PERIODICA POLYTECHNICA SER. SOC. MAN. SCI. VOL. 8, NO. 2, PP. 87–102 (2000)

ECONOMIC AND SOCIETAL IMPACTS OF THE EU-CONFORM ENVIRONMENTAL REGULATIONS

János SZLÁVIK

Department of Environmental Economics and Law
Budapest University of Technology and Economics
H–1521 Budapest, Hungary

Received: October 5, 2000

Abstract

The accession of Hungary to the European Union is a complex procedure. The harmonisation of the environment protection is an important part of that. According to the dominant interpretation this aspect implies the adaptation to the EU directives and regulations, and the harmonisation of the environmental programmes.

The environmental programme of the EU is well characterized by its title 'Towards Sustainability'. The present study examined the situation of the Hungarian environmental regulation and the extent of the environmental policy harmonises with that of the EU.

Keywords: environmental regulation, EU accession.

1. Introduction

In the accession to the European Union, the harmonisation of Hungarian environmental regulations will have an important share. Since the weight of economic regulators in the European regulations is growing continuously special care must be expended to environmental charges, fees and generally to the 'greening' of taxation.

Analyses, carried out in the beginning of the 90's, showed that environmental charges and fees have become more and more important in Hungarian environmental regulation. From the above fact one can conclude that the Hungarian environmental policy harmonises with the European one. Furthermore, this holds true for environmental legislation and environmental policies and programmes.

In the mid 90's, new tendencies appeared in the environmental policy and economics of the European Union, pointing beyond the efforts of Hungarian environmental regulations. These initiatives have 'planted' the green aspects into the evolution of the integration more distinctly, reforming that as an integral part of the whole process, thus we may talk about green or 'greening-like' taxation. This sort of greening taxation does not solely levy further and more strict charges or create greater environmental funds but understands the term in a more general way: cuts the subsidies and tax-decrees boosting negative externalities and the changing of the structure of the taxation.

The above mentioned modification aims to measure the complex effects of environmental regulations and considers the incentive effect of profit as much as

its redistribution effects. Numerous analysis and modelling proved already that the same eco-tax may improve or spoil the efficiency, depending on the induced income-restructuring.

Ecological policies and environmental regulations must be thus examined from the viewpoint of inner structure and relationship, economic and social effects, and international relations. International harmonisation is especially important due to its competitiveness and capital allocation.

Regarding the Hungarian accession, it must be emphasised that from the environmental regulations point of view although we are in harmony with the practice of the European Union but with the new efforts of the late '90s.

Environmental aspects must be integrated into the economic, political and societal texture, and from this respect Hungary has a lot to do during the joining process.

Main environmental regulation initiatives of the European Union and the Hungarian practice. The definitions of the elements of the environmental regulation system (including eco-taxes and fees) to be used are following the Hungarian nomenclature. Note, that though these definitions are based upon international publications and documents, due to their multi-dimensional use the definitions are not universal. Simply because no universal definition of these terms exists. The European Union has a close co-operation with EUROSTAT, the International Energy Agency and OECD in order to provide the sufficient frame to the eco-taxation of the member states. It is considered to be important to provide a uniform background, which creates the opportunity to compare and to analyse the data of the individual countries.

The employment of economic tools in the environmental regulation in the European Union became stronger from the 80's; in the beginning in the form of introducing different environmental charges and fees.

From the 90's, a new epoch has started in the area of eco-taxation in the European Union (and naturally in many OECD countries). While during the 80's eco-taxation developed almost fully isolated from general taxation, in the 90's it has become a more or less integrated part of that. The introduction of new forms of charges has been replaced by the strengthening tendencies of greening the entire taxation itself.

The process of greening the taxation has been happening in three phases, which at the same time interrelate and complete each other:

1. changing or abolishment of the distorting subsidies and tax-decrees;
2. restructuring the existing tax forms;
3. introduction of new eco-taxes.

2. Changing or Abolishment of the Distorting Subsidies and Tax-Decrees

It is a general requirement, stated in an international document, that the different tax forms, tax-orders and subsidies (both direct and indirect forms) should not have

any negative environmental impacts. This is at least as important as introducing new eco-taxes.

The crucial part is the negative impacts of the direct subsidies. (Based on the decision of the General Assembly of the G7 in 1995, Hamilton, the methodology is now under investigation how to explore and evaluate these sorts of subsidies.)

These subventions play an important role mainly in agricultural, energy and transport sectors. In many cases activities with major negative externalities are subsidised, contrary to the proposed system of Pigue, which would only support activities with positive externalities. These supports distort the situation tremendously, amplifying the harmful effects of negative externalities exponentially. The impact of subsidies to the selection of products and services is already proved.

The following few examples will illustrate the above mentioned statements.

Industry, energy sector: subsidies supporting the exploitation of stocks and promoting energy use have negative effects on recycling and amplify waste production. The subsidies in the energy sector favour the polluting ('black') users over green ones.

Transport: only part of the real costs is paid by the users (according to some estimates, on EU level this is around 80% of the total price). The subsidies of this sector support vehicular traffic, which is well-known to be more environmentally destructive than railways or water traffic. These subsidies entirely contradict real economic effects. Considering externalities, the supporting of the extension and the use of road network is only justified if positive externalities dominate. Today, supporting road constructions and vehicular traffic, we subsidise products and services with negative net balance. This is a typical example of the previously mentioned double harmful effect.

Agriculture: agricultural subsidies cannot be uniformly judged. If agriculture is understood as the type of activity that is in harmony with Nature, subsidies have positive effects. However, if the sector is defined as an industry-like production using fertilisers and pesticides extensively and decreasing biodiversity, the total effect is negative.

Most of the above mentioned examples portray the negative aspects of subsidies. Although they can be justified from both environmental and economic viewpoint if they support the effects of positive externalities and promote the optimal level of social externalities promoted.

I think that the latter type of subsidies will not solely conform with the theory of ecological economy, but with the principles and expectations of the European Union. Thus the subsidies satisfying the above criteria can be adapted to the practice of the future ecological policy.

3. Restructuring the Existing Tax Forms

Under this heading mainly the restructuring of taxes distorting environmental values is understood. Although most charges have positive effects on environment (e.g. differentiation of tax level according to the lead content of petrol), others are often

the causes of environmentally harmful mistakes. (To mention a few examples, the lowering of tax rates to promote the draining of wetlands to use them for agricultural purposes, or in case of traffic the lower tax level of diesel fuel favouring vehicle transportation. Hardly any arguments support today the tax free or low tax state of aircraft kerosene.)

The restructuring of present taxation is manageable in an environmentally friendly way. This approach aims to levy taxes gradually on the most polluting activities, influencing their relative price.

Besides the previously mentioned differentiation of the fuel taxes based on the lead content, several member states of the European Union restructured their car related taxes (maintenance and marketing taxes) to promote the use of the least polluting ones.

Since *energy* is the major source of both tax incomes and pollution, restructuring energy taxation and energy prices are rather promising options. However, regarding the difficulties of implementation and the various effects it may have, the question requires detailed analysis. Changes of customer attitude are derived by many factors: the situation in the taxation, relation of fuel prices and income, the choice of the different options, etc. The final effect determines the behaviour of producers, whose activity is thus oriented towards a less polluting (and a less taxed) product.

4. Introduction of New Eco-Taxes

Starting from the 90's the number eco-tax rates have grown significantly in the EU countries. *Table1* indicates these figures.

Introducing environmental charges happens in an income neutral context, in most cases that is other taxes become lower when eco-taxes come into effect. Introducing new taxation in a package is much easier–due to income neutrality–from societal acceptance point of view. To lower the overall levy is an imaginable option, since such reforms would meet the general requirements of the public. In this case, however, other (e.g. social) expenses should be lowered and the cost should be shifted upon the population, resulting massive resistance thus inhibiting the introduction of the new tax system. (In this respect great differences can be identified between the USA and the EU countries.) Lately, the idea that income taxes or even property taxes could be lowered by introducing new green taxation attracts attention in the European Union member states.

In the following, a couple of examples will be described, more detailed:

- In 1991, Sweden started a new tax reform, affecting 6% of the country's GDP. The general aim was to lower the number of distorting taxes and tax distortions mentioned above. In order to keep the income tax concentration on the former level, some direct taxes had to be raised and a couple of new eco-taxes had to be introduced (CO_2 and NO_X were taxed).

Table 1. The changing of the number of financial means* in seven OECD member states, 1987–97

Countries	1987	1992	1997
Finland	10	16	22
France	6	7	12
Germany	9	10	13
Italy	5	5	6
the Netherlands	13	11	16
Norway	12	15	22
Sweden	13	17	21

Source: data for 1987, 1992: Managing the environment: The Role of Economic Instruments. OECD, Paris, 1994.
Data for 1997: Environmental Charges and Green Tax Reform. OECD, Paris, 1997.
*Financial means are referring here to emission charges, product charges, marketable permits, and implementation incentives.

- In Denmark, an extensive tax reform was initiated in 1994. A key element of the initiative was to promote environmental preferences and a more rational use of natural resources. Since 1996, energy used by the industry has been levied by new green charges (CO_2, SO_2), and till 2000 the rate of the taxes grew gradually. The returns of these charges were redrawn to the industry to finance energy saving investments and to lower the social insurance rate of employers.
- Green taxes were subject to long and dramatic changes in the Netherlands between 1971 and 1996. Starting from a separated and distinguished green tax form, in the 90's the taxation itself moved toward a green approach. It is important to note that the revenues of eco-taxes are part of the overall budget. From 1996, new 'energy regulating charge' came into force, levied to small consumers (like households, smaller ventures, offices). Revenues from eco-taxes are returned to the household sector in the forms of lowered income tax and social insurance.
- The planned Finnish tax reform will significantly lower the employers' expenses (income tax and social insurance rate). The deficit will be covered by the higher energy-charges and new eco-taxes.

Eco-taxes are not yet understood in their entirety, though experiences mostly confirm their effective operation. The assumption of the effectiveness is confined by some factors; namely:

- eco-taxes are combined with other environmental means,
- eco-taxes co-effect with other economic regulators,

- hence it is rather difficult to separate that from the effect of technological changes, efficiency improvements and environmentally friendly structural changes.

Since some of the countries (the Netherlands, Sweden, Norway) regularly examine these effects, it is worthwhile to follow and consider them.

Regarding the returns of the eco-taxes reliable calculations are already available. In a study, published in 1996, the European Union and EUROSTAT examined the structure of taxation of the EU countries. (The study examined the period between 1980 and 1993, including all of the taxes having any kind of environmental objective.) Compared to the GDP, the rate of energy related and environment related charges of the 15 member states grew from 2.1% to 2.7% between 1980 and 1993. Considering the overall tax revenue, the share of these taxes was 5.7% and 6.7% in 1980 and 1993, respectively. There are certainly countries, where the figure was higher. In Norway[1], the share of environment related taxes was 5.9% and 8.2% in 1980 and 1992, respectively.

From the above example it is clearly visible that though eco-taxes take only a minor fraction of the taxes, they represent a growing revenue of the EU member states.

5. The Harmony of Hungarian and EU Regulations

Comparing the basic environmental policies and the available means of Hungary and that of the European Union, the two harmonise in many areas. The underlying reason is that during the codification of the Hungarian Environmental Act, enacted in 1995, the bill was heavily relying on the fifth action programme of the European Union, published in 1992, 'Towards Sustainability'. (The analysis of the bill from sustainability point of view was carried out first by the same team which investigated the bill from economics' perspective: KEREKES, KINDLER, KOLOSZÁR, SZLÁVIK and TÓTH in 1993.)

The Hungarian National Environmental Programme (1996) is based on EU recommendations as well. At the time of the codification, Hungary was already OECD member; furthermore, as an EU associate member, the government was preparing to start the joining negotiations. However, beyond the general statements, the conformation of the two regulations is definitely not so obvious.

Look at the regulation side first.

To characterise the gradually greening taxation of the EU, the following three features are selected:

1. changing or abolishment of the distorting subsidies and tax-decrees;

[1] Though Norway is not EU member, its environmental policy is rather similar to that of other Scandinavian EU member states, thus the above figures are presumably valid for those countries as well.

2. restructuring existing charges;
3. introduction of new eco-taxes.

Out of these three, from the 90's the Hungarian environmental policy is focusing on the regulations, favours the various economic means and tries to bring it to the front. From this perspective, the policy harmonises with the 'Union' part of Europe, or to be more precise the 'Community' part, since this tendency is more alike the preferences of the European Community in the 80's.

The Hungarian environmental policy has made decisive and noteworthy steps (in the fields of both regulations and environmental programmes) in order to define itself in a way which harmonises with the definition of the EU and the OECD. So far–though in a separate form, as environmental policy–it was successful.

One important step, featuring in the EU programme and implementation, the break-through, is still delayed. This feature is the effectiveness that makes environmental considerations an effective part of the entire economy and practice.

Hungarian efforts mainly aim to tie as many resources as possible (the former Central Environmental Fund [KKA] has been recently replaced by the Environmental Target Fund [KAC]) to the hand of the government through environmental fees and charges, and the Ministry (involving various environmental NGOs) will redistribute them.

This effort exists parallel to the national taxation, having no influence upon that. In today's Hungary it is unrealistic to restructure the taxation along environmental values in Scandinavian style: 'eco-taxes for environment and for better employment'.

The agenda does not even include the main aspect of the 90's of the European Union: the restructuring and/or abatement of the distorting systems and the entire taxation.

6. Analysis of the Economic and Societal Principles of the Hungarian Environmental Regulations

Let us now review the Hungarian environmental regulation system from different angles. These means are practical to be looked at from the following perspectives:

- static and dynamic effectiveness, competitiveness;
- simplicity of control and execution, information need;
- flexibility in adaptation to economic changes;
- political considerations, societal acceptance.

7. Static and Dynamic Effectiveness, Competitiveness

By *static* we understand weather the pollution control is carried out by the given technology and the geological position; that is whether it is typical 'end of pipe' (or

extensive) environment protection. Effectiveness is measured by the overall costs of the polluter that it must spend in order to realise the targeted control mechanism. To decide how effective the given regulation mean is, the overall cost of the emission control must be taken into account.

According to the above mentioned criteria, taxes function more efficiently than norms. If emission lowering fee is introduced for every kg of dispersed SO_2, then every polluter will reduce the emission as long as the marginal cost of the emission lowering is not equal to the fee. The uniform fee (or in case of tradable permits[2]: the price of the permit) assures that in case of many polluters, the marginal cost of the last unit of avoided emission will be equal. This will also assure that the efforts are made at the least cost.

If similar effectiveness is to be achieved by norms, different values must be assigned to every single pollution reduction curve. This would be the only solution to assure the equal level of marginal costs of each polluting source at any given emission level. This method is more tiresome and less secure than settling a fair tax or fee.

The examination of *dynamic effectiveness* is a typical incentive of intensive or preventive environment protection. Dynamic effectiveness includes long term action plans which are supported by the applied means, such as recommendation to polluters for technology changes (production or pollution-minimisation technologies) or moving the industry to less endangered area. It is an important criterion of any implemented mean to support and urge the polluters to install advanced technology or to minimise actual damages.

Charges and fees can be effectively used for the same purpose, due to their incentive nature. The charge or fee to be paid reminds polluters continuously (and at the right time) that decreasing the amount of pollution will lower his costs as well. Unthoughtful introduction of norms though may significantly slow the rate of innovations, thus behaves as 'innovation brake'.

Once the environmental fees are settled, because of cost minimisation, it is the polluters' interest to reach the optimum level of pollution as soon as possible. Norms will not be complied with as long as breaking the law is not punished. Often negotiations start and effectiveness of the regulation decreases.

Analysing the effectiveness of the system competitiveness must be examined too. However, competitiveness of norms is a rather complex concept, and the competitiveness of individual corporations, the various sectors or national economies must be clearly separated from one another.

Examining the effects of a regulation, effects on the entire economy are more important than effects on the various sectors. (Regarding the Hungarian accession negotiations the final question is how the international competitiveness of the country will change.)

[2]Tradable permits is a method typically used in the United States and not in the European Union. The reason we mention this regulation mean is its possible application, recommended in many negotiations and political debates, in case of the international regulation of greenhouse gases. Expert evaluation would be necessary in relation to the development of the Hungarian regulations as well.

Concerning the effects to the corporations, great differences might be experienced within any given sector. An emission fee or tax has different effect on the company, depending on what state of the 'lifecycle' its activity is. If the company just considers to implement a new investment, a newly introduced carbon/energy charge may result in the amelioration of the environmental conditions and the company's efficiency at the same time. However, the situation changes tremendously, if the investment is already settled, and another technology shift would be difficult and expensive.

An environmental charge endangers the competitiveness of an industry where parties compete with the quality of their products less (pharmacy industry) than of a sector where they compete merely with prices (fossil fuels).

The nature of the industry determines the problem of moving as well. If a regional regulation changes, it gets strict and compliance is costly, a company heavily relying on labour force will move much easily than the one based on fixed assets.

The effects of environmental charges are influenced by the way and the area the revenues are used for. According to an estimation of the European Union (1994), if the returns of the carbon charges were used for lowering the social insurance fee of the employers, both GDP and employment rate would grow on the long run. At the same time studies showed that carbon charges can lower GDP, if repartition is incorrect. Applying 'GREEN' model of OECD, in case of the EU, the GDP dropped by 0.6% compared to the previous situation where taxes were returned to the economy based on flat rate.

Model experiments and experiences prove that eco-taxes (or similar measures) do not acerbate the competitiveness of companies, industrial branches and nations. Long term competitiveness of countries does not worsen, indeed, may ameliorate if environmental regulations encourage the better employment of natural resources.

It does not mean, though, that a strict environmental order would not cause headache to certain companies or industrial sectors. The effect is even worse if countries do not introduce their regulations accordantly. Certain situations may force companies to move away completely. Referring to Hungary, this means that the country should not run ahead sharpening its regulations. However, if we lag behind or our regulations become too soft, EU is going to warn us, since it would contradict to the strict, polluter pays principle (PPP), and would encourage the undesirable capital-shift.

Complex effects of the Hungarian environmental regulations cannot be univocally judged, based on the available and rather simple analyses. The new bills are supported by profit/loss calculations and implementation analyses but the results, due to vague data and the lack of detailed and partial empirical examinations, show large uncertainty, hence no tendency can be outlined.

That is why these analyses must be carried out in a later part of the research and during the negotiations. It is a definite drawback that both the incentive effect and the redistribution effect of the regulations are vaguely known. Though good algorithm for the redistribution mechanisms exists for a long time, but without serious effectiveness-analysis.

8. Simplicity of Control and Execution, Information Need

This criterion measures what sort of data should be at the pollution control authorities disposal at what level of the forecast model to be able to use the given tool. This requirement of the effectiveness becomes important, when many polluters harm nature in different ways.

The use of each tool assumes that the abatement cost function, the pollution cost function and the revenue function are well known, since the optimal emission level and the adequate marginal cost can be derived only if these are available. In case of charges and fees, compared to norms, efficiency can be achieved with less information.

I reckon a noteworthy problem that in Hungary the changed property forms, corporation size and the technology shift are followed by the information system with large delay. Thus trustworthy information is missing for proper regulations and to prepare reliable profit/loss curves.

As we all know, every regulation tool basically aims to channel the polluters towards optimal level of externalities. However, if charges, fees and norms are based upon incorrect information, either pollution will exceed the economically efficient level, or–holding the externalities back–the profit margin will not reach the economic optimum.

Though information requirement of the system is much lower if taxes are levied if norms are introduced, to hold back productions with rapidly growing dangers (steeply growing externality level) can only be accomplished by a regulation system based on strict norms.

During the accession to the European Union the information system must be developed both structurally and qualitatively due to its rational establishment and practical operation. We believe, that overall adaptation to the EU information system must be carried out preferably already during the negotiation phase.

Environmental data, if provided in inadequate structure, may turn out to be disadvantageous for the negotiating party. (It is well-known that the answers provided to the EU questioners had similar consequences due to the ill structure, and caused drawbacks to the country.)

9. Flexibility in Adaptation to Economic Changes

Flexibility means that after economic changes (such as rise of prices, inflation or industrial boom), the used economic means help the easy adaptation to the new situation, and the desirable environmental policies can be realised. Wide-range flexibility also means that the affected polluters can take the necessary measures individually. If the level of flexibility is low, the controlling authorities will be forced to ceaselessly re-calculate and re-arrange the regulations and the orders. This infers the renewing of the expensive data gathering and administrative measures, opens the possibility of political interference and lobbying.

Charges and fees are less flexible than tradable permits. Still, revising the uniform tax rates or changing the fees are much easier than reviewing the norms, since latter one affects legislation and thus the contracts negotiated with the individual polluters. This way, especially high inflation and prolonged governmental interference may degrade normative fines down to symbolic level. It is thus important to harmonise norms and fees of the different regulations in the regulation process more thoroughly.

Introducing new regulatory tools it would be wise to consider not just the punishment of the ones neglecting deadlines, but the 'rewarding' of the ones who comply sooner than requested. The flexibility of the Hungarian regulation system would be improved by introducing the tools of '*Voluntary Agreements*', as a new mean of regulation. This acknowledged practice of developed countries and member states of the European Union is practically a voluntary based agreement between companies or corporate alliances and the state or some authorities, in order to accomplish environmental targets. In case when an agreement is signed, the government agrees not to stipulate more strict condition in the future than was agreed to, as long as the contract is in force. The other contracting party agrees to follow the agenda of the contract, and to promulgate the contract and the achievements. The advantages of the company are that as long as the contract is valid no further obligations will be charged on it. Furthermore, since these contracts are subject of common law, third party (e.g. environmental NGO) legal remedies are excluded, what the agreement is concerned. In certain cases government may offer bonus to the contracting party if that complies with the agreement.

At first sight these voluntary agreements are rather similar to the market of pollution rights, but there are major differences as well. First, these negotiations do not include the exchange of environmental quality to financial means. Secondly, endangered or potentially endangered parties are excluded from the negotiations. The role of government in these voluntary agreements can be considered as the representative of the society (mainly including people suffering from the pollution). The government can be assumed to seek the societal optimum based on the assumptions of the marginal cost of the damages. Voluntary agreements are more flexible in encompassing local or vocational particularities than general decrees. However, preparations may be the first steps of a legal measure based on the experiences of the agreements. Flexibility of the system is enhanced, if local authorities are involved to the negotiations. For the companies, voluntary agreements are good advertisements, raising their reputation. On the other hand, companies denying to sign the agreements or contravening the accepted terms will loose clients by lowered reputation.

Experts call the attention that companies with large capital intensity may take upon responsibilities that smaller ones are incapable to cope with, thus small ventures will be put at a disadvantage or will be forced to undertake technological investments above their means.

A couple of governments believe that voluntary agreements are more efficient in fulfilling international environmental duties (e.g. CO_2 emission abatement) than any legislative tool.

Civil society and NGOs eye this new direction distrustfully, mainly because of the already mentioned lower capability to intervene or to represent their interest by using legislative tools. In certain countries governments are accused to connive with the corporations to the disadvantage of environmental interests.

The system, after all, disperses. The lack of trust is somewhat understandable in the former socialist countries, since this form of mutual agreements is rather similar to the negotiations of the environmental policy of the late 70's, where bargaining of the companies aimed to ease the strictness of the requirements, most of the time successfully. Today, the situation is rather different to that of the socialist era. Democratically elected governments deal with private companies, while former counterparts were dealing with corporations of their own.

It would be wise thus to keep an eye on this measure and if possible to introduce it in Hungary.

10. Political Considerations, Societal Acceptance

This criterion represents the options of the society to choose from the available tools, and the pool of arguments in relation to the relative correctness of the used tools. Out of these, three are considered here to be really important: the first refers to stabilisation of redistribution, the second to ethical stabilisation and the third to economics stabilisation in its broadest sense.

As it is known, economic effects of regulatory tools are incentive effect (depending on the amount of the fee) and redistribution effect. Environmental fines, fees and charges all flow into large funds. The redistribution mechanism of these funds, according to our opinion, works with unsatisfactorily low efficiency. The returns of future laws, such as of the planned emission charge, would mean then large extra income sources. This would thus make the political handling conceivably more difficult, and the societal acceptance harder.

It could be considered an axiom that revenues from environmental fees and charges in Hungary should be income-neutral, mainly because of the need to lower the concentration of the Budget in the GDP. It means that the practice of separated environmental funds will inevitably change and move into a more indirect state, effectuated by the redistribution[3]. Thus the regulation side must be more flexible as well.

Politics and societal requirements exhibit certain consumer preferences, and resist if forced to be rearranged. This holds in case of environmental targets and restrictions too.

The effects of environmental policies, programmes and regulation systems on the income brackets and the income structure are very important from political and social acceptance point of view.

[3] Analysing the working principles of the regulations, it seems inevitable to examine the details of environmental funds and the question of redistribution.

Taxation affects households of the various income brackets differently. According to an EU-analysis, examining the weight distribution and the effects of a projected energy/carbon charge related to the United Kingdom, these tax forms would affect the poorer households beyond the average. While levying 10 USD charge on each barrel oil would lower the consumption of the average household by 6.55%, in the lowest 20% of the income brackets the reduction would reach 10%.

It would be interesting to conduct an analysis examining the effects of taxes on the income levels. Such study has never been accomplished in the EU, however, the investigation to the United States can be evaluated, with minor corrections. According to that, 100USD/tonnes of carbon is equivalent to 10% of the income in the lowest bracket, while in the highest bracket this figure only exceeds the 1.5% level.

Similar investigations are not performed in Hungary, thus we can only rely on our assumptions. People with high incomes possibly would not perceive the effects of the energy charges on their allowances, quite similarly to the situation of the USA. However, the effects would be substantial in case of people from the lowest bracket and in the lower middle class. This would intensify the dissatisfaction with the tax, lowering the positive attitude of society to natural values.

From the political acceptance point of view, if eco-tax affects society on a broad scale, policy should compensate the negative effects some way. Another reason for compensation is if the affected group is strong and organised enough to represent their interest against the levied tax (valid especially for a couple of entrepreneurial groups).

To counterbalance the undesired negative effects of the distribution, two options are known: *bonus* and *compensation*.

Bonus is generally given in a form of exemption from taxes or tax refund. The initial proposal of the European Community regarding carbon/energy charges included six sectors of the industry exempted from the tax (steel-making, chemistry industry, industry of non-ferrous metals, cement industry, glass and paper industry). The bonuses will, however, reduce the effects of the tax and thus result in no or hardly any change in the customs.

Compensation is a posterior subvention to certain groups in order to somewhat lower the elevated levies. Analyses univocally prefer compensation to bonus, except if compensation depends on the measures of the tax payable by firms or households.

Note, that the Hungarian concept of emission charge contains a similar compensation method. Its consequences to the effectiveness are worth examining, otherwise the regulation will comply with the European expectations but the implementation will lag seriously behind.

A special way of compensation, in the European Union particularly, to lower other levies when new eco-tax is introduced. This reduction lowers taxes, fees and other levies on the income.

It must be considered, however, that particularly poor households pay little tax (in Hungary many households, due to the low income level, pay no taxes at all). Hence, if compensation is effective via taxation, the targeted poor families will receive no or hardly any reimbursement but only rich families.

Reimbursements may be re-directed in a way, which target the poor household more effectively, by modifying the structure of social securities (like health insurance, unemployment fees or pensions). This would than contradict to the incentive to restructure and differentiate the taxation.

Too strict environmental regulation with unknown economic effects may put companies at a serious disadvantage. This is another reason why this form of regulation should be combined with the previous ones.

11. Sustainability of the Hungarian Economic and Environment Policy

The Hungarian Environmental Program for 1997–2002 defines sustainable development as strict as the European Union environmental programme, stating that sustainable development intends to put forward two aspects that market conditions usually cannot properly acknowledge: the protection of natural values and the principle of responsibility towards future generations.

The concept of sustainable development, on a long run, is in contradiction to the short-sighted interest of the politics and economics, both emphasising 'sustainable growth'.

As it is known, in today's Hungary, the two concepts are always mentioned together, often as interchangeable expressions. Furthermore, the practical and theoretical gap between the two is not identified clearly.

To put the theory of sustainable development to the level of everyday projects, it must be clarified what type of growth on what time-span following which agenda can be reconciled with sustainability.

I agree with the statement of Daly, saying 'sustainable growth' is an unsustainable theory. This, however, does not imply that environmental programmes and the environmentalists representing them, should deny growth at all time.

Below, we will take the example of Hungary and its relation to the European Union, considering the following important features:

- The Hungarian economy used a relatively high amount of material and energy to produce a unit of GDP in the past 50 years, thus the level of environmental pollution was considerably high[4]. (Relativeness implies underdevelopment of Hungary compared to EU level, and advantage if compared to the former socialist countries.)
- The economy is just over a long decade of depression, and the GDP of today is still lower than that of the 80's, the era before the depression started.

Let us see now, whether 'sustainable development' and 'sustainable growth' contradict to each other in Hungary today.

As long as the time-span of the sustainability of 'development' and 'growth' are not the same, the two initiatives can be reconciled. However, reconciliation

[4]This problem is examined by the other team of our research programme.

is only a theoretical possibility. For the implementation, a similar step would be necessary that was done at the Amsterdam Summit of the European Union, in 1997. During this meeting, the basic theorem of the fifth environmental programme, 'sustainable development', was officially included to the ultimate goals of the EU. The theorem of sustainable development is not uniformly applied to each country. The transitional development of Hungary implies that the new political and societal structure can only find its balance if new economy emerges.

There is theorem, said to be proved by 'Kuznets-curve' and the practices of most countries of the EU and OECD, proclaiming that pollution only grows as long as GDP reaches a certain level, and then it starts to decline. Some people conclude that *growth automatically turns into sustainable development*. However, as many researchers pointed out, the declining trend is not proved to be stable on the long run, and the recent economic growth involves the possibility of future raise of the pollution curve.

Economic growth utilising natural resources in a more efficient way can be in harmony with the principles of protection of natural values and responsibility towards future generations. However, the evolution of a more differentiated approach towards environment is inevitable. This means that, since nature provides four 'economic services' to human population, namely:

- energy and resources,
- space for economy,
- neutraliser and receptor of the by-products of the human economic and social activities,
- source of human life, recreation and recovery (recreational capital),

the simultaneous consideration of these four aspects must be the source of protection of natural values. To bias any of the above services in order to impair the others the functioning of the system as a whole will significantly lower.

The above facts about sustainable development and economic growth only intended to picture this dilemma but hold true in relation to environmental and economics development programmes, and in the relationship of environmentalists and economic decision-makers.

As it was emphasised in line with the regulation systems, separated environmental policy cannot help to get closer to sustainability in Hungary in the end of the 90's. Only economic-social-political integration of the environmental aspects promises good chance to move towards sustainability and thus closer to the European Union.

Since the idea of sustainable development is one of the key issues of the environmental policy of the European Union, furthermore, it is an increasingly important aspect of the accession process itself, for a harmonised accession, 'sustainable development' must be the inherent part of basic economic and social goals of Hungary.

This requires a more complex and practical evaluation of this problem in our future researches.

References

[1] A fenntarthatóság felé (Egy környezettel és fenntartható fejlődéssel kapcsolatos politika és cselekvés. Az Európai Közösség programja.) [Toward sustainability. A Policy and Action Programme Related to Environment and Sustainability] Published in Hungarian KTM, 1997.
[2] Agenda 2000. For a Stronger Wider Union. *Bulletin of the European Union Supplement*, 5/97.
[3] Environmental Taxes and Green Tax Reform. OECD, Paris, 1997.
[4] Managing the Environment. The Role of Economic Instruments. OECD, Paris, 1994.
[5] Nemzeti Környezetvédelmi Program. [National Environmental Programme] 1997.
[6] CALWELL, L. K., *International Environmental Policy*. Duke University Press, 1990.
[7] KEREKES – SZLAVIK, A környezeti menedzsment közdazdasági eszközei [Economic means of Environmental Management]. KJK, 1996.