

INTRODUCTION

The development of economic instruments at the service of environmental public policies has been generalized in all countries, especially during the last 10 years.

These economic instruments, which complement the so-called" command and control" or instruments of direct control of pollution, find their legal bases in very different sectors of national legal systems, being their development as heterogeneous, as well as their design and application.

In addition, it is necessary to take into account that currently traditional economic instruments coexist adapted to environmental purposes, as is the case of some insurance or of many environmental taxes and others that arise from a strictly environmental perspective, as is the case of the negotiable emission certificates, to mention only one example.

At the same time, new economic instruments have been created, which find a difficult accommodation within existing legal systems and which are based on environmental law principles that have undergone significant changes in their scope and meaning over the last decades.

Furthermore, there are economic instruments of a mandatory nature, such as taxes and others of a voluntary nature, such as some environmental funds that arise from the private sector.

On the other hand, and although in all cases economic instruments seek to value natural resources economically and seek the internalization of environmental externalities by the potential polluter or the user of an environmental resource, some of them are based on the principle that polluter pays, while others constitute genuine public aid.

In this paper we present the evolution that has taken place since 1974 when the application of the polluter pays principle was proposed by the OECD to our days and its impact on the development of economic instruments in environmental matters, emphasizing on those of more recent creation, such as payment for environmental services, the exchange of debt by nature or conservation bonds.

1 THE POLLUTER OR THE CONSUMER PAYS?

When the polluter pays principle was born, there were many

criticisms that arose about its relevance, which were based on the fact that the requirement to assume the economic cost of externalities due to the polluting potential that would eventually result was inflation.

As we have already pointed out in the introduction, in the year of 1974, the member states of the Organization for Economic Cooperation and Development (hereinafter OECD) adopted a recommendation known as the polluter pays principle (OECD, 1974).

This principle, born in the field of economic sciences, sought to transfer the cost of the so-called negative externalities (AYRES & KNEESE, 1974, p. 74), which in principle would support the community as a whole, to potentially contaminating agents. In this way, it is born with a clearly economic content and, little by little, it is juridicized, appearing for decades in positive legal norms.

The costs that are intended to be internalized, based on this principle, are those from the prevention of contamination, so that it no longer occurs and they also include those from the control of the potentially polluting activity; that is, costs must be borne by the polluter both in the prevention and control stages.

As originally conceived, it was then a" fundamental principle for allocating the costs of pollution prevention and control measures introduced by the public authorities of the member countries" (OECD, 1974). It was posed, then, as a way to impute to the polluter the burden of the fight against pollution, who had to assume the cost of the necessary measures to avoid or reduce it up to the standards set by said authorities.

In addition, it was intended that the goods and services causing pollution in the production and/or consumption reflected in their prices the cost of these measures since economic valuations can and should help economic agents in taking into account the effects on the environment when they make investment or consumption decisions (GARCÍA, 2001, p. 120ss).

In spite of the above, it must be taken into account that there is a close relationship between the environmental policy of a country and its general socio-economic policy (LEFF, 1994, p. 21) and therefore, although this principle aims at the authorities of a country in order to encourage the polluter to assume the duty of preventing and controlling pollution and its

costs, it is pointed out by the OECD that, in exceptional circumstances, socio-economic problems of such importance may arise that they justify the consideration of granting government assistance,:

> – It is necessary to quickly apply a particularly strict and necessary pollution control regime;
> – the environmental policy objectives of a member country must be carried out within a prescribed and specific time;
> – assistance is given in order to stimulate experimentation with new pollution control technologies.

When the measures taken to promote the specific socio-economic objectives of a country have the incidental effect of constituting assistance for pollution control purposes, the granting of such assistance would not be inconsistent with the polluter pays principle, since it would be a fully-fledged exception justified by the principle.

However, it was recommended that, as a general rule, member countries should not support polluters in paying the costs of pollution control, whether through subsidies, tax advantages or other measures (OECD, 1995, p. 5).

As we can see, from the moment in which the polluter pays principle is raised by the OECD, the possibility of exceptions allowing the authorities of a given State to support the polluters in different ways, by becoming responsible for them. In addition, it was emphasized that the consumer was really the one who paid for such internalization.

According to Panayotou (1994), the traditional criticism in the polluter pays principle, that the consumer must pay, does not make sense, since the polluter is really the consumer.

Polluters or consumers should not only pay the cost of prevention and control of pollution, but also the use of the assimilative capacity of the environment.

From the year 2002, with the celebration of the World Summit of Sustainable Development, held in Johannesburg, South Africa, the concepts of responsible consumption, sustainable consumption or social

and environmental responsibility of companies were introduced with force in the discourse of sustainable development, and the final declaration of this conference itself refers to it, as does the Plan for implementing the decisions of the summit (PLAN DE APLICACIÓN DE LAS DECISIONES DE JOHANNESBURGO, 2002), which highlights the need to:

> Continue to promote the incorporation of the costs of environmental protection and the use of economic instruments, based on the criterion that the polluter must, in principle, bear the costs of pollution, taking due account of the public interest and without distort trade or international investments.

2 "WHO CONTAMINATES PAYS" AGAINST" WHO BENEFITS PAYS"

The polluter pays principle, moreover, is not the only principle for the distribution of costs, since it also makes sense the principle" who benefits pays", which has gained enormous prominence in recent years. According to this, those individuals or groups that receive or expect to receive benefits for pollution control activities or conservation actions should pay for said benefit.

A clear example of this is the payment for environmental services, which will be discussed later or the most recent international treaties on climate (PARIS AGREEMENT, 2015) or protection of biodiversity, according to which the cost of conserving Biodiversity and the control of greenhouse gas (GHG) emissions must be borne mostly by developed countries, which have historically benefited the most from the use of the atmosphere and, at the same time, those who benefit because these resources are in healthy conditions.

In short, as natural resources are more scarce or are under greater pressure their economic value rises and, therefore, those who benefit from them must" pay" for it.

3 CLASSIFICATIONS OF ECONOMIC INSTRUMENTS IN ENVIRONMENTAL MATTERS: ECONOMIC INSTRUMENTS ACCORDING TO THE PRINCIPLES THAT GOVERN THEM

There are many classifications for economic instruments. Here we present some of them.

According to Opschoor and Vos (1989), they should be cataloged as follows:

1. Fees

- Dumping fees.
- Fees for service rendered.
- Fees on products.
- Administrative fees.
- Differentiation through taxes.

2. Financial aid

- Subsidies
- Soft Credits
- Tax deductions.

3.Consignment systems

4. Creation of markets

- The exchange of emission rights.
- The intervention of the market.
- The liability insurance.

5.Financial incentives to ensure compliance.

- Liens of non-compliance.
- Deposits of good purpose. (p. 29-34)

Some distinguish between fees or royalties, taxes, funds, insurance and deposit-refund systems (OECD, 1999).

Within the fees or charges would be:

- royalties per issue;
- user fees; and
- fees on products.

According to this classification, the fees or emission rates are" direct payments based on the estimation of the quantity or quality of a pollutant" (OECD, 1999) and the user fees could be:

> payments for the cost of public or collective services and are essentially seen and used as a financial mechanism by local authorities, for example: fees for garbage collection or water service. In the case of natural resources, the fees for users are paid for the use of a natural resource (for example: hunting fees, fishing…).

Regarding the applicable canons on products, these are imposed on products that generate pollution, either in its preparation, consumption or final disposal (for example: fertilizers, pesticides, batteries…). These fees are intended to modify the final prices of these products and/or finance the collection and/or the treatment of those.

The economic instruments have also been classified according to their purpose:

- those that seek to encourage or discourage actions in relation to the environment;
- those that seek to finance actions or services towards natural resources.

Although sometimes both purposes can coexist, this can generate confusion and may not work as well as would be desirable.

There are those who, instead of talking about economic instruments, refer to instruments based on the market (ANDERSEN, 1998), which would be:

- Rights or fees;
- Taxes;
- Deposit-refund systems;
- Subsidies;
- Credits for the reduction of emissions;
- Negotiable permits.

The VII Community Program on the Environment (Official Journal of the European Union, series L 354, 2013) insists on the need to

transform the world economy" into a green and inclusive economy". For this he proposes:

> An appropriate mix of policy instruments, which would allow businesses and consumers to better understand how their activities impact the environment and how to manage that impact. Such policy instruments include the following: economic incentives, market instruments, information requirements and voluntary tools and measures that complement the legislative framework and engage stakeholders at different levels.

The program also insists on the need for a framework that:

> provide the appropriate signals to producers and consumers in order to promote efficiency in the use of resources and the circular economy. Measures will be taken to further improve the environmental performance of goods and services on the Union market throughout their life cycle, including measures to intensify the supply of environmentally sustainable products and encourage a significant change in favor of consumers. the demand for those products. This will be achieved by applying a balanced mix of incentives for consumers and businesses (including SMEs), market instruments and regulations to reduce the environmental impact of their activities and products. The consumers should receive accurate, easy to understand and reliable information about the products they purchase, through clear and consistent labeling, including in relation to environmental claims. The packaging should be optimized to minimize the environmental impact, and business activity models that are efficient in the use of resources should also be encouraged, such as product service systems, including the leasing thereof (Official Journal of the European Union, L series 354, 2013).

From the above, it can be deduced that in the European Union a distinction is made between:

- Regulations;
- Incentives;
- Market instruments;
- Information requirements (labeling);
- Voluntary instruments;

According to Panayotou (1994), there are 7 categories of economic instruments, which are:

- Property rights;
- Creation of markets;
- Tax instruments;
- Rates;
- Financial instruments;
- Accountability instruments;
- Compliance bonds and deposit-refund systems.

According to this author, property rights are based on the recognition that the excessive degradation of natural resources is due to the fact that price signals do not work for many environmental assets and therefore to establish on them instruments that help that the fact that prices reflect the scarcity of the resource can help to make better decisions related to it.

These property rights, insists Panayotou, do not need to be private, they can also be public or communal, but they need to be well defined, safe and transferable if they are to internalize environmental costs. These rights are particularly applicable to land and soil, to water and minerals, in the form of rights over water, over mines and over lands, as well as to other types of natural resources that could be easily parceled or demarcated (PANAYOTOU, 1994, p. 11).

Property rights can be of three types:

- Real property rights (water rights or land rights);
- Rights of use (licenses, concessions, usufruct certificates, access rights (roads, parks);

- Right of development.

Regarding the creation of markets, this refers to all the permits or transferable quotas that may be the object of purchase-sale. Within these are:

- Negotiable emission permits;
- Market development quotas;
- Water quotas and other negotiable resources (PANAYOTOU, 1994, p. 9).

With regard to fiscal instruments, these include:

- Pollution charges; within these, we must distinguish between charges on emissions and charges on effluents;
- Liens on products;
- Export taxes;
- Taxes on imports;
- Fiscal differentiation (PANAYOTOU, 1994).

As for the rates, within these we find:

- Pollution rates;
- Fees on users;
- Rates of improvements;
- Impact rates;
- Rates on roads;
- Administrative fees (PANAYOTOU, 1994).

In relation to financial instruments, these are divided according to Panayotou in:

- Financial subsidies;
- Soft credits;
- Guarantees;
- Revolving funds;
- Subscribed interests;
- Incentives for relocation;
- Sectoral funds. (1994)

With regard to liability systems, liability insurance as well as legal liability and charges or fines for non-compliance are included, as well as environmental compensation funds.

Finally, as regards good-purpose deposits and deposit-refund systems, we find:

- Deposits of good purpose;
- Deposit-refund systems;
- Deposits in case of environmental accidents (PANAYOTOU, 1994).

Another classification of economic instruments is what distinguishes between (DEMIR, 2011, p. 104):

- Economic instruments at the macroeconomic level. Within these would include:

- Environmental insurance;
- Negotiable emission certificates;
- Money;
- Subsidies;
- Tax deductions;
- Bonds of good purpose;

- Economic instruments at the microeconomic level, within which the following would be framed:

- Taxes and liens;
- Fines and penalties;
- Compensation and restoration actions.

The General Law of Ecological Equilibrium and Environmental Protection (hereinafter LGEEPA) in Mexico (LGEEPA, 1988), when referring to economic instruments in environmental matters, defines them as follows:

> Economic instruments are considered to be the regulatory and administrative mechanisms of a fiscal, financial or market nature, through which people assume the environmental benefits and costs generated by their economic activities, encouraging them to take actions that favor the environment.

The LGEEPA distinguishes in its article 22 between:

- Market instruments;

- Tax instruments;
- Financial instruments.

According to this classification:

> Market instruments are concessions, authorizations, licenses and permits that correspond to pre-established volumes of emissions of pollutants in the air, water or soil, or that establish the limits of use of natural resources, or of construction in natural protected areas or in areas whose preservation and protection is considered relevant from the environmental point of view.

As for the economic instruments of a fiscal nature, according to the second paragraph of article 22, they are" the fiscal stimuli that encourage the fulfillment of the objectives of the environmental policy. In no case these instruments will be established exclusively for tax purposes"

Finally, as regards financial instruments, the LGEEPA includes:

> credits, bonds, liability insurance, funds and trusts, when their objectives are aimed at the preservation, protection, restoration or sustainable use of natural resources and the environment, as well as the financing of programs, projects, studies, scientific research, technological development and innovation for the preservation of the ecological balance and protection of the environment.

Most authors refer to market instruments as synonymous with economic instruments; however, this is not the vision of the LGEEPA, which, as we have seen, leaves them as a category different from that of fiscal and financial instruments.

As we have seen there are a number of economic instruments and a large number of classifications of these.

We have proposed the following in previous works (GARCÍA, 2017):

1. Tax instruments
1.1. Liens;
1.2. Tax aid.
2. Financial instruments
2.1. Money;

2.2. Trusts;

2.3.Bail bonds;

2.4. Deposits of good purpose;

2.5. Insurance that covers environmental damages

2.6. Soft credits;

2.7. Other types of public aid (of a non-fiscal nature).

3. Market instruments

3.1. Deposit-refund systems;

3.2. Negotiable emission certificates;

An economic instrument increasingly used, which can be designed as public aid (subsidy) or as a market instrument is the payment for environmental services.

On the other hand, there is some confusion regarding fines and economic sanctions, as well as environmental concessions, authorizations and licenses.

Some people think that they are all economic instruments; however, we believe that this is not the case.

In the case of fines and economic sanctions in general, they are corrective instruments that are put in place when the prevention and control measures have not worked for any reason.

We can not forget that environmental law has a markedly preventive nature. Its fundamental purpose is to prevent pollution and, therefore, most of its rules, mechanisms, instruments and forecasts respond to this principle.

It is well known that in environmental matters corrective actions are especially ineffective since once the environmental damage has occurred the repair is difficult, expensive and sometimes (such as the loss of species) impossible.

The economic instruments are essentially looking for the prevention and control of pollution so that this does not occur and environmental externalities are not generated.

In addition, economic instruments are based in most cases on the polluter pays principle, which is a principle of a preventive nature (GARCÍA, 2001).

Of course, environmental law is based on a series of norms that

seek to repair the damage in the event of its occurrence and also include fines and economic sanctions that play a necessary role in discouraging polluting behaviors; However, these mechanisms, which come into operation a posteriori, that is, when the damage has already occurred, do not meet the requirements of an economic instrument, nor do they share their philosophy or operating rules.

With regard to operating licenses, concessions and authorizations, indicated in the LGEEPA as market instruments, we consider that they are not either, but in these cases we are dealing with direct regulation instruments, administrative requirements to carry out certain activity, with a legal nature similar to that of the environmental impact assessments, to give an example.

These instruments of direct regulation are operating conditions required by the administrative-environmental law.

The economic instruments, as we have already pointed out, are indirect regulations that seek to induce changes in the behavior of those who carry out a behavior with repercussions on the environment.

Following the provisions of the LGEEPA, we consider it of great importance to distinguish, when referring to fiscal instruments, between taxes, within which taxes and duties (fees or taxes) would be included, and, on the other hand, tax subsidies, contrary to the the polluter pays principle and considered by some to be a" perverse fiscal instruments" (UNEP, 2004, p. 22).

Regarding financial instruments, the LGEEPA talks about liability insurance for environmental damage; however, we refer more generally to insurance covering environmental damage, since the perception of the need to use insurance in a much broader way to cover hypothetical environmental damage is becoming widespread.

We have also included, within this area, good-quality deposits that, although they are similar to bonds and sometimes share their legal bases with them, have certain peculiarities and are also increasingly used for environmental purposes.

With regard to market instruments, the drafting of the LGEEPA is, as we have pointed out, particularly unfortunate, so we substituted the contents in this one for those mentioned above.

According to the above we could also classify the economic instruments according to the principles on which they are based. Thus, we could classify them in the following way.

- Principles based on the polluter pays principle:

Liens;

Money;

Trusts;

Bail bonds;

Deposits of good purpose;

Insurance that covers environmental damages.

- Principles contrary to the polluter pays principle:

Tax aid;

Soft credits

Other types of public aid (of a non-fiscal nature)

- Principles based on the principle who benefits pay:

Payment for environmental services;

Sale of environmental bonds;

Exchange of debt by nature.

In short, there are many, as we have seen, classifications made by the doctrine about economic instruments in environmental matters. We propose to classify them according to the principles of allocation of economic costs on which they are based.

4 ECONOMIC INSTRUMENTS BASED ON THE PRINCIPLE WHO BENEFITS PAYS

4. 1 Exchange of debt by nature

The European Union in its V Community Action Program on environmental matters already proposed the reduction of external debt of third countries in exchange for these to increase their environmental protection actions.

A recent example of this instrument is the payment, by the Non-

Governmental Organization (NGO) *The Nature Conservancy,* of a large part of the external debt of Seychelles (2016) for the purpose of allocating this money to environmental conservation actions

This initiative arises from the work and agreements of the Paris Club, in its eagerness to find sustainable and coordinated solutions for the poorest States and with a high external debt.

In this case, *The Nature Conservancy* covered Seychelles' debt in exchange for this country investing the money it had destined for this purpose to environmental conservation actions. To this end, the Seychelles Fund for Conservation and Adaptation to Climate Change was created and a series of actions were carried out using different financial instruments, such as funds and trusts, which are also economic instruments increasingly used for environmental purposes.

4. 2 Payment for environmental services

The payment for environmental services consists in the granting of a direct remuneration to those who are in charge of conserving the ecosystems that provide a series of environmental services necessary for the welfare of a more or less close community.

Said payment constitutes, thus, a way of internalizing, on the part of said community, the cost of the prevention of the contamination and also it can be seen as an expression of the principle who benefits pays, according to which the beneficiary by the existence of a certain habitat will be the one that must pay for its conservation.

The payment programs for environmental services have been proposed up to now in very different ways, ranging from public aid framed within official programs, to voluntary payment mechanisms made through funds.

4. 2. 1. Payment for environmental services in Mexico, public aid or who benefits pays principle?

The payment for environmental services has been raised in Mexico until now, above all, to encourage the conservation of natural

areas such as forestry, an action that stops the loss of aquifer sources, desertification and fosters carbon capture, among others.

However, despite the fact that up to now the payment for environmental services has only been proposed for the protection of forest areas in Mexico, it could well be used for the protection of other ecosystems.

In spite of the above, there is not yet a uniform design in relation to this instrument; issues such as who are the beneficiaries of an environmental service, and therefore, who must pay for these services or how much they should pay and, therefore, how their price should be fixed, are aspects that have not yet been resolved.

Nor is there clarity as to which instruments are most effective in developing this instrument or what public policy strategy to adopt.

The National Development Plan for the period 2007-2012 (DOF, 2007) proposed the creation of devices related to the clean development mechanism (CDM) for payment for environmental services, although these have not been developed today. So far, payment programs for environmental services have been prepared and funded mostly by the public sector, focused on water.

Carbon capture was considered as an environmental service already in the NDP 2007-2012 (DOF, 2007, p. 247) and its payment was considered as a market instrument, which would not necessarily have to be financed by the public sector. In fact, market instruments are supposed to be funded by individuals and, therefore, are based on the" polluter pays" principle or" who benefits pays", contrary to what happens with many of the current schemes for environmental services, which function as subsidies and, therefore, are not based on these principles.

The current PND 2013-2018 (DOF, 2013) states in its strategy 4. 4. 4, related to the protection of the natural heritage, among others, the need to:

> - Promote the generation of resources and benefits through the conservation, restoration and use of natural heritage, with innovative economic, financial and public policy instruments.
> - Increase the surface of the national territory under conservation modalities,

good productive practices and regulated management of the natural heritage.

- Recover ecosystems and deteriorated areas to improve the quality of the environment and the provision of environmental services of ecosystems (2013).

As mentioned, it has been very common in Mexico, as in other countries, to cover payment for environmental services through public aid. Thus, since 2003, payment for environmental services in the country began through four programs:

1.The hydrological environmental services program (PSAH).

2.The program to develop the market for environmental services by capturing carbon and those derived from biodiversity and to encourage the establishment and improvement of agroforestry systems (PSA-CABSA).

3.The forest environmental services project (PSAB).

4.The ProArbol program.

Currently the National Forestry Program **(**PRONAFOR)" supports the owners and holders of forests, forests, mangroves, wetlands and arid areas, to care for, improve and take advantage of the forest resources present in these ecosystems."

According to its operation rules (DOF, 2014), in its component of environmental services, the objective of the program focuses on:

> Grant support to people who own or own forest land, who voluntarily decide to participate in the payment program for environmental services, in order to incorporate good management practices to promote the conservation and sustainable management of ecosystems, and encourage provision in the long term of environmental services, such as the capture of water, the maintenance of biodiversity and the capture and conservation of carbon, which benefit population centers or the development of productive activities.

At the state level, there are many states that have initiated payment programs for environmental services. Thus, the Sustainable Forest Development Law for the state of Veracruz (SUSTAINABLE FOREST DEVELOPMENT ACT FOR THE STATE OF VERACRUZ, 2006) defines, in its article 2, the purpose of the Law:

> […] regulate and promote the actions of conservation, protection and restoration, production, management, cultivation, management and use made of the forest ecosystems, the environmental services they offer, the hydrological-forest basins and the timber forest resources […] to promote the sustainable forestry development of the entity. (Art. 2, 2006)

The state law does not refer to the role of forests and wildlands in the fight against climate change; however, it devotes an entire chapter to the" forest environmental services" (SUSTAINABLE FOREST DEVELOPMENT LAW FOR THE STATE OF VERACRUZ, 2006, chapter VI), considered in terms of their role in regulating the water cycle.

In this same sense, the Forestry Sector Plan 2006-2028 for this same state of Veracruz -which was prepared based on the Strategic Forestry Program for Mexico 2025 (CONAFOR, 2001) and updated on different occasions- recognizes that" in relation to the type of service economically compensated, the one that it refers to the regulation of the water regime, while carbon sequestration [capture] is carried out only in two management units" (FOREST SECTORIAL PLAN, 2006, p. 66).

The Plan highlights that at present the payment for environmental services provided by forest ecosystems covers 32,533 hectares (FOREST SECTORIAL PLAN, 2006, p. 42), and, within the strategic programs by sector established in the same Plan, the one referred to" environmental services in forest areas", already includes carbon capture. To do so, it states that within its goals, it intends to" […] incorporate 285,000 hectares of Veracruz territory, identified as 'Kyoto Tier 3' in emission reduction schemes linked to the Clean Development Mechanism" (FOREST SECTORIAL PLAN, 2006, p 66) within a period of twenty years.

At the municipal level, it stands out as one of the first in the country, the FIDECOAGUA program in the municipality of Coatepec, Veracruz, Mexico.

The Program is instituted through a municipal public trust, through which the operation and payment of environmental services is carried out.

On February 12, 2002, the Trust for the Payment of Environmental

Services was created (FIDECOAGUA), on June 30 of the same year the State Congress authorized it and on August 22 it was published in the Official Gazette of the State.

4. 2. 2. Other public payment programs for environmental services

At the international level, different payment programs for environmental services have been developed.

In the European Union, within the Common Agricultural Policy," there have been programs of environmental services for some years that could be understood as a paid version of environmental services".

In addition, the European Regulation 1698/2005 (OFFICIAL JOURNAL OF THE EUROPEAN UNION L 277, 2005)" provides for the conclusion of" territorial exploitation contracts", as one of the instruments that allow the compensation of environmental services that farmers and foresters generate within the framework of the measures foreseen in this regulation". (OFFICIAL JOURNAL OF THE EUROPEAN UNION L 277, 2005, p. 95)

These territorial contracts are, as Rodríguez-Cháves Mimbrero points out:" instruments to support sustainable rural development policies, which orient or encourage agricultural activities towards multifunctionality and generation of positive externalities" (2011, p. 74).

Other forms of payment for environmental services in Spain, according to this author are:

- The custody of the territory
- The proposal of the forest cent.

In the United States, on the other hand, there is a long history of payment for environmental services to farmers (CLAASSEN, 2008, p. 737), which began in the 1930s.

Most programs of this type start, as in the European Union, from Administration contracts, which define the objectives to be achieved and the obligations of each one of them.

Currently, the natural resources conservation service within

the Department of Agriculture has different programs that seek, through the economic valuation of the different ecosystems, to promote their conservation.

One of these programs is the initiative for the restoration of the great lakes (GLRI), whose objective is to support farmers and land owners adjoining these lakes to combat invasive species, protect watersheds and shorelines and restore wetlands.

Another payment program for environmental services, also in the United States, is the *Conservation Reserve Program*, which pays farmers in certain areas for not producing and for carrying out conservation actions on their land, in order to improve water quality, stop erosion and improve the habitat of endangered or threatened species.

Within developing countries, Costa Rica has pioneered in the use of this economic instrument (PAGIOLA, 2008, p. 712), developing payment programs for environmental services related to the provision of water and carbon sequestration, among others, although they have been criticized because the payments are too low to really encourage the desired behavior (PAGIOLA, 2008).

In Brazil, the PROAMBIENTE program was born, according to de Oliveira:" from the pressure of the Amazonian popular movements, with the support of university institutions and civil society" (2012, p. 64ss); For its part, the" Bolsa - Floresta" program of the state of Amazonas was created by law 3. 135 / 2007 and contains 4 different cases of payment for environmental services (OLIVEIRA, 2012). There are also two other programs:" Produtor de Águas" and" Mina d'Água", the latter in the state of Sao Paulo.

All these programs are developed through direct payments from the government to the owners of the natural resources, constituting, then, public aid.

2. 3. Towards payment programs for environmental services based on the principle" who benefits pays"

Market instruments start from the basis that market forces are very powerful. As Adam Smith (1794) pointed out at the time, the market

induces people to behave for the common good as if guided by a higher authority.

The market instruments constitute a category of economic instruments, usually of a voluntary nature, which make it convenient for the potential polluter or beneficiary of certain environmental services to perform certain conducts favorable to the environment.

As some authors point out, in spite of the above, at present we can not recognize a market in which natural resources have a clear price (Smith, 1794).

It is also difficult to find the link between the holders of the ecosystems that provide environmental services or those who make possible or are in charge of the conservation of the natural resource in question and those directly benefited by those services.

Payment for environmental services can be orchestrated in many different ways: first, it can be a voluntary or mandatory payment, it can fall on the inhabitants of the municipality or municipalities where the resource is located, on the state or corresponding states or even one could think of relating it to an activity that generates greenhouse gas emissions, nationally or internationally, in order to balance or offset these emissions.

Another important aspect to take into account is the collection of payment, which can be done independently or at the time when the person who must pay performs some other conduct or complies with some other obligation.

Likewise, it is important to define who will benefit from the payment, that is, what will be the destination of the resources. The most logical thing would be for the destination to be the financing of conservation actions, surveillance and even restoration of ecosystems, although it is also possible to benefit those who favor the good state of the resource, even if they are not geographically within or around it.

Finally, it is necessary to define the procedure for managing resources; One option would be to do it through funds created for that purpose.

4. 3. Sale of bonds or environmental certificates.

It is increasingly common to find financial mechanisms that seek to "sell", and environmental services provided by a specific ecosystem, as we mentioned in the previous section, and conservation actions or environmental protection in a specific area.

These "sales" have been organized through very different mechanisms. Some example of the above is in calculating, for example, the ecological footprint of a good or service and charging an extra amount based on those calculations. These "sales" have also been orchestrated through donations to specific funds to "compensate" the impact of a given activity on the environment.

Normally these bonds or certificates, which go beyond the traditional negotiable emission certificates, which emerged in the US and acquired a certain boom under the Kyoto Protocol, are voluntary, but in some countries there are already certain initiatives to create some with obligatory character.

CONCLUSION

First. Although when the OECD first proposed the polluter pays principle, numerous criticisms arose, focusing on the fact that the demand to assume the economic cost of externalities due to the potential polluter, which would eventually result in inflation, today this concern has been overcome since it has been widely recognized that the polluter is the consumer and that the consumer must be socially and environmentally responsible.

Second. The polluter pays principle is not the only principle for the allocation of costs for the prevention and control of pollution since the principle" who benefits pays" also makes sense, according to which those who receive or expect to receive benefits from activities of pollution control or conservation actions must pay for this benefit.

Third. Part of the doctrine considers that fines and economic sanctions, like environmental concessions, authorizations and licenses are economic instruments; however, we believe it is not.

In the case of fines and economic sanctions, these are corrective instruments that are put in place when the prevention and control measures

have not worked for any reason.

With regard to operating licenses, concessions and authorizations, we consider that they are not either, but in these cases we are dealing with direct regulation instruments, administrative requirements to carry out certain activity, that is, operating conditions required by the administrative-environmental law.

The economic instruments are indirect regulations that seek to induce changes in the behavior of those who carry out a behavior with repercussions on the environment.

Fourth. There are numerous classifications of economic instruments in environmental matters. We propose to classify them according to the economic principles on which they are based. So, we would have:

- Principles based on the polluter pays principle:

Liens;

Money;

Trusts;

Bail bonds;

Deposits of good purpose;

Insurance that covers environmental damages.

- Principles contrary to the polluter pays principle:

Tax aid;

Soft credits;

Other types of public aid (of a non-fiscal nature).

- Principles based on the principle who benefits pay:

Payment for environmental services;

Sale of environmental bonds;

Exchange of debt by nature.

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