

ENVIRONMENTAL PROTECTION IN THE SLOVAK REPUBLIC: ECONOMIC ASPECTS

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Abstract. The contribution investigates the effective utilization of some economic instruments for environmental protection, the aim of which is to financially stimulate the ecological behaviour of enterprises. The information on principles and practical aspects of using two types of instruments, i.e. the emissions trading and the investment promotion of renewable energy sources, was analyzed on a global scale to point out to the specificities of their utilization in conditions of the Slovak Republic. An objective of the contribution is to direct attention to drawbacks associated with the utilization of those instruments in practice. Of course, the drawbacks considerably reduce their effectiveness and often change their initial purpose.

Keywords: environmental policy instruments, emission allowances, renewable energy sources, photovoltaics.

Jel classification: Q 52, Q 28

1. Introduction

A part of the social development is besides some negative phenomena also environmental problems occurring in almost all countries of the world. Therefore the next economic development is associated with uncertainty whether the present generation will be able to eliminate the adverse influence of its activities on the environment and what consequences will be brought about by these activities for upcoming generations.

The solution of problems requires a change of the approach to the environment, to its protection and preservation. The society should realize that an excessive exploitation of sources and the pollution of the environment lead to its irreversible damage having the social-economic impacts on decreasing the rate of further economic growth. (Kollár 2001)

In this process, one of the tasks undertaken by a state is the gradual modification of markets from their non-regulated form to the higher one which will consider environmental questions. Without the state intervention this transition would never happen because some elements must be introduced into the economic system, especially those which exceeded in the starting period of the market formation a level of the recognition of the society and therefore the market mechanism did not count on them at all.

Since the 70s of the last century all developed countries have gradually incorporated into their economic policy also the problems of environment. Its aim is to enter into the production and consumption solutions of market subjects and to achieve a change of the "pattern of behavior". This change assumes the application of instruments and methods which will ensure the high environmental efficiency on achieving the required economic level. (Majerník 2007).

2. Legal regulations and instruments in the area of environmental protection

In general, the state uses the three basic groups of instruments to ensure the protection of environment. Those include:

- **Command and control instruments for environmental protection**

This group involves legal norms determining the general rules of subjects' behaviour in relation to environmental protection. The common feature of the application of these instruments is a direct regulation of the behaviour performed through commands and bans. After their application to the ecological policy it is possible to achieve the improvement of the environment at a short time, which is undoubtedly their asset. On the contrary, their drawback is their economic ineffectiveness. (Koprda *et al.* 1998)

- **Economic instruments for environmental protection**

The application of economic instruments is based on the rule, according to which the user of the environment must pay for using its certain parts as inputs for his activity (raw-materials, water), or must take advantage of certain services associated with the use of the environment (liquidation of wastes). These instruments are aimed to stimulate the ecological behaviour of pollutants in the context of economic demands. (Pavel *et al.* 2009)

This subgroup includes, for example:

- investment grants and subsidies designed for activities organized for the purpose of environmental protection and obtained from the central sources of a different level,

- more favourable tax conditions in the case of the implementation of measures for the protection of environment,

- advantageous credits for activities organized in the sphere of environmental protection, the assumption of guarantees for such credits, etc.,

- emission trading. (Patrik *et al.* 2003)

- **Suasive instruments for environmental protection**

This subgroup of instruments is characterized by an effort for the voluntary incorporation of the ecological consciousness into the firm's decision-making processes. The goal of these instruments is to stimulate the proactive approach of companies to environmental protection. Important instruments belonging to this group are, for example: EIA, EMS, EMAS, Ecolabeling (Úradníček 2001).

The key aim of the article is to perform the evaluation of the practical application of two types of instruments from the group of the economic instruments for environmental protection in conditions of the Slovak Republic. In this article will be specified the emission trading and a support given to renewable energy sources.

3. Emission limits as an instrument for the protection of environmental policy

The international association has already been trying for more than two decades to find the way how to solve jointly the problem of a climatic change. Most specialists agree on the fact that one of the most important factors of influencing negative changes on the globe are the growing amounts of emissions, the so-called greenhouse gases. The concentration of gases which cause the greenhouse effect in the atmosphere as a consequence of the human activity has been constantly increasing, which leads to the next warming of the planet.

At the conference of the United Nations Organization (UNO), which was held in Rio de

Janeiro in 1992 in order to solve the issues of the environment and development, the basic legal instrument for solving this question, the so-called "General Agreement on Climatic Changes", was accepted. By signing the Kyoto Protocol in 1997 industrial states committed themselves to reduce their emissions of greenhouse gases by one percent. One of the instruments which was created by the international association to fulfill that aim is the emission trading. (Suhányi 2008).

The emission trading is based on the assumption that the market will ensure the lower costs for reduction of the emissions of greenhouse gases in comparison with a direct state regulation of the production and consumption. A key item of the Kyoto Protocol is the so-called flexible mechanisms. The flexible mechanism assumes that the country achieving lower emissions than required by the Protocol can sell the difference i.e. the saved emissions, and vice versa, the country which is unable to fulfill the estimated emission limits can buy them in emission markets. The countries which signed the Kyoto Protocol accepted commitments to lower the emissions of greenhouse gases to the level which is expressed in the so-called allocated amounts. The European Union has a target to decrease the total amount of the emissions of greenhouse gases by 20 % up to the year of 2020 in comparison with the year of 1999.

The states which signed the Kyoto Protocol and now are fulfilling the agreed rules can trade (sell/buy) with emission permits. According to the Kyoto Protocol the responsibility for such trading is undertaken by the state which usually appoints some governmental agency with performing this task. (Kišš *et al.* 2010)

The Kyoto Protocol enables an individual to create also other trading schemes at the national and regional level and to determine the own objectives at these levels. On the basis of this fact the European Union created its own trading mechanism – the European Union Emission Trading Scheme (EU ETS).

The allocation of the European limits of greenhouse gases, the so-called European Union Allowances (EUA), is realized through National Allocation Plans (NAP). The plans specify the total amount of CO₂ emissions provided by member countries to their companies which in turn can sell or buy them themselves. (Plchová 2011a)

Consequently, the member countries of the European Union can simultaneously utilize the two mechanisms of emission trading – at the level of states within the Kyoto Protocol and at the level of companies within the EU ETS (Plchová 2011b).

In order that this artificially created market with emission permits could be functional, the

number of emission permits must be adjusted realistically, encouraging sellers as well as buyers. However, for many states this system represented mainly the acquisition of a lucrative trading commodity.

4. Emission trading specificities in the Slovak Republic

The emissions of greenhouse gases produced in 1990 were taken as a uniform reference value for all countries. However, at the beginning of the 90s, in the post-communist countries many enterprises from the branch of heavy industry went bankrupt, which had a direct impact on the substantial reduction of the emission volume in the country. In addition to this fact, a change in the proprietary relations caused that after a great privatization the old ineffective investment units started to be substituted in some enterprises for new technologies having a less negative impact on the environment. In this way, Slovakia considerably exceeded its commitment made in the Kyoto Protocol that it will reduce emissions by 8 % up to the year of 2012. However, during the first five-year period the emission volume was roughly reduced even by 30 %. Thus Slovakia gained a lucrative trade article – emission limits without any coherent climatic policy and purposeful investments into the reduction of the emissions of greenhouse gases. (Kišš *et al.* 2010)

In the first trading period (2005–2007), companies incorporated in the scheme of trading in the territory of the Slovak Republic were allocated 91.4 mil. tones of CO₂. In the period from the year of 2005 to 2007 almost all permits were distributed to companies free of charge and inasmuch as governments overvalued the needs of their industry, the market with an excessive amount of emission permits was not functioning (the price of EUA decreased to zero in 2007). As late as in the second period (NAP II) the market with emission permits was finally launched owing to more realistic allocations. (Kišš *et al.* 2010)

In the second trading period proceeding from 2008 to 2012 the Slovak Republic has been allocated 162.7 mil. tones of CO₂ for companies and facilities which are part of the trading scheme. However, since the start of the EU ETS Slovakia has been permanently allocating more permits to companies than they actually need. In the second period, the continuous over-allocation is the highest in the European Union and approaching 40 %.

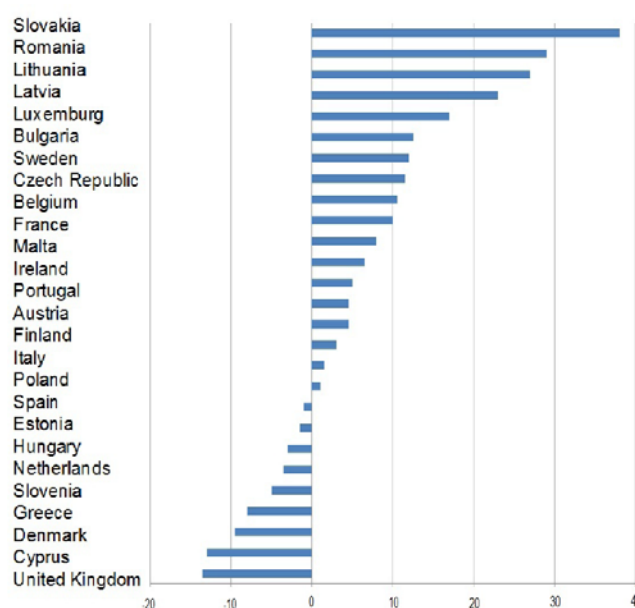


Fig.1. The continuous over- and under-allocation in the European Union in NAP II (%) (Source: Kišš *et al.* 2010)

The functionality of the market with emission permits in Slovakia is queried for the following reasons:

1. The emission permits which were not surrendered bring firms unexpected profits. According to the initial assessment of the Slovak Ministry of Finances the total revenues of firms arising from the over-allocation of emission permits could achieve for the whole period of years of 2008–2012 as much as 666 mil. euros, and during the years of 2011 and 2012 it could be as much as 231.6 mil. euros. (However, the forecast for the years of 2010–2012 was based on the fixed price of EUA and on the assumption of the production recovery to the level existing before the crisis, which is in view of the contemporary development of the world economics unreal.) (Kišš *et al.* 2011).

2. The critical assessment of functioning of the above-mentioned system employed in Slovakia results mainly from the fact that emission permits were not distributed to firms evenly. The Ministry of Finances maintains that decisions about the quantity of permits were made on the basis of individual dealings with the Ministry of Environment. As many as 133 permits from among 144 Slovak firms involved in the EU ETS have received more permits than they actually need. Except for the strong lobbying developed by large corporations in the period of approval of the allocated volumes of permits such a remarkable over-allocation was influenced also by the fact that the distribution of permits to companies was realized at the time of the expected industrial development and economic growth. The economic crisis which

fully showed itself in the year of 2009 reduced as much as 60 % of limits of the emission gases due to the decreased production volume. Thus the firms acquired a lucrative trade article in the form of the over-allocated emission limits.

This state resulted in a decision of the Slovak government to impose a temporary tax on the profits gained from emission limits, the tax being as high as 80 % for the years of 2011 and 2012. However, such a non-standard reaction aroused a negative response in business and political circles; at present the Constitutional Court of the Slovak Republic is taking attitude towards this law and Slovakia is threatened also by a suit from the side of the European Commission in Brussels. The main objection against this law is directed not only to the 80 % tax but also to its retroactivity. Although the tax is acting in a wider sphere of competence, it is paradoxical that it affects mainly companies which invest into the ecology. Many companies own excessive emission limits only for the purpose of investing into the ecologically-based production and thus for fulfilling the intention of the whole system of emission limits (Pavel *et al.* 2009).

5. A state support given to renewable energy sources as an instrument of the environmental policy

The next important economic instrument for environmental protection is a support provided to the production of energy from renewable sources. The renewable sources include the sun energy, geothermal energy, energy coming from the biomass combustion (biomass which used for heating), wind energy and the energy from small- and medium-sized hydroelectric power stations.

In the National Allocation Plan for Energies from Renewable Sources Slovakia committed itself that it will achieve 40 % of the energy consumption from renewable sources per great final energy consumption up to the year of 2020. In order to fulfill this aim the Slovak Republic has chosen as a main instrument the system of the so-called purchase prices, the amount of which is estimated by the Regulatory Office for Network Industries. On using this system, all consumers of the electric energy subsidize through final prices the so far unprofitable energy from renewable sources (Haluš 2011).

According to this system, the price of the electric energy consists of two main components: the first component is the so-called force electricity and the second one are regulated charges and tariffs. Besides the costs for distribution, transfer, losses and system services these charges incorpo-

rate also a tariff for the operation of the system (TOS). Just this tariff reflects also a support of private investors in the field of renewable sources, the combined production of heat and electricity, and paradoxically also a support for the non-ecological production of electric energy from the coal of Slovak mines.

In order to ensure the lowest price for consumers, it would be necessary to fix a purchase price for the electric energy and focus on a support for the cheapest kinds of renewable energy sources, of course, with respect to a potential of the given type of RES.

The present-day adjustment of the whole supporting system is highly ineffective, which burdens consumers in the form of high prices for the electric energy. The incorrectly adjusted purchase prices led to the boom, especially in the production of solar energy. When costs for the production of electricity from the solar energy started to steeply falls down due to the development of technologies, the Regulatory Office for Network Industries did not react quickly enough by lowering the purchase prices of the electric energy produced from that source. This was the reason for many investors to assess the much higher margin for using the photovoltaic system of a direct conversion of light to electric energy versus other renewable sources, and invested into the production of solar energy. (Kišš *et al.* 2011)

In 2012, the support for renewable energy sources will cost inhabitants and firms around 192 mil. euros. However, Slovakia is fulfilling the aim of the solar energy targeted up to the year of 2020 already now, not as a consequence of the effective system's adjustment, but the other way round, as a consequence of the incorrectly adjusted purchase prices and inadequate enrichment of some investors at the expense of the final consumer. It is necessary to add that the price of electric energy in the Slovak Republic represents a long time an average of prices in other EU countries.

6. Conclusions

The examples indicated in the contribution show how some economic instruments can be utilized for protection of the environment and how can the initially good intentions encounter administrative obstacles and a corruption in the sphere of political decisions and bad economic policy on using public financial sources. Of course, this is the case not only in Slovakia.

An excessive allocation of emission permits within the European Union Emission Trading Scheme resulted in such a situation that many companies involved in this scheme gained the

profit without appropriate investing into the ecologically-based production, which should be the role of the whole emission trading system.

The incorrect state-regulated adjustment of subsidies to cover purchase prices for the electric energy generated from renewable sources led in Slovakia again to the boom of the photovoltaic system and caused an enormous and unnecessary price increase of the electricity for entrepreneurs in the last year.

Despite a great number of flaws in the instruments of environmental protection there exists no plan to eliminate them in future. On the contrary, the new routes for achieving their higher effectiveness are searched for in the world for the benefit of the economic and ecological satisfaction on all sides.

The conclusions from the climatic conference of UNO in Durban brought finally an agreement which laid down the new solutions in the fight against climatic changes and stimulated all countries to fulfill their commitments and adopt the better responsibility for a changeable climatic sphere.

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References

Bondareva, I. 2010. Rozvoj malého a stredného podnikania v Slovenskej republike, *Trendy ekonomiky a manažmentu* [Trends in Economics and Management] 4(6): 48–56.

Dědková, J. 2010. Ekoznačka jako hodnota pro zákazníka, *Globalizácia a jej sociálno-ekonomické dosledky* [Globalization and its socio-economic consequences]. Selected papers. Žilinská univerzita: 62–67.

Haluš, M 2011. Pridrahá elektrina, *Financial Policy Institute Ministry of Finance SR 2011/6* [online] [accessed 8 November 2011]. Available from Internet: http://www.finance.gov.sk/Components/CategoryDocuments/s_LoadDocument.aspx?categoryId=7857&documented=5677

Hyršlová, J.; Böhmová, S. 2003. Výsledky výzkumu sledování environmentálních nákladů podniku,

Environmentální aspekty podnikání [Environmental aspects of business] 5(2): 12–14.

- Kajanová, J. 2004. Súčasnosc' a perspektívy vývoja podnikateľského prostredia na Slovensku, in *The International Interdisciplinary Scientific Conference „Modern Approaches to Corporate Management“*. Bratislava, Slovakia, 13–14 May 2004. Preceedings. GC-TECH Trenčín, 179–181. ISBN 80-969189-0-7.
- Kišš, Š.; Haluš, M. 2010. Rozdané miliardy. *Financial Policy Institute Ministry of Finance SR 2010/15* [online] [accessed 12 October 2011]. Available from Internet: http://www.finance.gov.sk/Components/CategoryDocuments/s_LoadDocument.aspx?categoryId=7758&documentId=5301
- Kišš, Š.; Haluš, M. 2011. Zbytočne drahá podpora zelenej energie, *Financial Policy Institute Ministry of Finance SR 2011/17* [online] [accessed 15 November 2011]. Available from Internet: http://www.finance.gov.sk/Components/CategoryDocuments/s_LoadDocument.aspx?categoryId=7936&documentId=6283
- Kollár, V. 1998. *Environmentálne aspekty manažérstva* [Environmental aspects of management]. First Edition. Bratislava: Vyd. Ekonóm. ISBN 80-225-1060-2.
- Kollár, V. 2001. Environmentálne orientované riadenie podnikov, *Enviromagazín* 6(6): 6–7. ISSN 1335-1877.
- Kollár, V.; Brokeš, V 2005. *Environmentálny manažment* [Environmental management]. First Edition. Bratislava: Vyd. SPRINT. ISBN 80-968429-1-9.
- Koprda, V.; Piatrik, M. 1998. *Hodnotenie vplyvov technológií na životné prostredie a legislatíva životného prostredia* [Evaluation of impact of technology on the environment and environmental legislation]. First Edition. Bratislava: Vyd. STU. ISBN 80-999948-05-9.
- Lumnitzer, E.; Badida, M.; Majerník, M.; Rusko, M. 2005. *Ekologizácia výrobkov a výroby* [Greening products and productions management]. First Edition. Prešov: Vyd. M. Vaška. ISBN 80-8073-225-6.
- Majerník, M; Virčíková, E. 2007. *Posudzovanie vplyvov na životné prostredie* [Assessment of environmental impact]. First Edition. Skalica: Vyd. SEVŠ, ISBN 978-80-969700.
- Pavel, J.; Slavíková, L.; Jílková, J. 2009. Ekonomické nástroje v politice životního prostředí: drahé daně a nízká účinnost, *Ekonomický časopis* [Journal of Economics] 57(2): 132–144.
- Piatrik, M.; Kollár V.; Vincíková, S.; Rusko, I. 2003. *Environmentálny manažment II* [Environmental Management II]. First Edition. Banská Bystrica: Univerzita Mateja Bela. ISBN 80-8055-621-2.
- Piatrik, M.; Plchová, J. 2003. Systémy podpory proaktivního správania podnikov k ochrane životného prostredia, in *The International Scientific Conference „Humanization and the environment“*. Bratislava, Slovakia, 11–12 September 2003. Preceedings. STU Bratislava, 239–246. ISBN 80-227-1920-X.

- Plchová, J. 2011a. Ekonomické aspekty ochrany životného prostredia v procese globalizácie ekonomiky, in *The International Interdisciplinary Scientific Colloquium „Actual Question of Social and Human Sciences 2011“*. Bratislava, Slovakia, 20 October 2011. Precedings. STU Bratislava, 68–72. ISBN 978-80-227-3585-8.
- Plchová, J. 2011 b. Trh s emisnými povolenkami ako nástroj podpory technologických inovácií, *Forum Statisticum Slovacum* 7(4): 74–79.
- Ruiz, J. M.; Kollár, V.; Brokeš, P. 2000. *Priemyselne technológie – kvalita a životné prostredie [Industrial technologies - quality and environment]*. First Edition. Bratislava: Vyd. Juriga. ISBN 80-968449-0-3.
- Suhányi, L. 2008. Emisné kvóty ako nástroj znižovania emisií vypúšťaných do ovzdušia a obchodovanie s nimi. in *The International Scientific Conference „National and Regional Economics VII.“* Herľany, Slovakia, 1–3 October 2008. Precedings. TU Košice, 844–850. ISBN 978-80-553-0084-9.
- Šauer, P.; Livingston, M. 1996. *Ekonomie životného prostredia [Economics of the environment]*. First Edition. Praha: VŠE. ISBN 80-902168-0-3.
- Špirko, D. 2003. Environmentálny problém ako dôsledok modernistického konceptu vzťahu kultúry a prírody, in *The International Interdisciplinary Scientific Conference „Hodnotové aspekty súčasného sveta“*. Nitra, Slovakia, 18–19 September 2003. Precedings. IRIS Bratislava, 238–243. ISBN 80-89018-57-2.
- Špirko, D. 2006. Ekonomický rast, východiská „zelenej ekonomie“ a trh. in *The International Interdisciplinary Scientific Conference „Modern Approaches to Corporate Management“*. Bratislava, Slovakia, 13–14 September 2006. Precedings. STU Bratislava, 473–476. ISBN 80-227-2509-9.
- Úradníček, Š. 2001. Dobrovoľné nástroje environmentálnej politiky, *Enviromagazín* 6(6): 4–11.
- Virčíková, E.; Palfy, P. 2001. *Environmentálne manažérstvo – teória a metodika [Environmental Management – Theory and Methodology]*. First Edition. Košice: Vyd. Štoffek, ISBN 80-88896-15-0.
- Vodák, J. 2006. Strategické riadenie ako nástroj zvyšovania konkurenčnej schopnosti firiem v globálnom prostredí. in *The International Interdisciplinary Scientific Conference „Globalizácia a jej sociálno – ekonomické dôsledky“*. Žilina, Slovakia, 5–6 October 2006. Precedings. ŽU, 379–384, ISBN 80-8070-597-6.
- Vybíralová, J.; Füzyová, Ľ. 2000. *Životné prostredia a investície [Environment and investment]*. First Edition. Bratislava: Vyd. Ekonóm, ISBN 80-225-1195-1.
- Zatrochová, M. 2009. Podmienky a predpoklady rozvoja podnikania fyzických osôb v konkrétnych podmienkach na Slovensku, *Maneko* 1(1): 99–104.