

RELEVANCE OF ECONOMIC INSTRUMENTS USED IN SUSTAINABLE DEVELOPMENT PROCESS

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ABSTRACT: *The interaction between environmental, economic and social factors influences the ecological balance and generates the change of living conditions and those of socio-economic development. One of the essential conditions for building a sustainable economic development is the identification and implementation of active or voluntary instruments to influence economic and social activity towards ensuring their sustainability. In this paper, we intend to introduce the tools used in the process of sustainable development, which have a key role in adopting an environmentally responsible behavior. The results of this study are represented by the drafting of the advantages and disadvantages of using these economic and financial instruments. The purpose of this paper is to present the evolution of costs for environmental protection and the relevance of instruments used at the national level in environmental protection.*

KEY WORDS: *taxes; environmental fund; sustainable development; standards; environment; pollution.*

JEL CLASSIFICATION: *H23, Q01.*

1. INTRODUCTION

Mankind has reached such a point of the "offensive" against his nature, that some of the environmental protection and conservation issues have become universal. The fast pace of development of contemporary society, many social and environmental problems necessarily require in-depth knowledge of development and its effects. The key element of sustainable development is the reconciliation between the process of development and environmental quality, promoting integrated progress of development and decision making, globally and regionally, nationally and locally.

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Unfortunately, environmental issues are taken in different ways, with no unified logic vision upon these, that is why there are adopted different attitudes, from a tolerant system (governed by the principle that pollution is a phenomenon not so serious) and culminating with a radical system (zero pollution is to be considered the only acceptable solution, the integration of nature is not compromised). Also the financial impact of environmental damage is far from negligible, thus, the entities must submit information on policies, objectives and implemented environmental programs, expenditures that were committed in this area and the environmental risks faced.

2. RESEARCH METHODOLOGY

The study was conducted using existing information in the field, from the emergence of the concept of environmental protection and culminating with the need for using economic and financial tools in order to apply an ecological behavior. Based on the theoretical research and documentation we achieved to classify the instruments used in environmental protection and present their main advantages and disadvantages.

In the substantiation of decisions on the relevance of instruments used in national sustainable development process, we used the Annual Report of the Environmental Fund to highlight the evolution of concern for environmental protection activities. Also, after the statistics based on this analysis, the importance of the environment could be established as the main economic instrument of environmental protection, having as a benchmark the amount of revenue in the Environmental Fund.

3. THE SYSTEM OF INSTRUMENTS FOR SUSTAINABLE DEVELOPMENT POLICY

Since the early twentieth century and the interwar period, economic experts have drawn attention to the need of considering the undesirable effects of pollution, resource depletion or demographic factor in the economic calculation. To reduce pollution and environmental impact of economic activities and consumption, the government resorted to legislation by negotiating directly with the economic sector, which is the main source of pollution in the market, either directly through taxes or emission permits, or indirectly through stimulating mechanisms such as reducing taxes on the purchase of environmentally friendly equipment.

Ever since 1920, the necessary instruments were adopted to stimulate green behavior. Thus, Arthur Pigou highlights the opposition between private cost and social cost of an activity, in his paper "Economics of Welfare", and in order to solve this "market weakness" he suggests State intervention in the form of fees (pigouan taxes). In the developed countries, the environmental policy was not left to chance, but was imposed by applying various regulatory instruments such as standards, permits and licenses, direct control of impact upon the environmental factors.

• ***Environmental Standards*** – are the most used means for direct regulation of environmental quality. The standards establish their objectives in environmental protection, by limiting the acceptable concentrations of certain substances in water, air, soil and in the products for personal consumption. Standards are developed by or under

governmental authority and are benchmarks for evaluating environmental quality, and also goals to be achieved through legislative action.

In developed countries these types of standards are used to limit pollution:

a) *Quality standards of the environment*, which establish the maximum allowable concentration of pollutants in water and air for a certain period of time. For example: at some point in the course of water, the calculated average concentration of oxygen in 24 hours does not fall below 4 parts per million, more than three days a year.

b) *Emission and effluent standards*, which establish the legal limit for the total amount or concentration of a pollutant discharged from a source (mg / liter, g/24 h, kg / ton) and the maximum limits of effluent discharged during certain periods of time (maximum daily, average maximum for a month or a year), prescribing requirements for monitoring emissions and effluents;

c) *Standards for technologies* are standards for effluents which indicate the technology that the operator must use to comply with environmental protection regulations (e.g. use of a specific catalyst at the filtration plant to reduce emissions of oxides of nitrogen);

d) *Performance standards* are effluent standards that define quantitative performance of equipment (e.g. volume or concentration of a pollutant in a quantity of liquid discharged, or the percentage reduction in the quantity of pollutants in the effluent), giving the polluter the chance to choose the best means to meet this standard;

e) *Standards for products*, establish a legal limit for the total amount or concentration of a pollutant that can be discharged into environment per unit of production (kg pollutant / ton product), prohibiting the addition of harmful substances to improve the quality of a product (e.g. unleaded gas).

f) *Standards for processes*, limit the emissions of pollutants associated with certain production processes (e.g. the escape of ammonia at the nitrogen fertilizer manufacturing).

Worldwide, a notable work was done to develop ISO standards 14000 series, intended to provide a common framework for environmental management approach. According to ISO 14000, Environmental management system is "part of general management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining environmental policy. "

• **Permits, licenses and other authorizations:** may be granted for compliance with conditions imposed by organic standards.

• **Pollution fees** are amounts paid by polluters for every unit of pollutant discharged into environment, but leaving uncertain the result of environmental quality. The system is effective when the damage can be estimated with precision.

a) *Taxes on effluents and emissions* are amounts proportional with the quantity and quality of pollutants discharged and must be paid by the polluter. They are used along with standards and permits which will minimize the costs of developing the environmental quality requirements. The value of effluent and emission charges are determined by measurements of pollution released into the environment and taking into account the costs of funding a program to eliminate pollution.

b) *User charges* are direct costs of the polluter to cover the costs of remediation, they are charged for collection and waste treatment and disposal of sewage into drains. They are payments for which the user benefits of a service directly proportional to the amount paid.

c) *Taxes on product* are costs added to prices of the final or intermediate products which cause pollution in production or consumption phase or for which it is necessary to organize a special system of disposal after use (e.g. mineral oils, batteries, pesticides packaging, non-returnable packaging). The system involves a grant for recycling these products.

d) *Administrative fees* represent amounts paid to public authorities for services rendered in connection with the environment and they are: documentation, analysis and granting operating licenses.

e) *Differentiated fees* they are used to promote environmentally safe products. Differentiated fees can be positive for polluting products and negative for a cleaner version. They are used in case of two or more products with different effects on the environment to encourage the use of less polluting products.

• **Tradable permits and liability insurance:** a) *Trading permits* serve the authorities to ensure the desired quality of the environment defined by a permissible level of emissions or a quality standard. Based on these instruments, it is given the "right to pollution"; b) *Liability insurance* is a second mechanism for the creation of the specific market for protecting the environment, through which the risks of penalties for environmental damage are transferred from the polluter to the insurance company. Insurance premiums are commensurate with the risk of pollution.

• **Grants** - may take the form of donations, loans with preferential interest, tax reductions or exemptions, with the role of determining the polluter to change environmental behavior. Reductions or exemptions are offered to companies that operate production technologies that minimize the emissions of pollutants or to some companies in order to relocate factories outside populated areas.

• **Refundable security systems** - consumers must pay a guarantee for the purchased products that may be polluting. In case the consumer returns goods to a specialized recycling or disposal center, he will get the guarantee back.

4. ADVANTAGES AND DISADVANTAGES IN THE USE OF ECONOMIC AND TAX INSTRUMENTS FOR ENVIRONMENT PROTECTION:

Regulatory and economic instruments aim at achieving environmental objectives contained in the environmental policies, facilitating the collection of funds for financing pollution control. The problem is that these economic instruments are initially in many parts of the world and they are not yet effective: they are to be applied in the beginning and adapted in time. In some areas it succeeds, in others not, that is why we must be very careful before implementing certain economic instruments, for not doing more harm than good. These economic instruments should be stimulating to persuade polluters to act in such a way as to protect the environment; by changing the production technology to obtain more profit than if they continued to produce in the same conditions.

Table 1. Advantages and disadvantages of the instruments used for environment protection

Type of tool	Advantages	Disadvantages
<i>A. Regulatory tools</i>		
Environmental standards and the quality of the environment	Provides information necessary to appreciate effectiveness of existing controls;	Requires technical knowledge in order to appreciate the effects of pollution;
Emission and effluent standards	Provides maximum control of the authorities;	Implies an advanced monitoring and surveillance;
Standards for technology	Provides maximum control of the authorities;	Does not offer flexibility in production;
Product and process standards	Eliminates or limits pollution during production;	Requires close substitutes for prohibited products;
Permits, licenses and other authorizations	Facilitates application of environmental programs; Allows the intervention of the acceptance / rejection of certain activities; Meeting standards and implementation existing legislation;	Need to perform the constant checks and periodic reports; Implies large transaction costs.
<i>B. Economic instruments</i>		
Taxes on pollution	Oblige firms to reduce pollution; Provide funding for investment in new pollution control technologies; Partial compensation of the social costs of pollution.	There is no methodology to assessing environmental damage; Implies a complex and costly monitoring; Difficulties in geographical zoning polluting areas and the establishment of the polluter.
Tradable permits and liability insurance	Income generation; Ensuring established level of environmental quality; Facilitates the economic growth in polluted areas without further increasing in pollution	Implies high transaction costs and the existence of specialized markets; Requires a complex administrative system in administration of the market.
Grants	Provides reducing pollution; Reduced monitoring costs; Promotes technological innovation and development of eco-industries.	Implies government spending;
Security systems	Effective use by the private sector; Encourages recycling.	Increased price of products.

The advantages of using economic and legal regulatory instruments refers to the fact that they facilitate control measures, stimulate reduction of emissions below the limits imposed, encourage technological innovation and development of eco-industries, recycling, providing revenue and promoting the reducing of the cost.

The disadvantages of using economic and legal instruments of adjustment are related to the administrative costs and monitoring that they involve, some of them do not provide flexibility in production (technology standards), require close substitutes for banned products (product and process standards), encourages illegal discharges (user fees).

In the environmental consequences related to the practical use of economic instruments, it is imperative to distinguish between economic impacts (expressed by the environmental quality level) on environmental protection conditioned by the location of actual targets and specific consequences of applying economic instruments as a substitute or complement to regulation.

From this point of view, we can distinguish two main aspects:

- At the micro level, specific companies (business groups) will probably be faced with considerable costs on a relatively short period of time, which may jeopardize the continuity of business.
- At the macroeconomic level, the instrument considered will allow effective long-term solutions, provided that it is based on economic principles.

Given that the economic situation of companies concerned should not be affected by high environmental costs, it is preferable that between the overall effectiveness on long-term and regulation of problems on short-term, to choose for temporary financial measures in order to solve them. It is considered that the application of temporary measures is more justified in economic terms, than in the use of tax exemptions imposed by economic instruments. Using economic instruments has, at the same time, positive economic consequences. Thus, the first part relates to the trading of emissions rights, which allowed the continuation of economic growth, which would not have been possible only by applying a stringent direct regulation. Incentive fees may promote (as direct regulation, in fact) the emergence of technological innovations and the creation of new markets and even new products for export.

Taxes on effluents and emissions incurred by economic agents responsible for the simultaneously use with standards and environmental permits, facilitate the obtaining of environmental quality requirements to minimum costs. Also taxes on effluent and emissions require firms to reduce pollution in terms of lower costs than those resulting from the application of regulatory instruments; it also represents a source of income generators that can be used to finance and improve environmental protection activities.

Income taxes can be used to fund supporting government programs and priority eco-finance of environmental investment, or other government spending irrespective of other environmental costs. Economic instruments are compatible with trends in the current priorities of the regulatory and tax reforms, which have as main objective the improvement of market competition, improving the efficiency of government intervention (including implementation), paying more attention to customer requirements, reducing costs and promoting innovation technology.

Economic instruments can have positive effects on innovation and competitiveness through higher prices for pollution or other resources which encourages new processes, technologies and products.

5. ENVIRONMENTAL FUND - MAIN ECONOMIC INSTRUMENT FOR ENVIRONMENTAL PROTECTION AT NATIONAL LEVEL

The use of and effectiveness of environmental instruments in Romania is still limited. Among the factors contributing to this are: poor monitoring and implementation, low social acceptance and / or poor understanding of economic and environmental policy integration, insufficient institutional capacity and lack of political will to determine which taxes to boost investment level.

In order to support the development of projects under the National Action Plan for Environmental Protection, the Environmental Fund was established (Law 73/2000 on the Environment Fund). Environment Fund (EF) is made according to European principles "polluter pays" and "producer responsibility" for implementing environmental legislation, harmonized with the provisions of the Community Acquis, is regulated by Emergency Ordinance no. 196/2005 regarding the Environment Fund, approved by Law nr.105/2006 amended and supplemented (Law no. 105/2006, Law no. 292/2007, GEO. and Ordinance No. 37/2008. 25/2008).

The unit responsible for the management of the environment is the Environment Fund Administration, also referred to as the Environment Fund Administration, a public institution with legal personality, financed entirely from own revenues, in coordination with the Ministry of Environment. Environment Fund is an economic and financial instrument designed for supporting and achieving the priority objectives of great public interest, from the National Action Plan for environmental protection in accordance with national and international environmental standards, having a special fund and extrabudgetary character.

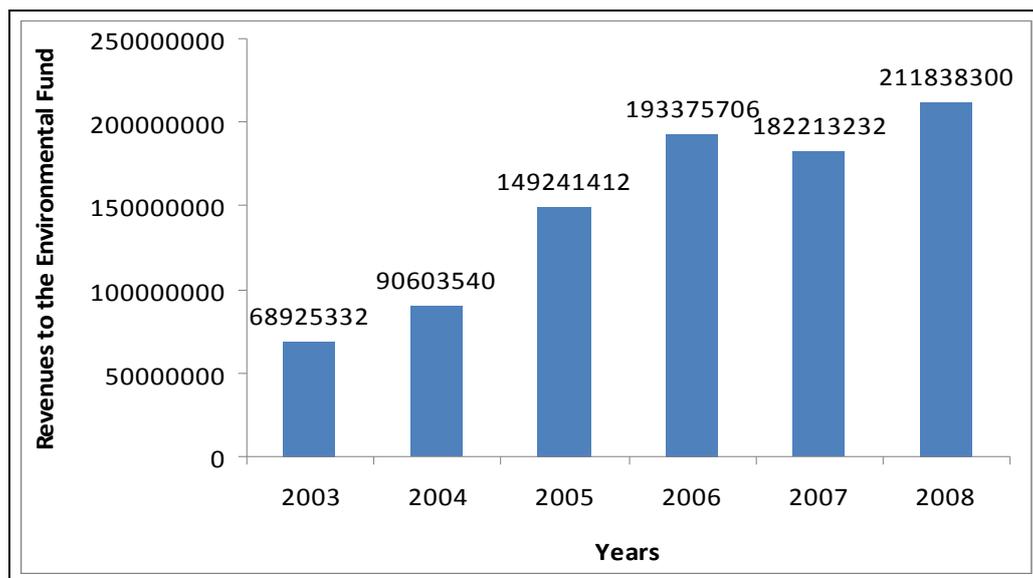
Environmental Fund aims to stimulate a limited number of public environmental investments, giving priority to those included in the National Action Plan for Environmental Protection. From January 1 to December 31, 2008, the Environment Fund budget revenue, according to GEO no. 196/2005 is 201,838,300 lei (10.77% higher than revenues in 2007, with 4.38% higher than in 2006, with 35.24% higher than in 2005, with 122.77% higher than in 2004 and 192.79% higher than in 2003).

Starting with July 1, 2008, at the Environment Fund budget is received, according to Government Emergency Ordinance (GEO) no. 50/2008, the car pollution tax, whose value, on 31.12.2008, is 903,987,897.04 lei corresponding the interval 07/01 to 12/31/2008. Thus, the total amount of revenue to the Environment Fund from 01/01 to 12/31/2008, is 1,105,826,197 lei.

Environment Fund Administration provides financial support for priority environmental projects, helping on one hand local governments to implement the National Development Plan priorities and The Directives of the European Union, to increase investment potential, environmental rehabilitation and improving quality of

life in communities and to protect human health and on the other hand, economic operators to fulfill the obligations contained in the compliance programs.

In order to carry out the obligations assumed by Romania in the process of negotiating the Treaty of Accession to the European Union, the Environment Fund Administration finances the following types of projects (www.afm.ro / report on the use of environmental fund): preventing pollution, reducing the impact on the atmosphere, water and soil, reducing noise levels, use of clean technologies, waste management, including hazardous waste, protection of water resources, treatment plants, sewage plants for the local community, integrated management of the coastal areas, biodiversity conservation, protected areas management; education and public awareness on environmental protection, increased energy production from renewable sources, reducing emissions of greenhouse gases, ecological restoration and sustainable management of forests, afforestation of degraded regions in the poor forest areas, established by law; closed tailings ponds from the mining sector; works to prevent, eliminate and / or reduce the effects of hazardous weather phenomena in the work related to water management objectives in the public domain.



Source: http://www.afm.ro/main/info_stuf/raport_privind_utilizarea_fm_2008.pdf

Figure 1. The evolution of revenue to the Environmental Fund in 2003- 2008

The financial support from the Environment Fund is granted in order to stimulate environment investment needed to modernize, re-engineer and purchase of installations for producing energy from renewable sources, conducting facilities using clean technology across all industrial sectors, reducing consumption of raw materials and energy, reducing the amount of waste and their introduction to the economic cycle, increase the recovery, recycling and packaging waste, use of the least dangerous pollutant emissions, increased forest cover, soil erosion, reducing flood risk.

6. COSTS FOR ENVIRONMENTAL PROTECTION - ENVIRONMENTAL POLICY INSTRUMENT

The costs on environmental protection are the economic measure of the response given by the society to address the problems of environmental conditions in a certain stage. These include expenses incurred for surveillance activities and environmental concerns and those that prevent or repair the damage to it.

In 2009, expenditure on environmental protection at national level was approximately 12.2 billion lei, representing 2.4% of GDP compared to 2.7% in 2008 (National Institute of Statistics - Press Release, no. 222 of October 15, 2010).

Table 2. Costs for environmental protection on sectors and categories of expenditure in 2009

-thousand lei-

Activity sectors	Total expenses	Investments	Current expenditure		Other expenses
			internal	external	
Non-specialized producers	3929598	1773140	1324524	831934	
Forestry, exploitation	48686	22065	16746	9875	
Quarrying	652947	303104	148975	200868	
Manufacturing	1752331	717713	711155	323463	
Production and supply of electricity, gas and hot water	1059509	655651	175083	228775	
Constructions	264061	8268	210071	45722	
Transport	152064	66340	62494	23230	
Specialised producers	6951154	1046720	5070253	834181	
Public Administration	3357708	1518164	1061184	384676	393684

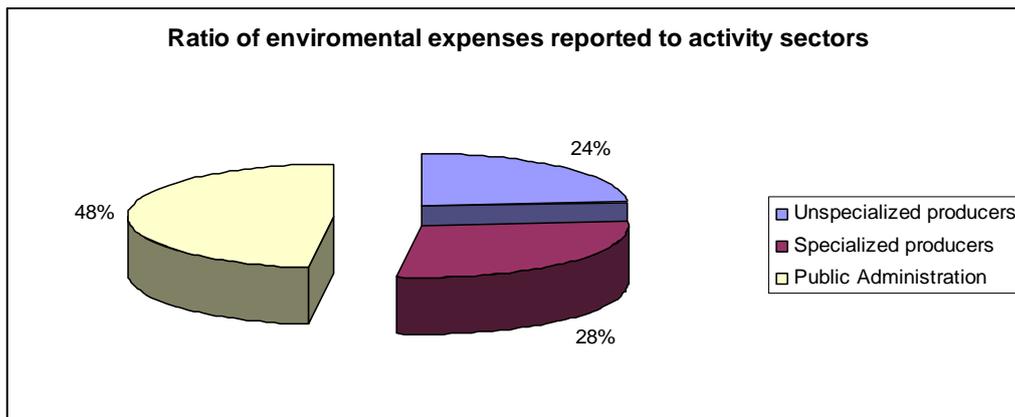
At the national level, the environmental investment share of producers represented the non-specialist producers (40.9%) of total investment, followed by public administration (35.0%) and specialized producers (24.1%).

In the processing industry it has been achieved 44.6% of the non-specialist producers, while the "production and supply of electricity and heat" absorbed 27.0% and 16.6% mining industry. In environmental areas, the largest expense is recorded in air protection from non-specialist producers (66.4% of total expenditure for this area). For water protection, the largest expenditure was made by specialist producers (49.6%) who registered the biggest expenses for waste management (74.4%).

Current expenditure for environmental protection includes those expenses that are necessary for the operation, repair and maintenance of equipment and machinery for environmental protection. These expenses include personnel, material expenses and services, other current expenses and may be internal or external to the unit.

Total expenditures for environmental protection include investments for added technical means and respectively, for technical means integrated in the process and current expenses that are internal or external to the unit.

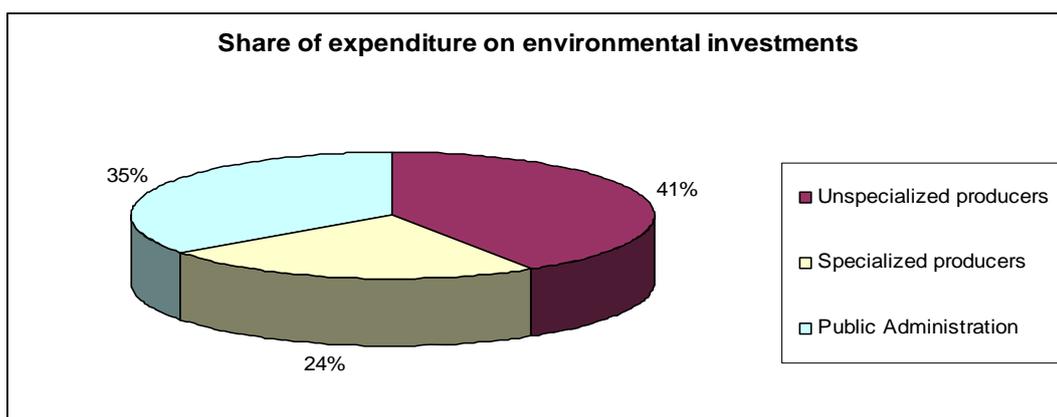
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Source: www.insse.ro

Figure 2. The share of environmental expenditure by sector of activity in 2009

In Romania, environmental protection means, primarily, reducing waste, a fact stated by the amount actually used last year by the state and by the environmental and waste management producers. It is a sum of 6.94 billion lei compared to 7.28 billion lei the total money spent for activities such as protection on air, water soil, natural resources, to combat noise and for other areas.



Source: www.insse.ro

Figure 3. The share of expenditure on environmental investments in 2009

Thus for the protection of air, the producers have spent the past year 1.95 billion lei and 2.65 billion lei for water protection. Groundwater and soil have been allocated an amount of 468.7 million lei while conserving natural resources and biodiversity 223.6 million lei. In order to combat noise and vibration, 69.5 million lei were appropriated. The sum of 1.92 billion lei has been forwarded to other environmental areas.

7. THE ROLE OF ECONOMIC AND FISCAL INSTRUMENTS OF ENVIRONMENTAL PROTECTION IN ROMANIA

Like many other countries, Romania has inherited from the communist regime, serious environmental problems caused by industrial policy based on higher productivity, which did not take into account the impact on the environment and human health. The most serious problems are encountered in water quality, waste management, air and soil pollution.

In this respect, Romania has introduced a series of reforms meant to strengthen the administrative capacity at local level such as providing regional responsibilities of the eight Environmental Protection Inspectorates and sectorial development strategies.

Areas that require the largest investments are:

1. Raising quality standards for potable water;
2. Development of urban sewer network;
3. Reducing pollutant emissions from large companies;
4. Development of dangerous and municipal waste incineration units;
5. Creating of landfill for waste.

The long time environmental policy in Romania provides gradual increase in the share of economic instruments to the detriment of administrative tools and command control. It is desirable that these economic instruments to reduce pollution as much but also the creation of funds to be used for environmental protection. These economic instruments need to be incentive to induce polluters to act in such a way as to protect the environment, by changing production technology to obtain more profit than if they continue to produce in the same conditions.

8. CONCLUSIONS

As it is clear from the study presented, more countries have implemented a comprehensive range of financial and economic instruments for pollution control. The main purpose of using these tools is to provide a flexible and effective pollution control measures. An economic tool that is designed to have a stimulating impact and will force the polluter to choose, if they avoid the costs imposed by investing in measures that are less polluting or bear those costs. Because of this stimulating function, economic instruments designed properly, influence the choice and conduct of the polluter on a long term. The key of administrative tools is their ability to use market power and individual interests by changing economic incentives to producers and consumers.

There is no ideal economic or financial instrument for environment protection, so we can not give a specific example that a certain tax for environmental protection would be more effective than the other, what is fairly relevant is that the amount of revenue derived from tax / fees to be also used to protect the environment and more accurately in carrying out projects on investment in green technologies, producing bio and the "green" strategy.

As we can see from the information presented, at national level the main instrument used in sustainable development is the environmental fund, what it is important though is the evolution of annual revenue to the environmental fund, which is growing every year. These revenues were also intended for a wide range of projects, this represents an advantage in national sustainable development policy.

Business objectives can be achieved without affecting the environment and the profitability is not affected by the orientation towards eco products and services (green). The central idea is that objectives such as increased turnover and profit can be achieved through a responsible approach to environmental policy because recycling materials, reducing energy consumption, transport optimization, removing toxic substances are also environmental standards but they are also measures to increase efficiency.

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