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HOW TO APPLY ECONOMIC INSTRUMENTS IN THE HUNGARIAN ENVIRONMENTAL POLICY

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Abstract

Severe environmental heritage has burdened the Hungarian society in the period of transition. The material, energy intensive and environmental polluting production and consumption characterising both the previous and current periods have been causing significant environmental damage. New environmental policy is needed. The environmental regulation system should be transformed with economic means playing greater role. The article highlights the direction of the necessary shift and the possibilities. It also analyses the ensuing costs of the new policy and the impact of its realisation.

Environmental damage in Hungary, according to conservative estimates, amounts to annual 6–8% of the GDP. As this damage has been accumulating for a quarter of a century since the early 70s its economically evaluated proportion equals Hungary's international debts. Small amounts of money have however been spent on the elimination of the damage. (Today it is 0.5% of the GDP). This amount must and can rise to 2% of the GDP by 1997. Market and economic means come to the fore regarding the allocation of resources. Environmental fees and taxes are made use of. Environmental policy should enforce the principle: 'the polluter pays'. The above mentioned changes will put an end to deterioration while the methods applied are also approaching the practice of OECD within it that of the European Community. The latter one is a significant condition of Hungary's joining the Community.

Keywords: environmental economics, environmental management, eco-taxation, environmental charges, environmental act.

1. Introduction

Central and Eastern European societies have entered the transitional period with acute political, economic, and environmental problems. Accumulated debts weigh heavily on both the present and the future. This is made up

of several billion dollars due to the international financial system on the one hand and an almost indeterminable amount due to the environment on the other. According to some estimates annual environmental damages amount to 6 to 8 per cent of the GDP. (According to bolder estimates damages caused by vehicular traffic alone to 5 to 7 per cent of the GDP.) At any rate, according to the expert estimate, it is very likely that the accumulated environmental damages of the region will be larger than the foreign debt of the region.

Both data prove that this sort of economy is intolerable from both the economic and the ecological points of view.

2. Ways and Means of Regulation

It is well known that the various forms of regulation serve to make the members of the economy, and of the society in general, feel the effects of their activities on the environment. It is generally accepted that centrally-planned economies and traditional market economies are both insensitive to the environment, which is usually present as an externality. At the same time the actors of these societies, as producers and often as consumers, evoke negative external effects. Without environmental regulation their legal, everyday activities harm the profit prospects or well-being of others.

Both direct and indirect (economic) regulators try to reduce private marginal costs, private marginal losses, social marginal costs and marginal losses in a way that economic and ecological optima meet. This regulation can only be effective if it is complex and flexible.

As we read in the report 'Our Common Future' which analyzes the possibilities of sustainable development: 'Changes are also required in the attitudes and procedures of both public and private-sector enterprises. Moreover, environmental regulation must move beyond the usual menu of safety regulations, zoning laws, and pollution control enactments; environmental objectives must be built into taxation, prior approval procedures for investment and technology choice, foreign trade incentives, and all components of development policy (Our Common Future 1987, p. 64).

An important step in environmental regulation is the Act on Environment, which was proposed to the Hungarian Parliament by the Government in 1994.

In this act environmental charges, among other regulators, will play an important role, especially charges for loading the environment. This

would break the exclusiveness of the regulatory system which relied on fines. In addition, this means an opening towards economic regulators in environmental regulation.

The opening towards environmental charges is in tune with the environmental decisions made by OECD countries more than fifteen years ago. If Hungary follows their example, the role of economic means should also be increased in environmental regulation.

Both the United States and Western Europe practised direct environmental regulation during the seventies. After initial success, however, this strict system, which is based on orders and norms, operates with reduced efficiency. (Both from ecologic and economic points of view.)

Economic means, such as the possibilities of voluntary activities, freer choices, and co-operation, can be more efficient and can better fit into the process of general deregulation. Economic means positively affect innovation. These means provide a better set of regulations for preventive environmental protection than direct regulators (which for the most part, are for extensive environment protection).

It should be noted, however, that although recently the impact and circle of economic means have noticeably increased, the dominant role of direct regulators has remained everywhere.

In Hungary the regulatory system of environmental protection can be made more flexible by employing economic means as well. The rigid dominance of inefficient fine systems can also be broken.

These means were introduced in OECD countries when there was a recession in their economies. In order to ease the budget-centred fiscal political determinedness of the Keynesian system, they moved towards an economic policy which influenced the market by financial means.

In the Central and Eastern European regions as well as in Hungary there are many similarities between these two periods. The state reinforces market means and tries to reduce the great concentration of the GDP into the central budget (which is about 64 per cent in Hungary today, whereas in the OECD countries it is about 40 to 45 per cent) thus in principle, all efforts which serve this purpose get the go-ahead.

The situation, however, shows differences as well as similarities.

The most important differences are the following:

- the serious international indebtedness of the country, the repayment constraint to which nearly everything else is subordinate
- general economic recession, which involves company shortage of capital, unemployment and high inflation

- weak assertion of the interests of environment protection (due to political, economic, and institutional reasons).

These are the dominant reasons which push Hungary, as well as other Central and Eastern European countries, towards short-range economic and political interests, even though they adversely affect long-term environmental interests.

There is no economic or political consensus to change the regulation of the economy. If there were, the first step would be to develop a new tax system, which would reduce the centralization of the GDP while at the same time increase financial means for environmental protection. (This could be done partly on central and partly on regional and local governmental levels and by leaving more resources to entrepreneurs for environmentally-oriented structural changes.) Besides the reduction of all central income, a restructuring of enterprise costs and individual income consumption has to be achieved by new environmental regulation which would make the external effects (as externalities) perceivable according to their weight.

Inasmuch as it is not realized, a cost and income structure different from those of the developed industrialized countries will further distort capital allocation and income consumption. Advance to EC which has greatly progressed due to the collapse to eastern markets, will not mean a wasting consumption of natural values even if these values have valuable prices. If the tax system remains unchanged, the budgetary policy will not change in effect and centralization can no longer be decreased. Moreover, a reduction must be achieved, even if only very low environmental charges can be applied. The effect of these charges on retaining pollution or on orienting towards clean technologies will be nearly impossible.

3. Some Important Trends of Development

In further development of the Hungarian regulatory system a significant role is to be played by *emission charges*. These charges have to be paid by the emitter *after each unit of pollution emission* and can be regarded as the price of pollution. This charge appears as a cost of the enterprise and constitutes a part of individual cost-benefit calculations. The effect of these charges is double: partly it is stimulating and partly redistributing. In most cases the sum of the charge is not big enough for the cost-effect to dominate. According to analyses it is the redistribute effect that dominates.

A charge in itself cannot be the only salutary solution in itself even in a cost-sensitive enterprise and market system.

As the charge is to be paid for each unit of emission it makes free environment pollution of those within the limits and the synergetic effect due to the addition of emissions under the norm impossible.

Following the emissions of different technologies is possible by *material balance-sheets.* (There have been significant achievements in working out material balance-sheets in Hungary as well.)

In this system of *emission charges* it is very difficult to determine the level of the charge at which private marginal cost nears social marginal cost. It is especially difficult in Hungary as the actual economic evaluation of the natural resources is hardly anywhere realistic owing to former central manual control and simulated market.

It is important to mention that existing galloping *inflation (1991: 35%, 1992: 25%)* spoils the effect of charges or fines. An inflation similar to that in Hungary softens the system. The stimulating effect is significantly reduced and so is the redistribute effect as the forming funds are continuously devaluated.

Emission charges function in a given norm system. Polluters *above the norm* pay fine and after a given period of time they are obliged to *stop* their polluting activity.

In case of exceptional environment pollution penalty sanctions should be enforceable. That is why those bearing personal responsibility have to be named unambiguously.

From the point of view of positive economic stimulation it is important that those whose emission is far below the norm are *given preference* when paying the charges. It seems expedient to reduce the charge to be paid per unit emission if possible.

Among charges we can find *user charges.* They are related to collecting and managing sewage water or collecting solid waste in a given settlement.

Basically, these charges serve the financing of the maintenance and development of collecting and cleaning systems. Their stimulating effect is low.

There are examples of *redistribution* as well in some towns. Enterprises pay relatively high charges that are assigned to *assist households.* A stimulating effect can be achieved if the charge is linked to the quality and quantity of emission (e. g. differentiated charge seems expedient in stimulating household to collect waste selectively).

A separate group of charges are the *product charges*. Product charges leaned on products that are harmful to the environment when used in production processes, consumed or disposed of. These charges are very important in particular for fuels.

Tax differentiation is closely related to the previous charges. Tax differentiation systems are characterized by two features.

- The combination of the two additional charges added to existing product tax:
  - a positive product tax for a polluting product;
  - a negative tax for a clean or cleaner alternative;
- fixing the level of the tax in a way that total financial effect (positive and negative should be neutral from the point of view of the budget).

The fourth group of the economic means are *deposit refund systems.* Deposit (charge) levied on a potentially polluting product, to be refunded when the product is returned to storage, treatment or recycling point.

Specific purpose and advantages: induce safe disposal, reuse or recycling of products; effectiveness in reducing waste stream volume. Relevance of this charge is high for the waste management for example beverage containers in many countries and car bulks in some countries.

The using of this charge in Hungary is very narrow.

An important component of the economic influence is the system of *subsidies.* The following subsidies are found in this field

- grant
- soft loans
- tax reductions.

The sources of subsidies are, on the one hand, charges and the budget, on the other.

In connection with subsidies we have to mention the principle generally accepted in OECD countries. The *Polluter Pays Principle* (PPP) the assence of which is that the polluter should bear the costs of pollution reduction.

As we wish to make our contacts closer with this group of countries it is important to co-ordinate the philosophy of our environment legislature and the practice of regulation.

Granting subsidies, tax reductions is compatible with the Polluter Pays Principle if the following conditions are jointly fulfilled:

- it is related to an industry, a territory or a plant where there are great difficulties
- it is limited to a well-defined transitional period which is connected with the specific socio-economic problems resulting from the introduction of the environment programme of the country
- it would probably cause serious distortions in international trade and investment.

In Hungary these three conditions exist in many areas so besides the principle of responsibility for environment pollution subsidies are justified.

Concerning our political, economic and environmental aims Hungary, in the centre of Europe, wishes to join the developed Western European countries.

That is why it is important to shape the environmental regulatory system in accordance with it.

At the same time Hungary is closely tied to the subregion which comprises the Czech Republic, Slovak Republic, Poland and Hungary. Thus it is important to shape the system of environment protection taking the specific features of this subregion into account.

4. Pollution Decreases and Controlling Expenses

At present a significant obstacle to the study of environmental protection from an economic viewpoint in Hungary is that the researchers and decision-makers do not have adequate knowledge of the environmental damages, processes and the environmental protection costs, due to the lack of reliable and overall data and information systems.

The initial base of macroeconomics analyses is that about 2% of the GDP should go to environmental protection developments.

The environmental protection investments of the developed countries in the eighties were compared to the GDP as the data of *Table 1* show:

The estimated proportion of the environmental protection costs in the U.S.A. and Japan were over 3% at the end of the 70's and later gradually decreased to the present level. In general, about a 2% characterizes the industrially developed countries investment solving the first problems of environmental protection.

The statistical reports in Hungary have been indicating identical nominal values for years. The value of the environmental protection costs con-

Table 1
Pollution decreases and controlling expenses as a percentage of the GDP, for the mid-80's

Country	Public expenditure	Private expenditure	Total
FRG	0.78	0.74	1.52
U.S.A.	0.60	0.74	1.47
Netherlands	0.95	0.31	1.26
Finland	0.52	0.64	1.16
Japan	1.17	0.08	1.25
Canada	0.89	0.36	1.25
Great Britain	0.62	0.62	1.25
Sweden	0.66	0.27	0.93
France	0.56	0.33	0.89
Norway	0.54	0.27	0.82

Source: The State of the Environment OECD Paris 1991. p, 255

sidered by the Central Statistical Office (KSH) is about 12–13 billion Ft a year. In the second third of the 80's this nominal value reached 1% of the GDP. However, as a consequence of the depreciation of the forint and the decrease of the GDP it fell to 0.5–0.6%.

The Best Possible Proportions of Enviromental Protection Investments until the End of the Decade

In 1994 0.6% proportion is expected to remain. In the following years, an annual 50% growth rate seems optimistic, but attainable. It is a question whether growth has an upper limit. It is probable that with a GDP starting from a low level, the capital demand of similar critical fields (e. g. housing) of the economy and the society and the slowly developing pro-environmental operation of the society, as well as other factors all together will not enable the environmental protection investments to exceed the aforementioned 2%. Its attainment and maintenance will also raise many economic requirements.

An annual 2% expenditure, under the above conditions, may be achi eved by 1997 and this proportion, we assume, may be maintained into the second half of the decade. On the whole, it means that with calculating the whole decade, the costs of environmental protection investments would exceed 400 billion Ft beginning with 12.5 billion in 1991–92 and exceeding

60 billion Ft by the end of the decade. On average in the whole decade, it would mean some 1.4–1.5% of the GDP for this purpose.

On the basis of these calculations, the following questions are raised:

- Can the calculated volume be regarded as the upper limit?
- What environmental protection aims may be financed from the estimated sources according to the predictions?
- What burden is it for the income-owners?

4.1. In Regard to the Internal Sources and Load-bearing Capacity of the Economy, the Calculation Certain to be Taken as the Upper Limit, because:

- Higher rates of expenditure — according to special literature — have repercussions on economic growth and result in a tangible increase in the price level.
  Neither can social benefits, the consequence of developments, be forgotten. If the relations are simplified short-term expenditure is opposed to the necessary long-term results. In this economy, there are great expectations for short-term results both socially and economically.
- The conditions for efficient utilization of expenditures increasing three fivefold are also created by establishing a system of economic conditions with the above capital volume concentrated on environmental purposes in such an economic situation.

4.2. The Outline of the Main Areas of Environmental Protection is Described in the Following System on the Basis of Internationalq Experiences and an Assessment of the State at our Disposal (Assuming the Investment Magnitude Calculated Above)

In summary, we can state that 400 billion Ft ($ 4 billion) estimated is some 50–60% of the expected development demands. The present plan deals only with the direct development of environmental protection and considers the enforcement of environmental protection as the consequences. Enforcement is a part of the technical development (more efficient energy and material utilization, decrease of emission, etc.) and is not separate from

Table 2
Regional purposes of environmental protection and the distribution of sources in percentages

Source / Field	Budget		Entrepreneurial sector	House-holds	Total
	Central	Local			
Water management	30.0	7.5	7.5	5.0	50.0
Air protection	1.3	2.5	7.5	7.5	18.8
Waste disposal	1.3	7.5	6.3	3.7	18.8
Soil protection	1.2		5.0		6.2
Others (measurement, control)	1.2		2.5	2.5	6.2
Total	35.0	20.0	28.8	16.2	100.0

the expenditures on the basic activity. It is noteworthy that even the 'net' environmental protection development costs are below the environmental damages.

4.3. The Distribution of the Burden at Least in Principle is Connected to the Distribution of the Environmental Protection Tasks. Accordingly:

The central and the local administration

- cover the costs of the elimination or moderation of earlier and accumulated environmental damages of the ones not connected to a person or legal entity
- undertake the authoritative operation for the protection of the environment and research-development tasks — orientate and support the environmental protection activity.

Entrepreneurial sphere

- covers the fees and charges for the use of and the load out on the environment
- passes fines pro portion to the pollution in case of damage to the environment,
- provides the costs for technical and organizational measures and technological developments serving the reduction of environmental damages.

The costs to the population

- the costs of environmental protection occasionally rolling over in prices
- the existing but inseparable coverages of the expenditure by the central and local municipalities on environmental protection from charges and taxes
- costs in connection with moderation or elimination of direct environmental pollution (sewers, treatment of sewage, catalytic converter).

The budgets of the central and local municipalities would take part mainly in bridging the public utility and sewage gap resulting from the above distribution of tasks and the existing practice. The proportion between the central and local budgets is expected to shift to the latter. The decentralization of water management will widen the municipality decision-making power and the utilization of central budget sources to municipalities in accordance — in the form of earmarked and target supports — sewage treatment was not ranked as a priority among the tasks to be solved at the municipalities (although changes may be experienced). Therefore the central orientation in financial form is justified. Another growing environmental protection field in the municipalities is waste disposal (collecting, transporting, treatment, utilization, dumping).

Population resources may be involved directly and indirectly. The direct aspect is contribution to developments (sewers) and financing the supported developments (restructuring the existing vehicle stock and the ones obliged for modernization). An increased share in the burdens of waste treatment is also expected.

The indirect aspects are a result of costs charged through central and local taxes and prices.

5. Estimated Environmental Effects of the New Economic Instruments

The accord of the condition of the economic system and the expenditure of estimable development aims along with the changes required in the state of the environment are hardly feasible in the medium term period. It seems to be probable that with the help of a strategic priority system developed on the basis of the consensus of the governmental and social organs, some sorts of satisfactory solutions may be reached. The estimated $ 4 billion assigned

demands. We are probably not wrong if 50–60% is assumed until the year 2000. At the same time, the assumption that the demand for resources of the new technologies and equipment is not included in the previous sum, narrows the gap. Their introduction and application is necessitated first by market demands. Because, it is part of the costs of product and technology restructuring.

It is correct to put the question forward: what changes may be expected in the state of the environment if the financial conditions described above can be established?

Due to lack of detailed data information, the calculation of the values of a synthetic index similar to the Index of Sustainable Economic Welfare (ISEW) is beyond our possibilities. The expectable tendencies, however, may be indicated qualitatively in the 'benefit' on a social level even on the basis of the information at our disposal.

There are different overall 'forecasts' on the change in the state of the environment. The 'forecasts' say the sate of the environment has deteriorated further, but more optimistic estimates say the deteriorate process is slowing down. The tendency toward deterioration is proved directly by experiences and data. However, reliable numerical and overall indices are not at our disposal at present.

The environment's positive effects on a social level estimable until 2000 mean the termination of the deterioration process and occasional improvements in the state of the environment.

References

KEREKES, S. – KINDLER, J. – KOLOSZÁR, M. – SZLÁVIK, J. – TÓTH, L. (1992): Study of the Environmental Protection Bill from Economic Viewpoint. (Manuscript, sponsored by: Regional Environmental Center Budapest).

Hungary's National Report to United Nations Conference on Environment and Development 1992. The Government of the Hungarian Republic. Dec. 1991.

Environment and Development in Hungary (1992) (A blueprint for transition, Budapest/Minneapolis. Published in Hungary by KEREKES S. – KINDLER J.).

Our Common Future, the World Emission on Environment and Development (1987) (Oxford University Press).

LORENZ, K.: Die acht Todsünden der Ziwilisierten Menschheit (München, 1973).

Sustainable Development and Hungarian Economy (1991) (Manuscript, in Hungarian: A fenntartható fejlődés és a magyar gazdaság – Compilation by KISS, K. – SIMAI, M. HAS, VGKI – See in the Research Institute for World Economy of the Hungarian Academy of Sciences).

SZLÁVIK, J.: Study on the Environmental Draft Bill from Economic Viewpoint. Summary, 1993 (Manuscript, sponsored by Ministry for Environmental and Regional Policy — See in Hungarian: A környezetvédelmi törvénytervezet gazdasági szempontú vizsgálata – Összefoglaló).

How to Apply Economic Instruments (1990), OECD Paris.

Taxation and the Environment (1993), OECD Paris.