ECONOMIC AND ENVIRONMENTAL STUDIES No. 10 OPOLE 2007

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THE CRITERIA OF ECOLOGICAL POLICY INSTRUMENTS EVALUATION

1. Introduction

The purpose of this paper is an interpretation of the criteria of instruments introduction into ecological policy [Fiedor, Graczyk 2003]. It aims at describing the conditions in which the criteria of ecological policy instruments evaluation are better fulfilled. An interpretation of the criteria will be carried out from the perspective of the instruments contribution to the internalization of the external ecological costs. It is an evaluation undertaken from the perspective of regulating entities. It should be noted that an evaluation from the point of view of the reaction of entities subjected to regulation is also possible.

2. The legal basis for the functioning of an ecological policy

The state's ecological policy is developed and functions on the basis of the provisions of the Environmental Protection Act of 27th April, 2001 [the Journal of Law, 2001.62.627, as amended], and particularly on the basis of articles 13–17. In the years 2000–2003, three documents which presented the country's ecological policy were drawn up. In 2001, Polish Parliament passed the so-called "Second Ecological Policy of the State" which was adopted by the Council of the Ministers on 13th June, 2000 and by Parliament on 23rd August, 2001. It determined the ecological policy aims for as far as the year 2025. It had a conceptual and strategic character in most of its parts. It presented directions of solutions without concentrating on details ["The strategy of Poland's sustainable development until 2025"]. It determined only aims to be reached (short-term aims until 2002 and medium-term aims until 2010), as well as the instruments of realization.

The second document is "The Country's Ecological Policy for the years 2003–2006 with prospects for the years 2007–2010" [The Polish Gazette, issue 33, item 433]. It was drawn up according to the provisions of the Environmental Protection Act of 27th April, 2001, which in articles 13–16 provides for an obligation to prepare and update the state's ecological policy every 4 years. It is in fact an updated and developed version of "The Second Ecological Policy of the State", especially with reference to the priority directions of activity determined in the Program VI of the European Union's Activities in the area of the environmental protection. Hence, it can be treated, in accordance with the European Union's practice, as a medium-term activity program. Moreover, this program takes also into consideration the results of negotiations between Poland and the EC concerning Poland's membership in the Union.

The third document is "The Executive Program for the Second Ecological Policy of the State for the years 2002–2010", prepared in 2002. It is an operational document. It specifies performers, deadlines and approximate costs of the tasks to be carried out until 2010. The executive program was prepared according to the content of thesis 185 of "The Second Ecological Policy of the State" which stated that after the acceptance of "The Second Ecological Policy of the State" the minister of environment should draw up a relevant executive program for it. In the executive program, the means of meeting the objectives of the ecological policy were specified in the form of a package of investment and non-investment tasks (activities in the area of the law, programming, economic mechanisms, spatial planning, scientific research, control and monitoring, international cooperation and other activities of that type) for the years 2002–2010. Every package of tasks was provided with a name, a responsible unit and cooperating units, a completion date and necessary investments.

The scope of an ecological policy is specified by article 14.1 of the Environmental Protection Act of 27th April, 2001, according to which the state's ecological policy, on the basis of the present state of the environment, determines particularly the following:

1) ecological aims,
2) ecological priorities,
3) the kind of pro-ecological activities and their schedule,
4) the means necessary for achieving the aims, including the legal-economic mechanisms and financial means.

An ecological policy develops various instruments concerning pollution level regulation [Famielec, 2003]. Among the direct regulation instruments – frequently referred to as legal instruments – the following instruments can be generally distinguished: the administrative-legal instruments (especially permits, orders and prohibitions), organizational-legal instruments (the provision of goods by the state, the use of emission reduction plans by the public authorities or the use of plans of other undertakings, whose aim is a decrease in environmental

threats), penal instruments (ecological responsibility and ecological penalties/ financial stimuli for law enforcement). The indirect regulation methods are the following: fees/ecological taxes, agreements/tenders (where a person causing damage or a person suffering from damage is liable), transferable emission rights (certificates), entities' fusion/common supply of goods, public subsidies [Penc, 1977] for economic entities (enterprises, households or public utilities), which aim at financing (fully or partially) the installation costs of environmental protection devices or any other costs connected with environmental protection. The forms of indirect subsidies are different kinds of tax reliefs, credit preferences, customs conveniences, exemptions from investment deposits in the case of protective investments, tax diversification, credit guarantees, etc.

Before its introduction, every instrument should undergo evaluation which allows the determination of its usefulness in a given policy. The need for such an evaluation appears especially when a modification or expansion of the scope of the policy's instruments takes place [Fiedor, Graczyk 2003]. The essential evaluation criteria are the following: ecological effectiveness, economic effectiveness, distributional justice, implementation facility, social acceptability, that is the question of the existence and the power of social barriers of a mental and/or political character, as well as the recognition and information support for implementation of the instrument [Czaja, Fiedor, Graczyk, Jakubczyk 2002].

3. The criteria of ecological policy

Ecological effectiveness

Ecological effectiveness represents the legitimacy of a given instrument's application in the execution of the natural environment's protection. This criterion always refers to specified aims of an ecological policy. It can be, for example, the achievement of a specified emission standard on a local or national scale, emission reduction, etc. Effectiveness can be measured by references to various standards or ecological norms functioning as indexes operationalizing the ecological policy's aims. With respect to the internalization process, an instrument's effectiveness is determined by the probability of achieving the appropriate reaction to the applied instrument in particular entities. This reaction should bring about the achievement of the intended level of an ecological policy's aims, and consequently – the specified level of external costs.

The instrument can be considered the more effective,

– the clearer it is for the entity to which it is addressed (the entity has no doubts that the instrument applies to it);

– the more inevitable/certain its interaction with the entity; the strength of the stimuli depends most of all on the degree of the instrument's influence on various aims of the entity;

– the bigger the scope/number of entities able to react to the instrument's influence (what is considered here is not only the participation of entities reacting in a given group to which the instrument is addressed, but also the use of imitation effects, the diffusion of solutions and the like).

Economic effectiveness

Economic effectiveness is usually defined as:

1) the minimization of the total costs of the achievement of a planned/given environmental advantage, *i.e.* pollution limitation and/or external costs reduction, or

2) the maximization of the relation: ecological advantages achieved as a result of the performance of specific undertakings to costs necessary for the achievement of such advantages.

In a broader perspective, this effectiveness means the optimal allocation of resources both from the point of view of the amount and the structure of the influence on the environment and the pollution reduction costs or the elimination of a specific kind of interaction.

The economic effectiveness of an instrument will be the greater,

– the higher the diversification of the marginal pollution reduction costs, or the bigger the limitation of other negative environmental interactions;

– the higher the elasticity of the demand for the effects of the production activities of entities causing negative interactions and emitting pollutants;

– the greater the choice of the ways of limiting negative activities is given to an entity by a particular instrument.

In the last case, it is important that an entity is able to conduct an effectiveness calculation in which various types of adjustments to the instrument are considered.

The economic effectiveness can be considered as static or dynamic. In the static perspective, it means the comparison of costs and advantages in an unchanging scope and in a short period of time. In the dynamic perspective, changes in the structure of costs and advantages should be taken into consideration, as well as the level/intensity of their occurrence because of the greater probability of the appearance of additional factors after a longer period of time. That is why effectiveness evaluations in either the static and dynamic perspectives can sometimes be different.

Distributional justice

The application of instruments influences directly or indirectly the prices of intermediate and final goods or the production factors. This causes the appearance of distribution effects, although in a longer perspective the burden

of an instrument application rests on households. A uniform distribution of the burden of an instrument application should be considered fairer. However, when the advantages of an instrument application are not distributed evenly, irregular burden distribution – proportionally to achieved advantages – would seem fairer.

In a longer period of time, solving environmental problems usually means the improvement of the environment's quality. Beneficiaries are those who will use the environment in the future. The sooner the instrument application effect, however, the weaker the impression for those who are burdened with such application that they will not achieve any advantages during their lifetime.

Summing up, the fairer instrument is one which:

– in a shorter period of time burdens more significantly those entities which gain advantages;

– in a longer period of time ensures gaining of advantages for those who are actually burdened with an instrument, and thus it is also more effective.

These criteria are convergent with the expectations concerning policy instruments connected with the internalization of external costs. It seems easier to achieve cooperation and acceptance for the internalization process when there exists a conviction that the instruments are fair.

Social and political acceptability

Social acceptability in its broad meaning can be understood as the compatibility of an instrument with the rule – the polluter pays, or the rule – the polluter directly bears all costs, or the rule of society's participation in decision making. It is usually the resultant of the relations among many groups of social and economic entities, enterprises, consumers, non-governmental ecological organizations etc. A specific instrument's acceptability will be the greater,

– the more accurate the identification of the entities (economic and social groups) which are under the planned instrument's influence;

– the bigger the information scope of the groups under the specific instrument's influence, as far as the essence, implementation aim, financial results, technical possibilities of adapting to the changed conditions of activity, etc. are concerned;

– the more a specific instrument will be identified with those already applied and accepted;

– the slower and more segmented the way of implementation, in connection with an appropriate time advance as far as informing the economic entities about the intention of passing on to the subsequent phases of implementation is concerned.

Legal and administrative barriers

They are determined by many technical, organizational, legal and institutional factors. These barriers can be limited by the use of greater financial expenditure in the designing and implementation process. This will, however, influence negatively economic effectiveness, as well as, to some extent, the social and political acceptability, which will be lower. These barriers limit the readiness of the public authorities responsible for the ecological effectiveness to implement a solution, even when it is efficient from the point of view of the internalization of ecological external costs.

The legal and administrative implementation barriers will be the greater,

– the smaller the experience in the instrument application;

– the shorter the time for the preparation of the instrument implementation;

– the smaller the monitoring system and the smaller the possibilities to react to any signal of anomalies;

– the smaller means will be assigned for the instrument implementation.

Transaction costs

The internalization process requires the incurring of particular transaction costs. To a large extent, these are the costs of information acquisition, generation, collection and processing. Such costs are incurred by both public entities using the internalization instruments and by entities to which the instruments are addressed. They concern the number of external effects, the identification of particular entities' influence on a given effect, the specification of the assimilation capacity of the natural environment, the estimation of damages or the function of the reduction of costs related to pollutants emission. In the case of the instruments requiring constant regulation from public authorities, monitoring functioning costs appear. When the instrument requires only a little regulation from public authorities, on the other hand, a considerable amount of private entities' transaction costs can be costs connected with the search for and processing of information necessary for the determination of market prices. The costs of agreement negotiations between tenderers and purchasers or the costs of controlling the execution of such agreements can also be included in this category.

Transaction costs will be the higher,

– the bigger the scope of information necessary for considering and processing;

– the more participants among the private entities;

– the greater the technical requirements concerning the estimation of the size of external effects.

Moreover, there is an ambiguous dependency between the instrument properties and the amount of transaction costs. When the scope of public authorities' regulating functions is wide, the costs burdening public authorities are high, too, and the costs borne by entities are relatively low. Public authorities, accepting the priority of the social interest, do not have to aim at minimizing such costs. A similar problem appears when public authorities face a choice of the type of instrument that they should use. It is important for them to possess technical and economic information, or future access to such information, as without it the application or proper functioning of the projected instrument – especially from the point of view of its ecological and economic effectiveness – will not be possible.

In the case of a narrow scope of public entities' regulating activities, transaction costs are relatively low for them, and relatively high for private entities. It is worth emphasizing, though, that especially in their case there will be a tendency towards optimization on the micro-economic level. Such entities will determine the scope of transaction costs, and particularly information costs, in such a way that it will not cause any reduction of profit.

Pro-innovative interaction

This criterion concerns, in fact, the specific stimulating function of an instrument. It means the exertion of pressure on entities so that they would search for and apply solutions representing higher technical and organizational efficiency of the environmental protection systems. The instruments innovation will consist in their being conducive to efficiency improvement at least in two presented areas. This will result in the use of new products of lower pollution effects [Graczyk, Jakubczyk 2000], or the use of new technologies and the elimination of older technologies, even when they are not yet fully depreciated, etc.

As a result of an instrument application, the pro-innovative interaction of entities will be the higher, the more freedom in making decisions concerning the choice of technology/organization a subject will have and the more intense the entity's orientation towards the efficiency of protective activities connected with the applied instrument.

4. Summary

Evaluating the instruments applied in the ecological policy by means of the above-mentioned criteria, it would be difficult to show any considerable advantage of any specific group of instruments. It should be realized, however, in which direction the application of particular criteria leads.

In the ecological policy it is possible to give priority to a specific kind of the instruments characteristics. Then, the order of the recommended instruments can be changed significantly. Determining the orientation of the instruments structure by giving priority to specific criteria, the advantages and disadvantages of such an orientation of ecological policy should be clearly specified.

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