

Environmental Taxes in an Enlarged Europe

*An Analysis and Database of
Environmental Taxes and Charges in Central and Eastern Europe*



THE REGIONAL ENVIRONMENTAL CENTER
for Central and Eastern Europe



Illustration: Erika Varsanyi

ON THE COVER:

en•dan•gered spe•cies (en dān'jərd spē'shēz), **1.** a species at risk of extinction in Central and Eastern Europe because of human activity, changes in climate, changes in predator-prey ratios. **2. Ardeidae:** the family of long-legged, long-necked waterfowl, known as herons. **Platalea leucorodia:** a wading bird with a flat spoonlike bill, commonly called a spoonbill. **3. Croatian Ornithological Society:** an NGO working to save a mixed colony of herons and spoonbills in the Jelas fishponds of Croatia with the financial support of the Regional Environmental Center.

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*An Analysis and Database of Environmental Taxes and Charges
in Central and Eastern Europe*

Stefan Speck, Jim McNicholas and Marina Markovic

The Regional Environmental Center for Central and Eastern Europe
SZENTENDRE,
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THE REGIONAL ENVIRONMENTAL CENTER
for Central and Eastern Europe

About the REC

The Regional Environmental Center for Central and Eastern Europe (REC) is a non-partisan, non-advocacy, not-for-profit organisation with a mission to assist in solving environmental problems in Central and Eastern Europe (CEE). The Center fulfils this mission by encouraging cooperation among non-governmental organisations, governments, businesses and other environmental stakeholders, by supporting the free exchange of information and by promoting public participation in environmental decision-making.

The REC was established in 1990 by the United States, the European Commission and Hungary. Today, the REC is legally based on a Charter signed by the governments of 27 countries and the European Commission, and on an International Agreement with the Government of Hungary. The REC has its headquarters in Szentendre, Hungary, and local offices in each of its 15 beneficiary CEE countries which are: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, FYR Macedonia, Poland, Romania, Slovakia, Slovenia and Yugoslavia.

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Foreword

This report presents the results of a second series of studies undertaken in the 15 countries of Central and Eastern Europe (CEE) under the Sofia Initiative on Economic Instruments (SIEI) in the period October 1999-July 2001. The first report of the SIEI, *The Sourcebook on Economic Instruments for Environmental Policy in Central and Eastern Europe*, published by the Regional Environmental Center for Central and Eastern Europe (REC) in April 1999, provided a comprehensive review of economic instruments in use in the region. It demonstrated that the use of economic instruments was widespread in CEE and that these instruments were playing an increasingly important role in environmental policies. This is particularly true of the countries that were more advanced in the transition to a market economy.

This second report, *Environmental Taxes in an Enlarged Europe: An Analysis and Database of Environmental Taxes and Charges in Central and Eastern Europe*, accomplishes two important goals. Firstly, it extends the data available on economic instruments in the region up to 2000 and presents this data in a manner that allows for comparison with Western Europe. Specifically, the report and database are compatible with similar studies on environmental taxes developed by the Organisation for Economic Co-operation and Development (OECD) and the European Union. Taxes on energy products, which represent the bulk of environmental taxes in OECD countries, have also been included in the study, revealing that these taxes are similar to levels in Western Europe, and also the major revenue source of all environmental instruments in the region. Secondly, the report provides a more detailed analysis of the role of economic instruments in the EU accession process. Given the challenge that lies ahead for candidate countries to adopt and implement the environmental requirements for EU membership, the analysis of the role that economic instruments can play in helping to achieve these goals is timely.

The report highlights the prominent role that economic instruments are now playing in the region. A number of the challenges reported earlier in the decade have been overcome in several countries in the region. Taxes on motor fuels, for example, are already in line with EU guidelines in a number of Central and Eastern European countries. The report also stresses that more attention could be given to opportunities to introduce more incentive based instruments, thereby reducing the need for costly end-of-pipe solutions later. Due to the heavy costs often associated with taking over the environmental *acquis*, such a conclusion is significant for the region. For the countries of South Eastern Europe, the findings of the SIEI network and the conclusions presented in this report may be particularly useful in developing sound environmental and development policies.

Milos Kuzvart, RNDr.
Minister of Environment of the Czech Republic

The Sofia Initiative on Economic Instruments

The Sofia Initiative on Economic Instruments (SIEI), created in 1995 at the Environment for Europe Ministerial Conference in the Bulgarian capital, Sofia, seeks to support the improved integration of environmental and economic policies through the implementation of economic instruments. The 1997-1998 Work Programme produced the *Sourcebook on Economic Instruments for Environmental Policy* (REC 1999) and the report, *Improving Environment and Economy in Economies in Transition*, which was also published in Croatian, Estonian, Romanian, and Russian. Environmental ministers at the European Ministerial Conference in Aarhus, 1998, welcomed the work completed under the SIEI and renewed the SIEI mandate.

The Danish Environmental Protection Agency (DEPA) supported the 1999-2001 work programme. The Ministry of Environment of the Czech Republic is the Chair of the Initiative and the Regional Environmental Center for Central and Eastern Europe (REC) serves as the SIEI Secretariat. The Work Programme was approved at the SIEI Advisory Board in Szentendre, Hungary, in October 1999. The SIEI relies on the contributions of a regional network of experts and practitioners.

In addition to the studies undertaken to produce this report and database, several other activities have been carried out under the auspices of the SIEI Secretariat:

- The SIEI Secretariat, in cooperation with the European Commission, DG Environment, hosted the international conference, Economic Instruments and Water Policies in Central and Eastern Europe — Issues and Options, which brought together more than 50 participants from Western and Eastern Europe from the public, private, and NGO sectors. The SIEI Secretariat published the papers presented at the conference in June 2001 (REC 2001a).
- Two further studies, discussing the challenges faced by the countries in the region in the water sector, entitled *Water Pricing Policies in Croatia* (REC 2001b) and *Agricultural Water Management Policies in Selected Central and Eastern European Countries* (REC 2001c) were undertaken by national experts.
- The SIEI Secretariat commissioned DHV CR Ltd. consulting in Prague, Czech Republic to undertake one of the first major reviews of waste management policies in the 10 accession countries. The main emphasis was on the use of economic instruments and cost-recovery issues in the waste sector, which is one of the areas identified as a priority environmental concern in the context of EU accession (REC 2001d forthcoming).
- Several editions of the *Green Budget Reform* newsletter have been published during the second work programme.

These case studies have served to supplement the series of analysis undertaken by national experts for the report. In October 2000, the Ministry of Environment of the Czech Republic hosted the 3rd SIEI Expert Meeting where national experts, the SIEI Secretariat, and representatives from the Danish Environmental Protection Agency and the Czech Ministry of Environment discussed the report and its main findings.

The SIEI Secretariat would like to thank all the members of the expert network, the Czech Ministry of Environment for years of positive collaboration, and the Danish Environmental Protection Agency for the generous support of the SIEI Secretariat at the Regional Environmental Center for Central and Eastern Europe.

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The study was designed and coordinated by Stefan Speck, Jim McNicholas and Marina Markovic of the SIEI Secretariat. Marina Markovic and Nigel Jackson have edited the database under the supervision of Stefan Speck.¹ The authors of the report are Stefan Speck, Jim McNicholas and Marina Markovic with contributions from Francois Hequet,² based on the inputs provided by the national experts.

The authors wish to thank the above listed experts and the following colleagues for valuable suggestions to the text and the work programme: Ulrik dan Weuder and Peter Pedersen, Danish EPA; Miroslav Hajek, Director, Department of Environmental Economics, Ministry of Environment of the Czech Republic.

The design, layout and publication of the report was coordinated by Sylvia Magyar, proof reading and copy editing by Gary J. Morrell and Eileen Brown, and layout by Zoltan Barna.

The conclusions of the report remain those of the authors and should not necessarily be attributed to any of the above persons or institutions.

Executive Summary

INTRODUCTION

The process of transition to a market-based economy in the countries of Central and Eastern Europe (CEE) has created a unique context for the introduction of charges and taxes for environmental purposes. Since 1990, economic reforms and restructuring have helped to reduce the role of pollution-intensive industry in the economy, and investments have been made to tackle existing environmental liabilities and introduce modern technologies. Many countries of the region, led primarily by those most advanced in economic transition, have adjusted existing economic instruments and introduced new ones with the objective of supporting and promoting environmental improvements.

This report analyses economic instruments for environmental policy in 15 countries of Central and Eastern Europe: the 10 European Union candidate countries plus five countries of South Eastern Europe (Croatia, Bosnia and Herzegovina, FYR Macedonia, Yugoslavia, and Albania). Due to the advanced level of reform in countries that are part of the EU accession process, special attention is given to these countries and aspects of the accession process that influence environmental policy and economic instruments. Yugoslavia is not included in the database due to poor data availability, but attempts have been made to include experience in this country in the broader discussions.

Based on the analysis of economic instruments in the region, the strong possibility for an effective exchange of experience between the more advanced and slower reformers is identified. The conclusions drawn from the study may also be of particular use in other economies in transition in the Newly Independent States (NIS), and on a more general level, developing countries. Moreover, it is increasingly necessary to incorporate CEE experience into the discussion on environmental policy-making at the European level.

METHODOLOGY AND ISSUES

Types of Instruments

This report, and the *Database of Environmental Taxes and Charges in Central and Eastern Europe*, on which it draws, covers energy taxes, air pollution charges, water effluent charges, product taxes/charges, user fees for water and waste services, and other charges for environmental protection. Definitions of the various instruments discussed in the report are provided, drawn from Organisation for Co-operation and Development (OECD) and EU sources, as well as from other current literature in the field. Further, the report attempts to place CEE experience with economic instruments in the context of the region's environmental financing needs and the EU accession process, which is currently one of the primary drivers of environmental policy in the region.

Environmental Effectiveness of Economic Instruments

Detailed analysis of the effectiveness of environmental taxes at the national level in CEE is not widespread. Economic recession, restructuring, and the introduction of market-based reforms have brought about environmental improvements, making it difficult to determine a baseline against which to evaluate specific environmental policy tools. At the regional level, the environmental effectiveness of economic instruments has been limited by low charge rates that have provided only modest incentives to change behaviour, causing further environmental degradation. Some specific instruments, however, such as air pollution charges in Lithuania and Poland, are reported to have contributed to achieving improvements in rele-

vant environmental indicators. Recently, taxes on motor fuels have been increased dramatically throughout the region and may provide substantial incentives to reduce environmental pressures caused by the growing transport sector.

Regressive Effects and Equity Issues

In OECD countries, studies have examined the potential regressive effects of some environmental taxes, and policy adjustments or policy packages have been introduced to alleviate the impact of environmental taxes on the poorer segments of society. Given the comparably low average household income in the CEE region, regressive effects of taxes and charges are a particular concern. Compared to the current 15 members of the EU, the 10 countries currently applying for membership exhibit per capita gross domestic product (GDP) figures representing 23-69 percent of the EU average in 1998. On average, the CEE region is characterised by per capita GDP of 39 percent of the EU average, with incomes varying widely between wealthy urban centres and poorer rural areas.

This report highlights some cases where attention must be given to the social effects of economic instruments. It demonstrates that EU applicant countries have increased taxes on motor fuels substantially in recent years in order to be in line with EU legislation. By comparing tax rates in terms of purchasing power standards with the rates faced by the residents of other European countries, the analysis reveals that residents in CEE countries are paying some of the highest motor fuel taxes in Europe, and therefore, the world. Other concerns exist regarding the increase of user charges in the water and waste sectors. While these charges will be instrumental for improving the quality of services, the report finds that in some cases household expenditure for water services already approaches 10 percent of monthly household income. Developing policy packages and other direct support mechanisms for vulnerable segments of society, as is common in OECD member states, may become increasingly important in the region. Revenues generated from environmental taxes/charges in CEE are commonly used for investments in environmental infrastructure, thus leaving little or no space for redistributing part of the revenue to the low-income groups through compensation packages.

The Issue of Competitiveness

Concerns over the effect environmental policy measures may have on the competitiveness of a national economy, economic sector or an individual firm, have often been voiced in the developed market economies. There is, however, little or no theoretical or practical evidence that environmental taxes in the past have had a negative effect on the overall competitiveness of countries. Countries with higher environmental standards generally do not have lower economic performances. On the company level, environmental taxation may often act as a signalling mechanism, prompting dynamic changes with a beneficial impact on economic performance and efficiency in the long-term.

In CEE, however, few studies have been conducted regarding the effect environmental taxes/charges may have on competitiveness. This is in part due to the fact that broader market reforms have only recently brought issues relating to competition into focus. As countries emerge from transition and continue the integration process with Western Europe, detailed evaluation studies will become more important in order to understand the practical impact of these instruments in the medium- and long-term.

ISSUES IN TRANSITION AND EUROPEAN INTEGRATION

Market Reforms and the Environment

Experience in CEE has shown that the transition from a centrally planned to a market-based economy brings with it many benefits for the environment. Reforms that have been initiated based on market principles have brought collateral environmental benefits throughout the region. The economic transition, which marked the end of subsidies for inefficient enterprises, brought about a major restructuring of production patterns in the region with a dramatic closure of heavy polluting industries. The trade market with the Soviet Union collapsed, bringing further closures and severe recession to the region, again with environmental benefits. The introduction and increase of prices for services and resources such as energy, water and waste management raised necessary investment revenues for these sectors and provided the first market signals for the efficient use of natural resources.

Challenges During Transition

Notwithstanding the benefits brought about by market reform, countries in transition to a market economy face particular challenges in introducing environmental policies and implementing the polluter pays principle (OECD 1992). The factors that created specific policy challenges in CEE during the 1990s were: inherited environmental liabilities and underdeveloped infrastructure, low per capita GDP and pressures on government spending, underdeveloped financial institutions and poor enforcement of existing environmental regulations. In addition, opportunities for “no-regret” or cost-effective investments yielding environmental improvements, or reducing the need for future remedial investment, are sometimes missed due to uncertainty, lack of information and poor access to the international credit market.

Earmarking

A notable aspect of the use of economic instruments for environmental policy in CEE has been the focus on raising and earmarking revenues from pollution charges for priority expenditures within the environmental field. For this reason, the CEE experience differs from the experience with environmental taxes in most OECD countries, where, with some exceptions, environmental taxes generally represent central budget revenues with no explicit link to environmental spending priorities. Earmarked revenues from environmental charges in CEE represent the main revenue source for state and regional/municipal environmental funds, which exist in one form or another in most countries in the region.

The earmarking of public revenues for environmental funds, while presenting advantages from an environmental financing perspective, raises a number of concerns in light of current OECD-country practice regarding public expenditure. Earmarking has the potential to lead to inefficient allocation of resources and the creation of vested interests, who may push for unnecessary extension of subsidies. For these reasons, the criteria for subsidised financing developed under the polluter pays principle (PPP), and the *St. Petersburg Guidelines on Environmental Funds in Economies in Transition* (OECD 1995) should be used to evaluate the effectiveness of earmarking during and after transition. The need to maintain steady revenue streams for environmental funds through earmarked pollution charges may have also inhibited the implementation of stricter and more environmentally effective charge rates.

Revenues from pollution charges represent only a portion of total revenues from environmental taxes in CEE. While these play the dominant role in terms of pollution management and in financing environmental funds, CEECs also levy more “traditional” environmental taxes, primarily on motor fuels and vehicles. These are similar in structure and function to trends in EU member states, and generate significant revenues for the central budgets. User charges in the water and waste sectors are also receiving increased attention for their role in covering the operation and maintenance costs in these sectors.

ENVIRONMENTAL TAXES AND CHARGES IN CEE

Motor Fuel Taxes

Taxes on energy products in CEECs, as in most countries, are dominated by excise taxes on motor fuels. According to recent estimates, revenues from motor fuel taxes represent approximately 75 percent of total revenues of all environmentally motivated taxes in OECD countries. This study has compared tax rates for the main motor fuels (lead and unleaded petrol, and diesel) in CEECs with the EU Directive 92/82/EEC, which establishes minimum excise tax rates for these energy products. Six countries in the region have achieved minimum rates for at least one of the main motor fuels. Furthermore, substantial progress towards EU standards was achieved in almost all the countries as the rates have increased considerably in the past couple of years. The most significant increases in the year 2000 were observed in Croatia, Poland, Slovakia and the Baltic countries. The situation is even more favourable when total taxation on motor fuels is taken into account, since some of the countries with the lowest excise taxes levy additional taxes on motor fuels (examples include product and road charges in Bulgaria, Romania and Bosnia and Herzegovina). The revenues from motor fuel taxes are collected by tax authorities and represent substantial general budget revenues. By 2000, lead petrol was phased out in four countries of the region — Estonia, Hungary, Lithuania and Slovakia.

When taken from the perspective of the real purchasing power of citizens of these countries, the analysis finds that taxes on motor fuels in CEE are substantial and higher than in most countries of the European Union. The use of purchasing power standards (PPS) gives a clearer picture of the purchasing power of households in the local economy, and thus better approximates the impact of the tax on consumption patterns. The findings of this report endorse further research in the following areas: the effectiveness of motor fuel taxes in addressing pressures from the transport sector during economic development, the regressive effects of motor fuel taxes in less developed regions, and equity issues in confronting global environmental concerns such as climate change.

Taxes on Other Energy Products

The EU also adopted minimum tax rates for light and heavy fuel oils. While most countries in the region have introduced some level of excise tax for light fuel oil, heavy fuel oil is subject to this tax only in Latvia, Lithuania, Poland and Slovenia. Another attempt to increase the environmental effectiveness of taxes on mineral oils is reflected in the introduction of product charges linked to the sulphur content of heating oils. As in most EU member states, taxes on coal, natural gas and electricity are not common.

Air Emission Charges

Charges linked to units of emissions of sulphur dioxide (SO₂), nitrogen oxides (NO_x), solid particles and other pollutants are fairly widespread in CEE in comparison to the European Union, where few countries have introduced emission taxes/charges. Six countries in the region have developed extensive systems of charges based on pollution permits assigned to large-scale polluters. In most cases, a base charge is applied to all emissions within the permitted level and a penalty rate is added for emissions beyond that level. While administration and enforcement difficulties were reported throughout much of the decade, recent improvements are identified in a number of countries covered in this study.

Revenues from air emission charges have been collected by environmental authorities and represent the single most important revenue source for environmental funds in a number of countries. For this reason, emission charges have played an important role in environmental financing systems in the region and it can be concluded that in practice their primary objective has been to raise revenues. Due to the explicit link between emission charges and environmental funds, however, the effectiveness of these instruments should be considered within the environmental policy context of transition countries.

Carbon Dioxide Taxes/Charges

The use of economic instruments aimed at curtailing carbon dioxide (CO₂) emissions is not as widespread in the CEECs as it is in Western European countries, where this issue has been high on the political agenda for a number of years. CO₂ is generally not included as a chargeable pollutant in the national emission charge schemes governing SO₂, NO_x and other pollutants, and CO₂ taxes and charges are found in only three CEE countries. Slovenia is the first, and currently only, country in the region to set up a non-earmarked CO₂ tax. The tax was introduced in 1997 for all liquid fuels based on their carbon content and is administered as a part of the excise tax. The extension of CO₂ tax to coal used for electricity production is planned for 2004. In contrast, CO₂ taxes were introduced in a number of Western European countries during the 1990s. The European Commission proposed the introduction of a CO₂ energy tax in 1992, followed by the proposal on the restructuring of energy taxation in 1997.

CO₂ emissions are subject to charges in two other countries in the region — Poland and Estonia. The carbon dioxide charge in Estonia was introduced in 1999 and is levied on pollution sources where the power of combustion plants exceeds 50 megawatts. The charge is not applied to the plants using renewable energy sources. Although a comparison of the CO₂ levies applied in different countries is difficult, the charge applied in Poland is much lower than the CO₂ taxation in Slovenia and Estonia.

Vehicle Taxation

Vehicle taxation is widespread in the region, although there is no unique scheme adopted in the countries covered in this study. Taxes include import and excise taxes, annual vehicle taxes (including registration charges and road-use charges) and toll roads. Many of the taxes implemented in the region include specific environmental aspects. Examples include the Hungarian sales tax and import tax, which are reduced for cars equipped with catalytic

converters. In a number of other countries, there is a differentiation of sales/import taxes dependent on the age of the vehicle, and annual vehicle taxes are differentiated according to the engine capacity and/or weight of the vehicle. Excise taxes on vehicles have been introduced in eight of the CEECs, in some cases at a level that has a significant impact on car sales. However, an opportunity does exist to introduce differentiated vehicle taxes according to emission characteristics to provide incentives to introduce new technologies.

Economic Instrument in the Water Sector

Wastewater charges and/or non-compliance fees have been introduced in all of the ten CEECs aiming to join the EU. The schemes adopted show similarities to the taxation of air emissions: a basic charge is linked to the key pollutants and their permitted levels in the effluent, and a penalty rate is applied for violations. A trend of reduction of the number of chargeable pollutants, and a gradual increase of charge rates, has been noticed in CEE water pollution charging schemes in recent years. A number of countries have also introduced differentiated charges on the extraction of surface and ground water. Collected revenues are generally earmarked for environmental funds.

While privatisation of the water sector is ongoing, the most frequent form of ownership of water and sewage infrastructure in the region remains either municipal or mixed state-municipal ownership. All CEECs levy water user charges, while user charges for sewage treatment are in place in all the countries except Albania. Water user charges are either based on the metered consumption of water or on estimated consumption in cases when metering equipment is not available. The level of these charges varies widely not only across the region but also within individual countries according to locality and the type of users (households and industry). Subsidies still play an important role in the area of water pricing, and there are no examples of progressive charging schemes aimed at providing incentives for reduced water consumption.

Economic Instruments in the Waste Sector

Waste charging schemes implemented in the CEECs vary, but are in principle implemented through waste user charges and waste disposal charges or taxes. In some countries, waste user charges are set as flat rates (per household, inhabitant, or surface of the property), while in others they are linked to the quantity of waste generated. Differentiated disposal rates for municipal, industrial and hazardous wastes are introduced in a number of CEECs, but the incentive potential of these instruments in stimulating preferred waste disposal options is not utilised to its full extent. The number of private companies in the waste management sector is increasing, but waste collection and disposal predominantly remains in the competence of municipal/local authorities.

In principle, user and disposal charges applied in CEE are not sufficient to provide an incentive for reducing the waste streams, while cost recovery and implementation of the PPP are only partially achieved. State subsidies in the waste management sector are still frequently reported, especially in financing waste disposal facilities. Waste related product charges have also been introduced in the majority of CEECs, together with deposit-refund systems, voluntary agreements, and taxes on packaging and packaging materials. The main idea of these schemes is to organise the separate collection of individual products and to provide for their reuse, recycling and/or separate treatment following the waste management hierarchy adopted by the European Commission.

Economic instruments in the EU member states often serve as a tool in achieving strategic waste targets, such as the reduction of the total amount of waste, minimisation of landfilling of biodegradable wastes, energy recovery and reuse and recycling. Waste taxes, which have been introduced in many EU countries, are usually differentiated depending on the type of waste and the method of disposal. With the relevant EC legislation being the main driving force behind the waste management policies in CEE, a further increase in user charges and a restructuring of the charging schemes is expected throughout the region, beginning with the candidate countries. The impact of the anticipated changes on household budgets is attracting particular attention, with some studies estimating that the share of household budgets for environmental services would rise to at least 10 to 12 percent in Poland, Hungary and the Czech Republic by the year 2015.

ECONOMIC INSTRUMENTS AND THE EU ACCESSION PROCESS

The process of CEECs applying for membership to the EU (or accession) raises a number of issues for environmental policy in CEE and Europe as a whole. The EU has committed itself to maintaining the *acquis communautaire*, which sets out the body of common rights and obligations of membership. Member states are responsible for the approximation of the *acquis* in domestic legislation, which requires the transposition, implementation, and enforcement of all aspects of the *acquis*.

For accession countries, the costs of achieving approximation in the environmental sectors are high. Recent estimates, which are based on the costs of the implementation of specific environmental directives, indicate a range of values of EUR 80-110 billion (EC 2001a) for achieving full compliance with the requirements of the *acquis*. In many cases, economic instruments, such as taxes, are directly specified by European legislation, and in other areas economic instruments have been identified as potential tools to help achieve various objectives cost-effectively. Four distinct roles for economic instruments in implementing the *acquis* have been identified. Economic instruments:

- *directly implement* EU Directives; e.g. motor fuel excise taxes in Directive 92/82/EEC;
- *raise revenues to finance (and leverage) priority investments*, e.g. air emission, water effluent charges, and environmental funds;
- *raise revenues for public services* (cost-recovery charges), e.g. water and waste user charges; and
- *provide incentives* that reduce the total investments needs.

Four of the accession countries covered in the report had, by 2000, directly implemented minimum excise tax rates on at least one of the motor fuels listed in Directive 92/82/EEC. It has also been recognised that environmental funds will play an important role in helping to finance environmental investments during accession. In line with the PPP, public spending on environmental protection is subject to limitations within the EU, and, after membership, the role of environmental funds would need to be considered within the context of the *Community Guidelines on State Aid for Environmental Protection* (2001/C37/03). Because EU membership will entail specific deadlines for compliance with environmental objectives and state-aid rules, the accession process offers a long-term framework in which policy-makers can develop policy and spending strategies.

Perhaps the most important roles that economic instruments could play are through the proper pricing and cost recovery in water, wastewater and waste sectors and by providing incentives to reduce the need for costly solutions later. Cost-recovery charges will be important to help finance the necessary upgrading of the public infrastructure for waste management, a sector recently recognised as a potentially costly area in CEECs, and to cover the operational and maintenance costs, as well as the capital costs, of running this service. Economic instruments can also be adjusted and improved in order to provide more effective incentives, which will allow for the attainment of some directives at the lowest cost. The potential to improve the use of economic instruments as cost-recovery and incentive tools to achieve EU compliance in a cost-effective way has been identified as a primary, untapped opportunity in the region.

1. Background and Introduction

The integration of environmental concerns into economic growth and development policies has emerged as a priority concern of modern environmental policies since the 1970s. During the 1970s and 1980s, environmental policies in industrialised countries of the OECD were based primarily on a system of regulations. During this period, however, it became increasingly recognised that traditional regulatory environmental policy, despite some successes, failed to address new environmental pressures and prevent further unacceptable environmental damage. Moreover, these policies imposed potentially high costs to achieve environmental quality objectives. In recent years, economic instruments, as opposed to “command and control” regulations, have been recognised for their flexibility and cost-effectiveness in attaining environmental objectives.

Economic instruments have been introduced as one way to implement the Polluter Pays Principle (PPP), which has become widely accepted as the general framework for internalising environmental externalities. In 1972, the principle was adopted by the OECD Council as an economic principle for allocating the costs of pollution prevention and control (OECD 1972). The primary concern of the Council in 1972 was to address the international economic and trade implications of environmental policies. The OECD recommendation provides guidelines that place restrictions on the role of government subsidies in order to ensure that polluters pay the costs of protection measures made necessary by their activities. With regard to environmental protection measures, the Council (OECD 1972, Annex, A.4) found that they “...should not be accompanied by subsidies that would create significant distortions in international trade and investment.” Rather, by placing costs of pollution prevention on polluters, the PPP demands that the cost of protection activities be reflected in the market prices of goods and services.

During the 1980s, policy makers showed an interest in market-based instruments for environmental policy. An early indication of this change was the emphasis given to economic instruments in environmental policy by the report of the World Commission for Environment and Development in 1987. In 1991, OECD countries endorsed the use of economic instruments to implement the PPP. The *Rio Declaration on Environment and Development* (1992) also discussed economic instruments, and in particular the Principle 16 states:

“National authorities should endeavour to promote the internalisation of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.”

At the European level, interest in economic instruments became visible in 1989 with the European Commission's Task Force *Report on the Environment and the Internal Market*, the European Parliament's hearing on economic instruments in June 1990, and the Environment Council's proposal for a European carbon-energy tax in September 1990. Both the European Council's *Dublin Declaration* in 1990, and Delors' *White Paper on Growth, Competitiveness and Employment* (EC 1993) emphasised the wider positive macro-economic implications of economic approaches to environmental policy. The advantages of the use of economic instruments is furthermore highlighted in a recent EC publication (EC 2000b, p.3):

“The use of economic instruments, such as taxes, subsidies or other incentive payments, or tradable emission permits, will frequently offer a more effective means of achieving environmental policy objectives than traditional environmental policy instruments such as direct regulation of polluting activities.”

During the 1990s, the number of applications of market-based instruments in OECD members increased and the variety of instruments being used and experimented with has grown. By the mid-1990s, compared to a review that took place in 1989, the use of economic

instruments in OECD member states had increased by approximately 50 percent (EEA 1996), and more recent publications show that this trend is still recognisable in Western European countries (EC 2000a). The main economic instruments now in use for environmental protection are taxes/charges, tradable permit systems, deposit refund systems, non-compliance fees, performance bonds, liability payments, and subsidies for environmental protection.

Chapter 2 of this report provides a brief introduction to the methodology of the study of economic instruments and also reviews some of major issues surrounding their implementation, i.e. effectiveness, equity issues, and competitiveness.

In the context of countries with economies in transition to a market economy and some developing countries, economic instruments have also begun to play a role in environmental policies.³ Countries with economies in transition to a market economy face particular challenges introducing environmental policies and implementing the PPP. The obstacles present in the transition context have influenced the way in which economic instruments have been designed and implemented and, most significantly, the spending programmes associated with the revenues generated by many of these instruments. Chapter 3 reviews the challenges faced in the process of transition to a market economy, and discusses the broader policy context in CEECs.

Chapters 4-9 provide analyses of the actual use of environmental taxes and charges in CEE by the environmental sector. Attention is given to the development of charge rates and reforms that have been undertaken in recent years. The analysis also includes comparisons with EU member states and, where appropriate, considers each instruments in the light of the requirements for EU membership. Moreover, in some cases, charge rates are converted using purchasing power exchange rates to provide better insight into the potential influence of taxes/charges on consumer behaviour and a closer examination of affordability/equity considerations.

The process of CEE countries applying for EU membership (the accession process) raises a number of issues for the wider use of economic instruments in the region. Some economic instruments, such as minimum motor fuel taxes, are direct requirements for EU membership, and others may support the attainment of environmental quality standards set out in legislation and directives. An additional aspect of the challenge of EU accession will be the magnitude of additional investments required to achieve EU standards. The most recent estimates, which are based on the cost of implementation of specific directives, indicate a range of values of EUR 80-110 billion (EC 2001a). Chapter 10 provides a review of the progress in implementing economic instruments required by EU membership and an evaluation of how these instruments will serve to expedite the accession process.

In the context of the EU enlargement, the EC expresses strong support for the use of economic instruments to help achieve the requirements of membership in a cost-effective way (EC 2000b, p.5):

“Market-based instruments offer additional possibilities to the candidate countries to effectively implement EU environmental law in practice. They could thereby facilitate the achievement of Community environmental standards in a cost effective way.”

This report analyses economic instruments for environmental policy in 15 countries of CEE: the 10 European Union candidate countries plus five countries of South Eastern Europe (Croatia, Bosnia and Herzegovina, FYR Macedonia, Yugoslavia, and Albania). Due to the advanced level of reform in countries that are part of the EU accession process, special attention is given to these countries and aspects of the accession process that influence environmental policy and economic instruments. Yugoslavia is not included in the database due to poor data availability, but attempts have been made to include experiences in this country in the broader discussions. A strong possibility for an effective exchange of experience between the more advanced and slower reformers is identified. The conclusions drawn from the study may also be of particular use in other economies in transition in the Newly Independent States (NIS), specifically Ukraine and Russia, and on a more general level, in developing countries. Moreover, CEE experience is becoming increasingly useful for discussion of environmental policymaking at the European level.

An overview of the environmental taxes and charges in use in CEECs can be found in Table 1.1. As mentioned above, a more detailed discussion of some of the main features of economic instruments applied in CEE can be found in Chapters 4-9, and detailed tables for the 14 countries are presented in Annex 1.

TABLE 1.1

Overview of Environmental Taxes and Charges in Central and Eastern Europe in 2000

Alb – Albania; **BiH** – Bosnia and Herzegovina; **Bul** – Bulgaria; **Cro** – Croatia; **CR** – Czech Republic;
Est – Estonia; **H** – Hungary; **Lat** – Latvia; **Lit** – Lithuania; **Mac** – FYR Macedonia; **Pol** – Poland;
Rom – Romania; **Sla** – Slovakia; **Sle** – Slovenia; **Yug** – Yugoslavia

Instrument	Alb	BiH	Bul	Cro	CR	Est	H	Lat	Lit	Mac	Pol	Rom	Sla	Sle	Yug
MOTOR FUEL TAXES/CHARGES															
Excise tax	• ^a	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Fuel product charge			•				•								
Other taxes and charges		•	•									•			
Carbon dioxide tax						• ^b								• ^c	
Value added tax	•	Sales tax	•	•	•	•	•	•	•	•	•	•	•	•	Sales tax
OTHER ENERGY PRODUCTS															
Excise tax	• ^a	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Other taxes and charges							•					• ^d			
Carbon dioxide tax						• ^b								• ^c	
Value added tax	•	Sales tax	•	•	•	•	•	•	•	•	•	•	•	•	Sales tax
AIR EMISSIONS															
Sulphur dioxide tax					•	•		•	•		•		•		
Nitrogen oxides tax					•	•		•	•		•		•		
Emission non-compliance fee			•	•	•	•	•	•	•		•	•	•		•
TRANSPORT RELATED TAXATION															
Excise tax			•	•		•		•	•	•	•	•			
Annual vehicle tax	•		•	• ^e		• ^f	•	•	•		•	•	• ^g		
Highway toll				•	•		•				•		•		•
Road tax				•	•				• ^h						•
Sales tax		•	•	•			•								•
Import duty	•	•	•	•			•		•	•	•	•	•		•
Registration charge	•	•	•			•		•	•		•	•	•	•	•
Company car tax											•				

TABLE 1.1

<i>Instrument</i>	<i>Alb</i>	<i>BiH</i>	<i>Bul</i>	<i>Cro</i>	<i>CR</i>	<i>Est</i>	<i>H</i>	<i>Lat</i>	<i>Lit</i>	<i>Mac</i>	<i>Pol</i>	<i>Rom</i>	<i>Sla</i>	<i>Sle</i>	<i>Yug</i>
AIR TRANSPORT															
Landing/flight taxes	•				•										•
Noise tax/charges etc.							•					•			
AGRICULTURE															
Pesticides										• ⁱ	• ⁱ				
Fertilisers											• ⁱ				
Soil protection charge							•								
WASTE RELATED PRODUCT CHARGES															
Ozone depleting substances					•			•				•	•		
Batteries/accumulators					•		•	•	•				•	•	
Carrier bags															
Disposable containers/packaging						• ^j	•	•	•		• ^k				
Tyres			•		•		•	•	•						
Light bulbs								•							
Lubricants								•							
Refrigerators							•								
WASTE															
Municipal waste user charges	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Waste disposal charge/tax				•	•	•	•	•		•	•	• ^l	•	• ^m	
Waste non-compliance fees			•	•		•	• ⁿ	•	•		•	•	•		• ^o
Deposit refund schemes	•		•	•	•		•		•		•	•	•		•
Levy on nuclear energy			•		•		•	•					•		
INSTRUMENTS FOR MANAGING WATER QUALITY															
Water user charge	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Sewage charge		•	•	•	•	•	•	•	•	•	•	•	•	•	•
Water effluent charge/tax		•		•	•	•		•	•		•	•	•	•	•
Water pollution non-compliance fee	•		•	•		•	•	•	•	•	•	•	•		

TABLE 1.1

<i>Instrument</i>	<i>Alb</i>	<i>BiH</i>	<i>Bul</i>	<i>Cro</i>	<i>CR</i>	<i>Est</i>	<i>H</i>	<i>Lat</i>	<i>Lit</i>	<i>Mac</i>	<i>Pol</i>	<i>Rom</i>	<i>Sla</i>	<i>Sle</i>	<i>Yug</i>
INSTRUMENTS FOR MANAGING WATER QUANTITY															
Water extraction charge/tax		•		•	•	•	•	•	•	•	•	•	•	•	•
NATURAL RESOURCE AND MINING															
Mining charges/taxes	•	•	•	•	•	•	•	•	•	•	•		•		•
INSTRUMENTS FOR BIODIVERSITY AND NATURE PROTECTION															
Charges for conversion of agricultural and forest land				•	•								•		
Hunting charges			•	•		•	•		•		•	•		•	
Fishing charges			•	•		•		•	•		•	•			
Natural park entrance charges				•							•	•			
Nature protection non-compliance			•	•		•	•		•		•	•	•		•
Tree cutting charges/taxes^p		•	•	•			•	•	•		•	•			
Tree cutting non-compliance fee									•		•	•			

Source: Annex 1

Notes:

- a. *Ad valorem* tax
- b. Emission charge, based on the power of combustion plants using fossil fuels
- c. Part of the excise tax
- d. Sulphur content non-compliance charge
- e. Tax on road motor vehicles
- f. Tax of the city of Tallinn
- g. Applied to commercial vehicles only
- h. Taxes for the use of roads by foreign vehicles and taxes for the use of roads by the vehicles exceeding standard dimensions are levied in Lithuania in addition to the road tax
- i. Reduced VAT rates for agricultural inputs
- j. Excise tax
- k. Excise tax on plastic packaging materials
- l. Introduction of waste disposal charge is under discussion
- m. Introduction of waste disposal charge is under discussion
- n. Only for hazardous wastes
- o. Only for industrial/hazardous wastes
- p. A variety of charges is levied in different countries ranging from tree cutting charges to charges on exports of wood, forest protection charges, etc.

2. Economic Instruments: Methodology and Major Issues

2.1 TYPES OF ECONOMIC INSTRUMENTS

Economic instruments (EIs) comprise a rather broad group of policy instruments. Their common element is found in their reliance on market price mechanisms to internalise costs and provide financial incentives to economic actors. Because of their flexibility, economic instruments are traditionally discussed in contrast to regulatory or “command-and-control” instruments. While theoretical treatments often consider EIs as alternatives or substitutes to regulatory instruments, the margin between the two is sometimes very narrow. Many of the most effective examples of achieving environmental policy targets illustrate that regulatory and economic instruments are interrelated and complementary. Moreover, several environmental pressures exist for which the application of economic instruments is not an effective policy tool. For example, economic instruments may not be appropriate in areas such as hazardous wastes, or concentrated “hot spot” pollution areas that pose a risk to public health. In such cases, the use of EIs is limited and needs to be utilised in conjunction with other policy measures.

Evaluations of the different instruments applied in environmental policies show that economic instruments are regularly introduced in parallel with other environmental policy measures, so it is often difficult to isolate the impact of the instrument when reviewing environmental quality trends. Nevertheless, a number of instruments have been experimented with in OECD member countries over recent years, and recent studies are beginning to assess the environmental effectiveness of these instruments.⁴ Some of the most common economic instruments in use today are:

- *taxes and charges*: which are discussed in further detail below;
- *subsidies*: all forms of explicit financial assistance to polluters or users of natural resources for environmental protection, e.g. grants, soft loans, tax breaks, i.e. tax exemption and tax relief, and accelerated depreciation;
- *deposit-refund systems*: payments made when purchasing a product (deposits) are returned (refunded) when the product is returned to the dealer or a specialised treatment facility;
- *marketable permits*, rights etc., based on the principle that any increase in pollution or resource use must be offset by a decrease of an equivalent quantity (often referred to as “emissions trading”); and
- *financial incentives*: including non-compliance fees, performance bonds and liability payments; these instruments are financial commitments linked to improved environmental performance relating to the environment.

Taxes and charges, which are the main focus of this report, play an increasingly significant role in environmental policies, particularly in Europe. Based on varying concepts of the role and purpose of these instruments in practice, however, a generally accepted definition of the term “environmental taxes” does not exist in current literature (EC 1999 and 2000a). The European Commission summarizes the issue as follows: “In the area of environmental taxation, different meanings are often given to similar terms in different Member States, and no precise definitions are offered by EU legislation” (EC 1997, p.3). The current generally accepted definition in Europe by the European Commission, the European Statistical Office (Eurostat) and the OECD is based on the rationale that an environmental tax is defined

through the tax base. According to this definition, an environmental tax is “a tax whose tax base is a physical unit (or a proxy of it) that has a proven specific negative impact on the environment” (OECD 1997 and EC 1997).

Further, a distinction is generally made between the terms tax and charge. “Taxes are defined as: *compulsory, unrequited payments to general government*. Taxes are unrequited in the sense that benefits provided by government to taxpayers are not normally in proportion to their payments. Charges or fees are defined as *compulsory required payments to either general government or to bodies outside general government*, such as for instance an environmental fund or a water management board” (OECD 1999c). This distinction is important for the analysis of these instruments in Central and Eastern Europe. While taxes may be earmarked for certain purposes — and are in some OECD countries as well as in CEECs — the term “charge” has generally been applied in CEE when their explicit role is for raising revenues for environmental funds (environmental funds are briefly discussed in Chapter 3). The European Commission follows this line of definition and uses the term “levy” as a generic term covering taxes and charges.

As environmental concerns in industrialised countries received greater attention, environmental taxes were recognised by public policy makers for their potential to simultaneously address environmental concerns, finance public services, raise public revenues and potentially replace other taxes. Today, a commonly used classification of taxes and charges distinguishes between three types, based on their function in public/environmental policy:

- cost-covering user charges, whereby those making use of the environment contribute to or cover the cost. The level of a cost-covering charge is determined by the service it is intended to deliver and revenues are primarily used to finance collective services, e.g. water supply and waste collection, or manage natural resources, e.g. resource extraction charges. These most closely resemble “market prices.”⁵
- revenue-raising taxes, which may influence behaviour but still yield substantial revenues over and above that required for related environmental services or regulation.
- incentive taxes, which are levied with the objective of changing environmentally damaging behaviour without the intention to raise revenues. Indeed, the success of such a tax may be judged by the extent to which initial revenues from it fall, as behaviour changes.

These three types of environmental taxes are not mutually exclusive: a cost-covering charge may have incentive effects, for example to encourage the rational use of water, an incentive tax may raise revenues, and revenue-raising tax may be partially used for related environmental purposes. In particular, cost-recovery user charges most resemble pure market prices for a good or service, and play an important role both as a financing tool for public services, i.e. covering the full-costs⁶ of delivering the service and incentive instruments that reduce environmental pressures.

In practice, the design of overall tax regimes and the environmental concerns being addressed tend to influence which of these functions is primarily being served. Moreover, the type of instruments selected may also determine their impact on broader public policies. As more experience has been gained with various instruments and some have been evaluated, the discussion of environmental taxes has become closely linked to the discussion of some environmentally, politically and socially sensitive issues:

- *environmental effectiveness* of economic instruments;
- *distributional and equity effects* of economic instruments; and
- the potential *loss of competitiveness* for domestic industry.

2.2 ENVIRONMENTAL EFFECTIVENESS OF ECONOMIC INSTRUMENTS

The evaluation of the effectiveness of environmental policy measures is a complex task. In the case of economic instruments introduced for environmental objectives, distinct problems occur because environmental policies in the 1970s and 1980s were almost exclusively

based on “command-and-control” regulations, such as emission limits at major point sources. The majority of market-based instruments have only been introduced in recent years, and, in many cases they have been introduced to reinforce existing standards because the outcome, when “command and control” regulations have been applied, has not had the desired effect, i.e. a reduction in environmental pollution. Thus it is difficult to isolate and evaluate the environmental benefits of economic instruments from the mix of other policy measures taken.

Another factor complicating the evaluation of economic instruments is that these instruments may serve multiple purposes. The primary objective of most economic instruments is to provide incentives for environmental improvement. Another objective is generation of revenues to finance environmental improvement programmes. Some instruments, according to relevant legislation, may be intended to achieve both objectives, which renders both implementation and evaluation more difficult.

Finally, the difficulty in assessing the effectiveness of environmental taxes is closely connected to the definition of a reference baseline which is necessary for carrying out an *ex post* evaluation. An *ex post* evaluation of policy instruments takes into account the costs and benefits of new instruments compared to the situation in which no new policy measures would have been implemented. In most cases, the definition of a baseline requires at least some assumptions regarding economic development patterns, the costs and availability of relevant technologies and the impact of other sectoral policies.⁷

Notwithstanding these difficulties, the importance of detailed evaluations of the environmental effectiveness of economic instruments has been recognised by different institutions such as the OECD, whose 1992-93 survey concluded that “in 90 percent of the cases [of the use of economic instruments] information on incentive effects was inconclusive or unavailable” (OECD 1994, p.13). During the latter part of the 1990s a number of evaluation studies have been conducted in Western Europe, for example:

- Dutch and German water charging schemes (de Savornin Lohman 1995, Kramer 1995);
- Swedish Environmental Protection Agency’s detailed evaluation of economic instruments implemented in Sweden (SEPA 1997);
- Danish waste tax (Skou-Andersen 1997, Skou-Andersen et al. 1999);
- UK landfill tax (EFILWC 1998); and
- Danish system of environmental taxes (COWI 1999).

Specific evaluation studies have also been carried out examining the effectiveness of carbon tax for reducing CO₂ emissions and the results are encouraging. For example, the analysis of the performance of the Swedish CO₂ tax carried out by the Swedish Environmental Protection Agency (SEPA) shows that the CO₂ tax “has helped to reduce emissions of carbon dioxide in line with Swedish environmental policy” (SEPA 1997, p.52). Another positive result of such an analysis is reported by researchers of Statistics Norway who found “the total effect of the CO₂ tax on CO₂ emissions studied in this analysis was 3-4 percent for the period 1991-93” (Larsen and Nesbakken 1997, p.287).

Today there is a widespread recognition of the need for comprehensive evaluations of economic instruments where they are being, or have been introduced (Vos 1997, OECD 1997). Such studies are decisive for enhancing the environmental effectiveness of these instruments.⁸ One way to ensure that evaluations are conducted has been to include mandatory evaluation clauses in relevant legislation introducing the instruments. For example, regular evaluations of environmental policy are required in the Netherlands by the Environmental Management Act, and a special Commission for Evaluation of the Environmental Management Act has been established for conducting such reviews. According to this legislation, for example, the regulatory energy tax which was introduced in 1996 covering the non-transport energy use of small energy consumers has to be reviewed annually, and the groundwater tax and waste tax are reviewed after 2.5 years of operation.

Detailed analysis of the effectiveness of environmental taxes at the national level in CEECs is not as widespread. The transition from a centrally planned to a market-based economy has directly influenced environmental quality indicators. Economic recession, restructuring, and the introduction of market-based reforms have brought dramatic environmental

improvements, so that the finding of baselines against which to evaluate specific policies has been difficult. The transition context has also influenced the design and objective of economic instruments.

The direct environmental effectiveness of economic instruments across Central and Eastern Europe has so far been limited by low charge rates, which have provided only modest incentives to change behaviours. As the revenues are in many cases earmarked for environmental expenditure via environmental funds or similar financial mechanisms, however, evaluation studies of environmental effectiveness will need to consider the effectiveness of the larger environmental charge/environmental financing strategy simultaneously. Such evaluations will become increasingly important in the CEE as countries emerge from transition and complete the EU accession process. These issues are discussed further in Chapters 3 and 10 of this report.

2.3 THE ANALYTICAL FRAMEWORK FOR STUDYING EQUITY EFFECTS OF ENVIRONMENTAL TAXES

The rationale behind the implementation of economic instruments for environmental policy is to increase the price of products and services, thereby achieving an environmental benefit by reducing the consumption of these goods.⁹ The implementation of economic instruments should simultaneously provide an incentive for investment in environmentally friendly measures¹⁰ and should lead to a change in consumer behaviour. A potential and undesired effect of such an instrument, however, is that it severely influences the consumption patterns of lower-or fixed-income segments of the society, and thus has *regressive effects*. If a tax is heavily regressive, it could have negative influences on the distribution of income within a society.

A number of studies¹¹ have demonstrated that economic instruments, in particular energy taxes, may have such regressive implications, and that complementary policy tools may be used to offset these. Examples of policy packages addressing the problem of equity effects can be found in several countries. For example, the Dutch government took equity issues into account when introducing the recycling mechanism for revenues generated by the regulatory tax on energy. For this reason, the Dutch government established a package of revenue recycling measures: (1) a percentage reduction in the rate charged to the first income bracket, (2) an increase in the tax free allowance, and (3) an increase in the standard tax deduction for senior citizens. Such offsetting measures, through the reduction of other taxes, are an integral part of environmental fiscal reform proposals in several countries. The OECD has the following view: "Packaging' environmental taxes together with explicit reductions in other taxes may also be useful as part of the political strategy for implementing environmental taxes" (OECD 1996, p.58).

Given the comparably lower average household income in the CEE region, regressive effects of taxes and charges are a particular concern of the political decision-making process. Compared to the current 15 EU member states, the 10 countries currently applying for membership exhibit per capita GDP figures representing from 23-69 percent of the EU average in 1998 (Eurostat 2001a). On average, the CEE region is characterised by per capita GDP of 39 percent of the EU average, with indicators varying widely between some wealthy urban centres and poorer rural areas. The situation in economies in transition is also different from the situation in EU member states in the sense that the revenues generated from environmental taxes are commonly used for investments for environmental infrastructure measures. Under the current system therefore, it is not possible to provide direct compensation measures to lower-income groups using the revenues generated by EIs — at least for the time being. These issues are discussed in Chapter 4 (where national taxes levied on motor fuels are compared to the EU minimum excise duties according to the Directive 92/82/EC), and again in Chapters 7 (where it is revealed that cost-recovery charges in the water sector can account for up to nine percent of household expenditure in some countries) and 8. Detailed evaluation studies will be required to examine the effects of economic instruments on income distribution and how such effects can be offset in the context of the political and economic situation in CEECs.

2.4 THE ISSUE OF COMPETITIVENESS

One of the main issues regarding environmental taxes and charges which is most regularly raised, particularly by the business community, is their possible effect on competitiveness. In this context, competitiveness denotes the ability of a national economy or a productive sector to sell its goods and services in domestic and world markets. At the company level, environmental policy (including environmental taxes) may have implications for competitiveness if it imposes costs on enterprises that are not imposed on their competitors. This may hold true not only for environmental taxes but also for regulatory measures, such as legal and technological standards, or voluntary agreements.

The issue of the potential loss of competitiveness has been analysed in detail considering theoretical as well as practical questions (Baranzini et al. 2000). The findings of Baumol and Oates are quite interesting when the relation between environmental taxes and the possible loss of competitiveness is discussed, because they indicate that environmental taxes involve lower economic costs to an industry than standards do (Baumol and Oates 1988). Ekins and Speck (1998 and 1999) found that environmentally intensive sectors were right to feel challenged by environmental taxes, but that with appropriate policy support there is no reason why even these sectors should not make environmental improvements that will maintain their competitive position. This result is in line with the outcome of an OECD report, which concluded that "little or no impact on the overall competitiveness of countries" (OECD 1993 in: IPPR 1996, p.42) could be found as the result of changing industrial costs arising from environmental taxes. Research shows that the effects of taxes, such as CO₂ taxes, on the competitiveness of energy-intensive sectors are small compared to other factors, such as changes in the exchange rates or wage rates (Vourc'h and Jimenez 2000).

On a more general level, the argument concerning the possible loss of competitiveness does not take into account one of the main purposes of environmental taxes, i.e. to provide an incentive to change production/consumption processes and behaviours. Taxes and charges also aim to promote dynamic changes, and the use of revenue may support these changes. The possibility exists that taxes prompt companies to revise existing practices and improve levels of resource use efficiency to such an extent that they are "better off" after the imposition of the tax than they were before. Such results are recorded in the UK after the introduction of the landfill tax (see EFILWC 1998).

There is in fact little or no evidence that environmental policy in the past has had a negative effect on competitiveness. It does not appear that countries with higher environmental standards have a lower economic performance and studies investigating this hypothesis have not found the evidence to support it. Reviewing the reported effects of environmental policy on economic growth and employment, a 1985 OECD study identifies several conflicting forces at work in the economy as a result of environmental programmes. "The main conclusion which emerges [from these results] is that the macroeconomic effect of environmental policies is relatively small. Most of the figures reported ... are in the range of a few tenths of a percentage point per year" (OECD 1985, p.10).

The passage of time seems to have confirmed the OECD view of low costs from environmental regulation rather than the reverse. Thus Pearce (1992, p.27) claims that "there is no evidence that industrial competitiveness has been affected by environmental regulation." Some researchers reviewed the issue of competitiveness and environmental policy in the case of U.S. manufacturing and concluded that, "studies attempting to measure the effect of environmental regulation on net exports, overall trade flows and plant-location decisions have produced estimates that are either small, statistically insignificant or not robust to test of model specification" (Jaffe et al. 1995, p.157). The OECD broadly endorsed this view in 1996. "The trade and investment impacts which have been measured empirically are almost negligible" (OECD 1996, p.45).

Moreover, border tax adjustments (BTAs) may be used to offset impacts on the international competitiveness of affected sectors. Energy taxes, for example, may lead to higher domestic energy prices and increased production costs in some sectors, resulting in a loss of competitiveness in these sectors with regard to imports/trade. A BTA in such a situation would mean that taxes paid by domestic producers would be reimbursed if the products were exported to foreign countries and a tax would be imposed on foreign products when these products were imported into the domestic market. In this way, the potential price advantage of foreign products would be neutralised.

Two issues are central to the discussion of BTAs as a method to dovetail environmental and trade issues. The first concern is whether such BTAs are allowed under international trade agreements. The OECD holds that: "The rules for applying border tax adjustments to taxes on processes and process inputs need to be clarified. The issue of border tax adjustments is being addressed by the World Trade Organisation Committee on Trade and Environment" (OECD 1996, p.46). As yet the Committee has made no progress on this issue. Barde (1997) summarises that the use of product taxes gives room for applying border tax adjustments in conformity with the country of destination principle and is therefore consistent with WTO rules. But emission or input taxes are a different matter. "Under current interpretation of WTO rules, emission taxes do not qualify for border tax adjustments. The issue is unclear for input taxes, particularly when inputs are not 'physically incorporated' in the traded commodity, such as when energy is used as a fuel. There is a need to clarify these rules" (Barde 1997, p.49).

Secondly, BTAs do not consistently support the environmental objectives of environmental taxes. According to OECD: "Border tax adjustments on products when pollution arises from consumption patterns can actually help make the environmental tax more efficient. However, policy makers should be aware that border tax adjustments might reduce the effectiveness of environmental taxes, particularly in the case when pollution arises from production processes and methods" (OECD 1996, p.44). The first point is based on the assumption that the consumption of taxed products falls because of higher prices. The second point arises from the fact that the remission of domestic taxes could lead to an increase in the manufacture of the products for export, and therefore an increase in pollution.

2.5 CONCLUSIONS

In summary, each of the three issues discussed in this chapter, environmental effectiveness, equity considerations, and competitiveness will become increasingly important and worthy of detailed evaluation in CEE. To date, the effectiveness of economic instruments has been difficult to measure due to the dynamic socio-economic context and their link to financing environmental investments. Given the comparably low purchasing power in the region, equity considerations have already been identified as a particular concern, and this report highlights a few noteworthy cases. Few studies have been conducted regarding the competitiveness effects of environmental taxes/charges in the region, due, in part, to the fact that broader market reforms have brought competition issues into focus relatively recently. As countries emerge from transition and continue the integration process with Western Europe, detailed evaluation studies will be more and more important to understand the practical impact of these instruments in the medium- and long-term.

3. Environmental Policy in Central and Eastern Europe: Issues During Economic Transition and European Integration

3.1 ENVIRONMENTAL POLICY AND FINANCING: THE CHALLENGE OF TRANSITION

Countries with economies in transition to a market economy face particular challenges introducing environmental policies and implementing the PPP. In CEE key factors that created specific policy challenges during the 1990s were: inherited environmental liabilities for past damages and underdeveloped infrastructure, low per capita GDP and pressures on government spending, underdeveloped financial institutions and poor enforcement of existing environmental regulations. In addition, opportunities for “no-regret” or cost-effective investments yielding environmental improvements or reducing the need for future remedial investment are sometimes missed due to uncertainty, lack of information and poor access to the international credit market.

Countries in transition face an environmental legacy from previous governing regimes. In most cases this is a liability in the form of environmental degradation and/or poor infrastructure for water supply and wastewater treatment, energy distribution and waste management. The very complex issue of liability brings up financial as well as legal and commercial questions, which are also characterized as problematic in Western countries (EBRD 2000). These open questions are particularly important in the context of privatisation, as local authorities often inherit new responsibilities during a decentralization process. “Local or regional authorities inherit a backlog of unfinished projects, infrastructure in varying states of disrepair, and, frequently, sharp declines in support from central budgets to finance new and replacement capital” (OECD/EAP Task Force, 1998, p7). At the national level, debt repayments often represent a large portion of public expenditures, and countries are faced with hard budget constraints when they face international payments and domestic development needs.

Macroeconomic conditions also influence the capacity of the economy as a whole to invest in the environment or respond to government regulations. Recession and inflation (and extreme cases of hyperinflation in some of the countries analysed) undermine the real purchasing power of citizens over time. Financial uncertainty, poorly developed commercial capital markets and a lack of information and training in the financial services sector regarding environmental legislation create further obstacles to both the supply and demand of finance for environmental investment. High and volatile inflation rates and the experience of banks with negative real interest rates on lending combine to undermine incentives for the supply of credit, particularly long-term credit.

Finally, the legal and institutional context in which economic actors operate influences decisions taken by potential polluters. Complex issues regarding property rights (capital stocks, natural stocks) often emerge during the transition toward a market-based economy. Continued state-owned monopolies in the energy field and mixed incentives for tenants/owners in apartment buildings have also been identified as substantial barriers for rational resource consumption. Public institutions, which are responsible for providing a clear and enforceable framework for economic actors — including providing and enforcing regulations for behaviours that impact the environment — are themselves in transition. Environmental policymakers, environmental monitoring institutions, tax and municipal authorities and public service providers are often under-funded, under-trained, and assigned new responsibilities during transition. In many cases, this has led to mixed and unclear responsibilities between agencies or levels of government, and ultimately to poor enforcement of environmental standards.¹²

Transition to the market economy, however, has also brought with it many environmental improvements. The reduced pressure on the environment in the 1990s was largely attributed to the slowdown of economic activity throughout the region. This conclusion is supported by the findings of a recent World Bank study (1999a, p. xv), which indicates that the economic recession associated with the first years of transition has led to improved environmental indicators, such as key air pollutants (particles, SO₂ and NO_x) and water pollution levels.

Moreover, economic reforms have reduced the share of pollution-intensive industry in total economic activity, helped with the introduction of cleaner technologies, and provided incentives to reduce wasteful and inefficient production and consumption patterns (OECD, 1999a, p.17). The process of restructuring the economies and also the introduction and gradual increase of prices (i.e. cost-recovery charges) for services and resources such as energy, water and waste management had the effect of raising necessary investment revenues for these sectors and providing the first signals to use natural resources wisely. The World Bank study (p.14) concludes that “overall, ... the changes associated with economic reform and the transition have produced real environmental benefits in the advanced reform countries.”

A good example of the effect of restructuring, recession and pricing can be seen in the 32 percent decrease in energy use in the manufacturing sector in CEE countries from 1990-95. In countries more advanced in the transition to a market economy, these initial structural changes have been supported by reforms later in the decade. The EBRD's Transition Report 2000 (p. 45) says that “In countries such as Poland and the Slovak Republic energy use has started to decrease owing to efficiency-enhancing restructuring, the shift from an industrial to a service-based economy, increased energy tariffs and more rigorous collection.” Improvements in environmental quality can now be recorded in the more advanced economies in transition, such as the Czech Republic, Hungary, Poland and Slovenia. Despite a renewed increase in economic output, the decoupling of economic recovery from increased pressure on the environment can already be recorded. Similar developments are found in some of the other CEECs, such as the Baltic States, Slovakia and Croatia.

Notwithstanding these positive trends, evidence indicates that several obstacles have delayed or prevented the full exploitation of the environmental benefits that these reforms offer, and that market reforms alone will not be sufficient to solve the environmental problems in the region. While absolute indicators have improved dramatically in the region, energy efficiency remains poor and emission levels high when compared to OECD countries.

In response to specific obstacles to financing environmental policy objectives enumerated above, a number of public policy strategies taken over from OECD experience have been employed by decision-makers in economies in transition to address priority environmental pressures. It is clear from the discussion above that a broad range of reforms and policies can affect environmental financing needs: market-based reforms, improved environmental policy enforcement, institutional reform aimed at transparency and efficiency, clear public information programmes, and reforms in the financial sector. Keeping this broader transition context in mind, this section of the report focuses on how environmental policymakers adapted economic instruments to the new market-based economic realities and used them to capitalise environmental funds, which are serving as financing instruments in transition countries.

3.2 ECONOMIC INSTRUMENTS AND ENVIRONMENTAL FUNDS: THE ISSUE OF EARMARKING

OECD countries have increasingly recognised the capacity of economic instruments to provide incentives for attaining environmental policy goals at the least cost. In the US, it has been estimated that tradable pollution schemes for SO₂ and NO_x have saved millions of dollars in compliance costs for producers and consumers, while achieving pollution reduction goals.¹³ Emission taxes in Sweden, Denmark, Finland, Norway, Netherlands and more recently Germany and Italy have reduced pollution and provided incentives for energy efficiency.¹⁴ While subsidy schemes have been employed in conjunction with some of these emission taxes, the trend in Western Europe has been towards introducing environmental taxes, which are no longer considered sources of finance for environmental investments, but rather clearly designed to provide incentives for reducing pollution. Examples are taxes imposed on CO₂ emissions and excise taxes on motor fuels.

In contrast to these developments, earmarked revenues providing subsidised finance for environmental investments have been considered necessary in the transition economies of CEE, in order to deal with the legacies of environmental degradation and overcome the obstacles of the transition period. One of the main sources of subsidised finance has been environmental funds, which have existed in their current forms since as early as 1989 in Poland, and were established in most countries of the region during the 1990s. Although the size and capacity of the funds differ throughout the region, pollution charges have raised some USD 1.9 billion for national environmental funds in the period 1993-97 alone.¹⁵

On a regional basis, the majority of funds are capitalised with revenues from economic instruments. For this reason, more attention has generally been given to the revenue raising function of these instruments than their ability to provide incentives to polluters. The analysis of economic instruments in CEE finds that these instruments, introduced in a transition policy context, still play a distinct role in environmental policy compared to OECD countries. Given the direct link between many economic instruments in CEE and environmental funds, it can be concluded that a full assessment of the environmental effectiveness of the instruments can only be achieved by taking into account the role and effectiveness of the spending programmes of the funds.

A review of economic instruments in the region (REC 1999) has found that national legislation introducing various instruments made direct reference to reducing pollution as a primary goal. However, these instruments only became significant environmental policy instruments during the 1990s, primarily because of their ability to raise revenues for environmental funds. From the perspective of the environmental effectiveness of the charge systems, the direct link to environmental funds may have prevented the development of stronger incentives for pollution reduction. Furthermore, the emphasis on maintaining revenue streams from the charge systems appears to have inhibited the implementation of stricter charge rates, which may have been more environmentally effective.

Environmental funds are institutions, typically governmental or quasi-governmental, designed to channel earmarked public revenues for environmental protection purposes (OECD 1995, OECD 1999b). Funds administer revenues to provide financial assistance on subsidised terms for investments and projects designed to achieve environmental policy goals. Specific funds such as the water boards of France and the Netherlands, or the U.S. "Superfund" for the cleanup of abandoned hazardous wastes exist in developed market economies (OECD 1995). A closer look into the revenues of the Dutch and French funds (generated through earmarked water charges) provides interesting information. Barde writes that "In France, over the period 1992-1996, water charges (effluent and abstraction charges) came to an annual average of FRF 8 billion (USD 1.6 billion); in the Netherlands, revenues from water pollution charges came to NGL 1.9 billion (USD 1.2 billion) (2000, p.13)." The comparison of the budgets of these two funds with the total budget of the environmental funds in CEEs (Table 3.1) shows that they by far exceed the scale of CEE funds. The CEE funds are, however, comprehensive in the sense that fund income and expenditures cross between priority environmental sectors, i.e. air, wastewater and waste treatment.

The PPP provides for exceptions to the standard rule that governments should not provide subsidies to polluters. It outlines three conditions, common in the transition to a market economy, which justify such exceptions temporarily (OECD 1992):

- The subsidy does not introduce significant distortions in international trade and investment.
- Without the subsidy, affected industry would suffer severe difficulties.
- The subsidy is limited to a well-defined transition period adapted to the socio-economic problems associated with the implementation of a country's environmental policy.

Governments in CEE have adopted the PPP, but the above exceptions have been invoked to justify environmental funds as transitional instruments. In one format or another, all countries of the region have created an environmental fund at some point during the 1990s with the exception of Croatia,¹⁶ and Bosnia and Herzegovina. Poland's National Fund was established as early as 1989, and most other countries created the necessary legislation in the early 1990s. FYR Macedonia established its fund as recently as 1998; Romania legally established a fund in 2000. The Hungarian and Estonian funds, established in 1993 and 1990 respectively, were absorbed back into the central budgets in 1999. The first draft law "On

TABLE 3.1

National Environmental Funds in the Ten EU Accession Countries

Country	Fund	Year established (in current form)	Major revenue sources (1997)	Annual revenues (in million USD; data for 1997)	Disbursement mechanisms
Bulgaria	National Environmental Protection Fund	1993	Fuel Charge (78.4 %) Privatisation (13.8 %)	9.5	Grants (76.8%) Interest free loans (7.7%) Equity investments (15.6%)
Bulgaria	National Trust EcoFund	1996	Debt swap with Switzerland, World Bank grant	5.2	Grants (85%) Interest free loans (15%)
Czech Republic	State Environmental Fund	1992	Economic instruments (51%) Privatisation (28%) Loan repayments (15%) Profits/financial Operations (6.1%)	167	Grants (55%) Interest free/ Subsidised loans (44%) Interest subsidies (0.6%)
Estonia	Environmental Fund	1990 Legal status changed in 1999 ¹	Economic instruments (67%) Privatisation (27%) Loan repayments (2%)	7.7	Grants (90%) Interest free/ subsidised loans (10%)
Estonia	Environmental Investment Centre	2000	State budget (Loan repayment)	14 (in 2000)	Subsidised loans
Hungary	Central Environmental Protection Fund	1993 Legal status changed in 1999 ²	Economic instruments (82%) Phare grant (4%) Loan repayments (5%)	81	Grants (75%) interest free/ subsidised loans (25%)
Hungary	Environmental Protection Fund	1999	State budget (Loan repayment)	114 (in 2000)	Grants, Loans, Interest subsidies, Loan guarantees
Latvia	Environmental Protection Fund	1996	Economic instruments, Loan repayments	9.1	Grants, Subsidised loans
Latvia	Environmental Investment Fund	1997	Transfer from Latvian Environmental Protection Fund, Phare grant, Other/international sources	2.6	Subsidised loans, Loan guarantees, Equity investments
Lithuania	State Nature Protection Fund	1987	Fines for violation of environmental laws and regulations	1.14 (in 2000)	Grants
Lithuania	Environmental Investment Fund	1996	EU grant, Economic instruments	2.1	Grants, Subsidised loans

TABLE 3.1

Poland	National Fund for Environmental Protection and Water Management	1989	Economic instruments (55%) Loan repayments (36%) International (4%) Profits/financial operations (6%)	419	Subsidised loans (61%) Grants (31%) Interest subsidies (3%) Equity investments (5%)
Poland	ECOFund Foundation	1992	Debt swaps with US, Italy, Switzerland, France, Sweden (84%) Profits/financial operations (15%) Norwegian grant (1%)	33	Grants (100%)
Poland³	Krakow Provincial Fund	1993	Economic instruments (60%) Loan repayments (24%) Profits/financial operations (15%)	15	Subsidised loans (75%) Grants (25%)
Romania	Fund for Environmental Protection	2000	Economic instruments Other sources	n.a.	n.a.
Slovenia	Environmental Development Fund	1994	Privatisation (40%) World Bank loan (27%) Loan repayments (23%) Profits/financial operations (8.2)	20	Subsidised loans (100%)
Slovakia	State Environmental Fund	1991	Economic instruments (75%) State budget (24%)	31	Grants (100%)

Sources: OECD (1999b), REC (2001e forthcoming)

Symbols: n.a. = data not available

Notes:

1. The Estonian Environmental Fund was absorbed back into the central budget in 1999. The Environmental Investment Centre was established in 2000 and will administer funds from the state budget.

2. The Central Hungarian Fund was absorbed into the national budget based on a 1998 budget law creating uniform rules for earmarked state funds (Government Decree No 217/1998). The revenue sources remain similar but have become a budget line of the Ministry of Environment.

3. Poland has a large number of sub-national environmental funds; Krakow Provincial Fund is one of the largest, and is listed here as an example of the size of regional funds in Poland.

Environmental Charges and the Creation of a National Environmental Fund” was prepared in Albania in 1995. Though the law was in principle approved in 1996, it did not pass into legislation, and its final passage is still pending (Panariti 2000). The legal provisions for environmental funds were established relatively early in both of the republics comprising Yugoslavia, under the environmental protection laws of 1991 (Serbia) and 1996 (Montenegro). Yet the scope of these funds remained rather limited, both in terms of the revenues generated, and in their capacity to tackle the environmental issues within the turbulent political and economic environment that existed in the country (Mileusnic-Vucic 2000).

Earmarking¹⁷ is the term applied to the practice of assigning revenue from specific taxes to finance specific services independent from the central government budgetary process. During transition, earmarking has several advantages. Politically, it makes the introduction

of pollution charges more attractive to the public and polluters — who recognize that a portion of pollution payments will be recycled via subsidies for environmental improvement. From an environmental perspective, it guarantees a reasonably stable flow of revenues, which can be used to help promote investment in the environmental sector. The earmarking of public revenues for environmental funds, while presenting advantages from an environmental financing perspective, however, raises a number of concerns in light of current OECD country practice regarding public expenditure. In 1995, the OECD developed the *St. Petersburg Guidelines for Environmental Funds in the Transition to a Market Economy*, which have acted as a benchmark for the development and evaluation of environmental funds in transition economies.

The arguments against earmarking as the best solution to financing environmental goals are numerous from the perspective of efficient public financing. The St. Petersburg Guidelines recognise that earmarking introduces rigidity into public spending programmes, which, by nature of the transition period, must respond flexibly to varying pressures. Earmarking has the potential to lead to inefficient allocation of resources and the creation of vested interests that will push for extension of subsidised financing for longer than may be necessary. Moreover, while environmental funds play a short- to medium-term function of providing necessary financing to top-priority projects, they do not provide longer-term solutions to many of the underlying problems preventing investments in the environmental sector, such as deficiencies in the commercial banking sector and poor enforcement of environmental policies.

A comprehensive OECD study (1999c) maintains that the funds should still be considered a “second-best” and transitional alternative to more direct application of the PPP. The study further concludes that funds have proved to be useful by: accelerating the pace of environmental improvement; catalysing the development of a domestic market for environmental finance; leveraging additional finance for environmental investments; enabling a more flexible use of financial resources, by avoiding certain bureaucratic constraints posed by normal budgetary procedures; and strengthening domestic capacities for project preparation and policy implementation. Environmental funds accounted for 30–40 percent of total national pollution abatement and control investment expenditures in Poland during 1993–96. In Hungary, Lithuania and Slovenia this indicator was about 20 percent in 1996 (OECD/EAP Task Force, 1998).

4. Economic Instruments for Energy Products

4.1 INTRODUCTION

Chapters 4-9 analyse environmental taxes and charges implemented in the 15 CEECs in more detail. The discussion focuses on a regional comparison, and, where possible, the situation in CEECs is compared with the situation in EU member states. The information presented in these chapters is predominantly based on country databases (Annex 1) designed by the SIEI Secretariat and compiled by national experts. In addition, a series of national reports provided by the SIEI expert network was used, as well as relevant information sources for OECD/EU countries. Every attempt has been made to be as up-to-date and accurate as possible, despite the fact that the use of EIs for environmental policy is rapidly changing.

4.2. MOTOR FUELS

An analysis of excise taxes for motor fuels (petrol leaded, petrol unleaded and diesel) shows variation between the countries covered in this survey.¹⁸ Table 4.1 presents excise tax rates on these fuel products in CEECs for the year 2000. As a benchmark, the EU minimum excise tax rates (Directive 92/82/EEC of 19 October 1992) have been used, and the comparison shows that a number of countries have not only reached but also exceeded these levels. Hungary and Slovenia have tax rates for unleaded petrol and diesel that are above the EU minimum excise tax rates. Several other countries are levying taxes on unleaded petrol that are in accordance with EU requirements. Noteworthy is the situation of two South Eastern European countries — FYR Macedonia and Albania. In FYR Macedonia, the rate levied on unleaded petrol in April 2001 is the single highest rate in the CEECs, and the rate

TABLE 4.1

Taxes on Unleaded Petrol and Diesel in CEECs (in EUR per Kilolitre in 2000)¹⁹

<i>Country</i>	<i>Unleaded petrol</i>	<i>Diesel</i>	<i>Country</i>	<i>Unleaded petrol</i>	<i>Diesel</i>
Bulgaria	266	135	Slovakia	266	207
Czech Republic	304	228	Slovenia	368	289
Estonia	223	165	BiH	243	217
Hungary	357	308	Croatia	312	195
Latvia	211	198	Macedonia^a	379	212
Lithuania	242	129	Yugoslavia	n.a.	n.a.
Poland	314	237	Albania	<i>Ad valorem tax</i>	<i>Ad valorem tax</i>
Romania	204	112	EU level	287	245

Source: Annex 1

Symbols: n.a. = data not available

Notes:

a. Tax rates for FYR Macedonia valid for April 2001

TABLE 4.2

Excise Taxes on Motor Fuels in Percentage of EU Minimum Excise Duties (tax rates considered were valid for 1999 and 2000)²⁰

CEE	Leaded petrol		Unleaded petrol		Diesel	
	1999	2000	1999	2000	1999	2000
Albania ^a	–	–	–	–	–	–
Bosnia and Herzegovina ^b	61%	61%	62%	62%	63%	63%
Bulgaria ^c	61%	61%	66%	66%	19%	20%
Croatia	74%	112%	73%	109%	75%	80%
Czech Republic	87%	90%	102%	106%	90%	93%
Estonia	57%	Not on market	67%	78%	51%	67%
Hungary	Not on market	Not on market	120%	124%	121%	126%
Latvia	67%	74%	66%	73%	73%	81%
Lithuania	Not on market	Not on market	72%	84%	45%	53%
Macedonia ^d	n.a.	127%	n.a.	132%	n.a.	87%
Poland ^e	86%	104%	93%	109%	80%	97%
Romania	69%	74%	78%	71%	47%	46%
Slovakia	Not on market	Not on market	78%	93%	71%	85%
Slovenia ^f	100%	128%	100%	115%	119%	118%
Yugoslavia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
EU min	100%	100%	100%	100%	100%	100%

Source: Annex 1

Symbols: n.a. = data not available

Notes:

a. Excise taxes set as *ad valorem* tax; excise rates recalculated from the retail prices for the three main fuels are: 45 percent of the EU minimum (leaded petrol), 154 percent for unleaded petrol and 109 percent for diesel (for details, see Annex 1). Fuel prices are administratively set.

b. In addition to the excise tax, a flat rate of 64 EUR/kilolitre is levied on all the motor fuels (road use fee).

c. Excise rates for leaded and unleaded petrol differ depending on the octane grade; the above percentages refer to fuels with octane grade 98 or above, which are taxed higher. In addition, fuel product charges (16-18 EUR/kilolitre) and road charges (92 EUR/tonne of fuel) are levied on all the motor fuels.

d. Rates from April 2001.

e. Excise rate for diesel differentiated based on the sulphur content of the fuel; the above percentage refers to diesel with high sulphur content.

f. The sale of leaded petrol was phased out as of July 1, 2001.

for diesel is among the highest. The taxation scheme adopted in Albania clearly differs from the schemes in all other CEECs, since an *ad valorem* tax of 90 percent is applied to unleaded petrol and 80 percent to diesel. The rate for leaded petrol is only 20 percent of the price.

Excise tax rates have been significantly increased during the last couple of years in most CEEs (see Table 4.2). The most significant increases in tax rates, between 2000 and 1999, were reported in Croatia, Poland, Slovakia and the Baltic countries, where increase ranged from 11-36 percent as measured in euros. Due to this increase, tax rates in the Baltic countries are in the upper part of the range, with the exception of tax on diesel in Lithuania. The lowest excise taxes levied on motor fuels can be found in the countries of South Eastern Europe — Bosnia and Herzegovina, Croatia (diesel) and Romania. Due to inflation,

decrease of the excise tax rates (when expressed in euros) was observed in Romania in the past few years. Generally speaking, very few countries have introduced measures to link the level of environmental taxes/charges to inflation (examples include Poland and Slovakia).

In addition to excise taxes, few countries in the region introduced other national taxes on motor fuels (such as fuel product and road charges). With the exception of Hungary and Slovenia, where national taxes are part of the excise tax, these levies substantially increase the total tax burden for motor fuels. National taxes are implemented in the countries that have comparatively low excise tax rates. Motor fuels are thus subject to additional taxes in Romania (fuel road tax — revenue of the special road fund), Bulgaria (road charge — revenue of the road agency; fuel product charge — revenue of the environmental fund) and Bosnia and Herzegovina (road use fee — revenue of the cantonal and the entities' budgets). In Bulgaria, for example, these additional charges are approximately one-third of the excise taxes.

Slovenia is the only country in the region that introduced a CO₂ tax on fuels, and the CO₂ component is part of the excise tax levied on energy products, as shown in the above tables. It is worth mentioning that diesel was levied with a higher tax rate than unleaded petrol in Slovenia in 1999. This has changed in the course of 2000, as the tax on unleaded petrol increased by around 22 percent, as expressed in national currency (15 percent in euros), and the diesel rate was reduced by 7 percent (13 percent in euros).

An interesting overview can be made by comparing the tax rates levied on motor fuels in CEE countries with the excise tax rates levied in the four "Cohesion Fund" countries — Greece, Portugal, Ireland and Spain (Table 4.3). When comparing the cohesion countries with the applicant countries as a group, the rates are generally higher in the former because these countries have to be in accordance with the relevant EU legislation. However, these differences are negligible when the more advanced transition countries such as Hungary and Slovenia are compared with Ireland or Spain, and the difference disappears completely when these countries are compared to Greece.

In Hungary, collection efficiency of the motor fuels product charge has been improved by shifting responsibility to the tax authorities, which have collected the charge as part of the excise tax on fuels since 1998 (Safian, 1999). The current value of the fuel product charge is three percent of the excise on motor fuels, and is now earmarked as an environmental credit of the annual central budget.²¹

All countries covered in this report have implemented excise taxes on the three main motor fuels (leaded petrol, unleaded petrol and diesel), and some of them have already phased out the sale of leaded petrol. However, excise taxes on other motor fuels (liquid petroleum gas and kerosene) are only introduced in a small number of countries in the region. The use of LPG for transportation, for example, is subject to an excise tax in Bulgaria, the Czech Republic, Estonia and Slovakia (see Annex 1 for more detailed information). Minimum excise duties also exist for these types of motor fuels at the EU level, which either means that CEECs have to implement such taxes to achieve EU directives or to increase existing taxes.

As can be seen from the above tables, many CEE countries have significantly increased excise taxes for motor fuels during the last years, and are now at or above the EU minimum tax rates. Nevertheless, a further increase will be necessary in a number of countries of the region, as well as the implementation of new taxes on energy products, in order to comply with EU legislation. Expected increases in energy taxes bring up the question of affordability, i.e. whether these increases would lead to social exclusion. This question cannot be answered in a straightforward way, but problems of social affordability will be briefly discussed.

4.3 AFFORDABILITY AND EQUITY ISSUES

The background for the discussion of social exclusion is laid out in Chapter 2.4, in which it is shown that the issue of regressive effects has to be taken into account when environmental taxes and charges are discussed. It has also been noted that, while applicant countries are required to implement minimum EU tax rates for motor fuels, the per capita GDP for Central and Eastern Europe is currently at 39 percent of the average in the EU.

Generally, the comparison of tax rates levied on energy products is based on the conversion of tax rates expressed in national currencies into a standard currency such as the euro. However, this form of conversion can give inconsistent results because exchange rates do not reflect the relative price levels in the different countries, nor do they cover changes in relative prices over time. To overcome this lack of clarity the use of purchasing power

TABLE 4.3

Comparison of Excise Tax Rates in Selected Countries (in EUR per kilolitre in 2000)

<i>Country</i>	<i>Unleaded petrol</i>	<i>Diesel</i>
Greece	325	250
Spain	372	270
Ireland	374	325
Portugal	349	246
Czech Republic	304	228
Hungary	357	308
Poland	314	237
Slovenia	368	289

Source: Annex 1 and EC 2000a

standards (PPS) is proposed in standard economic literature, because the use of PPS as the conversion rate shows how many goods can be purchased with the local currency within the country, compared to the use of the official conversion rate which shows how many euros can be bought at the exchange market.²²

For such a comparison, Table 4.4 was compiled. The table compares the tax rates of unleaded petrol and diesel converted directly into euros (columns two and six respectively) and then in PPS-euros (columns four and eight respectively) of the EU member states plus Norway and Switzerland with the 10 EU accession countries. For simplicity the rates were sorted in ascending order.

It is not surprising to see that tax rates are generally lower in CEECs than in Western European countries by using the standard exchange rate euros to national currency (columns 2 and 6). However, this statement is no longer valid when, instead of the exchange rate, the PPS-euro exchange rate is applied (columns 4 and 8). Hungary's rates are the largest when PPS rate is used for comparing the taxes levied on both motor fuel products, and the population in Bulgaria faces a still higher rate for unleaded petrol. Only the situation in the UK can be compared to the situation in CEECs, when PPS is being used for converting the national currencies. It is noteworthy to note that countries generally characterised as advanced countries in terms of introducing taxes on energy products, such as Denmark and Sweden, have quite low taxes when the basis of the conversion are the PPS rates. The tax burden for unleaded petrol and diesel based on the PPS rates is the lowest in Luxembourg, the country with the highest GDP per capita in 1998 (Eurostat 2001b), and also very low in Austria.

One of the interesting aspects when comparing the results for the 10 accession countries is that tax rates in the three Baltic countries are generally lower than in the other countries of the region. These findings are valid when using exchange rates, as well as the PPS conversion factors.

4.4 OTHER ENERGY PRODUCTS

In 2000 several countries increased tax rates and extended taxation on a number of energy products other than motor fuels, which are subject to excise taxes (for more information, see Annex 1, REC 1999, and McNicholas and Speck 1999). In Hungary, for example, excise taxes are now applied to heating and lubricant oils (additionally, a fuel product charge is levied on heating oils with a high sulphur content). Lithuania and Romania also expanded excise taxation to new products (*orimulsion*, light fuel oil and natural gas).

However, taxation of mineral oil products used for purposes other than transport in CEEs is not as close to meeting EU requirements, which set minimum rates for these energy products (Directive 92/82/EEC). While most of the countries in the region have introduced excise taxes for light fuel oil, heavy fuel oil is subject to this tax only in Latvia, Lithuania, Poland and Slovenia. Albania levies an *ad valorem* tax of 20 percent of the sales price on both oil prod-

TABLE 4.4

Comparison of the 2000 Tax Rates on Motor Fuels (unleaded petrol and diesel) between European Countries
(unit: EUR per kilolitre and PPS EUR per kilolitre)

Country	Unleaded petrol EUR/kl	Country	Unleaded petrol PPS EUR/kl	Country	Diesel EUR/kl	Country	Diesel PPS EUR/kl
Romania	204	Luxembourg	321	Romania	112	Luxembourg	234
Latvia	211	Switzerland	365	Lithuania	129	Lithuania	258
Estonia	224	Ireland	366	Bulgaria	135	Austria	275
Lithuania	243	Austria	397	Estonia	166	Denmark	284
Bulgaria	267	Latvia	424	Latvia	198	Finland	296
Slovakia	268	Greece	425	Slovakia	209	Belgium	301
Czech Rep.	304	Denmark	426	Czech Rep.	229	Sweden	308
Poland	314	Sweden	437	Poland	237	Ireland	318
Greece	321	Spain	442	Portugal	246	Spain	321
Luxembourg	347	Lithuania	484	Greece	247	Greece	326
Portugal	349	Estonia	502	Luxembourg	253	France	351
Hungary	358	Portugal	508	Spain	270	Portugal	358
Slovenia	369	Finland	510	Austria	283	Germany	361
Spain	372	Belgium	512	Belgium	290	Netherlands	362
Ireland	374	Norway	517	Slovenia	290	Estonia	372
Austria	408	Germany	537	Hungary	308	Romania	381
Switzerland	467	France	561	Ireland	325	Switzerland	381
Belgium	494	Slovenia	604	Finland	325	Latvia	399
Denmark	519	Italy	614	Denmark	346	Norway	412
Sweden	529	Netherlands	617	Netherlands	347	Italy	457
Italy	542	Poland	619	France	367	Bulgaria	459
Finland	561	Romania	692	Sweden	373	Poland	467
Germany	562	UK	728	Germany	378	Slovenia	475
France	586	Slovakia	749	Italy	403	Czech Rep.	576
Netherlands	592	Czech Rep.	766	Switzerland	487	Slovakia	583
Norway	651	Hungary	845	Norway	519	UK	713
UK	801	Bulgaria	908	UK	785	Hungary	729

Source: Tax rates: Annex 1 and EC 2000a; exchange rates and PPS: Eurostat New Cronos database.

ucts. In the Czech Republic, a nominal tax of EUR 228 per kilolitre is in place for light fuel oil, but the effective tax, however, is zero, as the tax is refunded for oil used for heating. Another attempt to increase the environmental effectiveness of mineral oils taxation is reflected in the introduction of product charges linked to the sulphur content of heating oils (Hungary).

Taxes on natural gas, electricity and coal are not commonly introduced in CEECs; some exceptions are an *ad valorem* tax on electricity in Lithuania (the tax base is the sales price of electricity, and the tax rate is one percent of the sales price) and natural gas tax in Romania. This group of energy products is often subject to reduced VAT rates, which are a reflection of social concerns (the issue of VAT is discussed in detail in Chapter 10). The same situation regarding reduced VAT rates can be found in EU member states, e.g. Ireland and the UK, where the use of heating fuels is levied with a reduced VAT rate (EC 2000a). In this context,

it should also be mentioned that subsidies still play a role in the region. For example, while prices have been increased in past years, the use of electricity and natural gas in households is still subsidized in Hungary (Zalatnay, 2000).

The comparison between CEECs aiming to join the EU and cohesion countries, again, shows some similarities. Ireland and Greece have not levied any taxes on energy products other than mineral oil products, i.e. the consumption of coal, natural gas and electricity is not taxed at all. The consumption of electricity is taxed in Portugal, and Spain has imposed taxes on the use of natural gas and electricity. It should also be noted that there are no minimum excise tax rates introduced on the EU level for the three energy products in question. Several EU member states have no taxes on these energy products, particularly not on coal, which is still heavily subsidized in countries such as Germany. However, the European Commission put forward a proposal for a Directive for the harmonization of excise taxes in 1997, planning to introduce minimum rates for coal, natural gas and electricity (EC 1997). The implementation of this Directive is, however, still under discussion.

Revenues generated from taxes on energy products other than motor fuels are very small in CEECs, because not many countries have implemented such economic instruments. This situation is comparable to the development in OECD countries, where revenues raised on tax bases such as heavy fuel oil, coal and coke are very small (Braathen 2000). One of the reasons for such a situation is that the main user of these energy products, namely the industrial sector, is either exempt from paying taxes, or is granted generous tax relief (Elkins and Speck 1999).

4.5 CONCLUSIONS

The overview of taxes and charges levied on energy products in CEECs shows that the traditional motor fuels are subject to environmental taxation. These taxes are substantial in many of the EU applicant countries and have been increased throughout the region over recent years. Taxes on fuels other than petrol and diesel are less common. In recent years, however, the system of taxation has been extended to mineral oil products used for heating purposes or for industrial/commercial purposes, and countries are beginning to comply with EU minimum rates. Another interesting result of this overview is the fact that Albania and FYR Macedonia implemented rather high taxes on motor fuels.

When considered in terms of purchasing power standards, many CEECs have levied some of the highest taxes on motor fuels in Europe. However, further increases in tax rates seem to be necessary for some of the candidate countries. Based on these conclusions, the issues of affordability and social exclusion have been highlighted.

5. Air Pollution Charges/Taxes

5.1 SULPHUR DIOXIDE, NITROGEN OXIDES AND OTHER AIR POLLUTION CHARGES

Countries in Central and Eastern Europe have previous experience with emission charges, as pollution charges and non-compliance fees were introduced in many countries as early as the 1970s. While serving no economic function *per se* during this period, these charges were modified during transition to a market-based economy in many countries. As subsidies for operating costs were reduced and enterprises began to face real financial constraints, pollution charges emerged as real costs to producers and consumers. The value of environmental charges was also apparent to environmental policymakers, who recognised the need for investment revenues in the environmental sector.

The development and implementation of air pollution charges, the primary pollutants being SO₂, NO_x and solid particles, varies both in comprehensiveness and success throughout the region. On a regional basis, more attention has been given to the revenue-raising function of economic instruments than to their ability to provide incentives for pollution reduction. This can be attributed to budgetary pressures, which have severely restricted public financing of environmental investments in most countries (see Chapters 3 and 10 for more information). Moreover, experience had been accrued within environmental ministries regarding these types of charges, and, as industry and municipalities recognise the potential environment-related financial support from earmarked funds, these charges can become more politically attractive. For this reason, economic instruments have now become the main revenue source for state and regional/municipal environmental funds that exist in most countries in the region (OECD 1999b). In the Czech Republic for example, air emission charges and fines accounted for 26 percent of total revenue of the national environmental fund in 1999, and for 33 percent in Slovakia (REC 2001 forthcoming). The revenues generated in this way comprise a large part of environmental expenditures in Poland, which reached 1.6 percent of GDP in 1997 and 1998.²³

The scheme implemented in CEECs differs from many schemes in Western Europe in the sense that emission charges have been introduced in conjunction with a permit system: a base charge rate is applied to all pollution within the permitted level and a penalty rate is added for pollution exceeding that level (the so-called non-compliance fee). Large point-source polluters (combustion plants, heavy industry) are the primary subjects of these instruments. The charges are intended to raise revenues and encourage cost-effective abatement measures, to keep pollution below the permitted level. The fines (non-compliance fees) are intended to provide incentives to reduce pollution to permitted levels and therefore play a compliance and incentive function. Such a system is in place in the Czech Republic, Estonia, Latvia, Lithuania, Poland, and Slovakia (Table 5.1).²⁴ The Czech Republic also levies emission charges on small-scale, non-household air polluters, depending on the power of the combustion plant and the type of fuel used (revenue of the municipal budget). Croatia, Romania and Yugoslavia have no emission charges, but apply non-compliance fees when air-emission legislation is violated. Albania, Bosnia and Herzegovina and Slovenia have not introduced any EIs on emissions such as SO₂ and NO_x.

As already mentioned in the previous section, the revenues from these charges and fines are largely earmarked for expenditure through national and regional/local environmental funds (examples include the Czech Republic, Poland, Slovakia, Latvia, Lithuania and Bulgaria). In Estonia, revenues from air emission charges and non-compliance fees are earmarked for environmental expenditure within the central budget, while Croatian and

TABLE 5.1

Selected Emission Taxes/Charges in European Countries (situation 2000)

CEE COUNTRIES	NO _x Emission tax/ charge (EUR/tonne NO _x)	NO _x Non-compliance fee (EUR/tonne NO _x)	SO ₂ Emission tax/charge (EUR/tonne SO ₂)	SO ₂ Non-compliance fee (EUR/tonne SO ₂)
Bulgaria	-	Applies but varying	-	Applies but varying
Croatia	-	Per case of violation	-	Per case of violation
Czech Republic	22 (EC)	33 (NC)	28 (EC)	42 (NC)
Estonia^a	8.05 (EC)	80.5 (NC)	3.52 (EC)	35.2 (NC)
Hungary	-	Applies but varying	-	Applies but varying
Latvia^b	17.9 (EC)	53.7 (NC)	17.9 (EC)	53.7 (NCF)
Lithuania	105.5 (EC)	Applies but varying	56.3 (EC)	Applies but varying
FYR Macedonia	-	Per case of violation	-	Per case of violation
Poland^a	85 (EC)	850 (NC)	85 (EC)	850 (NC)
Romania	-	Per case of violation	-	Per case of violation
Slovakia	35 (EC)	Applies but varying	46.7 (EC)	Applies but varying
Yugoslavia	-	Per case of violation	-	Per case of violation
WESTERN EUROPEAN COUNTRIES^c				
Denmark	-	-	2,700 EUR/tonne of S (PT) 1,340/tonne of SO ₂ (ET)	-
France	22.9 (ET)	-	27.4 (ET)	-
Italy	105 (ET)	-	53.2 (ET)	-
Norway	-	-	2,100 (ET)	-
Spain (tax introduced in the region of Galicia)	33 (ET)	-	33 (ET)	-
Sweden	4,630 (ET)	-	3,470 EUR/tonne of S (PT)	-

Source: Annex 1, EC 2000a and EC 2001b.

Symbols: EC = emission charge; NC = non-compliance fee; ET = emission tax; PT = product tax; - = no tax/charge

Notes:

a. Non-compliance fee is ten times the emission charge for the given pollutant.

b. Rates for non-compliance fees are three times the emission charges for emissions above the permitted limit, and 12 times the emission charges for the emissions without permit.

c. Western European countries: Denmark — SO₂ tax levied either on energy products (product tax based on sulphur content of the fuel) or emission tax (ET) (levied on actual SO₂ emissions); France: installations (power stations and waste incineration plants) exceeding 20 MW are subject to the taxes; Italy: large combustion plants with nominal power exceeding 50 MW are subject to the taxes; Spain (regional taxes implemented in autonomous region of Galicia): actual tax rate depends on total amount of polluting substances — rates are given for more than 50,001 tonnes of pollutant substances released per year; Sweden: sulphur tax rate presented above is for coal and other solid fuels.

Romanian non-compliance fees go into the central budgets. Because of the direct link between pollution charges and the environmental financing system in these countries, pollution charges play a fundamental role in environmental policy and in implementing the PPP.

Furthermore, emission charges ranging from 0.5 EUR/tonne (Estonia) to 23.4 EUR/tonne (Slovakia) are levied on carbon monoxide (CO) emissions in five CEECs (see Annex 1). Other key pollutants subject to air emission charges/non-compliance fees include solid particles and heavy metals. This situation attracts some attention when compared with development in EU member states, where emission taxes are only introduced in five countries including an autonomous region in Spain. However, the assessment of the effectiveness and efficiency of these instruments in CEE is complex, as their administration is less optimal in certain cases. Among other factors, this situation is due to the large number of chargeable pollutants and exemption schemes available for polluters.

While charge rates in CEECs are, generally speaking, too low to produce an incentive effect, it should be noted they are comparable to the rates in Western European countries in some cases (see Table 5.1). Penalty rates play an additional incentive role to reduce emissions to, or below, permitted levels. Charge rates were increased in a number of countries over the recent years — most notably in Slovakia — where the SO₂ rate was doubled from 1,000 SKK/tonne (22.7 EUR/tonne of SO₂) in 1999, to 2,000 SKK/tonne (46.7 EUR/tonne SO₂) in 2000. The NO_x charge rate was increased from 18.2 EUR/tonne in 1999, to 35 EUR/tonne in 2000 — an increase of more than 50 percent.

The comparison of the rates applied in CEECs with the situation in the EU member states shows that the Polish and the Lithuanian charge rates in particular are higher than charge rates in France, Italy and Spain. In the context of transition economies, these charge rates are high enough to play an incentive role in reducing air pollution. The tax rates in the Scandinavian countries (shown in Table 5.1) are still significantly higher, but they are rather exceptional as there is only a limited number of EU member states that have introduced any specific economic instruments for air pollution.

Changes introduced in the emissions charging scheme in Slovakia (effective from January 2000) are of some interest, especially when considering the incentive function of pollution charges and their possible impact on industry's competitiveness. Under the new scheme, large and medium pollution sources are classified into two groups, dependent on whether they are able to meet emission limits after January 1999. All emissions generated by polluters unable to comply with the emission standards²⁵ due to their technical status are subject to a progressive multiplier, which increases dramatically after 2004. On the other hand, a multiplier of four is applied to pollutants coming from the sources able to meet the emission limits only in cases of excess emissions. The scheme also allows for the adjustment of charges for inflation, and envisages the introduction of emission quotas for SO₂ (after 2003) and NO_x (Annex 1 and Thalmeinerova-Jassikova 2000).

In Hungary the energy and transport sectors have been identified as heavy emitters of SO₂, NO_x, CO and solid particles. While taxes on these emissions have been foreseen in the 1995 Act on Environmental Protection, the Ministries of Environment and Finance have not been able to agree on the allocation of revenues from such taxes. Because of the lack of agreement on the issue the taxes have not been implemented (Zalatnay 2000), although Hungary did introduce a fine system to enforce compliance with emission standards. Bulgaria has also set a system of penalizing air emissions above the permitted level, and levying charges on fuel products. Furthermore, non-compliance fees for sulphur content of diesel are in place in Romania, with the aim of stimulating producers to comply with a lower (0.2 percent) sulphur content.

These are only a few examples of the ongoing attempts to increase the environmental effectiveness of air emission charges throughout the region; other efforts include a reduction in the number of chargeable pollutants, an increase of rates and introduction of new charges.

5.2 CO₂ TAXES/CHARGES

Economic instruments levied on carbon dioxide are not as widespread as other emission charges in CEECs. In 1997, Slovenia introduced the first non-earmarked CO₂ tax in the region. The tax applies to all liquid fuels based on their carbon content, and its extension to coal used for electricity production is planned for 2004. Introduced at a rate of 2.2 SIT/litre (0.01 EUR/l) of petrol, 2.6 SIT/l (0.01 EUR/l) of diesel, and 3.1 SIT/l (0.02 EUR/l) of heavy

fuel oil, the tax was tripled in 1998. The current tax rate is equivalent to about 14 EUR/tonne of CO₂, and the tax raised EUR 77.9 million in 1999, representing an additional 30 percent of the revenue generated by excise taxes. The Slovenian rate of about 14 EUR/tonne of CO₂ is in the same range as the CO₂ taxes implemented in Denmark (13.4 EUR/tonne of CO₂) and Finland (17.1 EUR/tonne of CO₂).

Poland has also listed CO₂ as a chargeable pollutant, but low charge rates (0.045 EUR/tonne of CO₂) have rendered the instrument ineffective for CO₂ emission control. A new economic instrument aimed at limiting CO₂ emissions — a CO₂ emission charge on combustion plants — was introduced in Estonia in 1999. The charge was being phased in (0.32 EUR/tonne of CO₂ in 2000, and 0.48 EUR/tonne from 2001), and is levied on pollution sources where power of combustion plants exceeds 50 megawatts (the charge is not applied to combustion plants using renewable resources). Polluters liable to this charge pay EUR 0.8576/kilolitre of diesel or petrol, or EUR 0.063/1,000 cubic meters of natural gas (BEF 2000). This instrument is the first CO₂ related instrument to be applied in the energy-producing sector in the region.

5.3 CONCLUSIONS

The use of economic instruments to control air emissions varies between CEECs and EU Member States. Taxation schemes for SO₂ and NO_x air emissions have been implemented in many countries in CEE. This largely reflects the priority environmental policy goal of improving local air quality throughout the region over the past decade, and the need for earmarked funds for environment-related investments. These charges have generated substantial revenues earmarked for environmental funds and play an important role in financing environmental investments in the region. There have been relatively few CO₂ related taxes and charges in the region. Exceptions include Slovenia, which introduced a tax on liquid fuels in 1997, and Estonia, which introduced a charge on CO₂ emission from large power plants recently.

The introduction of SO₂ and NO_x emission taxes in Western Europe is more limited when compared to CEE, but CO₂ taxes have been introduced in a range of countries during the 1990s, namely in Denmark, Finland, Norway, Sweden and the Netherlands. These taxes are not earmarked for environmental investments and are representative of the fact that the reduction of CO₂ emission is very high on the political agenda in many Western European countries. All of the EU member states and CEECs (with the exception of Albania, Bosnia and Herzegovina, FYR Macedonia and Yugoslavia) have assumed reduction obligations under international agreements (targets under the Kyoto Protocol on Climate Change). Depending on the future of international cooperation for reducing global CO₂ emissions, CO₂ reductions may become increasingly important in the region.

6. Vehicle Taxation in Central and Eastern European Countries

The revenue-raising potential of vehicle taxation is of great importance considering that more than 90 percent of all revenues generated by environment-related taxes are being raised by motor fuel taxes and motor vehicle taxes in OECD countries (Braathen 2000). Table 6.1 shows that vehicle taxation is widespread in the region. However, there is no unique scheme adopted in the countries covered in this study and taxes range from import, sales and excise taxes, to annual vehicle taxes (including registration charges and road charges) and toll roads (road pricing).

Some of the vehicle taxes implemented in the region reflect environmental concerns. Sales and import taxes are, for example, reduced for cars equipped with catalytic converters in Hungary. In a number of other countries, there is a differentiation of sales/import taxes dependent on the age of the vehicle. Annual vehicle taxes are usually differentiated according to the engine capacity and/or weight of the vehicles, which can be considered as a proxy for their environmental impact. Excise/sales taxes on vehicles have been introduced in eleven of the CEE countries, sometimes at a level that has a significant impact on car sales. In Poland for example, the significant increase of excise tax rates (from 2.3-11.1 percent in 1999, to 6.4-17.6 in 2000) is viewed as one of the reasons for a considerable drop in car sales last year. In 2001, the Polish vehicle excise tax will again be increased. Another aspect of regional policies on the sales of vehicles is worthwhile to mention: the import of old vehicles is banned in some countries (for example Hungary, Slovakia and FYR Macedonia, Yugoslavia). Such a ban is important from an environmental point of view because older vehicles generally have a bad environmental performance.

Further examples of environment-related vehicle taxation could be found throughout the region, although the question of their effectiveness remains open. In the year 2000, Poland imposed a company car fee linked to the fuel consumption rate, but due to poor enforcement, collected revenues were negligible. In Bulgaria, there is a 50 percent reduction in the annual vehicle tax for buses and trucks with environmentally friendly motors, and a similar scheme is applied in Hungary. A constituent part of the vehicle registration fee in Bosnia and Herzegovina is a water protection fee, the revenue of which is transferred to the public water management agency.

The introduction of road pricing via toll roads can also be found in several countries. The revenues generated from these tolls are often used for road infrastructure programmes. In Albania, Hungary and Lithuania, special road use taxes are levied on vehicles registered in other countries. Lithuania also levies additional road taxes for vehicles exceeding standard dimensions.

The latest development in the vehicle taxation scheme in Romania deserves some attention, as the annual vehicle tax is now based on the pollution category of the vehicle. The Romanian Auto Register determines pollution category — low, normal or high — for all vehicles, based on regular annual or bi-annual vehicle check-ups (Popovici 2000). Tax rates are then differentiated based on the pollution category — a scheme that clearly has environmental advantages over vehicle taxation that only indirectly reflects environmental concerns. However, this scheme is not being applied in other CEECs for the time being.

The linking of vehicle taxation to their environmental performance (e.g. pollution category) is on the political agenda in some EU member states, for example Austria, Denmark and Germany, and will be introduced in the UK in 2001 (EC 2000a). Moreover, differentiation of annual vehicle taxes based on the type of fuel (petrol vs. diesel), which is applied in Western European countries, is not a practice found in CEECs.

The transport sector represents a growing environmental concern in the region, and it is recognised that motor vehicle taxes could, in principle, induce a shift to less polluting vehicles (Nordic Council of Ministers 1999). A number of opportunities remain for the applica-

TABLE 6.1

Vehicle Taxation in CEE Countries

Country	Sales/excise tax	Import tax ²⁶	Annual vehicle taxes	Toll roads	Other/comments
Albania	-	Depending on the engine capacity and the use of the vehicle (EUR 299-374)	Annual vehicle tax - differentiated according to engine capacity and carrying capacity (EUR 37-172); Registration charge	-	Additional tax is levied on foreign vehicles (1.08 EUR/day).
BiH	Sales tax: 20% of the value of the vehicle	10-17% of the value of the vehicle, depending on the age and the use of the vehicle	Registration charges differentiated according to engine capacity (EUR 27-703)	-	Sales tax reduced to 7% for domestic cars. Part of the registration charge (water protection fee ranging EUR 10-82) earmarked for water management.
Bulgaria	Sales tax: 2% of the value of the vehicle Excise tax: 40% of the vehicle value	5-25% of the value of the vehicle, depending on the engine size	Annual vehicle tax - differentiated according to engine capacity (0.05-1.05 EUR/kWh) and number of seats (for buses); Registration charge	-	50% reduction in vehicle annual tax for buses and trucks with environmentally friendly motors.
Croatia	Sales tax: 5% ^a Progressive excise tax rates, depending on the value of the vehicle	10% of the value of new cars 12% of the value of old cars	Tax on motor vehicles (EUR 10-102); Public roads use charge depending on engine power, or total weight for lorries	Road toll depends on the type/weight of the vehicle (0.78-3.25 EUR/drive)	Special purpose vehicles (such as fire-fighting cars) are exempt from the public road use charge.
Czech Republic	-	-	Road tax differentiated according to engine capacity and weight (EUR 34-1,142)	Depending on the weight of the vehicle (22-336 EUR/year)	Road tax levied on commercial vehicles. Public and combined transport and electric vehicles exempt from road tax.
Estonia^b	Excise tax depending on the type of motor, engine capacity and the age of the vehicle	-	Registration charge	-	Tax exemptions for pensioners, disabled persons, and families with 3 or more children.

Source: Annex 1

Symbols: n.a. = data not available; - = no tax/charge

TABLE 6.1

Country	Sales/excise tax	Import tax ²⁶	Annual vehicle taxes	Toll roads	Other/comments
Hungary	Sales tax: Motor<1600cm ³ - with catalytic converter: 10% of customs values - no catalytic converter: 32% of customs value Motor>1600cm ³ - with catalytic converter: 20% of customs value - no catalytic converter: 32% of customs value	Car<4 years: - with catalytic converter: 13% of customs value - no catalytic converter: 18% of customs value Car>4 years: - with catalytic converter: 43% of customs value - no catalytic converter: 48% of customs value	Annual vehicle tax based on the weight of the vehicle (0.023-0.038 EUR/kg)	Depending on the type of the vehicle (84-337 EUR/year)	Incentive for younger cars with catalytic converters; import of old cars banned. Additional taxes levied on foreign vehicles.
Latvia	Excise tax based on the age of the vehicle (EUR 134-446)	-	Annual vehicle tax based on the weight of the vehicle (EUR 13-178); Registration charge (EUR 2.5)	-	The highest excise tax rates applied to new and very old vehicles; lowest rates for 5-7 year-old vehicles.
Lithuania	Excise tax of 15% of the value of imported vehicles	5 to 10 year-old cars: 5% of the value of the vehicle Cars older than 10 years: 10% of the value of the vehicle	Annual vehicle tax depending on the class of vehicle (light duty, heavy duty, special road vehicles: EUR 27-270); Registration charge	-	Additional tax on the use of roads paid by vehicles registered in other countries and vehicles exceeding standard dimensions.
FYR Macedonia	Excise tax of 25% of the vehicle value	Rate depending on the age of the vehicle	Annual vehicle tax; Road charges	-	Sales of cars older than 6 years are banned.
Poland	Excise tax: Motor>2000cm ³ - 17.6% of the value of the vehicle Motor<2000cm ³ - 6.4% of the value of the vehicle	10% of the value of the vehicle (for cars imported from EU and candidate countries)	Annual vehicle tax applied to lorries and buses, based on load capacity (EUR 402-520); Registration charge applied to all the vehicles	Single use of the road: EUR 2 for cars, EUR 5 for trucks	Import duties vary according to country of origin (up to 35%). Annual vehicle tax is earmarked for environmental fund.
Romania	Excise tax, which is dependent on engine capacity and pollution level (high, normal, low)	20% of the retail price	Annual vehicle tax (EUR 15-45); Registration charge (EUR 20-40)	-	The Romanian Auto Register determines pollution category, based on annual or bi-annual vehicle check-ups.

Notes: a. For details, see Annex 1.

b. The city of Tallinn levies additional local vehicle tax (EUR 0.32/kW of engine capacity per year), used for road maintenance

TABLE 6.1

<i>Country</i>	<i>Sales/excise tax</i>	<i>Import tax²⁶</i>	<i>Annual vehicle taxes</i>	<i>Toll roads</i>	<i>Other/comments</i>
Slovakia	-	7% of the value of imported car	Commercial vehicles tax, differentiated according to engine size (cars: EUR 30-130; lorries EUR 42-1,490); Registration charges for all the vehicles	Annual fee differentiated according to engine size (EUR 9-19 for cars; EUR 70-140 for lorries)	Import of cars older than 5 years and with no catalytic converters is banned.
Slovenia	n.a.	n.a.	Registration charge	-	-
Yugoslavia	Sales tax: 17% of vehicle value	Depending on the engine capacity and age	Registration charge; Road taxes	Depending on the type of vehicle	Import of old vehicles banned recently.

tion of economic instruments to influence the number of vehicles on the road and the age and environmental performance of the car fleet.

The potential of integrating further environmental criteria is directly linked to changes in the taxation of motor fuels. Differentiation of motor fuel taxes based on environmental criteria — such as content of sulphur, benzene and phosphorous — is, for example, commonly applied in Scandinavian countries, as well as in Germany and Austria. The approach of tax differentiation could be a supporting instrument, as well as an alternative to regulatory measures, e.g. the maximum content of sulphur in motor fuels. If the tax differentiation is high enough, it could provide both producers and consumers with an incentive to switch over to more environmentally friendly motor fuels, and it could trigger a move to the implementation of new technologies to produce such motor fuels.

7. Economic Instruments in the Water Sector

7.1 INTRODUCTION

Several economic instruments are implemented in the water sector in CEECs. The objective for the implementation of these instruments is manifold and their function can range from cost-covering user charges to incentive taxes. Wastewater charges can be classified as a type of economic instrument belonging to the latter category and they are the focus of Chapter 7.2. Chapter 7.3 examines water abstraction charges, which are common throughout the region. Cost-covering user charges for the supply of drinking water and for the service of sewerage are the theme of Chapter 7.4. Comparison between CEECs and other European countries are made throughout this chapter, and the need for further application of economic instruments in the water sector based on the requirements of the recently adopted Water Framework Directive is discussed in Chapter 7.5.

7.2 WASTEWATER CHARGES

Wastewater charges — sometimes also referred to as trade effluent taxes or charges — and/or non-compliance fees have been introduced in all of the 10 CEECs aiming to join the EU. Basic charge are normally linked to key pollutants and their permitted levels in the effluent, while the usual base for non-compliance fees is violation of the law, i.e. discharge above the permitted level, or illegal discharge. This system is not exclusively used in these 10 countries but also, for example, in Croatia.²⁷ The schemes implemented in CEECs have similarities to the taxation of air emissions in the sense that a charge with a lower rate is levied on emissions under the permitted level, and a higher penalty rate is levied on the emissions exceeding the permitted level. In recent years, the trend in water pollution charges in CEE has been the reduction of the number of chargeable pollutants, and the gradual increase of charge rates. As Table 7.1 shows, revenues generated by this type of charges are generally earmarked for environmental investment measures; administrators of environmental funds are the key authorities in charge of disbursing the revenues.

Exceptions to this pattern (basic charge and non-compliance fee) are found in Hungary and Bulgaria, where only non-compliance fees are levied for discharges above the permitted level, and in the Czech Republic, where charges are levied on pollution above a certain level. The Czech Republic also levies charges on the quantity of wastewater — once the discharge exceeds 30,000 cubic meters a year. The base for the wastewater tax in Slovenia is a unit of pollution (defined as a quantity of the given pollutant — e.g. three kilograms of phosphorus; 25 kilograms of nitrogen), and emission standards. The scheme of taxes and charges implemented in the water sector in CEECs shows similarities with the schemes adopted by EU member states (RIZA 1995).

In the case of discharge through the sewage system, wastewater charges are normally determined through individual contracts between the polluters and the wastewater companies. Exceptionally, Romanian environmental regulators determine wastewater charges for the discharge through the sewage system, even though local water companies collect the revenues.

In a number of countries, wastewater charges and/or non-compliance fees are calculated based on formulas developed to link the level of charge to the pollution load, level of hazard of the given pollutant, sensitivity of the recipient water bodies, duration of the discharge/pollution, etc. Although it is difficult to compare the level of charges in different countries (due to diverse charge schemes and lists of pollutants), a brief assessment shows that the highest rates for the key pollutants (biological oxygen demand, lead, nitrogen) can be found in Slovenia, the Czech Republic, Poland and the Baltic countries. Charges levied on

TABLE 7.1

Wastewater Charges in CEE Countries (situation 2000)

Country	Wastewater charge	Tax base	Use of revenue
Albania^a	SR	SR	SR
BiH^b	SR	SR	SR
Bulgaria	NCF for pollution above the permitted levels	Pollutants and/or volume of wastewater	National and municipal environmental funds
Croatia	Charge and NCF	Volume and quality/usability of wastewater	Water Management Agency
Czech Republic	Charge above certain pollution limits	Pollutants (COD, mercury, cadmium, etc.) and volume	Environmental fund
Estonia^c	Charge and NCF	Pollutants: BOD, suspended solids, phosphorous, nitrogen, etc.	Central budget — earmarked for environmental measures
Hungary	No charge but NCF	Toxicity, volume and quality of the effluent, and location	Central budget — earmarked for environmental measures
Latvia^d	Charge and NCF	Hazard category of the effluent	National and municipal environmental funds
Lithuania	Charge and NCF	Pollutants: BOD, suspended solids, etc., and environmental damage (for NCF)	Environmental funds (municipal and national) and central budget (10%)
Macedonia^e	SR	SR	SR
Poland	Charge and NCF	Pollutants: BOD, COD, suspended solids, etc.	Environmental funds
Romania	Charge and NCF	Pollutants/categories of pollutants for direct discharge, and volume of wastewater in the case of indirect discharge	Central budget — revenue earmarked for water fund; local water companies (in case of indirect discharge)
Slovakia	Charge and NCF	Pollutants: BOD, inorganic salts, etc.	Environmental fund
Slovenia	Tax	Unit of pollution	Central budget
Yugoslavia^f	SR	SR	SR

Source: Annex 1

Symbols: NCF = non-compliance fee; SR = country specific regulations

a. Albanian legislation only envisages fines for the violations of the Law on Water Reserves, which, among others, includes illegal discharges of wastewater.

b. Water protection charge for 1 population equivalent, based on the average 24 hours discharge of wastewater, and the number of inhabitants; revenue of the local and central budgets in the Federation of Bosnia and Herzegovina, and the Ministry of Water Management in the Republic of Srpska.

c. Non-compliance fee is 10 times higher than the charge rate for discharge above the permitted level, and 15 times higher for the discharge without permit

d. Rate of the NCF is three times the rate of the wastewater charge for exceeding the permitted level, and 12 times the rate for illegal discharges or non-reporting.

e. For violations of the Law on Environmental Protection, one-off fines of EUR 2,471-4,942 may be levied.

f. So called "water protection charge" is levied when the wastewater exceeds defined quality standards; level of the charge depends on the source (type of industry or municipal sources), class of recipient, and the level of the wastewater treatment.

TABLE 7.2

Water Effluent Charge Rates (EUR per tonne) in Selected CEE and EU Countries (situation 2000)

<i>Pollutant</i>	<i>Czech Republic^a</i>	<i>Estonia</i>	<i>Lithuania</i>	<i>Poland</i>	<i>Slovenia^b</i>	<i>Romania</i>	<i>Latvia</i>	<i>Denmark</i>	<i>Germany</i>
Phosphorus	1,960	216.6	404.3	n.a.	5,783	43.6	53.6	14,620	46,000
Nitrogen	1,120	130.3	118.9	n.a.	694	43.6	53.6	2,660	1,900
Suspended Solids	n.a.	72.7	23.5	82.4	n.a.	2.7	17.9	n.a.	n.a.
BOD₇	n.a.	143.8	132.4	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
BOD₅	n.a.	n.a.	n.a.	960	n.a.	10.9	n.a.	n.a.	n.a.

Source: Annex 1; BEF 2000

Symbols: n.a. = data not available

Notes:

a. Charges levied above certain pollution level.

b. Rates recalculated from the pollution tax of EUR 17.35 /unit (SIT 3,600 /unit).

the effluent water in Slovakia are based on formulas and are not readily comparable with other countries of the region. However, when compared with Western European countries, charges per tonne of pollutant in the CEECs are quite low.

The situation regarding the level of charges is the least favourable in the countries of South Eastern Europe, where the economic situation often acts as an obstacle in setting the wastewater charges at a higher level. Hence the actual charges are not sufficient to perform even the cost-recovery function. In Croatia, for example, the level of the basic tariff for water protection charge has been estimated as four times lower than the actual costs of wastewater treatment (REC 2001b).

In the countries in advanced transition, implementation of the PPP is gradually being secured through the continuous increase of pollution charges. Slovenian water effluent tax, for example, has risen significantly during recent years — from SIT 2,100 (EUR 11.3) in 1998 to SIT 3,600 in 2000 (EUR 17.4), and is planned to rise further to SIT 4,600 (EUR 23.7) in 2001. Water effluent charges in Estonia have, on average, risen by 20 percent in 2000 in comparison with the previous year. According to the new proposal on wastewater charges in Slovakia (expected to be passed in 2001), a significant increase of rates is envisaged. Another frequent measure to increase the environmental effectiveness of the charges (beside the rate increases) is the adjustment of basic rates in order to reflect the environmental damage. Water effluent charges in Poland are thus adjusted depending on the source of effluent, through the correction factors that vary from 0.2 to 2.5 (the more environmentally damaging the source, the higher correction factor). Similarly, wastewater charges in Estonia are adjusted to reflect the sensitivity of the recipient waters (the range of correction factors is 1.2-2.5). The Estonian scheme also allows for the reduction of basic charges if compliance with effluent standards is achieved before the set deadlines, or when the wastewater has better indicators than the prescribed ones. The high environmental effectiveness of non-compliance fees (in bringing the pollution down to the permitted level) has been observed in a number of countries, as collected revenues remain on a relatively low level.²⁸

As the charge rates increase, not only that the PPP is implemented, but the charges start playing an incentive role and trigger pollution abatement measures. As a result, environmental benefits and reduced water pollution are observed in a number of accession countries (BEF 2000). So far, no information has been provided by the national experts indicating that the wastewater taxes and charges had a negative impact on the competitiveness of industry in the region.

7.3 WATER ABSTRACTION CHARGES

Water abstraction charges are implemented in nine out of the 10 EU accession countries. In some of these countries, exemptions from the water abstraction charges on various grounds are quite common, the most illustrative example being the Czech Republic where the charge is not paid for around 90 percent of abstracted ground water. Table 7.3 gives an overview of the water abstraction charges levied throughout the region, based on the source of water and its use.

Revenues generated from water abstraction charges are mainly earmarked for environmental funds and/or river basin authorities, and therefore regularly used for investments in infrastructure. As previously mentioned, environmental policy and the needs for environmental investments, are driven by the EU accession process and the compliance with the EU directives (see Chapter 10 for a more detailed discussion). There is no evidence, however, that the water extraction charges in the region are set on a level that could provide an incentive for rational water use/abstraction.

Water abstraction taxation is not so commonly used in EU member states. It is also noteworthy that the rates of water abstraction taxes in the countries that have implemented such a tax are quite different (EC 2000a). For example, the rate of the Danish tax on tap water is 0.67 EUR/m³, and only households are liable for paying this tax. The tax on groundwater in the Netherlands distinguishes between two usages: the rate for drinking water companies was 0.16 EUR/m³, and for other industries 0.12 EUR/m³ in 2000.

7.4 WATER AND SEWAGE USER CHARGES

All CEECs levy water user charges. User charges for sewage treatment are in place in all the countries of the region except Albania. Water user charges are either based on the metered consumption of water or on the estimated consumption in cases when metering equipment is not available, and in some countries they include sewage treatment charges. The level of these charges varies widely not only across the region, but also across individual countries and types of users (households and industry), as they are often determined on the regional or local level. There are no examples of progressive charging schemes aimed at providing incentives for reduced water consumption.

While the privatisation of the water sector is ongoing, the most frequent form of ownership of water and sewage infrastructure in the region is either municipal or mixed state-municipal ownership. Subsidies still play an important role in the area of water pricing. In Hungary, for example, the central budget provides subsidies to water and sewage service providers in order to keep the prices for population below the level of 0.81 EUR/m³ and 0.61 EUR/m³ respectively. Water supply in Bulgaria is subsidized from the central budget, the national environmental fund and municipal budgets. The Lithuanian State Pricing Commission has the competence to coordinate water charges proposed by service providers, and the government regulates water prices for households in Slovakia (prices for commercial users are subject to agreement between the supplier and the user). Furthermore, the practice of cross-subsidisation between the different types of users is still present throughout the region. With the exception of Romania, prices for water supply and sewage treatment for households are cross subsidised by other users (mainly industry) in all of the accession countries (EC 2001c).

Although water charging schemes in different countries are not readily comparable (due to regional variations, varying shares of metered water consumption, etc.), a comparison of the CEE water charges (particularly those in the accession countries) and the charges in EU member states outlines two likely developments. First, a substantial increase in water use related charges — which would bring them closer to the level of full cost-recovery and raise revenues for further investment in the field — can be expected in the coming years. Second, elimination of subsidies and cross-subsidies, which act in contravention to the polluter/user pays principle, can be expected, once again increasing the costs borne by the end users, who are currently benefiting from the subsidies. It should be pointed out that these changes would take place in the context of already rapidly increasing water prices — in Slovakia alone the water user charge increased more than 70 percent over the last two years, while the sewage treatment charge increased close to 60 percent. Although the increase was the most dramatic in Slovakia, it is also present in other countries of the region.

TABLE 7.3

Water Abstraction Charges Implemented in CEE Countries

Country	Water abstraction tax/charge Water source	Tax rates (2000)
Albania	-	-
BiH^a	All sources	0.007-0.05 EUR/m ³ , depending on the use of water
Bulgaria	-	-
Croatia	All sources	0.042-0.104 EUR/m ³ , depending on water category 0.208 EUR/m ³ for mineral/thermal water
Czech Republic^b	Surface water Ground water	0.04-0.07 EUR/m ³ 0.056 EUR/m ³
Estonia	Surface water Ground water	0.0013-0.016 EUR/m ³ , 0.016-0.048 EUR/m ³ , depending on water source and use of water 1.147 EUR/m ³ for mineral water
Hungary^c	All sources	0.007-0.02 EUR/m ³ , depending on use
Latvia	Surface water Ground water	0.004 EUR/m ³ 0.009-0.018 EUR/m ³ , depending on use 0.179-0.357 EUR/m ³ for mineral water
Lithuania	Surface water Ground water	Up to 0.0016 EUR/m ³ , depending on use 0.01 (households)-0.024 EUR/m ³ (industry) 1.41 EUR/m ³ for mineral water
Macedonia	n.a.	n.a.
Poland	Surface water Ground water	0.0293 EUR/m ³ 0.0923 EUR/m ³
Romania^d	Surface water Ground water	0.0006 (Danube)-0.009 EUR/m ³ 0.0073-0.0084 EUR/m ³
Slovakia^e	Surface water Ground water	0.047 EUR/m ³ 0.023 EUR/m ³ for public water supply and 0.047 EUR/m ³ for other uses
Slovenia	All sources	0.03 EUR/m ³
Yugoslavia	n.a.	n.a.

Source: Annex 1 and EC 2001c

Symbols: n.a. = data not available; – = no tax/charge

a. Water abstraction charging differs in the Federation of Bosnia and Herzegovina and in the Republic of Srpska; the range presented in the table refers to both entities.

b. Charge rates applied for the extraction of water above "no-cost" levels (15,000 m³/year or 1,250 m³/month); water extracted for public water supply is not subject to charge.c. Above charges apply to legal holders of water extraction rights; when water is extracted without a permit, the charge rate of 0.042 EUR/m³ is applied.

d. Above rates refer to water extracted for domestic and industrial use; rates for agriculture are much lower.

e. Charge rates applied for the extraction of water above "no-cost" levels (15,000 m³/year or 1,250 m³/month); extraction charges are levied on public water supply since 1996.

The costs of EU accession, i.e. compliance with relevant EU legislation, are of particular interest for the accession countries. Requirements related to collection, treatment and discharge of urban wastewater (and wastewater from certain industrial sectors) are set in the Directive 91/271/EEC. In order to comply with these requirements (and other requirements set by different water directives), the accession countries will need to make substantial investments. Priority areas for these investments are further development of the sewage network and sewage treatment plants (in Hungary, for example, 57 percent of the population is currently connected to the public sewage system and only 34 percent to wastewater treatment plants [EC 2001a]) and compliance with drinking water quality standards. In CEE and EU countries, investments in new waterworks and sewage treatment facilities are often sub-

TABLE 7.4

Prices for Water and Sewage Services in Selected European Countries (in EUR/m³, situation 2000)

Country	Households		Industry	
	Supply	Sewage	Supply	Sewage
Albania	0.11-0.2	-	0.52-0.64	-
BiH	0.1-0.61	Inc. in water price	0.26-1.53	Inc. in water price
Bulgaria^a	0.18-0.87	Inc. in water price	0.27-0.92	Inc. in water price
Croatia	0.32-1.1	Inc. in water price	0.64-1.6	Inc. in water price
Czech Republic^b	0.92	Inc. in water price	0.92	Inc. in water price
Estonia	0.26-0.53	0.24-1.06	0.26-1.02	0.22-1.8
Hungary	0.1-1.01	0.09-1.52	0.24-1.03	0.18-3.46
Latvia^c	0.14-0.52	0.2-0.52	0.14-1.79	0.43-2.04
Lithuania	0.24-0.75	0.24-1.22	0.24-1.05	0.36-2.16
Macedonia^d	0.24	Inc. in water price	n.a.	n.a.
Poland^e	0.43	0.35	0.55	0.5
Romania^f	0.11	0.015	0.028	0.015
Slovakia	0.23	0.14	0.47	0.28
Slovenia^g	0.13-0.87	0.024-1.63	0.22-1.47	0.041-2.52
Yugoslavia^h	0.04-0.19	0.008-0.086	0.32-0.59	0.063-0.36
EU MEMBER STATES				
Austria (1997)	1.8	2.7		
Denmark (1997)	0.47	1.57		
Germany (1998)	1.62	2.23		

Sources: Annex 1; EC 2000a; EC 2001c

Symbols: – = no charge; n.a. = data not available

Notes:

a) Sewage charge accounts for 18 percent of the water consumption charge.

b) Average across the country and across different users.

c) Prices valid in 1999.

d) Price valid for the capital Skopje in 2000 (Ivanova 2001); average sewage charge in 1999 was 0.08 EUR/m³.

e) Weighted average from 10 largest cities in Poland.

f) Average charges across the country; under water supply, rates refer to potable and industrial water respectively. Charge for sewage is an average across users.

g) In Slovenia, two charges are levied on wastewater: wastewater treatment charge and sewage charge. Wastewater treatment charges are only paid by the users that discharge wastewater into the sewage system connected to wastewater treatment plants (direct dischargers). The above range is a sum of the two charges. Sewage charges are alone in the range of 0.01-0.99 EUR/m³ for households, and 0.017-1.59 EUR/m³ for industry.

h) Data from 1998 available in USD; exchange rate EUR 1 = USD 1.12109

sidised from sources other than user charges, and it is a common assumption that these investments in the accession countries will take place with high involvement of public resources and international assistance (EC 2000c).

Table 7.4 shows that the user charges (prices paid for water and sewerage by households) are lower than in the Western European countries listed. But it should be noted that the comparative charges are based on using the market exchange rates between national currencies and the euro. As discussed in Section 4.2, the use of exchange rates is biased and the actual financial burden is higher. To get a better picture of the actual financial situation the population faces in the region regarding the water bill, an analysis of the amount households have to pay for these services expressed in the share of total income has to be carried out. For example, low-income households are paying up to nine percent of their monthly income for water services in Tallinn, Estonia (Kraav 2000). Furthermore, Kraav reports that the application of full cost recovery principle would lead to a dramatic increase in the monthly costs for water supply and sewerage with the result that an average household would have to pay 8.3 percent of monthly income instead of the current 2.2 percent (Kraav 2000).

However, compensation/mitigation strategies could be established in CEECs based on experiences drawn from EU member states. Schemes similar to the setting of water tariffs in Southern European countries, where the tariff increases proportionally to the amount of water consumed²⁹ could be implemented (OECD 1999d and 1999e), or a tax-free supply of a given quantity of water could be established.³⁰

7.5 CONCLUSIONS

Demand for water has decreased quite dramatically in several CEECs over the last decade. A recent study reports an annual decrease of up to 15 percent in Bulgaria and 20 percent in Lithuania (EC 2001c). At the same time, user charges for water services have increased throughout the region. However, full cost recovery via the user pays principle has not been achieved. Operation and maintenance (O&M) costs are generally covered by the charges paid by households in the 10 accession countries but the coverage of capital costs is either not achieved (for example Bulgaria), or is achieved partially (Hungary and Poland) (EC 2001c).

The cross-subsidisation of households by other water users (industrial sector) is still very common in the region, and the agricultural sector is probably the main beneficiary of cross-subsidisation in several CEECs. A recent study examining the current practice in agricultural water pricing concludes that the price of water for irrigation purposes is supported by as much as 70 percent in Slovakia via the provision of direct subsidies (REC 2001c). The same scheme of direct subsidies is also implemented in Bulgaria. A cross-subsidisation scheme for water usage for irrigation is applied in Romania by "setting the price of irrigation water at a lower level than of water for industrial use" (REC 2001c, p.32).

Water policies in EU member states as well as in CEECs are heavily influenced by the recently adopted Water Framework Directive (COM(2000)60/EC) (REC 2001b). The general purpose of the WFD as stated in Article 1 is "to establish a framework for the protection of inland surface waters, coastal waters and groundwater." The directive implicitly stresses the need to achieve the environmental objectives in a cost-effective manner by using economic principles, approaches and instruments as key elements. Furthermore, the PPP has to be kept in mind as the underlying principle when this directive is implemented. The adoption of this directive will generally revise the existing scheme of establishing water pricing policies, because an assessment of the full cost recovery principle distinguishing between all water services provided by the main water users (households, industry and agriculture) is required, by taking into account not only financial but also environmental and resource cost aspects. This measure will certainly lead to changes in water policies adopted in many countries because of the objective of correctly defining the water pricing policies by considering social, environmental and economic effects of cost recovery issues.

The reform of water-pricing policies is therefore one of the basic instruments and is a component of the so-called "programme of measures" mentioned in the directive. It is expected that, in particular, the incentive function of economic instruments will be considered during the reform of water policies. Social aspects have to be kept in mind during the reform process of the revision of water prices, as the above-mentioned Estonian example clearly demonstrates.

8. Economic Instruments in the Waste Sector

8.1 INTRODUCTION

The development and use of economic instruments in waste management are being increasingly influenced by EU legislation, especially in the 10 candidate countries. Waste management policies dealing with specific environmental and natural resource issues are based on a combination of various instruments, such as regulatory measures and economic instruments. A recent study has found that in OECD member countries, "Regulations in place undermine the effectiveness of economic instruments, or at least render them irrelevant. This is particularly notable in the field of waste policy, where quantitative targets for the share of waste to be recycled, incinerated or landfilled, and regulations which embody the concept of extended producer responsibility can prevent households and firms from responding fully to the incentives provided by waste taxes" (O'Brien and Vourc'h 2001, p.47).

Quantitative targets are provided, for example, in the case of the EU Packaging and Packaging Waste Directive, (94/62/EEC) and the EU Landfill Directive (1999/31/EC). Some of the Candidate Countries have already transposed EU legislation in the field of waste management policies into national law (REC 2001d). The problems that may arise from combining regulatory measures with economic instruments are outside the scope of this report, but it is worth pointing out that environmental policy cannot rely exclusively on economic instruments, and that "regulation will always be a necessary component for environmental policy for a wide range of issues" (O'Brien and Vourc'h 2001, p.47).

Various waste management schemes are applied throughout the region, and Table 8.1 gives an overview of economic instruments implemented in the waste sector in CEECs. The following sections of this chapter discuss different instruments in more detail. Chapter 8.2 focuses on waste user and waste disposal charges. Waste related product charges and other economic instruments are analysed in Chapter 8.3 in a more detailed manner, and conclusions are drawn in Chapter 8.4.

It is noteworthy that nuclear waste charges are levied in a number of countries, such as Bulgaria, the Czech Republic, Hungary, Latvia and Slovakia, normally in the form of surcharges on electricity produced in nuclear power plants. Such a measure can also be found in the EU, for example in Finland. The revenues are channelled into special funds for the decommissioning of nuclear power plants and for nuclear waste management. A further interesting issue relating to Table 8.1 is the fact that several countries implemented a charge on ozone depleting substances (ODS), which shows some similarities to the situation in Denmark (EC 2000a).

8.2 WASTE USER AND WASTE DISPOSAL CHARGES

Waste charging schemes implemented in the CEECs vary, but are in principle implemented through waste user charges, and waste disposal charges or taxes. In some countries, waste user charges are set as flat annual/monthly rates (per household, inhabitant or surface of the building), while in others they are linked to the quantity of waste generated (see Table 8.2 below). The number of private companies in the waste management sector is increasing, but waste collection and disposal predominantly remains the competence of municipal/local authorities. Waste charges are therefore set and collected by either municipalities or service providers.

Several CEECs have introduced differentiated disposal rates for municipal, industrial and hazardous wastes, but the collection and separation of wastes still remains problematic, especially when considered in relation to the EU standards and targets. Recovery, reuse, and recycling are further areas in waste management where economic instruments are being increas-

TABLE 8.1

Overview of Economic Instruments in the Waste Sector in CEECs

<i>Economic Instruments</i>	<i>Alb</i>	<i>BiH</i>	<i>Bul</i>	<i>Cro</i>	<i>CR</i>	<i>Est</i>	<i>Hun</i>	<i>Lat</i>
User charge	User charge	User charge	User charge	User charge	User charge	User charge	User charge	User charge
Disposal charge								
– Municipal waste				Charge	Charge	Charge	Charge	Charge
– Hazardous waste				Charge	Charge	Charge, Va	Charge	Charge
– Non-hazardous waste				Charge	Charge	Charge	Charge	Charge
Waste batteries/accumulators			Pc		Take-back	Va	Pc	Pc
Waste oils						Pc	Pc	
Packaging waste					Va	Tax	Pc	Pc, Va
Waste paper and paperboard							Pc, Va	
Waste tyres			Pc		Take-back		Pc	Pc
Deposit-refund	Glass		Glass	Glass	Beverage containers		Beverage containers	Beverage containers
Nuclear waste			Charge		Charge		Charge	
ODS					Pc			Pc

<i>Economic Instruments</i>	<i>Lit</i>	<i>Mac</i>	<i>Pol</i>	<i>Rom</i>	<i>Sla</i>	<i>Sle</i>	<i>Yug</i>
User charge	User charge	User charge	User charge	User charge	User charge	User charge	User charge
Disposal charge							
– Municipal waste		Charge			Charge	Tax-Ud	
– Hazardous waste		Charge	Charge	Charge-Ud	Charge		
– Non-hazardous waste		Charge	Charge	Charge-Ud	Charge		
Waste batteries/accumulators	Pc-Ud				Pc	Rec	
Waste oils							
Packaging waste	Pc-Ud		Tax				
Waste paper and paperboard							
Waste tyres	Pc-ud						
Deposit-refund	Beverage containers	Glass	Beverage containers	Glass			
Nuclear waste	Charge						
ODS				Pc	Pc		

Source: REC 2001 and Annex 1

Symbols: Pc — product charge; Va — voluntary agreement; Ud — under discussion; Rec — separate collection and recycling scheme; ODS — ozone depleting substances.

Note: several countries have also implemented non-compliance fees, which are not covered in this table but are shown in Table 8.2 and in the annexes.

ingly applied in the region with varying success. In principle, rates of waste disposal charges paid by waste producers are not sufficient to provide an incentive for reduction of the waste streams, but are used as cost-recovery instruments. However, full cost-recovery and the full implementation of the PPP is only partially achieved. State subsidies in the waste management sector are still frequently reported, especially in the financing of waste disposal facilities.

Landfilling is the most common method of waste disposal in CEECs, while incineration of municipal solid waste is a disposal option used only in a limited number of candidate countries — Czech Republic, Slovakia, Hungary and Poland (REC 2001d). Landfills are often used for disposal of both municipal and industrial wastes, while in some cases even hazardous wastes are disposed of in the same sites as wastes from the other categories.

Waste disposal charges provided in Table 8.2 refer to landfilling of wastes, and are normally determined based on the quantity and category of wastes. In Estonia, these charges are differentiated according to the location and environmental quality of the waste disposal site. Similarly, landfill charges in Slovakia are differentiated by whether the given landfill meets the technical requirements or not, so that disposal of wastes into sub-standard landfills is more expensive. The Czech Republic, on the other hand, has entirely banned the landfilling of lead and nickel-cadmium batteries and tyres. In addition to the basic waste disposal charge, the Czech Republic levies a risk charge for hazardous waste, aimed at stimulating proper disposal. However, the potential of economic instruments in stimulating preferred disposal options is still not utilised in CEECs, and as mentioned above, the “best” combination of regulatory measures and economic instruments has still to be determined.

The situation is somewhat different in EU member states, where economic instruments often serve as a tool in achieving strategic waste targets such as reduction of the total amount of waste, minimisation of landfilling of biodegradable wastes, energy recovery, reuse and recycling, etc. Waste taxes have been introduced in most of the EU member states, and are usually differentiated by the type of waste and the type of disposal (EC 2001b). Lower dis-

TABLE 8.2

Waste User and Waste Disposal Charges³¹ (situation 2000)

Country	MUNICIPAL WASTE USER CHARGES			WASTE DISPOSAL CHARGE		
	Households	Other users	Charges set/ collected by	Muni- cipal	Non- haz- ardous	Haz- ardous
Albania	Flat annual rate (2.2 EUR/household)	Flat annual rates based on the source of waste (commercial, industrial users)	Municipality	-	-	-
BiH	Surface (m ²) or monthly rate per household (e.g. 0.02-0.08 EUR/m ²)	Surface (m ²) or monthly rate per user (e.g. 0.04-0.1 EUR/m ²)	Service providers/ municipality	-	-	-
Bulgaria*	0.1-0.4% of the property value (annual charge)	Number of containers and value of buildings	Municipality	-	-	-
Croatia*	Surface of residential premises (0.04-0.06 EUR/m ²)	Surface of commercial premises (0.03-0.15 EUR/m ²)	Service provider	1.43-38.3 EUR/tonne for different waste streams		
Czech Republic	11.6-23.2 EUR/t	-	Municipality	0.8 EUR/t	-	7 EUR/t (+ risk charge of 14 EUR/t)

TABLE 8.2

Country	Municipal waste user charges			Waste disposal charge		
	Households	Other users	Charges set/ collected by	Muni- cipal	Non- haz- ardous	Haz- ardous
Estonia*	9.55 EUR/t (average rate for households)	-	Waste management companies	0.12 EUR/t	0.06- 0.12 EUR/t ^a	0.19- 100.7 EUR/t ^a
Hungary*	Monthly charge per household (EUR 1.54-1.57)	6.8-25.2 EUR/t	Service provider	1.73-19.56 EUR/t for different waste streams		
Latvia*	15.7-38.6 EUR/t	15.7-38.6 EUR/t	Municipality	Wastes classified by toxicity; rates range from 1.8 EUR/t for non-toxic waste, to 357.2 EUR/t for highly toxic wastes		
Lithuania*	Per capita rate (0.03-0.8 EUR /person/ month)	Volumetric rate of 12.96 -21.64 EUR/t	Municipal or private companies	-	-	-
FYR Macedonia	0.01-0.05 EUR/ m ² of premises, plus 0.007- 0.009 EUR/m ² of yard	0.02-0.07 EUR/m ² of premises, plus 0.013 EUR/m ² of yard	Municipal or private companies	10.09 EUR/t; no differentiation of rates by waste streams		
Poland*	Volumetric charge (46.04 EUR/t) or flat rate (for multi-apartment buildings)	-	Service providers or municipalities	-	1.8-23.9 EUR/t, dependent on the level of hazard	
Romania*	Monthly per capita charge (0.75 EUR)	Volumetric rate of 50.12 EUR/t	Municipalities	-	Ud	Ud
Slovakia*	Based on the volume of containers, and their number at a given location	Charges approx. 30% higher than for households	Rates negotiated between service providers and municipalities	0.47 (7.01) EUR/t ^b	0.93 (11.2) EUR/t ^b	5.8 (81.8) EUR/t ^b
Slovenia	Volumetric charge (average 37.96 EUR/t)	Volumetric charge (average 47.32 EUR/t)	Service providers	Ud	Ud	Ud
Yugoslavia*	Size of the property	n.a.	Municipal companies	-	-	-

Source: Annex 1, REC 2001d

Symbols: Ud = under discussion; – = no charge; n.a. = data not available

Notes:

a. Rates are increased three times depending on the location of the dump, and are doubled if the disposal site does not meet environmental standards.

b. Higher rates (in brackets) refer to landfills that do not meet technical requirements; rate for disposal of “organic matter” is 0.02 (0.07) EUR/t.

Countries marked with * also implement non-compliance fees; in Hungary, non-compliance fees are for hazardous wastes only; in Lithuania, non-compliance fees are based on the level of toxicity.

positional rates are more often applied to incineration than to landfilling, and to incineration with energy recovery rather than to a standard incineration (in Denmark, for example; EC 2000a). Furthermore, waste tax exemptions are applied in a number of countries in order to stimulate preferred disposal options. The level of the charges for municipal waste management varies from 6–15 EUR/tonne in Greece and Portugal, to more than 100 EUR/tonne in France. Municipal waste user charges are set per household in some of the EU countries — 102 EUR/household/year in Sweden, and EUR 182 in Denmark (EC 2000a and REC 2001d).

In order to comply with EU waste management policies, a further increase of user charges and restructuring of the charging schemes are expected, first of all in the candidate countries. A recent study analysing waste management policies in CEE summarises the requirements for the accession process as follows (REC 2001d):

1. proper implementation of the PPP through setting user charges on cost-recovery level;
2. substantial increase of landfilling charges and the differentiation of charges, depending on the type of disposal, in order to reverse the ratio between landfilling and disposal options with energy recovery;
3. further utilisation of the incentive function of economic instruments in ensuring full harmonisation with the EU waste management policy targets.

The impact of the expected changes on household budgets is attracting particular attention. A World Bank study “Complying with the European Union Environmental Directives” (World Bank 1999b) for Poland, Hungary and the Czech Republic estimated that the share of household budgets for environmental services would rise to 10–12 percent in the case of the low cost scenario (full compliance by 2015 with the low cost options and flexible financing schemes). More specifically, the same study forecasts an increase of CZK 69 per household per month in the low cost scenario, and CZK 111 in the high cost scenario for municipal waste expenditures in the Czech Republic (EUR 1.9 and 3.1 respectively, at 2000 average exchange rate).

8.3 WASTE RELATED PRODUCT CHARGES AND OTHER ECONOMIC INSTRUMENTS

Waste related product charges have been introduced in a number of CEE countries (see Table 8.1), together with deposit-refund systems, voluntary agreements and taxes on packaging and packaging materials. The main idea of these schemes is to organize separate collection of individual products, and to provide for their reuse, recycling and/or separate treatment following the waste management hierarchy³² adopted by the European Commission. The role of the economic instruments (such as fees, charges, subsidies, tax allowances etc.) is to generate necessary funding and to provide incentives for the involved parties. Besides immediate environmental and economic reasons, these schemes are sometimes prompted by the anticipated legal requirements.

Deposit-refund systems are found in the majority of the countries in the region, sometimes having an economic rather than environmental background. For the time being, the deposit-refund system is predominantly applied to glass (beverage bottles) and is particularly well developed in the Czech Republic, Hungary, Poland and Slovakia. In the Czech Republic, the deposit-refund system is VAT exempt.

In Hungary, positive waste management results have been achieved through the application of product charges and recycling of collected revenues into collection, and the separation of waste products such as used batteries, old refrigerators, packaging materials and used tyres. The positive environmental effects came despite high costs and problems³³ in administering the scheme, and are the most apparent in the case of packaging materials (EUR 15.5 million revenue in 2000 and a significant increase in the use of recycled packaging materials, especially paper). The Estonian tax on packaging materials also proved its environmental effectiveness, as revenues dropped significantly in 2000 due to the growing quantities of reused packaging materials (the scheme envisages tax exemptions for a more than 60 percent reuse of packaging materials).

Bulgaria has introduced waste related product charges for tyres. The charges are differentiated based on weight and origin (new, regenerated or second hand), and the 2000 revenues slightly exceeded EUR 1 million. Charges for batteries and accumulators will be intro-

duced in 2001. Slovakia also introduced new charges in 2000 (for ozone depleting substances and batteries/accumulators), while Poland continued with excise taxes on plastic packaging materials. In Latvia, Amendments to the Natural Resource Tax Law (passed in April 2000) increased some of the existing rates for waste related product charges and introduced new ones. Batteries/accumulators, packaging materials, tyres, ODS, light bulbs, lubricants, oil filters and disposable tableware are now all subject to waste product charges. The amendments also simplified classification of packaging materials subject to charge and the method for calculation of these charges.

A number of voluntary agreements are in place in the Czech Republic, Estonia and Latvia, mainly for packaging, packaging wastes and chemical wastes. Latvian companies that carry out voluntary waste management programmes are eligible for tax allowances, administered by the Ministry of Environmental Protection and Regional Development, and the specialized Packaging Management Council. In the Czech Republic, a voluntary agreement on take-back and recovery of packaging has been in place since 1999, involving producers of packaging wastes and municipalities. Under this scheme, municipalities are paid (per tonne of waste) to organize separate collection, while the companies that introduce packaging waste on the market are responsible for its take-back and recovery.

Waste related product schemes, mainly applying to batteries, tyres, packaging wastes, and electric and electronic waste, are found in most EU member states. Moreover, the concept of extended producer responsibility is being increasingly applied, based on the EU directives on end-of-life vehicles, batteries, and electric and electronic wastes. Under these directives, producers are made accountable for collection and recycling of a high share of products at the end of their useful lives. Similar trends are expected in CEECs (particularly in the accession countries), in order to achieve full compliance with EU waste legislation.

8.4 CONCLUSIONS

Following the waste hierarchy implemented in the EU, waste minimisation and waste prevention should be the overall objective of waste management policies. The integration of waste management policy into a number of related policy areas should be seen as a necessity, so that the objectives can be achieved in the most cost-efficient manner. The Integrated Pollution Prevention and Control Directive (IPPC — 96/61/EC) is an example of such an integrated approach in which waste is classified as emission from the production process, and has to be dealt with in the licensing agreements. But this implies that the waste aspect has also to be addressed in the definition of best available technology.

The use of economic instruments can support the objectives of reducing the generation of waste. For example, an analysis of the Danish waste tax showed that a 32 percent reduction of waste (landfilled or incinerated) could be mainly attributed to this tax during the period 1987-96 (Skou-Andersen et al. 1999).

9. Other Economic Instruments

9.1 TAX ON MINING/AGGREGATES TAX

The majority of CEECs have implemented economic instruments for mining activities (Table 9.1). The actual design of these taxes is quite different — ranging from taxing the area of mining activities to *ad valorem* taxes and taxes that are based on the quantity of materials extracted. It is interesting to note that Estonia and Poland are levying taxes on the extraction of energy products. Revenues generated from these taxes are partly earmarked for environmental funds (Poland), but are mainly part of the central budget.

Although such taxes are not widely used in the EU (only introduced in Sweden and Denmark on the national level), the introduction of new aggregate taxes is planned. The new UK aggregate tax, for example, due to come into force in 2002, would raise an estimated EUR 609 million in the first year (quoted in REC 2001d). The aim of the tax would be to encourage the use of recycled materials, while the revenues would be partly used to offset negative environmental impacts in the communities affected by quarrying.

9.2 AGRICULTURE

The number of economic instruments applied in the agricultural sector in CEE is rather limited. An example is the Hungarian soil protection charge, established under the 1994 Act on Agricultural Land. The charge is aimed at discouraging bad agricultural practices and preserving soil fertility. It is levied in cases of violation of the soil protection regime and enforced by the regional soil protection authorities. The 1994 legislation also enabled areas of arable land to be set aside for nature conservation purposes.

Agricultural inputs (particularly pesticides and fertilisers) are not taxed in CEECs. On the contrary, preferential VAT rates are applied to these products in some of the countries in the region (e.g. Poland and FYR Macedonia) — a practice similar to the one applied in many Western European countries (examples include Netherlands, France, Ireland, Italy and Portugal). In Croatia, the use of fertilisers was subsidised until 1999, when the subsidies were eliminated.

Taxation of agricultural inputs has been applied in Western European countries since the mid 1980's. The taxes were established in an attempt to combat adverse environmental impacts of the excessive use of fertilisers and pesticides. Noteworthy is the fact that such taxes were repealed in Austria and Finland as these countries joined the EU. During their existence, however, fertiliser taxes proved their environmental effectiveness, as a significant decrease in the use of artificial fertilisers was observed in countries like Sweden and Austria (EC 1999). The most comprehensive taxation schemes for agricultural inputs are now found in the Scandinavian countries and in the Netherlands, where a number of instruments are still applied, mainly aiming to reduce consumption of a given product. Examples include a full VAT rate for agricultural inputs (Finland), pesticide product and registration charges (Denmark, Finland, Norway), and taxes on certain components of pesticides and fertilisers (Sweden, Norway). In Denmark, there is an ongoing discussion on the possibility of reinstating the fertiliser tax, and in the Netherlands a mineral surplus tax is in place (for more information see EC 2000a and EC 2001b).

9.3 BIODIVERSITY AND NATURE CONSERVATION

Nature protection non-compliance fees are the most common economic instruments used in the area of biodiversity and nature conservation. They are usually levied on an *ad hoc* basis, once environmental authorities establish that there is a breach of regulations on protected

TABLE 9.1

Taxes on Mining Implemented in CEECs (situation 2000)

Country	Mining tax rate	Tax base	Materials and comments
Albania	1,925-6,420 EUR/year (mining license) 64 EUR/m ² -192 EUR/year (exploration license) 2% of the mineral's market value	Group of minerals <i>Ad valorem</i> tax (royalty)	All minerals divided into six groups.
BiH	0.51 EUR/m ³	Cubic meter of extracted material	Gravel
Bulgaria	0.026-0.15 EUR/m ³	Cubic meter of extracted material	Quarry, sand, gravel, clay.
Croatia	0.26-0.46 EUR/m ³ 2.5% of sales price	Cubic meter of extracted material <i>Ad valorem</i> tax	Sand, gravel. Various raw materials.
Czech Republic	280 EUR/km ² /year	Area of mining	Additional tax on certain raw materials applied — rate is up to 10% of market price.
Estonia	0.14-0.26 EUR/t 0.09-1.11 EUR/m ³	Cubic metre/tonne of extracted material	Sand, limestone, gravel, clay, peat; the extraction of oil shale is also subject to a charge of 0.26 EUR/tonne.
Hungary	2-12% of sales price	<i>Ad valorem</i> tax (royalty)	Gas, oil, minerals, geothermic energy.
Latvia	0.09-0.36 EUR/m ³	Cubic meter of extracted material	Soil, sand, gravel, dolomite, peat, clay, limestone, gypsum, field stones, sapropel.
Lithuania	20 % of sales price for oil 0.05-0.26 EUR/m ³ 0.14-1.39 EUR/t	<i>Ad valorem</i> tax for oil; cubic meter/ton for other minerals	Oil, sand, amber, peat dolomite, clay, limestone; tax for amber 8.7-13.3 EUR/kg.
FYR Macedonia	5% of sales price	<i>Ad valorem</i> tax	Sand, gravel
Poland	2%-10% of sales price	<i>Ad valorem</i> tax	Coal, gas, oil, salt, other minerals.
Romania	-	-	
Slovakia	117 EUR/km ² /year; 0.3-10% of the market value of extracted minerals	Area of land mined; <i>ad valorem</i> tax	
Slovenia	n.a.	n.a.	
Yugoslavia	n.a.	n.a.	

Source: Annex 1

Symbols: n.a. = data not available; – = no taxes.

areas and species. Hunting and fishing charges are quite common (introduced in eight countries), as well as tree-cutting charges or taxes on the use of forests (also introduced in eight countries). Natural parks entrance fees are only found in a small number of countries.

The scope of economic instruments in the area of biodiversity and nature conservation, and the revenues collected through these instruments, are in principle not of such nature that could prevent biodiversity loss and ensure a sustainable management of natural resources. As the pressures on biodiversity increase throughout the region, mainly due to the growing adverse environmental impacts of transport and agriculture, and the increased demand for the exploitation of natural resources, there is a need to integrate biodiversity concerns into wider sectorial policies. Biodiversity is also an area where economic instruments have a rather limited application, and where they could only be effectively used in conjunction with other types of interventions (e.g. legal instruments, specially designated areas, nature conservation programmes). Sustainable management of natural resources (such as forests, fish stocks etc.) is another area where economic instruments alone cannot serve as an effective tool but need to be combined with other management tools like quotas, limits, reforestation schemes, etc.

At the EU level, one of the key measures protecting nature and biodiversity is the establishment and implementation of the Natura 2000 network. The accession countries are therefore expected to focus on the identification of areas and eco-systems that need special protection and management regimes, and on the preparation of management plans and monitoring systems for each of the sites. Further policy measures (as stipulated in the 6th EAP) include sectorial biodiversity action plans, and actions aimed at better protection of landscapes through agricultural and regional policies.

Croatia, the Czech Republic and Slovakia levy charges on the conversion of agricultural (forest) land. In cases when agricultural (forest) land is used for other purposes, a charge is levied based on the land (forest) properties and environmental factors in the Czech Republic. The charge is administered by the soil protection authorities, 60 percent of the revenue goes to the environmental fund and 40 percent into the municipal budget. A similar charge is levied in Slovakia where the revenue is earmarked for the State Fund for the Protection of Agricultural and Forest Land. Conversion of agricultural land is exempt from the charge in cases of the construction of water reservoirs, the provision of protection zones for water reservoirs, protection against floods, wastewater treatment plants, and construction of landfills that meet technical conditions. Alternatively, the charge may be increased by 100 percent in the case of hop-fields, vineyards and orchards, and sub-standard landfills. In Croatia, the level of the charge is supposed to reflect the costs of converting unproductive marshland into arable agricultural land.

9.4 DIRECT TAX PROVISIONS

A number of environmentally motivated tax allowances and exemptions are in place in CEE. The most frequent tax provisions are VAT and import tax allowances for environmentally friendly technologies, i.e. equipment and know-how used for pollution abatement, wastewater and waste treatment, and for improving energy efficiency/generating energy from renewable resources. VAT exemptions or allowances applied to products that are deemed as environmentally friendly are discussed in detail in Chapter 10.

An accelerated depreciation rate is applied in Hungary to various forms of equipment, including solar cells, fluidised coal-fired equipment and other boilers, emission control equipment, electrostatic filters, dust separators, adsorptive gas cleaners, etc. No corporate tax has to be paid for services connected to renewable energy and other environmental protection related services carried out by public utility companies. In Romania, tax exemptions to promote energy conservation/efficiency are in place, benefiting the owners of buildings who introduce energy-saving measures and economic agents implementing energy efficiency measures. Different forms of tax provisions are also found in Croatia, Estonia, Lithuania and Poland.

10. The Role of Economic Instruments in European Union Accession

10.1 INTRODUCTION

The process of CEE countries applying for membership to the European Union, or accession, raises a number of issues for the environment in CEE and Europe as a whole.³⁴ Transition to a functioning market economy and the political objective of EU accession brings with it a number of opportunities for improved environmental quality, primarily through increased efficiency and modernization of production processes, and the political will required to achieve environmental quality targets that EU membership demands. The process will also bring new environmental pressures, traditionally associated with Western Europe, such as threats to the comparably more extensive biodiversity of CEE, pressures on the environment by the transport sector because of the increase of private transport, industrialised agriculture and increased tourism.³⁵

The European Union has committed itself to maintaining the *acquis communautaire*, which sets out the body of common rights and obligations of membership. The environment represents only one of over 30 “chapters” or issues of negotiation between the European Commission (EC) and applicant countries. Nevertheless, it is one of the more complex chapters for several reasons: the link between environmental policies and trade and competition, the EU policy of “integration” of environmental concerns into economic policies (the Cardiff Process 1999), and the potential costs of achieving many of the requirements in sectors such as energy, water quality and wastewater treatment, and waste management.³⁶ Since a great deal of experience has been gained with economic instruments over the past ten years in these sectors, economic instruments are poised to play an important role during the accession process. This section provides an analysis of how economic instruments will serve to expedite the transition process and help to implement the *acquis*, and reviews the success of these instruments to date.

The Europe Agreements provide the framework for bilateral relations between the European communities and their member states on the one hand, and the partner countries on the other. As basic legal instruments, they cover trade-related issues, political dialogue, legal approximation and other areas of cooperation, including industry, environment, transport and customs. They aim to gradually establish a free-trade area between the EU and the associated countries over a given period of time.³⁷ Under the Agreements, the partner countries also commit themselves to approximating their legislation to that of the European Union, particularly in the areas relevant to the internal market.

Table 10.1 shows the chronological dimension of the accession process starting with the signing of the Association Agreements, also referred to as the Europe Agreements, between the candidate countries and the EU. From a legal point of view, the Europe Agreements are characterised as international treaties between the EC, its member states and the respective accession country. The agreements are referred to as a guideline for decisions under the regulations on pre-accession aid.

10.2 THE ACQUIS COMMUNAUTAIRE

The *acquis communautaire* sets out the body of common rights and obligations that are binding to all the member states within the European Union. The European Union has committed itself to maintaining the *acquis* in its entirety, and to developing it further. Member states are responsible for the approximation of the *acquis* in domestic legislation, which requires the transposition, implementation, and enforcement of all aspects of the *acquis*.

TABLE 10.1

Europe Agreements and Membership Applications in CEE

<i>Country</i>	<i>Europe Agreement signed</i>	<i>Europe Agreement came into force</i>	<i>Official application for EU membership</i>
Bulgaria	March 1993	February 1995	December 1995
Czech Republic	October 1993	February 1995	January 1996
Estonia	June 1995	February 1996	November 1995
Hungary	December 1991	February 1994	March 1994
Latvia	June 1995	February 1996	October 1995
Lithuania	June 1995	February 1996	December 1995
Poland	December 1991	February 1994	April 1994
Romania	February 1993	February 1995	June 1995
Slovakia	October 1993	February 1995	June 1995
Slovenia	June 1996	February 1999	June 1996

Note: FYR Macedonia signed an Association Agreement in spring 2001.

The *acquis* comprises the:

- content, principles and political objectives of the treaties;
- legislation adopted in application of the treaties and the case law of the Court of Justice;
- declarations and resolutions adopted by the European Union;
- measures relating to the common foreign and security policy;
- measures relating to justice and home affairs; and
- international agreements concluded by the Community and those concluded by the member states between themselves in the field of the European Union's activities.

The process of approximation, or harmonisation of *acquis* by members and applicants of the European Union, is not an easy task. As far as the environmental *acquis* is concerned, most of the obligations can be found in directives, and, from the European Commission's point of view, harmonisation of the environmental protection legislation is one of the priorities for the candidate countries. Legal transposition of approximately 300 legal acts is not a sufficient condition for harmonisation. Directives also impose requirements related to specific technologies, provision of particular services and the establishment of administrative structures to monitor and enforce various forms of legislation. Exemptions and derogations from the *acquis* are only granted in exceptional circumstances and are limited in time and scope.

An early estimate (EDC 1997) of the investment needed for the compliance with EU environmental requirements was EUR 120 billion for the first 10 applicant countries. A more recent study (Jantzen/TME 1999) has estimated costs of EUR 72 billion (excluding drinking water investments). This estimation is based on individual national reports, whose methodologies may not be fully compatible. The most recent estimates, which are based on the costs of the implementation of specific directives, indicate a range of values of EUR 80 billion to EUR 110 billion (EC 2001a) for achieving full compliance with the requirements of the *acquis*. However, the actual costs of implementation may be higher still because the costs of investments for newly adopted or forthcoming legislation, such as the Water Framework Directive, are not always included. Moreover, normal maintenance and operational costs of environmental infrastructure are often not included in these estimates, as these costs should, in principle, be covered by user charges.

The EC has established the pre-accession financing instruments, ISPA, Phare, and SAPARD, for financing environmental infrastructure.³⁸ The total amount of assistance available through these programmes for the 10 candidate countries should be approximately EUR 22 billion over seven years (2000-2006) with an annual average of around EUR 3 billion. Indicative budget allocations for all three pre-accession instruments for this period and the annual average can be found in Table 10.2. Nevertheless, it is clear that EU support programmes and other foreign aid (such as support from EBRD and other IFIs) represent only a fraction of the estimated environmental investment needs. Domestic public and private sector involvement will be crucial. However, the investment needs for compliance with EU requirements vary between countries dramatically: it is estimated that the investments required are in the range of anywhere from two percent of GDP (for the Czech Republic) to 11 percent of GDP (for Bulgaria) (OECD 2001a, p.5).

TABLE 10.2

Selected EU Foreign Aid Programmes in CEE

	<i>Total amount</i>	<i>Annual average</i>
PROGRAMMES 1990-1999		
Phare		
• 1990-1994	EUR 4.2 billion	EUR 0.84 billion
• 1995-1999	EUR 6.693 billion	EUR 1.33 billion
PROGRAMMES 2000-2006		
Phare	EUR 10.92 billion	EUR 1.56 billion
ISPA	EUR 7.28 billion	EUR 1.04 billion
SAPARD	EUR 3.64 billion	EUR 0.52 billion
Total: Phare, ISPA, SAPARD	EUR 21.84 billion	EUR 3.12 billion

Compliance with the PPP means that the financial burden should lie with the polluter and also close to the investor. This latter issue shows the importance of private investment, and a World Bank study found that in the case of Bulgaria, “46 percent of responsibility for environmental investment lies with the private sector, while 43 percent lies with municipalities and only 11 percent with central government” (quoted in EC 2001a, p.14). The proportion of the private sector involvement in investments in environmental infrastructure is still higher in Slovakia and Romania, where the National Environmental Action Plans independently estimated that its share is almost 70 percent (EC 2001a). However, the total estimates of investment needs for environmental infrastructure measures are full of uncertainty, as the estimates for the waste sector listed in Table 10.3 demonstrate.

A good example of the magnitude (and uncertainty) of the total costs of EU compliance is found in the waste sector. CEECs established and revised waste management plans to comply with EU requirements, including estimates for future investment in order to meet EU standards in the area of waste management. Estimates of required costs are compared in the table below, and the comparison depicts major discrepancies between some of the figures. The reasons for the disparities are mostly linked with the approaches chosen by the different researchers. Nevertheless, preliminary results indicate that the most probable value will be in the range of EUR 100-300 per capita for the majority of CEECs for compliance with EU requirements in the waste sector (REC 2001d).

Country specific regulations are very important when total investment needs are discussed. In Slovenia, for example, it is expected that economic instruments will be an important financial resource for the construction of infrastructure, in particular in the field of water protection and waste management, where the planned costs are the highest. The current leg-

isolation therefore envisages tax breaks for the private sector companies submitting investment programmes for these priority environmental areas — i.e. such companies are exempt from the payment of wastewater tax (Nared 2000).

TABLE 10.3

EU Compliance Costs Estimated for the Waste Sector (investment costs)

<i>Country</i>	<i>DISAE 1998 (million EUR)</i>	<i>Jantzen/TME 1999 (million EUR)</i>	<i>DHV in REC 2001d (million EUR)</i>	<i>Costs per capita (EUR/inhabitant)</i>
Bulgaria	671	2,477	2,150-3,000	80-340
Czech Republic	3,800	1,152	1,116	110-370
Estonia	698	698	n.a.	485
Hungary	4,400	454	n.a.	45-435
Latvia	259	343	n.a.	105-140
Lithuania	325	364	n.a.	89-100
Poland	3,695	3695	4,000	95-105
Romania	2,788	2568	5,971	115-180
Slovakia	1,205	892	2,008	165-370
Slovenia	1,600	1073	n.a.	540-808

Source: REC 2001d

Symbols: n.a. = data not available

10.2.1 Transposition of the *Acquis*

Transposition is broadly defined as a binding legislative, regulatory or administrative measure taken by any competent authority of a member state in order to incorporate into the national legal order the obligations, rights, and duties embodied in European Community environmental directives. Transposition thus includes any additional provisions, such as the amendment or repeal of conflicting national provisions, which are necessary in order to ensure that national law as a whole properly reflects the provisions of a directive. In some member states, transposition measures have to be adopted at the national level only, while in others the regional authorities have exclusive competence in certain fields of environment policy (e.g. nature conservation falls within the competence of the regions in Germany and Austria—the *Länder*). It may also happen that both levels have to implement transposing measures in cases of shared competencies.

In principle, directives offer comparatively more flexibility than specific regulations or decisions that are directly binding on members states. Directives sometimes leave a margin of interpretation and discretion, yet the tendency during the past decades has seemed to favour more and more precise and technical directives.

The transposition programme should answer the following questions:

- Where is new legislation necessary?
- Where is it sufficient to amend existing legislation and to what extent?
- What should the new or amended version of the legislation contain in order to be in conformity with the EU requirements?
- Who shall be the competent authority and what shall be the level of regulation?

- What is the proposed time for action?
- How to develop coordination with areas within or outside the environmental regulatory system?
- Where and how to apply for exemptions/derogation period?

The phase of transposition is therefore very complex and time consuming, and most candidates have moved slowly in completing this necessary stage.

10.2.2 Implementation

The second phase in the approximation process is implementation. Implementation consists of establishing the institutions and providing the financial and human resources necessary to execute domestic legislation that have been transposed to achieve compliance with directives. Transposition is logically a prerequisite to implementation but without the latter, the adopted directives would not be effective. Member states are in principle bound to implement directives both in a certain time period and in the most appropriate manner to assure the effectiveness of European Community law.

About 10 percent of EU environmental laws take the form of regulations. Regulations will come into force in the candidate countries on the date of accession. However, their implementation could require changes in the administrative system and financing mechanisms. The professional, financial and organisational conditions for the implementation of new regulations must be guaranteed simultaneously with the enactment. An integrated approach is therefore necessary.

10.2.3 Enforcement

The third phase in the approximation process is enforcement. Enforcement consists of providing the necessary controls and penalties to ensure that the law is being fully and properly applied. The ultimate means of enforcement at the European level is the procedure of the Commission against member states provided for by Article 228 of the Treaty, and amended by the Amsterdam Treaty. But this procedure did not function efficiently until the new provision of the Maastricht Treaty was enacted, allowing the Court of Justice to fine member states found to be in non-compliance with their transposition duties. This form of enforcement mechanism will only be relevant to candidate countries after accession.

More importantly perhaps — following the concept of subsidiarity and decentralisation — national and local agencies are to be competent for enforcement of European Community law. In particular, local administrations and individuals should themselves contribute to this control. Finally, the Commission — with the approval of the Council — sometimes includes within directives an obligation to provide for some penalties for firms or individuals which do not comply with environmental norms. In some European regulations this is also the case. For example, Regulation 3093/94 of December 15, 1994 on ozone-depleting substances (especially Article 19) contains such provisions.

10.3 THE ROLE OF ECONOMIC INSTRUMENTS IN THE IMPLEMENTATION PROCESS OF THE *ACQUIS*

In some cases, economic instruments, such as taxes, are directly specified by European legislation. In these cases, economic instruments directly implement the *acquis*. More often, directives outline specific environmental targets, technological standards and/or administrative structures. But many directives leave some flexibility regarding other policy measures that help to implement and enforce legislation once transposed into the national law. The choice of instruments to attain the objectives should consider the following questions:

- What is the type and urgency of the problem?
- How can the chosen instrument achieve economic efficiency as well as environmental effectiveness?
- How can the principle of proportionality and the interests of different target groups be respected?

- How can adequate information be provided for?
- What is the administrative and practical applicability of the chosen instrument?
- How can this new instrument be fit into the existing legal system and environmental policy context?

Economic instruments can act as a good tool for integrating the way EU environmental legislation is introduced domestically, and CEE applicant countries have over 10 years of experience in managing these tools. As this report has discussed, during the transition to a market economy, emission and energy taxes have generally been used in the region with the primary objective of raising revenues, and user charges, primarily in the water and waste sectors, have begun to play a cost-recovery role. In the context of EU accession, four distinct roles for economics instruments in implementing the *acquis* can be identified, where EIs:

- directly implement EU directives;
- raise revenues to finance (and leverage) priority investments (through environmental funds);
- raise revenues for public services (cost-recovery charges); and
- provide incentives that reduce the total investment needs.

10.3.1 Direct Implementation

A good example of the use of economic instruments for the direct implementation of a directive can be found in Directive 92/82/EEC adopted by the Council on October 19, 1992. This directive sets minimum excise taxes for leaded petrol, unleaded petrol and diesel, and for other mineral oil products such as LPG and kerosene used for different purposes — heating, industrial use and as propellants. In this particular case, the directive mandates the necessary economic instruments (excise taxes) to fulfil its pollution reduction objectives and to raise revenue. Thus the economic instrument is not only an implementation tool of the directive, but is part of the transposition itself.

TABLE 10.4

Comparative Motor Fuels Tax Rates in CEE in 2000 (as percent of EU minimum excise tax rates, Directive 92/82/EEC)⁴¹

Country	Unleaded (%)	Diesel (%)
EU rate	100	100
Bosnia and Herzegovina	85	89
Bulgaria	93	55
Croatia	109	80
Czech Republic	106	93
Estonia	78	67
Hungary	124	126
Latvia	73	81
Lithuania	84	53
FYR Macedonia	132	87
Romania	71	46
Poland	109	97
Slovakia	93	85
Slovenia	128	118

EU minimum to excise tax rate for unleaded petrol is 287 EUR/kilolitre and for diesel 245 EUR/kilolitre

The analysis of excise taxes for motor fuels (petrol leaded, petrol unleaded and diesel) has shown that most candidate countries are making progress towards transposing these minimum rates and that some of the more advanced economies exhibit higher rates in line with EU minimum rates (see Table 10.4). Less progress is illustrated with the introduction of energy taxes on non-motor fuels on the CEE level as well as on the EU level.³⁹ Our analysis has also highlighted the real impact these taxes may have in economies in the short- to medium-term, due to the comparably high charge rates, by considering purchasing power standards in European countries. Per capita GDP based on purchasing power standards was below 75 percent of the EU average in 51 out of the 53 regions in the 10 CEE candidate countries in 1998.⁴⁰ For this reason, the environmental effectiveness and distributive effects of these taxes may be stronger in CEE than in Western Europe. The table below provides a comparison of the progress toward transposing Directive 92/82/EEC in applicant countries and some of the countries of South Eastern Europe.

The transposition of legislation not specified in the environmental chapter may also demand the direct implementation of economic instruments that affect environmental sectors. For example, the introduction of Value Added Tax (VAT) in the countries covered in this report is also subject to EU guidelines. VAT legislation has been introduced to replace earlier sales taxes in all countries that have signed a Europe Agreement (EA) with the EU. But countries such as Estonia had already introduced VAT in 1991, i.e. before the Europe Agreement was signed. The most recent candidate country to implement VAT was Slovenia, with its legislation coming into force in July 1999. FYR Macedonia introduced VAT in April 2000. In most cases, the national legislation has been revised over the years to bring VAT in line with the non-negotiable commitments within the EAs.

Standard VAT rates in CEECs in 2000, which vary from 18 percent in Latvia, Lithuania, and Estonia to 25 percent in Hungary, are comparable with EU member states, which vary from 15 percent in Luxembourg to 25 percent in Sweden and Denmark (see Table 10.5 below). The VAT system generates significant revenues for the state budget, and while some systematic shortcomings have been identified, most CEE countries have been successful in implementing the necessary VAT mechanisms (Cnossen 1999).

VAT — and related exemptions — should be considered in order to have a more complete picture of the final tax load on environment-related goods. The standard rates are applied to motor fuels in all countries in CEE. In the area of non-motor energy sources in CEE, many VAT regulations include reduced VAT rates, ranging from 0-12 percent, which are applied to energy sources primarily for social reasons. According to the 1993 VAT rules, for example, Hungary had two preferential rates: a three percent rate was applied to natural gas, and an eight percent rate to electricity for households. In 1995 the preferential rate was adjusted to 12 percent, and continues to be applied to gas, electricity and district heating. Slovakia applies a similar preferential rate of 10 percent to all non-motor fuels. Up to 1999, Poland levied the reduced rate of seven percent on most energy sources other than motor fuels. The preferential rate (and in some cases a zero rate) was also extended to goods and services related to environmental protection. However, since 2000 the standard rate of 20 percent has applied to all energy products.

While reduced rates are applied to coal or gas in some EU member states (such as Belgium, Greece, Ireland, Italy, Luxembourg and Portugal), the goal in most countries has been to reduce rate differentiation as much as possible. In recent years, some CEECs have also abolished the preferential rate for non-motor fuel energy sources. In the Czech Republic for example, a reduced rate of five percent was extended to steam coal, natural gas, and electricity through the mid-1990s, but the standard rate of 22 percent is now applied to all energy products with the exception of bio-gas and bio-diesel, which receive the 5 percent rate for environmental purposes. Bulgaria, Croatia, Latvia, Lithuania, Slovenia and, as already pointed out above, Poland, currently levy standard tax rates on coal, gas, electricity and district heating.

In the course of the harmonisation process with EU legislation, Estonia abolished numerous VAT exemptions in the area of services. However, some goods are still exempt from VAT, such as environmental equipment and technology imported by the Ministry of Environment within the framework of foreign aid programmes, and environment-related goods imported for use in projects financed by the Estonian Government or given as state aid. Special VAT treatment is also given to energy generated from renewable sources such as wind and water, and to hazardous waste management. From June 30, 2000 to June 30, 2005, the VAT rate of five percent (instead of the previous 0 percent VAT) will be applied to the

TABLE 10.5

Standard VAT Rates Applied in EU Member States and CEECs (2000)

<i>EU member</i>	<i>Standard rate</i>	<i>CEE country</i>	<i>Standard rate</i>
Belgium	21	Albania	20
Denmark	25	BiH	Not implemented
Germany	16	Bulgaria	20
Greece	18	Croatia	22
Spain	16	Czech Republic	22
France	19.6	Estonia	18
Ireland	21	Hungary	25
Italy	20	Latvia	18
Luxembourg	15	Lithuania	18
Netherlands	17.5	FYR Macedonia	19
Austria	20	Poland	22
Portugal	17	Romania	19
Finland	22	Slovakia	23
Sweden	25	Slovenia	19
United Kingdom	17.5	Yugoslavia	Not implemented

Sources: EC 2000c and Annex 1

following goods and services: heat sold to the public, dwelling associations, apartment associations, churches and congregations, and agencies and organisations financed from the state and local budgets. The same VAT rate change applies to peat, briquettes, coal and fuel wood for heating and electricity production purposes (Kraav 2001).

10.3.2 Revenue-raising Pollution Charges

The possibility of meeting investment needs via charges levied on pollutants is both theoretically and politically attractive, and the existing pollution charges in the region have been created primarily for revenue-raising purposes. While certain emission charges create an incentive, the potential to use revenue raised by the charges to cover the cost of related environmental investments has generally been the focus of policymakers. The revenues generated by pollution charges are usually part of the budget of environmental funds, which is the situation in countries such as Poland and the Czech Republic, or are part of the central budget and earmarked for environmental protection, which is the case in Estonia and Hungary.

The role of environmental funds as instruments that help finance environmental investments during transition has been discussed in Chapter 3. Defining the scope of operation for environmental funds during and after EU accession will be important. EU member states have no comparable comprehensive environmental funds, although some taxes and charges have been earmarked for environmental expenditures. In line with the PPP, public spending on environmental protection is subject to limitations. In 1994, the European Commission adopted the Community Guidelines on State Aid for Environmental Protection, which were revised in 2001 based on the need to address the impact of state aid on both environmental and competition policies in the EU (2001/C37/03). The main objective of the guidelines is to identify those forms of state aid which, besides "having adverse effects on trade between member states and on competition, may run counter to the polluter pays principle and may hinder the establishment of a process of sustainable development" (Official Journal of the European Communities, C37/3, 2001).

Nevertheless, environmental funds will certainly play an important role in helping to finance the investments required to achieve the goals outlined in the *acquis communautaire*. Moreover, because EU membership will entail specific deadlines for compliance with

common EU rules — including the Guidelines on State Aid for Environmental Protection, long-term strategies for environmental funds must also consider a post-accession time period. The accession process appears to offer a framework in which these instruments can effectively operate. Specifically, the accession process may:

- assist in defining priority investments, i.e. the scope of the funds' activities;
- help attract accession-related co-financing; and
- provide a temporal framework for developing environmental financing strategies, including a deadline for the role of the funds in a post-accession period.

Because the *acquis* provides detailed requirements for accession, policymakers may be assisted in designing priority environmental investments for the short- to medium-term. In all applicant countries, earmarked revenues from pollution charges also represent an important domestic source of revenues, which can be used to attract and channel assistance during the accession process. Many environmental funds collaborate with EU and other bi-lateral sources of international assistance. For example, the Slovenian Fund administers a loan from the World Bank. In Poland and Bulgaria, the funds manage debt-for-nature swaps, and the Baltic countries all receive grants for environmental investments from the EU. The Hungarian Environmental Protection Fund, the successor to the former Central Environmental Protection Fund, and the Croatian Ministry of Environment are currently collaborating with German and Austrian partners to develop the capacity to serve these functions.

Accession will provide a temporal limit to the transition period, and countries will be required to adhere to the Community Guidelines on State Aid for the Environmental Protection. In the medium-term, this will require a reassessment of the efficiency of earmarking charges. Many of the arguments for earmarking are based on factors created by the transition from a centrally planned to a market-based economy and to some degree on the accession process itself. This will certainly change over time, and some of the more advanced countries of the region are probably ready for this change. The funds that tend to be more successful in financing investments are found in the more reformed and advanced economies, where, in principle, private sector investment and commercial financing should begin to play a more important role (for a detailed discussion of environmental funds, see OECD 1999b, and REC 2001e).

10.3.3 Cost-Recovery Charges

While considerable attention is paid to the costs of accession and the revenue-raising potential of economic instruments during transition, perhaps the most important role of economic instruments will be the one of proper pricing and cost-recovery in the water, wastewater and waste sectors.

Full cost recovery charges will be important to help finance the necessary upgrading of public infrastructure for waste management, a sector more recently recognized as a potentially costly area in CEE, and to cover the operation and maintenance costs as well as the capital cost of running this service. Some directives in this area, for example Directive 94/67/EEC on hazardous waste incineration, sets detailed conditions for operating hazardous waste incineration plants, including minimum operating temperatures and emission limit values for carbon monoxide, dust, heavy metals, total organic carbon and other pollutants in exhaust gases. The Municipal Waste Incineration Directives (1989) and the recent adopted Landfill Directive (1999) also imply heavy investments. The full implementation of these directives will require not only huge investments into environmental infrastructure but also high operation, maintenance and capital costs after these plants have been constructed. These costs should be covered completely via user charges.

Existing municipal and hazardous waste incineration plants will need to be upgraded if they do not meet EU requirements. For example, the majority of waste incineration plants in the Czech Republic seem not to be in full compliance with EC requirements (REC 2001d).

10.3.4 Economic Incentives

Economic instruments can also be adjusted and improved in order to provide more effective incentives, which will allow for the attainment of some directives at the least cost. Incentives can be particularly useful in the context of emission limits or quality directives as found for the air and water sectors. Moreover, EIs can be especially effective in dealing with pollution from diffuse sources, where direct command and control may be costly and ineffective.

While energy efficiency indicators (energy per unit of GDP) have improved in most countries in the region during the transition process, CEECs still consume substantially more energy per GDP unit than Western Europe. Higher energy prices would serve to generate revenues for investment and, simultaneously, reduce the number of power stations required, as efficiency increases and demand is reduced. The OECD has found that the more advanced reformers have increased energy prices to better reflect costs, and have simultaneously improved legal enforcement and collection of payments from enterprises. Another important aspect of energy pricing is motor fuels taxation, which contributes substantially to final user prices throughout CEE. However, the share of these taxes in the total user prices is lower than their share in some EU member states. For example, the tax component of the fuel prices was 59.1 percent in Poland, 60.3 percent in the Czech Republic and 63.2 percent in Hungary. In the EU member states, this component was between 59 percent in Greece and 78.5 percent in the United Kingdom in the fourth quarter of 1999. In the majority of EU member states, this share is around 70 percent (IEA 2000).

The Council Directive 99/30/EC relating to the limitation of values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, and lead in ambient air specifies a series of deadlines by which time the limit values must be achieved. This daughter directive of the Air Quality Framework Directive 96/62/EC will include both direct and indirect investments: considerable public sector investment in air quality monitoring equipment, and public and private sector investment to bring down emissions of polluting substances to reach the EU air quality standards.

The predicted costs can be reduced, however, through the continued and improved application of SO₂, NO_x and particulate matter charges, which are already in place in many of the applicant countries (Poland, Slovakia, the Czech Republic, Latvia, Lithuania, Estonia). To date, limited environmental effectiveness has been demonstrated due to low charge rates, but some trends indicate that this may change. At their current level, for example, Poland's charges of 85 EUR/tonne for NO_x and SO₂, and 6,858 EUR/tonne for lead, and Lithuania's charge of 105.5 EUR/tonne for NO_x, have the potential to begin influencing production decisions (see Chapter 5 for a more detailed discussion and a comparison with the situation in EU member states). Given the experience accrued with the instruments, applicant countries should undertake an analysis of the potential cost savings from increasing charge rates in order to attain compliance.

Directives can also provide for attaining the objectives of pollution prevention or reduction, as in the case of Directive 94/62 on Packaging and Packaging Waste of December 20, 1994. The Community strategy for waste management on the whole gives priority to prevention. Reuse and recycling of waste packaging should be encouraged, and refund systems can be of particular interest for this purpose. In most countries of the region, bottles were subject to deposit-refund systems, but several of these systems reported difficulties with the opening of domestic markets. Since 1995, Estonia, Latvia and Hungary have each introduced taxes on packaging materials and use a portion of the revenues to strengthen the deposit-refund system.

Furthermore, product charges — such as those levied on tyres and refrigerants in Hungary and Latvia, and on CFCs in the Czech Republic and Slovakia — waste disposal charges and non-compliance fees are intended to fulfil the incentive function, along with raising revenues. Additionally, income tax and VAT allowances for environmental technology could be seen as a means to achieve sound waste management policies.

Another example is found in the case of Directive 80/778 of July 15, 1980 relating to the quality of water intended for human consumption. The directive sets the maximum level of authorized pollution for more than 60 different parameters (for instance, the maximum authorized level of lead in water is 50 micrograms per litre). The investment implications of this directive are considerable, as municipalities that are still using lead pipelines for delivery of water will need to invest in new pipelines to meet the standard for lead in drinking

water. Other municipalities may need to invest in treatment facilities to remove high mineral content or pesticide residues over and above the EU standards. Laboratories may need upgrading to be able to analyse samples according to EU reference methodologies.

A combination of economic instruments may be useful here: increased water user charges would raise revenues for necessary investments to improve the infrastructure and would reduce demand, while continued application of charges on water effluents (charges and/or fines for water effluents are in place in all the applicant countries) would reduce remediation costs currently representing an additional public burden.

10.4 CONCLUSIONS

Cost-recovery user charges and environmental taxes will certainly continue to play a key role in implementing domestic environmental policy and in adopting the requirements of the *acquis* in CEE. User charges have been increased in recent years, and earmarked pollution charges already contribute substantial sums to environmental funds. More recently, taxes on fuels have been increased and are already in line with EU directives in some cases. The potential to improve the use of economic instruments as cost-recovery and incentive tools to achieve EU compliance in a cost-effective way has been identified as a primary untapped opportunity in the region.

It should be noted that raising prices and increasing tax rates — alone — will not promote key investments in the most efficient way. Economic instruments are most often effective as part of well-planned policy packages, and can only work within their legal, administrative, and domestic economic context. In other words, increased fees and taxes cannot overcome existing inefficiencies within municipal service systems. Affordability issues discussed above must not be forgotten during the accession process.

Nevertheless, the challenge of financing the necessary investments in the environmental sector remains a top concern. External financing via EU programmes (Phare, ISPA, SAPARD), international financial institutions (EBRD, IBRD), and bi- and multi-lateral assistance and investments programmes will also play an important role. However, foreign sources will be limited and should be channelled to leverage domestic public and private revenue sources. Environmental funds may play an important role in this regard, but as mentioned above, the major part of the necessary investment in environmental infrastructure measures has to come from the private sector.

Affordability issues have to be considered during the accession process when either an increase in existing environmental/energy taxes is planned, or new instruments are proposed. Examples of mitigation measures to offset regressive effects should be carefully studied and direct, transparent income transfers to vulnerable citizens should be favoured over hidden subsidies. The integration of environmental taxes with other fiscal measures is so far quite limited in CEECs, and an improved dialogue between environmental policy-makers and decision-makers in other sectors will be needed to attain EU-related objectives. EU member states have been successful in establishing inter-ministerial working groups, or “Green Tax Commissions,” to assist in improving the effectiveness of economic instruments.

In the context of the EU accession process and the challenges of transposing EU directives, changes in the system of economic instruments applied in applicant countries can be expected, with the objective of fostering environmentally friendly behaviour and to stimulate investments into environmentally friendly production technologies. This report has highlighted experiences in developed OECD countries and the transition economies of CEE, and offers evidence that economic instruments can be introduced as a powerful tool for enhancing economic efficiency and protecting the environment.

11. Economic Instruments: Tools for Protecting the Environment

11.1 GENERAL FINDINGS

A move towards greater and more consistent use of economic instruments as a complement or a substitute for other policy instruments, such as regulation, can be found in environmental policies in CEECs. Levies are charged on a range of air pollutants, solid and hazardous waste streams, discharges of wastewater, surface and ground water extraction, and in addition, the consumption of energy products is subject to taxes. A major driving force for this development is the EU accession process and the situation in OECD countries, where similar trends are exhibited (EEA 2001).

Since the 1970s, CEECs continuously applied a system of environmental levies combined with regulatory measures such as emission or discharge limits. The adoption of the PPP and the user pays principle in environmental policies of these countries is in line with OECD and EU policies, so that the polluter bears the final cost of the actual pollution. The rationale of the PPP scheme is to provide an incentive to reduce the level of emissions and simultaneously to reduce the level of payments. A special feature of environmental policies in CEECs is the application of the so-called non-compliance fees, which have to be paid by polluters in cases when emission levels and concentrations of pollutants exceed the allowed standards.

Until the 1990s, the rates of many levies in CEE were too low to affect the pollution levels, and the countries are now facing an environmental legacy inherited from this time. But as the countries go through a process of transition to a market economy, the situation is changing and the rates of economic instruments are increasing dramatically throughout the region. Some of the rates are now on the same level as in EU member states, and in some cases they are higher than in the cohesion countries (Greece, Ireland, Portugal and Spain).

11.2 EFFICIENT AND EFFECTIVE INSTRUMENTS

The economic instruments applied in CEECs can be characterized as fiscal rather than environmental measures, since their main objective is to generate revenues. The rates are generally still too low to have an incentive effect, i.e. to change polluter behaviour. Revenues generated by environmental levies are regularly earmarked for environmental funds in the majority of the countries in the region. As discussed in Chapter 3, the income of these environmental funds are mainly disbursed for investment into environmental infrastructure and for other environmental activities such as research, awareness-raising campaigns and educational programmes.

One of the main conclusions of this report is that environmental policymakers are facing a real challenge in combining aspects of economic efficiency and political acceptability on one hand, and the environmental effectiveness of economic instruments on the other. The need for a balanced approach is not only notably visible in the case of excise taxes that are levied on mineral oil products (Chapter 4.2) but also in the context of full cost recovery in the water and waste sector (Chapters 7 and 8).

The report and the accompanying database show that taxes on energy products have been increased in recent years, and that the EU requirement on minimum rates for unleaded petrol has been met in four of the candidate countries since 2000. The same situation is found in two South Eastern European countries — Croatia and FYR Macedonia (Chapter 4). Diesel taxation is somewhat different as rates exceeding EU requirements are only found in Hungary and Slovenia. The situation regarding levies on energy products other than motor fuels is less favourable.

Affordability issues clearly have to be considered, both when an increase in existing environmental/energy taxes and charges is planned, and in the process of planning the introduction of new instruments. Examples of mitigation measures to offset regressive effects should be carefully developed bearing in mind that direct, transparent income transfer to the vulnerable citizens is more cost efficient than subsidies. The integration of environmental taxes with other fiscal measures is so far quite limited in CEECs, and the coordination between ministries of environment and ministries of finance is generally seen as an area where further improvements are both possible and necessary. An improved dialogue between environmental and fiscal policymakers, and the establishment of inter-ministerial working groups, or “Green Tax Commissions,” could assist in improving both the efficiency and the effectiveness of economic instruments. Experiences from a range of EU member states, such as Denmark, the Netherlands and Sweden, should be transferred to the countries in the region.

A trend toward the simplification of charge systems, in the sense that countries have reduced the number of pollutants subject to emission charges, can be seen. Changes in the administrative system are also having a positive effect because instruments are more efficiently enforced, and countries such as Poland and Slovakia have linked the charge rates to inflation. However, subsidies and in particular cross-subsidization are still a common tool in the region (and also in OECD countries), contradicting the “no-subsidy” philosophy of the PPP. Cross-subsidization is very high on the political agenda, in particular in the water sector where households and industries often face higher water prices than farmers, who are seen as the main beneficiary of such cross-subsidization.

11.3 THE EU ACCESSION PROCESS

In the context of the EU accession process and the challenges of transposing the environmental *acquis*, changes in the system of economic instruments applied in CEE countries can be expected. The objective of these changes would be to foster environmentally friendly behaviour and to stimulate investments into environmentally friendly production technologies. Economies in transition have the potential to achieve accession and environmental policy objectives in an efficient manner, because of the ongoing internal and institutional changes within their economies. An analysis of economic instruments in the context of the EU accession process cannot be made without discussion of the financing role of air emission charges. As discussed in Chapters 3, 5 and 10, revenues generated from air emission charges are an important component of national financing strategies for complying with EU requirements via environmental funds.

11.4 ENVIRONMENTAL POLICIES

The advantages of environmental taxes as compared to command-and-control measures are apparent in theory as well as in practice. The issue of finding the least-cost solution is an important aspect for the application of economic instruments, such as emission taxes, because these interventions should equalise the marginal abatement costs across all sectors of the economy.

Furthermore, economic instruments give more choices to the individual producers and a higher level of flexibility in achieving pollution reduction than the regulations do. These theoretical aspects of the advantage of economic instruments are supported by empirical evidence showing that they can be a powerful means to achieve certain environmental goals, as discussed in Chapter 2.

But as mentioned earlier, environmental policy cannot exclusively rely on the use of economic instruments because of instances that require the application of command-and-control measures. These instances can be of a technical nature, or they can occur when health risks require that the “optimal” level of emissions should be zero. Economic instruments are often used to complement regulations — as is the case with fuel oils where command-and-control measures are used to regulate the content of sulphur, and differentiated excise taxes are applied to adjust prices and stimulate the use of oils with lower sulphur content.

The complementary use of economic instruments and regulations can also undermine the effectiveness of the former instruments. To some extent, the area of waste policies can serve as an example of such a case. As mentioned in Chapter 8, different EU directives embody clear quantitative targets, such as the Packaging and Packaging Waste Directive (94/62/EC) and the

Landfill Directive (99/31/EC), and also the outright prohibition of landfilling of different waste streams. The setting of quantitative targets for the share of wastes to be recycled or landfilled is not consistent with the use of taxes, as it can offset their rationale, i.e. the incentive effects. However, the underlying factor for this policy is the waste hierarchy adopted by the European Commission which stipulates waste prevention, then the reuse and recycling of wastes, and at the end options of safe final disposal — incineration and landfilling.

The necessity of the increased use of economic instruments in the water and waste sector and, in particular, of user charges for the provision of drinking water, sewerage and waste services is recognised in CEECs as well as in EU member states, in order to fully implement the PPP. Recent estimates show that the cost coverage of environmental expenditure is 49 percent in Poland, 26 percent in Hungary, eight percent in Slovakia and 79 percent in the Netherlands. Further implementation of the “no-subsidy” policy clearly requires that payments for services in water and waste sectors rely on user charges covering relevant operation and maintenance, as well as capital costs, regardless of whether these charges are levied on services to the public or private sector. The discussion based on the findings of this report (Chapters 7 and 8) highlights the challenges faced by the decision-makers in determining a socially acceptable and a financially sound level of user charges.

As this report points out, experiences from OECD countries shows that economic instruments are a powerful tool for protecting the environment and enhancing economic efficiency. Furthermore, their use can improve policy integration, under the assumption that all sectors in an economy are subject to levies resulting in the internalisation of environmental externalities and providing the same marginal incentives to all sectors. But politicians should keep it in mind that the use of economic instruments in environmental policy is not a panacea (Barde 2000, p.27). They are part of a whole policy package covering a wide variety of economic measures, such as regulations, standards, voluntary agreements, tradable permits, etc. There is almost unanimous agreement that the EIs are best used as a part of a whole policy package, i.e. in combination with other environmental policy instruments. The selection of the most appropriate instrument should only be done after considering the precise environmental problems that need to be addressed. Moreover, the process of deciding which of the available policy instruments is to be applied should also ensure that no other difficulties are created or exacerbated. But the most important criteria for assessing the effectiveness of different policy options, including environmental taxes and charges, is effective enforcement.

Endnotes

- 1 Two databases with detailed environment-related taxes and charges have been developed by the OECD (OECD 2000) and the European Commission (EC 1999 and 2000a).
- 2 Nigel Jackson and Francois Hequet assisted the SIEI Secretariat during their internship at the REC in 2000.
- 3 Economic instruments have been implemented in many non-OECD countries. For surveys of instruments in other regions see Huber et al. (1996) *Market Based Instruments for Environmental Policymaking in Latin America and the Caribbean*, O'Connor (1998) *Applying Economic Instruments in Developing Countries: From Theory to Implementation*, and REC (1999) *Sourcebook on Economic Instruments for Environmental Policy in Central and Eastern Europe*.
- 4 Among the OECD countries, two broad trends have emerged in the 1980s and 1990s: the U.S. has relied primarily on marketable type instruments, i.e. tradable permit regimes for air emissions to implement its Clean Air Act (leaded gasoline phase-out, Sulphur Dioxide (SO₂) and Nitrogen Oxides (NOx) trading programs), and European countries have focused on taxes, such as Carbon Dioxide (CO₂), SO₂, NOx, and energy taxes as well as taxes in the waste and water sector. The use of marketable instruments has recently been receiving increased attention in Europe in particular in climate change programmes. See OECD (1999a, 1999c, 2000) for further discussion.
- 5 The US EPA defines user charge as "... a fee paid in exchange for the use of natural resources or for the collection or disposal of pollutants (US EPA 2001, p.33)".
- 6 Full cost recovery, in principle, includes the cost of capital, maintenance costs and operating costs plus any computable external costs. For this reason, full cost recovery is both difficult to implement and evaluate.
- 7 For further information, see EC 1999.
- 8 A detailed evaluation analysis of a range of economic instruments has been carried by a consortium led by ECOTEC for the EC, DG Environment, during the last two years (EC 2001b, forthcoming).
- 9 The discussion of distributional implications focuses on the effects associated with environmental taxes. Stricter environmental regulations also have an effect on production structures and income distribution, but these policies meet fewer objections by the public because the effects are often less transparent.
- 10 In economic literature, this feature of EIs is referred to as "dynamic efficiency," i.e. the provision of permanent incentives for reducing environmental pollution through technological improvement.
- 11 See for example: Smith 1992, OECD 1995, Barker and Kohler 1998, Speck 1999.
- 12 For general discussion of environmental policy during the transition process see OECD 1999a.
- 13 For general discussion, see OECD 1999c.
- 14 See Chapter 2 of this report for discussion of evaluation studies in Western European countries.
- 15 The analysis covers the national funds of: Bulgaria, Czech Republic, Estonia, Hungary, Poland, and Slovakia. This figure excludes funds operating at the municipal level that also receive revenues from pollution charges in some countries; calculation based on OECD, 1999b.
- 16 Croatia is in the process of establishing an Environmental Fund (situation: June 2001).
- 17 The term "hypothecation" is also being used in the literature instead of the term "earmarking."
- 18 This chapter is an updated version of the paper written by Speck, McNicholas and Jackson (Speck et al. 2000).
- 19 The tax rates levied on leaded petrol are not taken into account in this table because the sale of leaded petrol will be phased out over the coming years, in accordance with EU regulations. It is already phased out in several CEECs, such as Hungary, Lithuania, Slovakia and Estonia.
- 20 Table 4.2 takes into account excise taxes and national taxes when incorporated in the excise tax, as in cases of Slovenian CO₂ tax and Hungarian fuel product charges. For the total taxation on motor fuels in relation to the Directive 92/82/EEC, see Table 10.3. For details on national taxes not incorporated in the excise tax see Annex 1.
- 21 Ministry of Environment is currently preparing the rules for the use of environmental credits in accordance with the National Environmental Protection Programme (Zalatnay 2000).
- 22 The use of PPS is the standard approach when GDP figures of nations are compared on a per capita basis (see for example World Bank or Eurostat publications). But it should be noted that PPS is an artificial currency reflecting differences in the price levels between countries, which are not reflected by the official exchange rates.
- 23 This figure corresponds to "investment outlays for environmental protection" defined by the Main Statistical Office and also outlays for provision of water (see Markowska et al., 2000). For further information see also *Pollution Abatement Control Expenditures in CEE/NIS*, OECD, 1998. While the methodology used by the OECD to calculate PAC expenditures differ from official Polish Statistics, PAC expenditures in Poland nevertheless ranked among the highest in Europe.
- 24 See McNicholas and Speck 1999 for further discussion on pollution charge systems in CEE.
- 25 Polluter must apply to the state environmental authority to be classified in this group; the group will only exist until 2007, when all the sources are expected to be able to meet the emission limits.
- 26 Such as annual vehicle tax, registration charges, commercial vehicle taxes, road charges etc.
- 27 For a detailed analysis of the use of economic instruments in the water sector in Croatia, see REC 2001b.

28 E.g. EUR 0.141 million in Slovakia, EUR 0.166 million in Lithuania and EUR 0.769 million in Estonia; Source: Annex 1.

29 An example is the water tax at Setubal in Portugal, which has a progressive scale for charging households for both water consumption and wastewater treatment. For a monthly water consumption of 25 cubic metres, the first 5 m³ are charged at 0.33 EUR per m³, the next 10 m³ at 0.51 EUR/m³, and the next 10 at 0.80 EUR/m³.

30 In Flanders, for example, households are entitled to a tax-free supply of 15m³ of water per person per year.

31 When original data was provided in EUR per cubic metre, waste charges were recalculated into EUR/t by using specific density of solid municipal waste and weight of 250 kg/m³ (REC 2001d).

32 Waste prevention — recovery, reuse and recycling — safe disposal.

33 These included: imposition and collection of the charges, processing the registration forms, reallocation of revenues, consideration of rebates, modification of legislation, information provision, etc. The initial cost (Product Charges Act was passed in 1995) of the implementation of the system was HUF 50-100 million, while the total operational cost varies from HUF 300-350 million annually (Zalatnay, 2000).

34 Francios Hequet, contributing author.

35 For general discussion of environmental pressures in CEE, see EEA 1998 and EEA 2001.

36 Several EU accession countries have closed the negotiation process of the environmental *acquis*; these countries are the Czech Republic, Estonia, Hungary, Lithuania and Slovenia (situation: June 2001).

37 The Association Agreements with Cyprus and Malta cover similar fields (except political dialogue), while the Agreement with Turkey was also aiming to achieve a Customs Union. For an introduction see DG *Enlargement, European Union enlargement: A historic opportunity* and the DG's web site at <<http://europa.eu.int/comm/enlargement>>.

38 The programme name ISPA stands for Instrument for Structural Policies for Pre-Accession, Phare for Poland and Hungary: Action for the Restructuring of the Economy and finally SAPRAD for Special Accession Programme for Agriculture and Rural Development (see for further information about these programmes: website of DG Enlargement <<http://europa.eu.int/comm/enlargement/>>).

39 The Commission proposed a Council Directive for Restructuring the Community Framework for the Taxation of Energy Products (COM(1997)30), extending minimum excise rates on other energy sources, e.g. electricity, natural gas and coal. But this proposal is still under political discussion, and its introduction is blocked by EU member states.

40 Only in two regions — Prague (Czech Republic) and Bratislava (Slovakia) — GDP per capita is higher or close to the EU average (Eurostat 2001a).

41 National taxes such as road and fuel charges in Bosnia and Herzegovina, Bulgaria and Romania are also considered as part of the total tax levied on motor fuels in this table.

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Annex 1: Database of Environmental Taxes and Charges in Central and Eastern Europe

TABLE 1

Exchange Rates (2000)

<i>Country</i>	<i>National Currency per EUR</i>
Albania	133.7
Bosnia and Herzegovina	1.956
Bulgaria	1.956
Croatia	7.7
Czech Republic	35.7
Estonia	15.7
Hungary	260.8
Latvia	0.56
Lithuania	3.7
FYR Macedonia	60.7 (2001-57.2)
Poland	4
Romania	19,947
Slovakia	42.8
Slovenia	207.5
Yugoslavia	45.7

<i>Total Revenue</i>	<i>Revenue collec- tion authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
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ALBANIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
ENERGY TAXES/CHARGES				
MOTOR FUEL TAXES/CHARGES				
Excise tax	Revenue raising taxes	Leaded petrol Unleaded petrol Diesel	20% of price 90% of price 80% of price	
VAT	Revenue raising taxes	Leaded petrol Unleaded petrol Diesel	20% for all motor fuels	
OTHER ENERGY PRODUCTS				
Excise tax	Revenue raising taxes	LPG Kerosene Light fuel oil Heavy fuel oil	50% 50% 20% 20%	
VAT	Revenue raising taxes	All fuels	20%	
AIR EMISSION CHARGES				
Emission charges				
Emission non-compliance fee				
CO₂ tax				
TRANSPORT RELATED TAXATION				
Annual vehicle tax	Revenue raising taxes	- Passenger cars, busses (depending on the no of seats) - Transport vehicles (2 to 10 tons per axel)	5,000- 13,000 ALL; 37.4 – 97.2 EUR 5,000 – 23,000 ALL; 37.4 – 172 EUR	
Import duty	Revenue raising taxes	- Passenger cars - Lorries >5 tons	40,000ALL; 299 EUR 50,000ALL; 374 EUR	
Annual registration charge	Revenue raising	Motorbikes Cars Vans/lorries Minibuses Buses Lorries	600 ALL; 4.5 EUR 2,400 ALL; 18 EUR 3,600-7,200 ALL; 27-54 EUR 4,800 ALL; 36 EUR 6,000-8,400 ALL; 45-63 EUR 2,400-3,600 ALL; 18-27 EUR	

1 Fuel prices: Leaded petrol 120 ALL/l; 0.9 EUR/l Kerosene 120 ALL/l; 0.9 EUR/l Unleaded petrol 125 ALL/l; 0.93 EUR/l
 Heavy fuel oil 25 ALL/l; 0.19 EUR/l Diesel 80 ALL/l; 0.6 EUR/l Light fuel oil 25 ALL/l; 0.19 EUR/l
 LPG 120 ALL/l; 0.9 EUR/l

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
		General Directorate for Taxation	Central budget	Final prices of all fuels are subject to maximum regulations. Excise law has been amended at an average rate of 3 times per year in the period 1993 - 1998. Approximate excise rates calculated based on the fuel prices ¹ : Leaded petrol — 150 EUR/kl Unleaded petrol — 443 EUR/kl Diesel — 266 EUR/kl
		General Directorate for Taxation	Central budget	
				Approximate excise rates calculated based on the fuel prices ¹ : LPG — 299 EUR/kl Kerosene — 299 EUR/kl Light Fuel Oil — 31 EUR/kl Heavy Fuel Oil — 31 EUR/kl
		Road Inspectorate	Central budget	
		Customs Authority	Central budget	
		Road Inspectorate	Central budget	

ALBANIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Foreign vehicle tax	Revenue raising taxes	Passenger cars Microbuses Buses Lorries	1 USD/day; 1.08 EUR/day 2 USD/day; 2.17EUR/day 0.2 USD/km; 0.22 EUR/km 0.02 USD/km; 0.022 EUR/km	
Harbour taxes	Revenue raising taxes	Based on type of cargo /ship: - general goods - liquid cargo - ferries, passenger ship - yachts (dependent on the length of the vessel)	0.4 USD/net t; 0.43 EUR/net t 0.6 USD/net t; 0.65 EUR/net t 0.35USD/net t; 0.38 EUR/net t 13 – 30 USD/vessel; 16.3 – 32.5 EUR/vessel	
Air travel	Revenue raising taxes	- Landing tax (based on weight) - 24 hour stay (based on weight) - Passage through Alban. air space - Exit tax (travelling on international flights)	25 - 900 USD; 27 – 976 EUR 8 - 200 USD; 9 – 217 EUR 100 USD/passage; 108 EUR/passage 1,000 ALL (7.5 EUR) for Albanian citizens, or 10 USD for foreign citizens	

WASTE RELATED PRODUCT CHARGES

Batteries/ accumulators				
Disposable containers/ packaging				

WASTE

Municipal waste user charges	Cost recovery	Annual charges for: Households Shops (dependent on the type of goods sold) Restaurants Hotels Private hospitals / dorms Public hospitals / dorms Private Offices Public Offices Cultural Instit. Sport Instit. Small business Large business Construction	300 ALL; 2.2 EUR 5000-15,000 ALL; 37-112 EUR 15,000 ALL; 112 EUR 500 ALL/room; 3.7 EUR/room 500 ALL/room; 3.7 EUR/room 20 ALL/room; 0.15 EUR/room 250 ALL/room; 1.9 EUR/room 50 ALL/room; 0.37 EUR/room 10,000 ALL; 75 EUR 20,000 ALL; 150 EUR 5,000 - 15,000 ALL; 37 –112 EUR 15,000 -50,000 ALL; 112-374 EUR 60,000 ALL; 449 EUR	
Waste disposal charge				
Deposit – refund scheme	Incentive	Glass bottles		

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
		Customs Authority	Central budget	
		Customs Authority	Central budget	
		Municipalities	Waste treatment	Additional funds for waste treatment are generally provided by the state budget.
				Mainly for economic reasons; market also exists for scrap metal

ALBANIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
WATER				
INSTRUMENTS FOR MANAGING WATER QUALITY				
Water consumption charge	Cost recovery	Per m ³ of water supplied to: Households Public sector Private sector	5-27 ALL; 0.11-0.2 EUR 28-30 ALL; 0.21 – 0.22 EUR 70-85 ALL; 0.52- 0.64 EUR	
Sewage treatment user charge				
Effluent charges				
Non-compliance fees	Compliance	Per case of violation	100,000 – 2 mil ALL; 750 – 14,960 EUR	
INSTRUMENTS FOR MANAGING WATER QUANTITY				
Water extraction charge				
NATURAL RESOURCE AND MINING				
Mining charges	Revenue raising	- Mining license (depends on the type of mineral ²) - Exploration license: minerals of the groups 1, 2, 3 minerals of the group 4 - Royalty	1,925 - 6,420 EUR/year 192 EUR/year 64 EUR/km ² 2% of the mineral's market value	
INSTRUMENTS FOR BIODIVERSITY AND NATURE PROTECTION				
Hunting charges				
Fishing charges				
Natural park entrance fees				
DIRECT TAX PROVISIONS				
Investments, grants, etc.				
Accelerated depreciation				
Tax allowances for environmental technology				
Allowances on import of environmental technology				

² Minerals are classified into six main groups: 1. metallic minerals; 2. non-metallic minerals; 3. coal and bitumen; 4. minerals and construction materials; 5. jewels; 6. semi-precious jewels and opals.

	Total Revenue	Revenue collection authority	Use of Revenue	Comments
		Water Authority	Water management	Minimum and maximum price of water is defined by Central Government (Council of Ministers), and is partially subsidized for households. Enterprises are required to install metering at their own expense.
				To be introduced
				Fines are set under the Water Reserves Law, and are mainly designed to penalize illegal use of water resources; fine of 500,000 ALL (3,740 EUR) is envisaged for wastewater discharges made without a permit or consent of competent basin authorities.
				The Ministry of Public Economy and Privatization, based on criteria set by the Council of Ministers, determines levels of the charges. Exploration and mining charges are set in Swiss Francs, and payable in local currency.

BOSNIA AND HERZEGOVINA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
ENERGY TAXES/CHARGES				
MOTOR FUEL TAXES/CHARGES				
Excise tax	Revenue raising taxes	Leaded petrol Unleaded petrol Diesel	400 KM/kl; 204.5 EUR/kl 350 KM/kl; 178.9 EUR/kl 300 KM/kl; 153.4 EUR/kl	
CO₂ tax				
Turnover tax on goods and services		All motor fuels	24%	
Road usage fee		All motor fuels	125 KM/kl; 63.9 EUR/kl	
OTHER ENERGY PRODUCTS				
Excise tax	Revenue raising taxes	All other kinds of petrol ¹ Extra light fuel oil Special light fuel oil	250 KM/kl; 127.8 EUR/kl 90 KM/kl; 46 EUR/kl 90 KM/kl; 46 EUR/kl	
Turnover tax on goods and services	Revenue raising taxes	Kerosene (airplane fuel) Petroleum oil Technical gas LPG ² (used as a propellant) Crude oil Heating oil LPG in containers Coal Wood for heating Electricity Natural gas District heating	24% 24% 24% 60% 12% 12% 12% 12% 12% 12% 12% 12%	
AIR EMISSION CHARGES				
Emission charges				
Emission non-compliance fees				

¹ According to the Law on Tax on Oil Derivatives (*Official Gazette* F B&H, No 6, 1995, Article 3), oil derivatives include, among others, "all other kinds of petrol"; the Law does not specify further products within this category.

² According to the Law on Turnover Tax on Goods and Services (*Official Gazette* F B&H, No. 6, 1995), and according to the Tariffs of the turnover tax on goods and services, "if LPG is used to power motor vehicles and motor vessels, turnover tax rate is set at the level of 60%."

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
		Tax Office (customs station)	Central budgets of the two entities	The rates apply from September 9, 2000. Motor fuels have market prices in Federation of Bosnia and Herzegovina (FB&H) since the end of 2000 (in Republic of Srpska (RS), market prices were introduced even earlier). Current prices (dependent on the octane grade) are: Leaded 1.35-1.70 KM/l; 0.69-0.87 EUR/l Unleaded 1.25-1.70 KM/l; 0.64-0.87 EUR/l Diesel 1.20-1.60 KM/l; 0.61-0.82 EUR/l
		Tax Office	Cantonal budgets	
			Entities' budgets, cantonal budgets, municipal budgets	The road usage fees are levied on motor fuels in addition to excise taxes; for example, total tax (excluding turnover tax) levied on leaded petrol is 525 KM/kl.
		Tax Office	Central budgets of the entities	The rates apply from September 9, 2000.
		Tax Office	Cantonal budgets	

BOSNIA AND HERZEGOVINA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
TRANSPORT RELATED TAXATION				
Sales tax	Revenue raising taxes	Value of the vehicle	20%	
Import duty	Revenue raising taxes	New cars: - Passenger cars 1000 – 3000cm ³ - Ambulances 1000 – 3000cm ³ - Buses 2500 – 2800 cm ³ Used cars (1000 – 3000cm ³):	17% 10% 15% 15%	
Turnover tax on goods and services	Revenue raising taxes	Value of the vehicle	10%	
Annual vehicle tax				
Registration charges: - Fee for Motor Vehicles Association - Road fee - Water protection fee	Administration cost recovery/ earmarked charge	Vehicles Lorries All vehicles, dependent on engine capacity and/or carrying capacity ³ All vehicles, dependent on the engine capacity	8 KM; 4.1 EUR 15 KM; 7.7 EUR 25 KM – 1,200 KM; 12.8 – 613.5 EUR 20 KM – 160 KM; 10.2 – 81.8 EUR	
Toll roads				
AIR TRANSPORT				
Flight transportation tax/ noise charges				
AGRICULTURAL INPUTS				
Pesticides				
Fertilizers				
WASTE RELATED PRODUCT CHARGES				
Batteries/accumulators				
Carrier bags				
Disposable containers/packaging				

3 Vehicles:	0-900 cm ³	25KM	Buses:	10 KM	Vehicles for transportation of goods and people:
	900-1350 cm ³	40 KM			0 – 3,500 kg 250 KM
	1350-1800 cm ³	50KM	Trucks:	up to 1,200 KM	+ 3,500 kg 375 KM
	1800-2500 cm ³	100 KM			
	2500-3150 cm ³	150 KM			
	+ 3150 cm ³	200 KM			

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BOSNIA AND HERZEGOVINA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Tyres				
CFCs and/or halons				
Light bulbs				
Lubricants				
Refrigerants				
WASTE				
Municipal waste user charges	Cost recovery	FB&H Sarajevo Households: Srednje bosanski canton Households: Zenicko – Dobojski canton Households: Posavski canton Households: Small enterprises: Big enterprises: RS: Doboj Households: Enterprises: Banja Luka Households: Enterprises: Prijedor Households: Enterprises:	0.1 KM (0.051 EUR)/m ² + 1 KM (0.51 EUR)/month 0.1 KM (0.051 EUR)/m ² or 7KM (3.58 EUR)/month 0.15 KM/m ² ; 0.08 EUR/m ² 10 KM (5.11 EUR)/month 15 KM (7.67 EUR)/month 50 KM (25.6 EUR)/month 0.024 KM/m ² ; 0.012 EUR /m ² 0.075KM/m ² ; 0.038 EUR /m ² 0.04 KM/m ² ; 0.02 EUR/m ² 0.075KM/m ² ; 0.041 EUR /m ² 0.03 KM/m ² ; 0.015 EUR/m ¹⁰² 0.20KM/m ² ; 0.102 EUR/m ²	
Waste disposal charge				
Waste non-compliance fees				
Deposit-refund schemes				
WATER				
INSTRUMENTS FOR MANAGING WATER QUALITY				
Water consumption charge	Cost recovery Incentive	Volumetric charge or flat rate ⁴ : Households Industry	0.2 – 1.2 KM/m ³ ; 0.1 – 0.61 EUR/m ³ 0.5 – 3.0 KM/m ³ ; 0.26 – 1.53 EUR/m ³	

⁴ When there is no metering equipment, consumption of 5 - 6 m³ per person per month is normally assumed; this figure is estimated based on the average water consumption of consumers with water meters.

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BOSNIA AND HERZEGOVINA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Water protection charge		RS: < 10,000 ⁵ p.e. > 2,000,000 p.e. FB&H	1KM/p.e; 0.51 EUR/p.e. 14,700 KM (7,515 EUR) + 0.00483 KM (0.002 EUR)/p.e. 2 KM/p.e; 1.02 EUR/p.e.	
Sewage treatment charge				
INSTRUMENTS FOR MANAGING WATER QUANTITY				
Water abstraction charge	Resources management	FB&H: Abstracted water Water for hydro power plants RS: - Agriculture - Irrigation - Fish farming in artif. reservoirs - Industry, mining, energy, forestry, water mgmt. etc. - Financial, technical professional services - Wat. supp. companies	0.1 KM/m ³ ; 0.05 EUR/m ³ 2% of the production price 0.01 KM/m ³ ; 0.005 EUR/m ³ 0.006 KM/m ³ ; 0.003 EUR/m ³ 0.013 KM/m ³ ; 0.007 EUR/m ³ 0.045 KM/m ³ ; 0.023 EUR/m ³ 0.040 KM/m ³ ; 0.02 EUR/m ³ 0.035 KM/m ³ ; 0.018 EUR/m ³	
NATURAL RESOURCE AND MINING				
Gravel extraction charge	Resources management	FB&H m ³ of extracted material	1 KM/m ³ ; 0.51 EUR/m ³	
INSTRUMENTS FOR BIODIVERSITY AND NATURE PROTECTION				
Natural park entrance fees				
Nature protection non-compliance fees				
Wood export charges	Revenue raising	RS: Value of exported: - raw wood - timber	10% 3%	
DIRECT TAX PROVISIONS				
Investments grants, etc.				
Accelerated Depreciation				

⁵ Decision of RS Government determines water protection fee for one population equivalent (p.e.), based on the average 24 hours discharge of wastewater, and according to the number of inhabitants. This varies from 1KM per p.e. for less than 10,000 p.e, to 14,700 KM plus 0.00483 KM per p.e. for more than 2,000,000 p.e.

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
			Ministry for Water Management in RS Central and municipal budgets in FB&H;	Introduced in 1998, based on the Polluter Pays Principle.
				Sewage charge is included in the price of water – see paragraph above.
			Central and municipal budgets in FB&H Ministry for Water Management in RS	
		Entity budget in RS		Federal Law provides for reforestation (20% of profits) and afforestation fees (3%) but these Federal regulations are not thoroughly enforced.

Note: In B&H, there are no Environmental Protection Funds on the national level or the entities' level. There are two cantonal laws (*Official Gazette of Zenica-Doboj Canton* no 1/2000 and *Official Gazette of Tuzla Canton* no 6/98) that provide for the establishment of cantonal Environment Protection Funds in the Federation of Bosnia and Herzegovina.

<i>Total Revenue</i>	<i>Revenue collec- tion authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
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BULGARIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
ENERGY TAXES/CHARGES				
MOTOR FUEL TAXES/CHARGES				
Excise tax	Revenue raising taxes	Leaded petrol Unleaded petrol Diesel Kerosene LPG (as propellant)	220, 404 BGL/kl; 112, 207 EUR/kl 222, 370 BGL/kl; 113, 189 EUR/kl 94 BGL/kl; 48 EUR/kl 325 BGL/t; 165EUR/t 325 BGL/t; 165EUR/t	
CO₂ tax				
Fuel product charge	Revenue raising	Unleaded petrol Leaded (A-91) Leaded (A-98) Diesel Boiler fuel, mazut (sulphur content >1%) Industry gasoline	18 BGL/kl; 9 EUR/kl 27 BGL/kl; 14 EUR/kl 35 BGL/kl; 18 EUR/kl 12 BGL/kl; 6 EUR/kl 22 BGL/t; 11 EUR/t 13 BGL/t; 7 EUR/t	
Road charge	Revenue raising	All fuels (as above)	180 BGL/t; 92 EUR/t	
VAT	Revenue raising taxes	Leaded petrol Unleaded petrol Diesel LPG (as propellant)	20% 20% 20% 20%	
OTHER ENERGY PRODUCTS				
Excise tax				
VAT	Revenue raising taxes	Light fuel oil Heavy fuel oil Coal Natural gas Electricity District heating	20% 20% 20% 20% 20% 20%	
AIR EMISSION CHARGES				
Emission charges				
Emission non-compliance fees	Compliance/revenue raising	Excess emissions of air pollutants	Based on formula ¹	

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	422 mil BGL; 215.7 mil EUR	Tax administration	Central budget	Excise tax rates for leaded and unleaded petrol are differentiated based on the octane grade of fuels. Higher tax rates apply to fuels with higher octane grades (e.g. leaded petrol with octane grade under 98 is taxed with 220 BGL/kl, while leaded petrol with octane grade 98 and above is taxed at the rate of 404 BGL/kl). Leaded petrol is to be phased out until the end of 2003.
	42.125 mil BGL; 21.536 mil EUR	National Environmental Protection Fund	Air protection projects	
	273.475 mil BGL; 139.813 mil EUR	Agency for roads		
		Tax administration	Central budget	
		Tax administration	Central budget	
	1.202 mil BGL; 0.615 mil EUR	Regional Inspectorates of the Ministry of Environment and Waters	70% National Environmental Fund; 30% Municipal Environmental Funds	Regional Inspectorates measure actual pollution levels of the stationary emission sources. Permissible emission levels are set for 16 pollutants, including SO ₂ , NO _x , CO, particulate matter, lead etc. Non-compliance fees are proportional to the quantity of emitted pollutant and duration of excess emissions.

BULGARIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
TRANSPORT RELATED TAXATION				
Sales tax	Revenue raising taxes	Assessed value of the vehicle (insurance assessment)	2%	
Import duty	Revenue raising taxes	Value of the vehicle	5-25%	
Excise tax	Revenue raising taxes	Passenger cars, combined cargo -passenger cars, and racing cars for no more than 9 persons	40% of the vehicle value	
VAT	Revenue raising taxes	Value of the vehicle	20%	
Annual vehicle tax	Revenue raising taxes	Cars (based on engine power) Buses: - up to 22 seats - above 22 seats	0.1 - 2 BGL/kW; 0.05–1.05 EUR/kW 50 BGL; 25 EUR 100 BGL; 51 EUR	
Registration charge	Administration cost recovery	Motorcycles All other kinds of vehicle	2 BGL; 1 EUR 4 BGL; 2 EUR	
Company car tax allowance				
Toll roads				
AIR TRANSPORT				
Flight transportation tax/noise charges				
AGRICULTURAL INPUTS				
Pesticides				
Fertilizers				
WASTE RELATED PRODUCT CHARGES				
Batteries/ accumulators				

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	Not available	Local tax administration	Municipal budget	
	6.58 mil BGL; 3.364 mil EUR	Customs	Central budget	Import duty depends on the power and type of motor, and whether vehicle is a new or second-hand one. There are import duty preferences for vehicles imported from the EU.
		Tax administration	Central budget	
		Tax administration	Central budget	
	25.689 mil BGL; 13.133 mil EUR	Municipal tax administration	Municipal budget	There is a 50% tax reduction for buses and trucks with "eco-motor" (according to "Evro1" and "Evro2" standards).
	No separate data available	Ministry of Internal Affairs	Central budget	
				New regulation on charges on batteries/accumulators comes into force on January 1, 2001. Charge is collected from producers and importers of batteries and accumulators, and is differentiated based on the content of harmful substances. Collected revenue is earmarked for the National Environment Protection Fund, and used for the expansion of activities

BULGARIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Batteries/accumulators continued				
Carrier bags				
Disposable containers/packaging				
Tyres	Revenue raising	For tyres with single weight under 20 kg: - new - regenerated - second-hand For tires with single weight above 20 kg: - new - regenerated - second-hand	0.2 BGL/kg; 0.1 EUR/kg 0.3 BGL/kg; 0.15 EUR/kg 1 BGL/kg; 0.51 EUR/kg 0.1 BGL/kg; 0,05 EUR/kg 0,12 BGL/kg; 0,06 EUR/kg 0,5 BGL/kg; 0,26 EUR/kg	
CFCs and/or halons				
Light bulbs				
Lubricants				
Refrigerants				
WASTE				
Municipal waste user charges	Cost recovery	Households: assessed value of buildings Industry: assessed value of buildings and number of containers used	Sofia: 1.5 BGL for 1,000 BGL of assessed value (0.77 EUR per 511 EUR of assessed property value) annually	
Waste disposal charge				
Waste non-compliance fees		Mass (kg, t)	Varies	
Deposit-refund schemes				
Levies related to nuclear waste management	Revenue raising	Nuclear power plants Other producers of nuclear wastes (activity from 3,7 MBq to 3,7 TBq and half life-time from 1 month to 30 years): - up to 1 month	Based on formula ² 15,000 to 230,000 BGL; 7,669 to 117,587 EUR	

<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
			related to treatment of waste batteries and accumulators.
2. 098 mil BGL; 1.073 mil EUR	National Environmental Fund	Projects related to treatment of waste tyres	Charge calculated based on formula: $P = T \times E$, where P is amount due, T is quantity of tyres in kg, and E is charge rate in BGL/kg. Reported revenue refers to all kinds of tyres.
80.655 mil BGL; 41.235 mil EUR	Municipal tax administration	Municipal budget	Municipal waste user charge is levied annually. Its level is determined by the Municipal Ordinances (in order to cover costs of collection, transport and disposal of waste), and it differs across the country.
	Municipal tax administration	Municipal budget	Non-compliance fees are determined by Municipal Ordinances. Revenues go to municipal budget, and there is no summarized data for the whole country.
			Deposit-refund system is in place only for glass bottles.
27.376 mil BGL; 13.996 mil EUR	Fund for Security and Management of Radioactive Wastes	Management of radioactive wastes	State budget subsidizes activities related to management of radioactive wastes; therefore, organizations financed through the budget do not pay levies related to nuclear waste management.

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<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Levies related to nuclear waste management continued		- from 1 month to 1 year - from 1 year to 6 years - from 6 years to 30 years - above 30 years	25,000 – 765,600 BGL; 12,781 – 391,411 EUR 40,000 – 900,000 BGL; 20,450 – 460,123 EUR 40,000 – 1,440,000 BGL; 20,450 – 736,196 EUR 40,000 – 2,880,000 BGL; 20,450 – 1,472,393 EUR	

WATER INSTRUMENTS FOR MANAGING WATER QUALITY

Water consumption charge	Cost recovery	Population Industry	0.35 – 1.7 BGL/m ³ ; 0.18 – 0.87 EUR/m ³ 0.52 – 1.80 BGL/m ³ ; 0.27 – 0.92 EUR/m ³ ³	
Sewage treatment charge	Cost recovery			
Water effluent charge				
Water pollution non-compliance fee	Revenue raising	Wastewater discharges – concentrations above the permitted level	Based on formula ⁴	

INSTRUMENT FOR MANAGING WATER QUANTITY

Water extraction charge				
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NATURAL RESOURCE AND MINING

Mining charges	Revenue raising	Quarry Sand Gravel Clay pit	0.1 – 0.3 BGL/m ³ ; 0.05 – 0.15 EUR/m ³ 0.05 – 0.15 BGL/m ³ ; 0.026 – 0.08 EUR/m ³ 0.05 – 0.15 BGL/m ³ ; 0.026 – 0.08 EUR/m ³ 0.1 – 0.3 BGL/m ³ ; 0.05 – 0.15 EUR/m ³	
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INSTRUMENTS FOR BIODIVERSITY AND NATURE PROTECTION

Hunting charges	Revenue raising / resource management	Annual hunting permit: - Bulgarian citizens - Foreigners Big game permit	25 BGL; 13 EUR 45 BGL; 23 EUR 10 - 300 BGL/kg; 5 - 153 EUR/kg	
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	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
		Municipal tax administration	Municipal budget (in case water supply companies are owned by municipalities); Water supply companies	The price of one m ³ of water is calculated on the basis of total production and supply costs, but it does not include investments for the development of water supply services. The price varies from one municipality to another. Water sector is subsidised from the State budget, National Environment Fund and Municipal budgets.
				Included in the water consumption charge. Sewage charge accounts for some 18% of the water consumption charge.
	1.72 mil BGL; 0.879 mil EUR	Regional Inspectorates of the Ministry of Environment and Waters	70% National Environmental Fund; 30% Municipal Environmental Funds	
	Data not available	Municipal tax administration	Municipal budget (dependent on the location of production)	
	3.940 mil BGL; 2.014 mil EUR	Local hunting associations	Protection of species	There are 16 hunting associations in Bulgaria.

BULGARIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Fishing charges	Revenue raising/ resource management	Annual fishing permit: - Bulgarian citizens - Foreigners	12,5 BGL; 6 EUR 35 BGL; 18 EUR	
Natural park entrance fees				
Nature protection non-compliance charges	Revenue raising / resource management	Hunting: - Indemnity for damages (per unit) - Fines for violating regulations Fishing: - Indemnity for damages (per unit) - Fines for violating regulations Indemnities for damages in protected areas: - per animal killed/captured - per unit / kg of plant	0.8 – 1,300 BGL; 0.41 – 665 EUR 100 – 5,000 BGL per violation; 51 – 2,556 EUR 1 - 200 BGL; 0.5 – 102 EUR 10 - 400 BGL per violation; 5 – 204 EUR 10 - 1,000 BGL; 5 – 511 EUR 10 - 300 BGL; 5 – 153 EUR	
Tree cutting charges	Revenue raising / resource management	Dependent on the kind of tree and the use of material	1 – 100 BGL (0.5 - 51 EUR) per tree	

DIRECT TAX PROVISIONS

Investments, grants, etc.				
Accelerated depreciation				
Income tax/VAT allowances for environment				
Duty/tax allowances for imports of environment- friendly goods				

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	Data not available	Local fishing associations	Protection of species	
	Data not available	Municipal tax administration	Protection of species	
			Protection of species in protected areas	
	Data not available	Ministry of Agriculture and Forests	Forest management	Tree cutting charges may also be determined through tender, negotiation, or concession agreements. Charge rates vary in each of these cases, and it is up to municipalities to decide which mode will be applied in each particular case of forest exploitation.

$$1 \ A = \sum_{i=1}^n Q \times (KF_i - KH_i) \times T \times C_i \times 3.6 \times 10^{-3}$$

A the fine in BGL per month
 Q quantity of a given pollutant discharged into atmosphere
 KF_i actual concentration of the pollutant i
 KH_i permissible emission of the pollutant i
 T time period of excess emissions (hours per month)
 C_i base unit for the pollutant i (in BGL/kg)

The base unit of the fine is:

SO ₂ (from electricity power stations with capacity of 0.5 MW to 100 MW)	5 BGL/t; 2.56 EUR/t
SO ₂ (from electricity power stations with capacity of 100 MW to 500 MW)	6 BGL/t; 3.07 EUR/t
SO ₂ (from electricity power stations with capacity above 500 MW)	0.06 BGL/t; 0.031 EUR/t
SO ₂ (from industry's combustion)	6 BGL/t; 3.07 EUR/t
NO _x (from electricity power stations)	180 BGL/t; 92.02 EUR/t
NO _x (other sources)	120 BGL/t; 61.35 EUR/t
Copper	1,500 BGL/t; 767 EUR/t
Lead	15,000 BGL/t; 7,669 EUR/t
Cadmium	45,000 BGL/t; 23,006 EUR/t
Dust	40 BGL/t; 20.45 EUR/t
Ammonia	60 BGL/t; 30.67 EUR/t

$$2 \ \frac{3 \times A \times B}{100}$$

where:

A is the average net price (without taxes) of produced electricity in the last quarter (in BGL/kWh)

B is electricity produced in the nuclear power plant (in kWh)

3 The above rates do not include VAT (VAT rate for water services is 20%)

$$4 \ A = \sum_{i=1}^n Q \times (KF_i - KH_i) \times T \times C_i \times 3.6 \times 10^{-3}$$

A the fine in BGL per month
 Q flow rate of wastewater (in litres per second)
 KF_i actual concentration of the pollutant i
 KH_i permissible emission of the pollutant i
 T time period of wastewater discharge (in hours per month)
 C_i base unit for the pollutant i

Base units for key pollutants:

BOD	0.36 BGL/kg; 0.18 EUR/kg	Mercury	1620 BGL/kg; 828 EUR/kg
COD	0.36 BGL/kg; 0.18 EUR/kg	Cadmium	162 BGL/kg; 83 EUR/kg
Nitrogen from ammonium	1.20 BGL/kg; 0.61 EUR/kg	Lead	3,250 BGL/kg; 1,662 EUR/kg
Nitrate	0.12 BGL/kg; 0.06 EUR/kg	Arsenic	3,250 BGL/kg; 1,662 EUR/kg
Nitride	27 BGL/kg; 13.8 EUR/kg	Chromium	32.50 BGL/kg; 16.6 EUR/kg
Petrol products	42 BGL/kg; 21.5 EUR/kg	Nickel	8.20 BGL/kg; 4.2 EUR/kg
Cyanides	21.60 BGL/kg; 11 EUR/kg	Formaldehyde	2.20 BGL/kg; 1.1 EUR/kg

<i>Total Revenue</i>	<i>Revenue collec- tion authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
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CROATIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
ENERGY TAXES/CHARGES				
MOTOR FUEL TAXES/CHARGES				
Excise tax	Revenue raising tax	Leaded petrol Unleaded petrol Diesel LPG (as propellant)	2,900 HRK/kl; 376.6 EUR/kl 2,400 HRK/kl; 311.7 EUR/kl 1,500 HRK/kl; 194.8 EUR/kl 100 HRK/t; 13 EUR/t	
CO₂ Tax				
VAT	Revenue raising tax	All motor fuels	22%	
OTHER ENERGY PRODUCTS				
Excise tax	Revenue raising tax	Light heating oils Coal Natural gas Electricity District heating	300 HRK/kl; 39 EUR/kl 0 0 0 0	
CO₂ Tax				
VAT	Revenue raising tax	Light heating oils Coal Natural gas Electricity District heating	22% for all products	
AIR EMISSION CHARGES				
Emission charges				
Emission non-compliance fees¹	Compliance	Excess emissions of: SO ₂ NO _x CO Particulate matter	60,000 – 100,000 HRK per violation; 7,792 – 12,987 EUR per violation for polluters; Individual fine of max 40,000 HRK (5,195 EUR) for the person responsible	
TRANSPORT RELATED TAXATION			Transport Related Taxation	
Excise tax	Revenue raising tax	Motor vehicles (value): < 60,000 HRK (< 7,792 EUR) 60,000 – 300,000 HRK (7,792 – 38,960 EUR) > 300,000 HRK (> 38,960 EUR)	0 0 to 30,000 HRK (0 – 3,896 EUR) + 5 – 30% of the value over the lower limits 42,000 HRK (5,455 EUR) + 35% of the value over the lower limit	

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	4.376 bil HRK; 568.312 mil EUR (planned figure)	Ministry of Finance	Central budget	
	n.a.	Ministry of Finance	Central budget	Introduced on January 1, 1998; last modified on December 31, 1999
			Central budget	
	n.a.	Ministry of Finance	Central budget	Introduced on January 1, 1998; last modified on December 31, 1999
				There are no air emission charges in Croatia. Introduction of CO ₂ and SO ₂ taxes is being considered
		Ministry of Finance	Central budget	
	101.2 mil HRK; 13.141 mil EUR (planned figure)	Ministry of Finance; Customs Offices	Central budget	Law on Special Taxes on Passengers Cars, Other Vehicles, Vessels and Aircraft Following exemptions are/were in force: - Vehicles of diplomatic representations; - From January 1, 1998 to June 1, 2000, the excise tax was not paid on vessels of less than eight meters in length, provided that the engine power did not exceed 35 kW; - From November 1, 1999 to June 30,

CROATIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Excise tax continued		<p>Vessels without cabin (length):</p> <p>8 – 12 m 12 – 15m</p> <p>> 15m</p> <p>Vessels with cabin (length):</p> <p>8 – 12m 12 – 15m</p> <p>>15m</p> <p>Aircraft (no. of seats):</p> <p>1 – 4 5 – 12 13 – 50 > 50</p>	<p>6,000 HRK; 779 EUR 12,000 – 18,000 HRK; 1,558 – 2,338 EUR 24,000 – 48,000 HRK; 3,117 – 6,234 EUR</p> <p>15,000 HRK; 1,948 EUR 45,000 – 60,000 HRK; 5,844 – 7,792 EUR 90,000 – 150,000 HRK; 11,688 – 19,481 EUR</p> <p>7,000 HRK; 909 EUR 35,000 – 70,000 HRK; 4,545 – 9,091 EUR 70,000 – 140,000 HRK; 9,091 – 18,182 EUR 150,000 – 300,000 HRK; 19,841 – 38,961 EUR</p>	
Special turnover tax²	Revenue raising tax	Used passenger cars, other motor vehicles, vessels and aircraft	5% of the market value	
Import duty	Revenue raising	Declared value: New cars Used cars	10% 12%	
Tax on road motor vehicles and vessels	Revenue raising	Motor vehicles, dependent on engine power and age Vessels, dependent on length and age	20 – 200 DEM; 10.2 – 102.3 EUR 30 – 550 DEM; 15.3 – 281.2 EUR	
Charge for the use of public roads	Revenue raising	<p>- Cars (dependent on the engine capacity)</p> <p>- Buses</p> <p>- Lorries (total weight)</p>	<p>80 – 500 HRK; 10.4 – 64.9 EUR</p> <p>600 – 3,000 HRK; 78 – 390 EUR</p> <p>500 HRK (56 EUR) per lorry up to 4 t + 150 HRK (19.5 EUR) for each additional ton</p>	
Registration charge				
Company car tax allowance				

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
				2000 the excise tax was not paid on vessels with/without cabin up to eight meters in length, and the motor power of over 35 kW, unless the vessels were used for commercial fishing.
	n.a.	Ministry of Finance	Central budget	
	n.a.	Ministry of Finance - Customs Offices	Central budget	
	n.a.	Ministry of Finance	Local government (county) budgets	The tax introduced was based on the Law on Financing Local Government (N.N.117/93). It is an annual tax set in DEM, and payable in HRK. Tax-exempt are vehicles used for registered transportation activities, firefighting, police, medical, and military vehicles, as well as vehicles used by disabled persons. Taxes for newer motor vehicles/vessels are higher than for the older ones.
		Directorates for County Road Management	County road management funds	Charge payable on vehicle registration

CROATIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Road tolls	Revenue raising	Road toll depends on the type/weight of the vehicle	6 – 250 HRK; 0.78 – 3.25 EUR per drive	
AIR TRANSPORT				
AGRICULTURAL INPUTS				
Pesticides				
Fertilizers				
WASTE RELATED PRODUCT CHARGES³				
Ozone depleting substances				
Batteries/accumulators				
Carrier bags				
Disposable containers/packaging				
Tyres				
Light bulbs				
Lubricants				
Refrigerators				

[illegible]

CROATIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
WASTE				
Municipal waste user charges	Cost recovery	Surface ⁴ of residential/business premises: - Households - Other users (companies, public institutions, other)	0.27 – 0.43 HRK/m ² ; 0.035 – 0.056 EUR/m ² 0.24 – 1.15 HRK/m ² ; 0.031 – 0.149 EUR/m ²	
Waste disposal charge	Cost recovery	Different waste streams	11 – 295 HRK/t; 1.43 – 38.3 EUR/t	
Waste non-compliance fees	Compliance	- Failing to meet waste information requirements - Violating regulations on separation, treatment, recovery and disposal - Illegal import of wastes, import of hazardous waste	30,000 – 50,000 HRK; 3,896 – 6,494 EUR 50,000 – 80,000 HRK; 6,494 – 10,390 EUR 100,000 – 400,000 HRK; 12,987 – 51,948 EUR	
Deposit-refund schemes				
Levies related to nuclear waste management				
WATER				
INSTRUMENTS FOR MANAGING WATER QUALITY				
Water consumption charge	Revenue raising /cost recovery	Delivered water: - Households - Industry	2.44 – 8.46 HRK/m ³ ; 0.32 – 1.1 EUR/m ³ (average: 4.88 HRK/m ³ ; 0.63 EUR/m ³) 4.89 – 12.35 HRK/m ³ ; 0.64 – 1.6 EUR/m ³ (average: 7.69 HRK/m ³ ; 1 EUR/m ³)	
Sewage service charge	Cost recovery	Delivered water: - Households - Industry	0.9 – 4.2 HRK/ m ³ ; 0.12 – 0.55 EUR/m ³ (average: 2.48 HRK/ m ³ ; 0.32 EUR/m ³) 2.4 – 7.53 HRK/ m ³ ; 0.31 – 0.98 EUR/m ³ (average: 4.53 HRK/m ³ ; 0.59 EUR/m ³)	

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	n.a.	Service provider	Cost recovery of provided services; partial investment in waste collection/removal facilities	Waste user charges vary across the country, and are determined by service providers. Service providers are obliged to inform competent local authorities of any intended change of the waste user charges. The charges paid by "other users" are generally higher than prices for households. According to the service provider operating in Zagreb area, collection efficiency in 2000 was 93% for households and 87% for "other users".
	n.a.	Service provider	Recovery of the operational costs and investment	Waste disposal charges vary dependent on the type of waste (soil and rocks, selected industrial waste, municipal, old tyres etc.), and from one municipality to another.
	n.a.	n.a.	Central budget	Environmental Protection Inspectorate establishes that the violation is committed, and submits the case to the Court. The Court determines level of the penalty.
				Deposit-refund scheme exists only for glass bottles, and only in the retail network as a voluntary exercise.
	n.a.	Service providers	Service providers and water management agencies	Water consumption charge consists of: 1) Basic price of water – price of water supply and sewer services (water supply, sewerage, investments into infrastructure, VAT); 2) Water management charges (water use charge, water protection charge, and water use concession charge).
	n.a.	Service providers	Coverage of operational/ maintenance costs and infrastructure investments	These charges vary widely across the country, as their rates depend on the decisions of individual service providers. Almost all the service providers are shareholding companies, with local governments being the majority owners.

CROATIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Sewage service charge continued				
Water protection (effluent) charge	Cost recovery/ incentive	Volume of wastewater and level of pollution: ⁵ - Municipal/ industrial wastewater - Water used for cooling	Basic tariffs: 0.9 HRK/m ³ ; 0.12 EUR/m ³ 0.009 HRK/m ³ ; 0.00012 EUR/m ³	
Water pollution non-compliance fee	Compliance	Violation of the Water Law	2,000 – 500,000 HRK per violation; 260 – 64,935 EUR per violation	

INSTRUMENTS FOR MANAGING WATER QUANTITY

Water use charge	Revenue raising/ cost recovery	Category I ⁶ Category II Category III Categories IV and V Mineral / thermal water	0.8 HRK/m ³ ; 0.104 EUR/m ³ 0.72 HRK/m ³ ; 0.094 EUR/m ³ 0.56 HRK/m ³ ; 0.073 EUR/m ³ 0.32 HRK/m ³ ; 0.042 EUR/m ³ 1.6 HRK/m ³ ; 0.208 EUR/m ³	
Water use concession charge	Revenue raising	Dependent on water use: - Public water supply - Commercial use - Mineral/ thermal water - Irrigation - Electricity generation - Fish farming - Plant propelling	10% of the water use charge 2.5% of the revenue 10% of the water use charge 10% of the water use charge 1% of the price of kWh at plant gate 15% of the estimated value of the annual catch 1% of the revenues generated by the plant	

NATURAL RESOURCE AND MINING

Sand/gravel extraction charge	Revenue raising	Sand Gravel	3.5 HRK/m ³ ; 0.46 EUR/m ³ 2 HRK/m ³ ; 0.26 EUR/m ³	
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⁶ Category I - Drinking water quality; Category V - Water that cannot be used for any purpose without a prior treatment

	Total Revenue	Revenue collection authority	Use of Revenue	Comments
				In 1999, 52% of population was connected to wastewater treatment facilities
	156.697 mil HRK; 20.35 mil EUR	Hrvatske vode (state agency for water management) through service providers	Water protection measures	According to <i>Hrvatske vode</i> , the level of this charge is several times lower than the actual costs of wastewater treatment. The incentive part of the charge is therefore lost, while cost-recovery is only partial. Collection efficiency in 1999 estimated at 80 %.
	n.a.	Hrvatske vode	Water management	The maximum fine is, <i>inter alia</i> , paid for: - discharge of hazardous or other substances in a manner likely to cause water contamination; - failing to purify industrial wastewater prior to its discharge to public sewage system, - discharge of wastewater that is not in compliance with the regulations, etc. Revenues are earmarked for the regulation of watercourses and other water bodies in the river basin within which the violation was committed.
	154.982 mil HRK; 20.128 mil EUR (planned figure)	Hrvatske vode through service providers	Water management	Charge rates provided here refer to the m ³ of abstracted water for the use through the public water supply system. For other uses of water (e.g. electricity generation, fish farming, irrigation), formulas are applied to these basic tariffs for the calculation of water use charges paid by the user.
	n.a.	State Water Directorate or Hrvatske vode	Central or county budget	Paid by the holder of the concession contract for the use of water resources. Concession contracts granted by either State Water Directorate or Hrvatske vode
	439,140 HRK; 57,031 EUR	Hrvatske vode		

CROATIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Mining charge	Revenue raising/ incentive	Total revenue from sales of raw materials	2.5%	
INSTRUMENTS FOR BIODIVERSITY AND NATURE PROTECTION				
Charge for the conversion of agricultural land		Size and class ⁷ of land	0.15 HRK/m ² / point 0.019 EUR/m ² / point	
Charge for multiple non-wood forest functions	Earmarked environmental charge	Total revenue of the commercial companies	0.07% of the total revenue	
Forest contribution	Revenue raising	Sale prices of forest wood products	2.5% of the sale price	
Other instruments in forestry: 1. Charge for transfer of forest/forest land rights 2. Reforestation charge 3. Afforestation charge	1. Resource management 2. Earmarked environmental charge 3. Earmarked environmental charge	1. Age of forest and value of land ⁸ 2. Value of wood from: - evenly-aged forests - selection forests - karst forests 3. Value of wood sold	20% 15% 15% 3% of the revenue	
Hunting rights concession	Resource management		50% of the game bagged in the tenth year of the game husbandry (calculated at market prices).	
Hunting rent	Resource management		5% of the game bagged in the fifth year of the game husbandry (calculated at market prices).	
Fishing charges	User fee/resource management	Private persons: - 15 – 60 years - 60+ years - war veterans	700 HRK (91 EUR)/person/year; 350 HRK (45 EUR)/person/year; 100 HRK (13 EUR)/person/year	
Sport/recreational fishing (at the sea) charges	User fee/resource management	Private persons: - 18 – 60 years - 60+ years - up to 18 - war veterans	200 HRK (26 EUR)/person/year; 50 HRK (6.5 EUR)/person/year; 15 HRK (1.9 EUR)/person/year; 10 HRK (1.3 EUR)/person/year	
Natural park entrance fees	User fee/resource management		10 – 25 HRK per visitor (group of visitors); 1.3 – 3.2 EUR per visitor (group of visitors)	

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	n.a.	Municipal/town authorities	Economic development/environmental protection on the local level	In case extracted minerals are processed prior to the sale, the charge is levied on the value of the extracted materials.
	12.9 mil HRK; 1.675 mil EUR	Ministry of Agriculture and Forestry	Central budget	The charge was introduced in 1985, and was revenue of local authorities until 1991. Since 1991, charge for the conversion of agricultural land is revenue of the central budget.
	n.a.	Public enterprise for forest management <i>Hrvatske sume</i>	Environmental improvements	<i>Hrvatske sume</i> and other legal persons managing the forests are not liable to the charge for multiple non-wood forests functions.
	n.a.	Local authorities	County budget	Forest contribution was introduced in 1995, and is mainly used for financing municipal infrastructure.
	n.a.	<i>Hrvatske sume</i>		
	n.a.	<i>Hrvatske sume</i> (dedicated account)		
	n.a.	<i>Hrvatske sume</i> (dedicated account)		
				Granted to a legal or natural person for a period of 20 to 40 years, through tendering / public competitions.
	n.a.	Ministry of Finance	Central budget	
	n.a.	Ministry of Finance	Central budget	
	n.a.	NP management		Natural park entrance fees are charged in three parks (Risnjak, Plitvicka jezera and Paklenica) since 1997.

CROATIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Nature protection non-compliance charges			80 – 100,000 HRK per violation; 10 – 12,987 EUR per violation	

DIRECT TAX PROVISIONS

Investments, grants, etc.				
Accelerated depreciation				
Allowances on import of environmental technology				
Environmental allowances in VAT				

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
				Individuals and legal entities are liable for the violation of regulations on protected areas, national parks, and protected species. Fines and compensations are revenue of the state budget, except for the on-site fines, which are the revenue of respective protected areas.
				<p>Allowances or exemptions from import duties may be granted for the equipment for:</p> <ul style="list-style-type: none"> - water purification for civil purposes; - operational centres for interventions in cases of accidental pollution at Adriatic Sea; - hazardous waste incinerators and similar installations for immediate handling of hazardous waste. <p>There are also import duty exemptions for goods intended for the implementation of international environmental treaties signed by the Republic of Croatia, provided that the exemptions are envisaged in the treaty.</p>
				Imported goods and environmental services intended for the implementation of international treaties signed by the Republic of Croatia are VAT exempt.

1 The non-compliance fees are levied to penalize polluters for violations of the provisions of Air Quality Law (N.N. 48/95), particularly in the cases when:

- the air pollution source discharges pollutants into air in the quantity exceeding the emission limit values;
- the air pollution source discharges pollutants into the air in concentrations likely to endanger human health and environment.

Under the Air Quality Law, non-compliance fees are enforced based on the inspections performed by the Ministry of Environmental Protection and Physical Planning. Measurement and monitoring of the level of pollution is responsibility of the air pollution sources.

2 Levied if the turnover is not already subject to VAT, legacy or donation duty according to special regulations.

3 There are no waste related product charges or taxes in Croatia, although the Law on Environmental Protection foresees financial incentives (such as allowances and exemptions from taxes, customs duties etc.) for waste reduction and environmentally sound waste management. However, these incentives are still not applied in practice.

4 In Varazdin area, waste user charges are calculated based on the 1 removal (per week) of the 120 litre container and they are: 19.3 HRK (2.5 EUR) per container for households, and 40 HRK (5.2 EUR) per container for other users. The rates do not include VAT.

5 Concentrations of pollutants and quality of wastewater are measured at the source, and the actual amount of water protection (effluent) charge is calculated based on the rate (tariff) determined by the state, and the following formulas:

(a) for municipal and industrial wastewater discharged into the public sewerage or natural recipient:

$$C = C_1 \times V \times c_1 \times c_2$$

(b) for the discharge of water used in the cooling processes into the natural recipient:

$$C = C_{\Delta t} \times V_t \times \Delta_t$$

(c) for mixed wastewater (municipal/industrial wastewater mixed with cooling water) discharge into natural recipient:

$$C = (C_1 \times V \times c_1 \times c_2) + (C_{\Delta t} \times V_t \times \Delta_t)$$

where:

C = amount of water protection charge

C_1 = tariff for 1m³ of discharged wastewater determined by the Decision of the Government of the Republic of Croatia (0.9 HRK/m³ in 2000)

$C_{\Delta t}$ = tariff for 1m³ of discharged wastewater from cooling processes determined by the Decision of the Government of the Republic of Croatia (0.0009 HRK/m³ in 2000)

V = annual quantity of discharged wastewater (m³)

V_t = annual quantity of discharged wastewater from cooling processes (m³)

c_1 = correction coefficient reflecting the level of degradation (pollution) of the discharged water

c_2 = correction coefficient applied only when wastewater is discharged through a wastewater treatment plant – an incentive instrument stimulating full scale wastewater treatment

Δ_t = difference between arithmetical means of measured wastewater discharge and intake temperatures during one year.

6 Category I – drinking quality water; category V – water that cannot be used for any purpose.

7 To establish the level of charge for a specific land area, the size of which is expressed in square meters, it is necessary to rate the land with a certain number of points in accordance with the Table for Rating Agricultural Land with Altered Use. The level of the charge is determined on the basis of points allocated, value of a single point, and size of the plot changing its use. The number of points allocated to a certain agricultural area depends on the cadastral variety, the land category and cadastral district groups where the land is situated.

The level of the charge should be equal to the level of the costs of capacitation of an unproductive marshland into arable agricultural land. Costs of capacitating new arable land include the costs of hydro melioration (surface and underground drainage through pumping stations and filter drainage), agricultural melioration (levelling, subsoiling, calcification, meliorative dressing), and hydro meliorative system maintenance.

8 The charge base for the transfer of rights on forest land is taxable value of the land, and the following categories of forest:

- a) plantations and stands of the first age class;
- b) ripening stands;
- c) nearly ripe and ripe stands;
- d) selection forests;
- e) coppice and brushwood.

<i>Total Revenue</i>	<i>Revenue collec- tion authority</i>	<i>Use of Revenue</i>	<i>Comments</i>

CZECH REPUBLIC 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
ENERGY TAXES/CHARGES				
MOTOR FUEL TAXES/CHARGES				
Excise tax	Revenue raising taxes	Leaded petrol Unleaded petrol Diesel LPG (as propellant) Bio-diesel	10,840 CZK/kl; 304 EUR/kl 10,840 CZK/kl; 304 EUR/kl 8,150 CZK/kl; 228 EUR/kl 2,852 CZK/t; 80 EUR/t 8,150 CZK/kl; 228 EUR/kl	
VAT	Revenue raising taxes	Leaded petrol Unleaded petrol Diesel LPG	22% 22% 22% 22%	
OTHER ENERGY PRODUCTS				
Excise tax	Revenue raising taxes	Light fuel oil Heavy fuel oil Coal Natural gas Electricity District heating	8,150 CZK/kl; 228 EUR/kl 0 0 0 0 0	
VAT	Revenue raising taxes	Light fuel oil Heavy fuel oil Coal Natural gas Electricity District heating Bio-gas and bio-diesel	22% 22% 22% 22% 22% 22% 5%	
AIR EMISSION CHARGES				
Charges on emissions from large and medium sources¹	Incentive/ earmarked environmental charge	Sulphur dioxide Nitrogen oxides CO Hydrocarbons Solid particles Other polluting substances: - class I ² - class II ³ - class III ⁴	1,000 CZK/ton; 28 EUR/ton 800 CZK/ton; 22 EUR/ton 600 CZK/ton; 17 EUR/ton 2,000 CZK/ton; 56 EUR/ton 3,000 CZK/ton; 84EUR/ton 20,000 CZK/ton; 560 EUR/ton 10,000 CZK/ton; 280 EUR/ton 1,000 CZK/ton; 28 EUR/ton	
Charges on air pollution from small-scale business polluters	Incentive	Fixed fees according to fuel type	Differentiated according to fuel type (see point 1 below for rates)	
Emission non-compliance fees	Compliance/ earmarked environmental charge	Pollutants as above	Rate is multiplied by a factor of 1.5 for emissions exceeding the prescribed emission limit	

¹ Large sources: thermal units above 5 MW and most important technologies; medium sources: thermal units within the range 0.2MW to 5MW and other technologies

² Class I pollutants include asbestos, cadmium, mercury, benzene, etc.

³ Class II pollutants include arsenic, chlorine, phenol, tin, etc.

⁴ Class III pollutants include ammonia, acetone, toluene, etc.

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	46.324 bil CZK; 1.298 bil EUR (in 2000) 46.973 bil CZK; 1.3 bil EUR (in 1999) 36.86 bil CZK; 1 bil EUR (in 1995)	Ministry of Finance	Central budget	Since July 2000, bio-diesel is taxed at the same rate as ordinary diesel. Tax exemption that was in force prior to July 2000 was replaced with direct support to the producers of oil seed rape (to avoid profits of those who only mix the bio-diesel but do not produce rape seed oil). Out of the total revenue from excise taxes on motor fuels, some 40% comes from diesel, and remaining 60% from petrol.
		Ministry of Finance	Central budget	
		Ministry of Finance	Central budget	Excise tax on light fuel oil is nominal. In practice, the excise is zero, as the tax is refunded if light fuel is used for heating production.
		Ministry of Finance	Central budget	
	800 mil CZK; 22.41 mil EUR	Ministry of Environment	Environmental fund	Air emission charges are in force since January 1992. 85% of total revenue comes from large source polluters, 15% from medium sources. Revenue generated from small source polluters is negligible. Air emission charges accounted for 33% of the national environmental fund revenues in 1999.
	Negligible		Municipal budget	
	Negligible		Environmental fund	Emission non-compliance fees are in force since January 1992.

CZECH REPUBLIC 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Charge on burning coal mines, other mines and dumps	Revenue raising	Surface (m ²) of burned area, or ground area over smouldering mines or dumps	200 CZK/m ² ; 5.6 EUR/m ²	

TRANSPORT RELATED TAXATION

Highway toll	Revenue raising	Vehicles >12 tons Vehicles 3.5-12 tons Vehicles < 3.5 tons	12,000 CZK/year; 336 EUR/year 6,000 CZK/year; 168 EUR/year 800 CZK/year; 22 EUR/year	
Road tax	Revenue raising taxes	Engine capacity, carrying capacity, and the number of axels: - Engines up to 800cm ³ - Vehicles over 6 tons	1,200 CZK/year; 34 EUR/year 50,400 CZK/year; 1,412 EUR/year	
Import duty				
Registration charge				
Company car tax allowance				

AIR TRANSPORT

Flight transportation tax		Airplanes (4 categories dependent on weight and engine quality): I II III IV	17 CZK/t; 0.48 EUR/t 34 CZK/t; 0.95 EUR/t 69 CZK/t; 1.93 EUR/t 103 CZK/t; 2.89 EUR/t	
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AGRICULTURAL INPUTS

Pesticides				
Fertilisers				

WASTE RELATED PRODUCT CHARGES

Ozone depleting substances	Incentive	Production or import of ozone depleting substances	200,000 CZK/ton; 5,602 EUR/ton	
Batteries/ accumulators		Take-back obligations for batteries and accumulators		

	Total Revenue	Revenue collection authority	Use of Revenue	Comments
			Environmental fund	The charge applies to all types of dumps including landfills.
		Ministry of Finance	Central budget	Revenue should partly cover the costs of highway reparations /reconstructions.
		Ministry of Finance	Central budget	Tax is levied on motor vehicles used for business activities. Exempt from road tax: <ul style="list-style-type: none"> - vehicles regularly used for public transportation; - vehicles used exclusively for combined transportation when the distance by road is no more than 100km; - vehicles meeting the conditions of special international regulations; - electrically powered vehicles (exempt since the end of 1998).
				Revenue (app. 25 mil CZK; 0.7 mil EUR per year) is used for monitoring.
	38.5 mil CZK; 1.04 mil EUR (in 1998)	Environmental fund	Environmental fund	The charge is linked to scheduled phase-out of ODSs.
				There is a total ban on landfilling of Pb and Ni-Cd batteries.

CZECH REPUBLIC 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Carrier bags				
Disposable containers/ packaging		Voluntary agreement		
Tires		Take-back obligations for tires		
Light bulbs				
Lubricants				
Refrigerator				
WASTE				
Municipal waste user charges	Cost recovery	Waste (for disposal or incineration)	104 – 207 CZK/m ³ ; 2.9 – 5.8 EUR/m ³	
Solid waste disposal charge	Cost recovery	Municipal waste Hazardous waste	Basic charges (for the period 1999 – 2000): 30 CZK/ton; 0.84 EUR/ton 250 CZK/ton; 7 EUR/ton	
Hazardous waste risk charge	Earmarked environmental charge	Hazardous waste	Risk charge (for the period 1999 – 2000): 500 CZK/ton; 14 EUR/ton	
Deposit-refund schemes		Beverage containers	There is no universal rate	
Levy on nuclear power	Cost recovery	Electricity from nuclear power plants	50 CZK/MWh; 1.4 EUR/ MWh	
WATER				
INSTRUMENTS FOR MANAGING WATER QUALITY				
Water user charge	Cost recovery	Volume of supplied water	33 CZK/m ³ ; 0.92 EUR/m ³ (average)	
Sewage charge	Cost recovery	Volume of supplied water	Included in water user charge	

	Total Revenue	Revenue collection authority	Use of Revenue	Comments
				There is a total ban on landfilling of tyres.
			Municipal budget	Charge rates are set by individual municipalities, dependent on the costs, frequency of service, type of containers etc.
			Municipal budget where dump is located	Planned basic charges for municipal waste: 2001-2002: 50 CZK/ton; 1.4 EUR/ton; 2003: 80 CZK/ton; 2.24 EUR/ton. Planned basic charges for hazardous waste: 2001-2002: 350 CZK/ton; 9.8 EUR/ton; 2003: 450 CZK/ton; 12.6 EUR/ton.
	194.6 mil CZK; 5.38 mil EUR (in 1998)		Environmental fund	Objective of the risk charge is to stimulate proper disposal of hazardous waste, i.e. into the dumps that meet required criteria. The charge is in place since 1992, with some changes introduced in 1998. Planned risk charge is: 2001 – 2002: 750 CZK/ton; 21 EUR/ton; 2003: 1,000 CZK/ton; 28 EUR/t.
	632 mil CZK; 17.5 mil EUR (in 1998)		Nuclear waste deposit and management	
	n.a.	Public water company	Public water company	Water user charge includes charges for water supply and wastewater treatment.
	n.a.	Public water company	Public water company	Charges are determined at municipal level (by public water companies) and are intended to cover real costs of water services.

CZECH REPUBLIC 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Water effluent charge	Earmarked environmental charge	Non-treated wastewater: - COD Treated wastewater: - COD - COD (from paper and pulp) - Dissolved inorganic salts - Non-dissolved substances - Phosphorus - Nitrogen - Inorganic nitrogen - Organically bound halogens - Mercury - Cadmium Volume of wastewater exceeding 30,000 m ³ /year	16 CZK/kg; 0.45 EUR/kg 8 CZK/kg; 0.22 EUR/kg 3 CZK/kg; 0.084 EUR/kg 0.5 CZK/kg; 0.014 EUR/kg 2 CZK/kg; 0.056 EUR/kg 70 CZK/kg; 1.96 EUR/kg 40 CZK/kg; 1.12 EUR/kg 30 CZK/kg; 0.84 EUR/kg 300 CZK/kg; 8.4 EUR/kg 20,000 CZK/kg; 560 EUR/kg 4,000 CZK/kg; 112 EUR/kg 0.1 CZK/m ³ ; 0.003 EUR/m ³	

INSTRUMENTS MANAGING WATER QUANTITY

Extraction charge	Earmarked environmental charge	Surface water Ground water	1.5 – 2.53 CZK/m ³ ; 0.04 – 0.07 EUR/m ³ 2 CZK/m ³ ; 0.056 EUR/m ³	
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NATURAL RESOURCE AND MINING

Mining charge	Revenue raising	Area of mining For an area up to 2 ha	10,000 CZK/year per km ² ; 280 EUR/year per km ² 2,000 CZK/year; 56 EUR/year	
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INSTRUMENTS FOR BIODIVERSITY AND NATURE PROTECTION

Alternative land use charge	Incentive	Agricultural land (with altered use) Forest land (with altered use)	Based on soil quality and environmental factors Based on type of forest, price of wood and environmental factors	
Hunting charges				
Fishing charges				
Natural park entrance fees				

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	526.7 mil CZK; 14.8 mil EUR (in 1999)		Environmental fund	Charges are paid when polluter exceeds both mass and concentration limits set for each pollutant (see point 2 below for further information). Pollution is calculated by annual average concentration multiplied by annual volume of wastewater. Polluters paid (will be paying) 60% of charge rate in 1999, 80% in 2000 and 2001, and full amount starting from 2002.
	953 mil CZK; 26.35 mil EUR (in 1998)		Environmental fund	Extraction charge is only levied on the extraction of water above no-cost levels (15,000 m ³ /year or 1,250 m ³ /month). Water extracted for public water supply is not subject to this charge. Charge is not paid for about 90% of extracted ground water, because of various exemptions.
		Mining office	Municipal budget	For smaller areas (less than 2 hectares) a charge of 2,000 CZK is levied per year. An additional tax is levied for certain raw materials (up to 10% of market price), and the revenue is split between the municipal and central budget. Charge is in force since 1993.
		Soil protection administration	Environmental fund 60%; Municipal budget 40%	Introduced in 1995; charge system has not been modified since.

CZECH REPUBLIC 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Tree cutting charges/ taxes				
OTHER INSTRUMENTS				
Allowances in VAT	Environmental subsidy	Environmentally friendly products (see point 3 below for details)	5% tax rate	
Income tax	Incentive	Environmentally friendly technologies ⁵		

⁵ For example: small hydro-electric power plants with an output of up to 1 MW, wind-powered electricity generating stations, heating pumps, biogas-producing plants, facilities producing bio-degradable substances.

1. Emission charges on air pollution from small-scale business polluters (in CZK/EUR per ton of fuel)

HEATING SYSTEM PERFORMANCE

<i>Type of Fuels</i>	<i>0-50 kW</i>		<i>50-100 kW</i>		<i>100-200 kW</i>	
	<i>CZK</i>	<i>EUR</i>	<i>CZK</i>	<i>EUR</i>	<i>CZK</i>	<i>EUR</i>
Coke, firewood, heating oil with 0.3-1% sulphur	0	0	0	0	0	0
Light heating oil	400-800	11-22	800-1,250	22-35	1,250-1,700	35-48
Other heating oils	700-1,400	20-39	1,400-2,100	39-59	2,100-2,800	59-78
Brown coal, derived fuels	500-1,000	14-28	1,000-1,500	28-42	1,500-2,000	42-56
Hard coal	1,000-2,000	28-56	2,000-3,000	56-84	3,000-4,000	84-112
Power plant brown coal	2,000-4,000	56-112	4,000-6,000	112-168	6,000-8,000	168-224
Sludge, shale	10,000	280	10,000-20,000	280-560	20,000-40,000	560-1,120

Source: Act No. 158 / 1994 Coll.

Subject to the charge are small-scale (thermal units not exceeding 0.2 MW) business polluters (non-households). The charges are levied on the basis of fixed fees for different types of sources.

<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
			Income from the operations using environmentally friendly technologies are exempt from paying income tax in the first calendar year of operation, and in the following five years.

2. Wastewater charges, concentration and mass limits

<i>Pollutant</i>	<i>Charge</i>		<i>Mass limit (kg/year)</i>	<i>Concentration limit</i>
	<i>CZK/kg</i>	<i>EUR/kg</i>	<i>kg/year</i>	<i>mg/liter</i>
Chemical consumption of oxygen, non-treated wastewater, until 31 December 2004	16	0.45	20,000	40
Chemical consumption of oxygen, non-treated wastewater, from 1 January 2005	16	0.45	8,000	40
Chemical consumption of oxygen, treated wastewater	8	0.22	10,000	40
Chemical consumption of oxygen, treated wastewater from pulp, paper and textile production	3	0.08	10,000	40
Dissolved inorganic salts	0.5	0.01	20,000	1,200
Non-dissolved substances	2	0.06	10,000	30
Total phosphorus, until 31 December 2004	70	1.96	13,000	3
Total phosphorus, from 1 January 2005	70	1.96	3,000	3
N-NH ₄ , until 31 December 2000	40	1.12	15,000	15
N _{inorg} from 1 January 2001	30	0.84	20,000	20
AO _x , from 1 January 2001	300	8	15	0.2
Mercury	20,000	560	0.4	0.002
Cadmium	4,000	112	2	0.01

3. Reduced VAT rate is applied to the following products:

- Coatings and lacquers (including enamel and fine lacquers) based on synthetic polymers or chemically-modified natural polymers, dispersed or dissolved in an aqueous medium;
- Bio-gas; Bio-diesel
- Polyvinyl alcohol polymer foils;
- Sawdust, residues and waste, also agglomerates in the form of blocks, briquettes, pellets and similar shapes;
- Paper, carton, cardboard and products manufactured from them in the Czech Republic, on the condition that they are produced from more than 70% recycled paper, if certified by Branch Certificate Centre;
- Water and wind turbines with outputs respectively up to 100 kW and 75 kVA;
- Heat pumps;
- Solar facilities;
- Household appliances for water purification and small waste treatment plants for family houses, and any parts and components for them, fillings for the appliances and plants;
- Machinery and instruments for air filtering and purifying;
- Automobile catalytic converters;
- Passenger cars and other primarily passenger motor vehicles with electric motors;
- Energy efficient light sources (fluorescent and discharge tubes and their components);
- Thermostat valves;
- Flow meters;
- Heat consumption meters and hydrometers for households.

<i>Total Revenue</i>	<i>Revenue collec- tion authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
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ESTONIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
ENERGY TAXES/CHARGES				
MOTOR FUEL TAXES/CHARGES				
Excise tax¹	Revenue raising taxes	Unleaded petrol Diesel Aviation kerosene ² Aviation petrol Lubricating motor oil Diesel (for specific purposes) Liquefied gas (as propellant) Compressed gas (as propellant) Light fuel oil (as propellant)	3,500 EEK/kl; 223 EUR/kl 2,594 EEK/kl; 165 EUR/kl 3,870 EEK/t; 246 EUR/t 1,500 EEK/t; 96 EUR/t 490 EEK/t; 31 EUR/t 500 EEK/t; 32 EUR/t 1,500 EEK/t; 96 EUR/t 1,300 EEK/t; 83 EUR/t 500 EEK/t; 32 EUR/t	
CO₂ tax				
VAT	Revenue raising taxes	All fuels	18%	
OTHER ENERGY PRODUCTS				
Excise tax				
VAT	Revenue raising taxes	Light fuel oil Heavy fuel oil Natural gas Coal Electricity Heating ³ Peat, briquettes, coal and fuel wood used for heating and electricity production	18% 18% 18% 18% 18% 5% 5%	
Other taxes and charges				
AIR EMISSION CHARGES				
Emission charges	Earmarked environmental charge	SO ₂ NO _x Solid particles CO VOC (except mercaptans) Mercaptans Heavy metals	55.2 EEK/t; 3.52 EUR/t 126.4 EEK/t; 8.05 EUR/t 55.2 EEK/t; 3.52 EUR/t 7.9 EEK/t; 0.5 EUR/t 51.5 EEK/t; 3.28 EUR/t 135,978 EEK/t; 8,661 EUR/t 1,995 EEK/t; 127 EUR/t	

<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
1,774 mil EEK; 112.994 mil EUR (source: Draft State Budget 2001)	Customs Board for imported fuel; Tax Board for fuel produced in Estonia	Central budget	Leaded petrol is not sold in Estonia since 1 January 2000.
			There is plan to introduce CO ₂ tax on all fuels used in Estonia. In principle, Government has agreed to the introduction of the new tax, and is expected (in June 2001) to submit an official document asking MoE to prepare the draft Act.
n.a.	Tax Board	Central budget	Bio-fuels are VAT exempt.
n.a.	Tax Board	Central budget	Energy from wind and water is VAT exempt for the period 1 January 1997 – 31 December 2006. VAT rate of 5% was introduced for heating ³ from 30 June 2000 (and will apply until 30 June 2005). Previously, VAT rate was 0%. During the same period, VAT rate of 5% applies to peat, briquettes, coal and fuel wood used for heating and electricity production. These products were not taxed before.
16.137 mil EEK; 1.03 mil EUR (source: MoE)	County Department of MoE	Central budget - earmarked for environmental protection	Rates increase dependent on the size/location of point-sources: for two larger air polluters – 1.2 times; for five large towns – 1.5 times; for capital Tallinn – 2 times; for four resort towns – 2.5 times. Major revenue sources are SO ₂ and solid particles (oil shale ash from large combustion plants).

ESTONIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Emission non-compliance fees	Compliance/ ear-marked environmental charge	SO ₂ NO _x Particulates CO VOC (except mercaptans) Mercaptans Heavy metals	552 EEK/t; 35.16 EUR/t 1,264 EEK/t; 80.51 EUR/t 276 EEK/t; 17.58 EUR/t 39.5 EEK/t; 2.52 EUR/t 515 EEK/t; 32.8 EUR/t 1,359,780 EEK/t; 86,610 EUR/t 19,955 EEK/t; 1,271 EUR/t	
CO2 emission charge	Earmarked environmental charge	CO ₂ emissions from combustion plants > 50 MW	5.0 EEK/t; 0.32 EUR/t	

TRANSPORT RELATED TAXATION

Sales taxes				
Motor vehicle excise tax⁴	Revenue raising taxes	All motor vehicles – imported and produced in Estonia	Varies dependent on the engine capacity and the age of the vehicle (see endnote 4 for details)	
Motor vehicle tax of Tallinn	Revenue raising local tax	Registered motor vehicles owned by residents of Tallinn or by Tallinn companies	5 EEK (0.32 EUR) per kW of engine capacity per year	
Registration charge	Revenue raising taxes	All vehicles		
Company car tax allowance				

AIR TRANSPORT

Flight transportation tax

AGRICULTURAL INPUTS

Pesticides

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	Total revenue 0.4 mil EEK; 0.0255 mil EUR	County Department of MoE	Central budget - earmarked for environmental protection	Emission non-compliance fees are charged for the emissions above the permitted level, and are generally 10 times higher than the emission rates.
	40.630 mil EEK; 2.588 mil EUR (source: MoE)	County Department of MoE	Central budget - earmarked for environmental protection	CO ₂ emission charge does not apply to combustion plants that use renewable resources.
	140 mil EEK; 8.92 mil EUR (source: Draft State Budget 2001)	Customs Board for imported vehicles; Tax Board for vehicles pro- duced in Estonia	Central budget	Tax is not imposed on: - vehicles exported from Estonia; - vehicles used by foreign diplomatic mis- sions, consular posts, and representations of international organisations; - vehicles used by disabled persons (categories I and II); - vehicles older than 25 years.
	n.a.	Tax Department of Tallinn	Budget of the city of Tallinn – earmarked for reparation of streets and roads	Tax is not imposed on: - vehicles of state and local governments, armed forces and National Defence League; - vehicles used by foreign diplomatic mis- sions, consular posts, and representations of international organisations; - vehicles of disabled persons (categories I, II, and III) and parents of disabled children. 50% tax reduction for: - pensioners; - parents with 3 or more children.
	130 mil EEK; 8.28 mil EUR (source: Draft State Budget 2001)	Motor Vehicle Registration Centre	Central budget	

ESTONIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Fertilisers				
WASTE RELATED PRODUCT CHARGES				
Excise tax on packaging materials⁵	Incentive	Per package /litre: Glass and ceramics Plastic Metal Other	0.5 EEK (0.032 EUR)/p; 2 EEK (0.127 EUR)/l; 1 EEK (0.064 EUR)/p; 2 EEK (0.127 EUR)/l; 0.75 EEK (0.048 EUR)/p; 2 EEK (0.127 EUR)/l; 0.25 EEK (0.016 EUR)/p; 1 EEK (0.064 EUR)/l;	
WASTE				
Municipal waste user charges	Cost recovery	Households	150 EEK/t; 9.55 EUR/t (average rate)	
Waste disposal charge	Earmarked environmental charge	1) Non-hazardous waste (including municipal waste) 2) Mining waste including waste from mineral dressing 3) Hazardous waste, except waste specified under points 4), 5), 6) and 8) 4) Waste which contains petroleum ⁶ 5) Waste which contains wood preservatives ⁷ 6) Waste which contains mercury, cadmium ⁸ 7) Oil shale fly ash and oil shale bottom ash 8) Oil shale semi-coke	1.9 EEK/t; 0.121 EUR/t 0.9 EEK/t; 0.057 EUR/t 5.8 EEK/t; 0.369 EUR/t 15.7 EEK/t; 1 EUR/t 158.2 EEK/t; 10.08 EUR/t 1,580.9 EEK/t; 100.69 EUR/t 2.9 EEK/t; 0.185 EUR/t 7.8 EEK/t; 0.497 EUR/t	
Waste non-compliance fees	Compliance	Deposition of waste without/above the permit (categories as above): 1) 2) 3) 4) 5) 6) 7) 8)	9.5 EEK/t; 0.605 EUR/t 4.5 EEK/t; 0.287 EUR/t 29 EEK/t; 1.85 EUR/t 785 EEK/t; 50 EUR/t 15,820 EEK/t; 1,008 EUR/t 790,450 EEK/t; 50,347 EUR/t 15.5 EEK/t; 0.987 EUR/t 390 EEK/t; 24.8 EUR/t	

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	1.2 mil EEK; 0.076 mil EUR	Customs Board (imported drinks); Tax Board (domestic drinks)	50% revenue of the Central budget, 50% earmarked for environmental protection	Importers and producers where at least 60% of packaging material is reused/ recycled are tax exempt. Due to increasing reuse of beverage containers, revenue has been decreasing dramatically in the last few years.
	n.a.	Waste management companies	Recovery of the costs of waste management companies	
	56.267 mil EEK; 3.584 mil EUR	County Department of MoE	Central budget - earmarked for environmental protection	Rates may be tripled depending on the location of the dump, and doubled if the disposal site does not meet environmental standards. These provisions do not apply to landfills for oil shale semi-coke before 1 January 2002. Major revenue sources are oil shale ash and oil shale semi-coke.
	0.1 mil EEK; 0.006 mil EUR	County Department of MoE	Central budget - earmarked for environmental protection	Amounts of waste deposited without/above the permit are negligible. Rates may be tripled depending on the location of the dump, and doubled if the disposal site does not meet environmental standards.

ESTONIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
WATER				
INSTRUMENTS FOR MANAGING WATER QUALITY				
Water consumption charge	Cost recovery	Households Companies	Average rate: 6.87 EEK/m ³ ; 0.438 EUR/m ³ 4.00 – 8.30 EEK/m ³ ; 0.255 – 0.529 EUR/m ³ 4.00 – 16.05 EEK/m ³ ; 0.255 – 1.022 EUR/m ³	
Sewage treatment user charge	Cost recovery	Households Companies	Average rate: 9.23 EEK/m ³ ; 0.588 EUR/m ³ 3.82 – 16.64 EEK/m ³ ; 0.243 – 1.06 EUR/m ³ 3.50 – 28.30 EEK/m ³ ; 0.222 – 1.803 EUR/m ³	
Water effluent charge	Earmarked environmental charge	BOD ₇ Suspended solids Phosphorus Nitrogen Oil products Sulphates Phenols	2,258 EEK/t; 143.8 EUR/t 1,142 EEK/t; 72.7 EUR/t 3,401 EEK/t; 216.6 EUR/t 2,045 EEK/t; 130.3 EUR/t 3,606 EEK/t; 229.7 EUR/t 26 EEK/t; 1.656 EUR/t 15,146 EEK/t; 964.7 EUR/t	
Water pollution non-compliance fees - discharges above the permitted level	Compliance /ear-marked environmental charge	BOD ₇ Suspended solids Phosphorus Nitrogen Oil products Sulphates Phenols	22,580 EEK/t; 1,438 EUR/t 11,420 EEK/t; 727 EUR/t 34,010 EEK/t; 2,166 EUR/t 20,450 EEK/t; 1,303 EUR/t 36,060 EEK/t; 2,297 EUR/t 260 EEK/t; 16.56 EUR/t 151,460 EEK/t; 9,647 EUR/t	
Water pollution non-compliance fees – discharges without permit	Compliance /earmarked environmental charge	BOD ₇ Suspended solids Phosphorus Nitrogen Oil products Sulphates Phenols	33,870 EEK/t; 2,157 EUR/t 17,130 EEK/t; 1,091 EUR/t 51,015 EEK/t; 3,249 EUR/t 30,675 EEK/t; 1,954 EUR/t 54,090 EEK/t; 3,445 EUR/t 390 EEK/t; 24.84 EUR/t 227,190 EEK/t; 14,471 EUR/t	
INSTRUMENTS FOR MANAGING WATER QUANTITY				
Water extraction charge	Resource management/ revenue raising	1. Surface water: a) Water supply of Tallinn - drinking and industrial water - cooling water b) Other water bodies - drinking and industrial water - cooling water	0.25 EEK/m ³ ; 0.0159 EUR/m ³ 0.03 EEK/m ³ ; 0.0019 EUR/m ³ 0.12 EEK/m ³ ; 0.0076 EUR/m ³ 0.02 EEK/m ³ ; 0.0013 EUR/m ³	

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	n.a.	Water companies	Service costs for water companies	VAT included for household rates. Rates for companies are without VAT (18%). User charges are modified once a year (on July 1).
	n.a.	Water or sewage companies	Service costs for provider	VAT included for household rates. Rates for companies are without VAT (18%). User charges are modified once a year (on July 1).
	12.1 mil EEK; 0.771 mil EUR	County Department of MoE	Central budget - earmarked for environmental protection	Dependent on the location of discharge and other indicators, special correction factors are applied. ⁹ Also, if pH of discharged wastewater is > 9 or < 6, additional 29% of the pollution charge is paid per each 0.1 pH unit above or below the limit values (9 and 6) per cubic metre of wastewater.
	12.5 mil EEK; 0.796 mil EUR	County Department of MoE	Central budget - earmarked for environmental protection	The same correction factors (see endnote 9) are applied for non-compliance fees for discharges above the permitted level. High environmental effectiveness is achieved through promoting pollution reduction.
	0.05 mil EEK; 0.003 mil EUR	County Department of MoE	Central budget - earmarked for environmental protection	The same correction factors (see endnote 9) are applied for non-compliance fees for discharges without a permit. High environmental effectiveness of the fee - wastewater discharges without permit are almost non-existent.
	Total revenue: 79.44 mil EEK; 5.060 mil EUR	County Department of MoE	50% revenue of the Local Budget; 50% Central budget - earmarked for environmental protection	Share of water extraction charge in the household price of drinking water ranges from 2.2% to 8.8%, dependent on the natural quality of water and costs of water extraction and pre-treatment.

ESTONIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>
Water extraction charge continued		2. Groundwater aquifer systems: a) Quaternary b) Cambrian-Vendian - its drinking water used for industrial purposes 3. Other aquifer systems 4. Mineral water 5. Mineral bathwater 6. Mine and open-cast drainage water	0.25 EEK/m ³ ; 0.0159 EUR/m ³ 0.40 EEK/m ³ ; 0.0255 EUR/m ³ 0.75 EEK/m ³ ; 0.0478 EUR/m ³ 0.35 EEK/m ³ ; 0.0223 EUR/m ³ 18 EEK/m ³ ; 1.147 EUR/m ³ 1.8 EEK/m ³ ; 0.1146 EUR/m ³ 0.04 EEK/m ³ ; 0.0025 EUR/m ³

NATURAL RESOURCE AND MINING

Mining charges/ taxes	Revenue raising taxes	Oil shale Construction sand Industrial sand Construction gravel Cement clay Ceramic clay Cement limestone Construction limestone and dolomite Decorative dolomite Industrial dolomite Low-decomposing peat High-decomposing peat	4 EEK/t; 0.255 EUR/t 4.7 EEK/m ³ ; 0.299 EUR/m ³ 5.6 EEK/m ³ ; 0.357 EUR/m ³ 7.2 EEK/m ³ ; 0.459 EUR/m ³ 2.3 EEK/m ³ ; 0.146 EUR/m ³ 1.4 EEK/m ³ ; 0.089 EUR/m ³ 7.1 EEK/m ³ ; 0.452 EUR/m ³ 4.7 EEK/m ³ ; 0.299 EUR/m ³ 9.4 EEK/m ³ ; 0.599 EUR/m ³ 17.4 EEK/m ³ ; 1.108 EUR/m ³ 2.2 EEK/t; 0.14 EUR/t 3.6 EEK/t; 0.229 EUR/t
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INSTRUMENTS FOR BIODIVERSITY AND NATURE PROTECTION

Hunting rent	Resource management	Hectare of: - forest land - other land	1 EEK/ha; 0.064 EUR/ha 0.25 EEK/ha; 0.016 EUR/ ha
Hunting charges	Resource management	Elk Red deer Roe deer Wild boar	100 - 900 EEK; 6.4 – 57.3 EUR 70 - 600 EEK; 4.5 – 38.2 EUR 30 - 200 EEK; 1.9 – 12.7 EUR 50- 360 EEK; 3.2 – 22.9 EUR
Hunting permits	Resource management	Wild boar - young wild boar (1 year) - young wild boar (1-2 years) - adult wild boar Roe deer Elk Brown bear Lynx Red deer	100 EEK; 6.4 EUR 150 EEK; 9.6 EUR 300 EEK; 19.1 EUR 100 – 3,000 EEK; 6.4 – 191.1 EUR 500 – 1,500 EEK; 31.8 – 95.5 EUR 1,500 EEK; 95.5 EUR 50 EEK; 3.2 EUR 500 – 1,500 EEK; 31.8 – 95.5 EUR

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	48 mil EEK; 3.057 mil EUR 3.76 mil EEK; 0.239 mil EUR 0.17 mil EEK; 0.011 mil EUR 4.68 mil EEK; 0.298 mil EUR 0.08 mil EEK; 0.005 mil EUR 0.14 mil EEK; 0.009 mil EUR 3.91 mil EEK; 0.249 mil EUR 5.64 mil EEK; 0.359 mil EUR 0.15 mil EEK; 0.010 mil EUR 0.02 mil EEK; 0.001 mil EUR 1.1 mil EEK; 0.070 mil EUR 2.34 mil EEK; 0.149 mil EUR	County Department of MoE	Mineral deposits of national importance: - 30% Central budget (earmarked for environmental protection) - 70% Local budget; Deposits of local importance: 100% Local budget	Total revenue from all the minerals was 70.14 mil EEK (4.467 mil EUR). Share of the mining extraction tax in the price of oil shale is 4%; share of the tax in the total turnover of companies extracting building materials ranges from 0.7% to 5.7%, dependent on the level of processing the natural resources.
	2.402 mil EEK; 0.153 mil EUR	County Department of MoE	80% Central budget; 20% Local budget	Fees apply to the state hunting districts.
	1.377 mil EEK; 0.088 mil EUR	County Department of MoE	Central budget - earmarked for the management of hunting resources	Rate of hunting charge depends on the category of the state hunting district.
	n.a.	State hunting district	State hunting district	Revenue is to be used for reproducing game and managing hunting resources, for monitoring, training, information, studies etc.

ESTONIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>
Fishing charges	Resource management	Baltic herring Sprat Cod Salmon Flounder Smelt	40 EEK/t; 2.5 EUR/t 40 EEK/t; 2.5 EUR/t 500 EEK/t; 31.8 EUR/t 5 EEK/individual; 0.32 EUR/individual 150 EEK/t; 9.6 EUR/t 40 EEK/t; 2.5 EUR/t
Nature protection non-compliance fees	Compliance/earmarked environmental charge	Brown bear Elk, red deer Gery seal, ringed seal, mink, otter Protected birds Amphibians Fish Atlantic fish Sturgeon wells (individual) Plants (86 protected species)	15,000 EEK; 955.4 EUR 9,000 EEK; 573.2 EUR 6,000 EEK; 382.2 EUR 15 – 1,500 EEK; 0.96 – 95.5 EUR 1,500 – 9,000 EEK; 95.5 – 573.2 EUR 15-300 EEK; 0.96 – 19.1 EUR Double market price 30 – 1,500 EEK; 1.91 – 95.5 EUR 30 – 1,500 EEK; 1.91 – 95.5 EUR

DIRECT TAX PROVISIONS

Investments, grants,¹⁰ etc.

Environment provisions or allowances in VAT

¹ Fuel excise duty is imposed on motor fuel, lubricated motor oil and fuel oil produced in Estonia or imported into Estonia. "Motor fuel, lubricated motor oil and fuel oil" means motor vehicle petrol, diesel fuel, aviation kerosene, aviation gasoline, liquefied and compressed gas used as motor fuel, lubricated motor oil, light fuel oil, other similar products, and components and additives thereof according to the numerical codes of goods established by the Ministry of Finance pursuant to the Nomenclature of Estonian Commodities (hereafter NEC);

"Production of motor fuel, lubricated motor oil or fuel oil" means production of motor fuel, lubricated motor oil or fuel oil complying with the quality requirements in force in Estonia, including:

- production by way of processing mineral oils and fractions thereof using physical and chemical processes;
- production by way of compounding petroleum and/or oil shale products which belong under different headings of the NEC or under different numerical codes of the same heading of the NEC;
- by way of adding to the aforementioned products or a mixture thereof an improving additive or component which makes up more than 0.5% of the weight of the finished product.

Production of motor fuel, lubricated motor oil or fuel oil not in compliance with the quality requirements in force in Estonia is also deemed production of motor fuel, lubricated motor oil or fuel oil if such fuel or oil is sold or used for self-consumption (19 June 2000, effective since 1 September 2000 - SG I 2000, 59, 380).

Excise duty is not imposed on:

- motor fuel contained in the standard tanks of motor vehicles upon entry into Estonia, including motor fuel contained in the standard service tanks of motorised water craft to be used by the same motor vehicles and the lubricated motor oil contained in the motors of such vehicles;
- motor fuel, lubricated motor oil and fuel oil produced in Estonia and exported by the producer if the removal thereof from Estonia is certified by a declaration of goods for export (as defined in the Customs Act);

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	4.755 mil EEK; 0.303 mil EUR	County Department of MoE	Central budget - earmarked for the management of fisheries	Fishing charges are normally modified once a year.
	Total revenue 1.075 mil EEK; 0.068 mil EUR	Environmental Inspectorates	Central budget - earmarked for nature protection	Charge rates have not changed during the last 3 years.
				Standard VAT rate is 18%. VAT allowances/exemptions apply to: - Hazardous waste management (5% VAT since 30 June 2000; previously, 0% VAT applied) - Goods (including environment-related goods) imported for the projects financed by Estonian Government, or given as state aid (0% VAT) - Environmental equipment and technology imported by MoE within the framework of foreign aid programmes (0% VAT)

- amounts of motor fuel, lubricated motor oil and fuel oil less than the maximum amounts permitted to be brought into Estonia by natural persons pursuant to customs rules;

- products similar to motor fuel, lubricated motor oil or fuel oil, and components and additives thereof, which are imported by a handler of chemicals entered in the commercial register or which are produced in Estonia and which are used by a handler of chemicals as raw material for the production of chemical products or of preparations as defined in the Chemicals Act (SG I 1998, 47, 697; 1999, 45, 512).

The procedure for exemption from excise duty of products similar to motor fuel, lubricated motor oil or fuel oil, and components and additives thereof, used as raw material by a handler of chemicals are established by the Governmental Regulation.

Excise duty is refunded from the state budget to:

- foreign diplomatic representations and consular posts, to representations of international and intergovernmental organisations and co-operation programmes and to foreign diplomatic representatives, consular agents and representatives of special missions accredited to Estonia, pursuant to the procedure established by the Minister of Finance;

- owners or users of land who use diesel fuel in connection with the growing of crops, under the conditions and pursuant to the procedure established by the Government of the Republic.

2 Illegal production of petrol, diesel and aviation kerosene has taken place in Estonia during the last few years. The illegal mixing of motor fuel components and additives is done in order to avoid payment of motor fuel excise taxes. In this way, the state budget loses significant revenues.

3 For public, dwelling associations, apartment associations, churches and congregations, and to agencies and organisations financed from the state and local budgets.

Part of the excise tax dependent on the engine capacity

<i>Engine capacity</i>	<i>EEK (EUR) per cm³ of engine capacity</i>
< 1,000 cm³	2 EEK (0.13 EUR)
1,000 – 1,500 cm³	2 EEK (0.13 EUR)
1,500 – 1,600 cm³	2 EEK (0.13 EUR)
1,600 – 2,500 cm³	3,200 EEK (204 EUR) + 5 EEK (0.32 EUR) per each cm ³ exceeding 1,600 cm ³
2,500 – 3,000 cm³	7,700 EEK (490 EUR) + 15 EEK (0.96 EUR) per each cm ³ exceeding 2,500 cm ³
> 3,000 cm³	15,200 EEK (968 EUR) + 15 EEK (0.96 EUR) per each cm ³ exceeding 3,000 cm ³
Engine capacity (diesel motors)	
< 1,500 cm³	2 EEK (0.13 EUR)
1,500 – 2,500 cm³	3,000 EEK (191 EUR) + 5 EEK (0.32 EUR) per each cm ³ exceeding 1,500 cm ³
> 2,500 cm³	8,000 EEK (510 EUR) + 15 EEK (0.96 EUR) per each cm ³ exceeding 2,500 cm ³
Motorcycles	2.5 EEK (0.16 EUR)

Part of the excise tax dependent on the age of the vehicle

<i>Age of vehicle</i>	<i>EEK (EUR) per year</i>
1 to 5 years	200 (13 EUR)
6 to 10 years	300 (19 EUR)
More than 10 years	500 (22 EUR)
Motorcycles	Above rates multiplied by 0.5

- 4 The motor vehicle excise tax came into force on 1 April 1995. Excise rates were changed in 1998 and 1999. The tax is levied on imported and domestically produced cars and motorcycles. Rates are differentiated dependent on the engine capacity and the age of the vehicle.
- 5 The tax is levied on packaging materials for soft-drinks and alcoholic beverages, and it depends on the type of packaging materials.
- 6 Waste that contains oil, oil products, mineral oil or liquid products obtained from the thermal treatment of solid fuel or other organic matter, organic solvents, heavy metals (except mercury, cadmium, lead and arsenic), organic halogen compounds, colouring agents or pigments, paint or varnish waste, infectious hospital waste or health care waste, and medicinal waste.
- 7 Waste that contains wood preservatives, tar formed by the pyrolysis of solid fuels or other organic matter, pitch, asphalt, inorganic pesticides, asbestos, arsenic or lead, and waste pitch from the processing of oil shale.
- 8 Waste that contains mercury, cadmium, cyanides, polychlorinated biphenyls or polychlorinated triphenyls (PCBs, PCTs) or organic pesticides.
- 9 Pollution charge rates are increased by a factor of:
- 2.5, if the receiving water body is located in an area with unprotected groundwater;
 - 1.5, if the receiving water body is located within the boundaries of a city, town or beach, or nearer than 500 metres to a beach specified by a resolution of a local government;
 - 1.5, if the receiving water body is a sea or trans-boundary water body or a water body of importance to the fisheries;
 - 1.2, if wastewater is directed into the sea through a deep-sea outlet.
- If pollutants are released as a result of leakage from a deep-sea outlet, the pollution charge rates are increased by a factor of 1.5.
- Pollution charge rates are reduced by a factor of:
- 2, if the receiving water body is located in an area with moderately protected groundwater;
 - 3, if the receiving water body is located in an area with well protected groundwater.
- If a payer of the pollution charge complies with the requirements established by the Government of the Republic concerning wastewater discharged into water bodies before the prescribed time, or if the indicators which characterise the treatment of wastewater or the indicators which characterise wastewater are better than the indicators established by the Government of the Republic, the pollution charge rates are reduced by a factor of 2.
- 10 See table below

Environmental investments in Estonia

<i>Type of project</i>	<i>Source of funding</i>	<i>Amount</i>
Water protection projects	Central budget Environmental Investment Centre* Foreign aid and loans	70 mil EEK; 4.459 mil EUR 49.1 mil EEK; 3.127 mil EUR 302 mil EEK; 19.236 mil EUR
Waste management projects	Central Budget Environmental Investment Centre Foreign aid and loans	11.4 mil EEK; 0.726 mil EUR 20.3 mil EEK; 1.293 mil EUR 47.4 mil EEK; 3.019 mil EUR
Air protection programme	Environmental Investment Centre Foreign aid	3.653 mil EEK; 0.233 mil EUR 6.3 mil EEK; 0.401 mil EUR
Mineral resources programme	Environmental Investment Centre	10.3 mil EEK; 0.656 mil EUR
Nature protection programme	Environmental Investment Centre	16.7 mil EEK; 1.064 mil EUR
Hunting programme	Environmental Investment Centre	2.582 mil EEK; 0.164 mil EUR
Fisheries programme	Environmental Investment Centre	7.485 mil EEK; 0.477 mil EUR
Environmental awareness programme	Environmental Investment Centre	9.841 mil EEK; 0.627 mil EUR
Clean technologies programme	Environmental Investment Centre	2.947 mil EEK; 0.188 mil EUR
Regional programmes	Environmental Investment Centre	3.5 mil EEK; 0.223 mil EUR

* In October 1999, Estonian extra-budgetary Environmental Fund was transformed into budgetary Environmental Investment Centre (EIC), operating within the Ministry of Finance. Objective of this change was to improve the management of finances and investment projects, as well as co-operation with the EU structural funds. EIC council members are members of the Parliament (2 from the ruling coalition and 2 from opposition parties), and representatives of the Finance and Environment Ministries. Environmental Investment Centre is generally following principles of the former Environmental Fund.

<i>Total Revenue</i>	<i>Revenue collec- tion authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
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HUNGARY 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
ENERGY TAXES/CHARGES				
MOTOR FUEL TAXES/CHARGES				
Excise tax	Revenue raising tax	Unleaded petrol Diesel	93,000 HUF/kl; 357 EUR/kl 80,200 HUF/kl; 308 EUR/kl	
Fuel product charge	Earmarked environmental charge	Petrol, diesel	3% of total excise tax income from motor fuels	
CO₂				
VAT	Revenue raising tax	Unleaded petrol Diesel	25% 25%	
OTHER ENERGY PRODUCTS				
Excise tax	Revenue raising	Heating oil (final users) Lubricant oil	80,200 HUF/kl; 308 EUR/kl 72,200 HUF/kl; 277 EUR/kl	
Fuel product charge	Earmarked environmental charge	Lubricant oil Heating oil with high sulphur content Substandard heating oil	74,500 HUF/ton; 290 EUR/ton 4,200 HUF/ton; 16 EUR/ton 74,500 HUF/ton; 290 EUR/ton	
VAT	Revenue raising tax	Fuel oil Natural gas Electricity District heating	25% 12% 12% 12%	
AIR EMISSION CHARGES				
Emission charges				
Non- compliance fees	Compliance/ earmarked environmental charge	Emissions above the permitted levels (dependent on the category of source: immobile point sources, building sources, surface sources, extreme air pollution)	Minimum 5,000 HUF ¹ (19.17 EUR) per kilogram of emissions; In cases of extreme pollution: 10,000 -100,000 HUF/case; 38.3 – 383.4 EUR/case	
TRANSPORT RELATED TAXATION				
Sales tax	Revenue raising taxes	Motor> 1600cm ³ with catalytic converter; Motor< 1600cm ³ with catalytic converter; Motor> 1600cm ³ without catalytic converter; Motor< 1600cm ³ without catalytic converter	20% of customs value 10% of customs value 32% of customs value 22% of customs value	

¹ The level of the fee is proportional to environmental damage caused by the excess emissions, and is calculated based on complex formulas. These formulas are developed in such a way as to reflect regional variations in air pollution, height of emissions, and number of operating hours of the source per quarter.

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
		Tax collection authority	Central budget	Leaded petrol is not in use since 1998.
	8 – 9 bil HUF; 31 – 35 mil EUR (estimated revenue)	Tax collection authority Customs authority (for imported fuel)	Central budget - earmarked for environmental fund	Collection efficiency is 100% (included in the price). Fuel product charge is part of the excise tax.
		Tax collection authority	Central budget	
		Tax collection authority	Central budget	
	6.267 bil HUF; 24.028 mil EUR	Tax collection authority	Central budget - earmarked for environmental fund	Collection efficiency is close to 100%. Heating oil is classified as “high sulphur content” if it contains more than 2.8% of S; substandard heating oils are ones that do not comply with Hungarian standards.
		Tax collection authority	Central budget	
	1.073 bil HUF; 4.114 mil EUR	Environmental Inspectorates	70% - Central budget – earmarked for environmental fund 30% - Municipal budgets	Environmental efficiency is very low.
		Tax collection authority	Central budget	

The fees are progressive, i.e. they also depend on the degree of exceeding emission standards, and the “class of danger” of the given pollutant. Emissions standards are set for some 200 air pollutants, all classified into one of the four hazard categories.

HUNGARY 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>
Annual vehicle tax	Revenue raising taxes (road development)	Vehicles registered in Hungary (based on weight) Vehicles registered abroad	6 - 10 HUF/kg; 0.023 – 0.038 EUR/kg 50 HUF/day; 0.192 EUR /day, or 3 HUF/t/km; 0.012 EUR /t/km
Highway fees	Cost recovery		1,300 – 5,200 HUF per 9 days, or 22,000 – 88,000 HUF/year; 5 – 20 EUR per 9 days, or 84 – 337 EUR/year
Import duty	Revenue raising taxes	Cars < 4 years Cars < 4 years with catalytic converter Cars > 4 years Cars > 4 years with catalytic converter New lorries Old lorries New, old buses	2.7 – 18% 2 – 13 % 7.2 – 48 % 6.5 – 43 % 2.7 –18 % 3.8 – 25 % 3.1 – 20.8 %

NOISE AND VIBRATION

Noise and vibration non-compliance fees	Compliance/ ear-marked environmental charge	Excess levels of noise, dependent on the type of the source, and the type of affected area	Based on formula
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AIR TRANSPORT

Flight transportation tax/noise charges			
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AGRICULTURAL INPUTS

Pesticides			
Fertilizers			
Soil protection charge	Incentive/ compliance	Violation of law	850 – 18,500 kg of wheat at guaranteed prices

WASTE RELATED PRODUCT CHARGES

Batteries/ accumulators	Incentive	With electrolyte Electrolyte free	50 HUF/kg; 0.19 EUR/kg 70 HUF/ kg; 0.27 EUR/kg
Packaging materials	Incentive	Plastics Multi-layer Aluminium Other metals Paper, wood, natural textile Glass Other	12.7 HUF/kg; 0.05 EUR/kg 15.2 HUF/kg; 0.06 EUR/kg 5.6 HUF/kg; 0.021 EUR/kg 4.3 HUF/kg; 0.016 EUR/kg 5.6 HUF/kg; 0.021 EUR/kg 2.1 HUF/kg; 0.008EUR/kg 5.6 HUF/kg; 0.021 EUR/kg

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
		Municipalities Custom Authority	50% - Municipal budget 50% - Central budget - earmarked	50% reduction for electric and gas fuelled cars, and cars with catalytic converter.
		Highway Companies		Fees depend on the type of the vehicle, and are only applied for selected motorways.
		Customs authority	Central budget	Within the given ranges, actual rate depends on motor capacity, and the country of import (there are also duty exempt vehicles in each of the categories). Duty tax reductions are applied to waste collecting vehicles and vehicles (lorries) for special purposes (e.g. road sweeping cars).
	19.028 mil HUF; 0.073 mil EUR	Environmental inspectorates	Central budget – earmarked for environmental fund	
		Soil protection authority		The fee is levied in cases of extreme violations of soil protection regime, under the 1994 Act on Soil; the fee is set and enforced by the regional soil protection authorities.
	998 mil HUF; 3.827 mil EUR	Tax collection authorities; Customs authority	Central budget - earmarked	Collection efficiency is close to 100%.
	4.081 bil HUF; 15.648 mil EUR	Tax collection authorities; Customs authority	Central budget - earmarked	Collection efficiency varies between 81% (plastics) and 93% (paper, textiles).

HUNGARY 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Tyres	Incentive	New tyres Used tyres Imported tyres	38.5 HUF/kg; 0.15 EUR/kg 48.3 or 154 HUF/kg; 0.19 or 0.59 EUR/kg 500 HUF/kg; 1.92 EUR/kg	
Refrigerators	Incentive	Refrigerators Refrigerants	1,016 – 4,719 HUF/item; 3.9 – 18.09 EUR/item 253.2 – 1,187 HUF/item; 0.97 – 4.55 EUR/item	

WASTE

Waste user charge	Cost recovery	Households	401 – 410 HUF/flat/month; 1.54 – 1.57 EUR/flat/month	
Waste disposal charge	Cost recovery	Households Industrial waste Other (non-hazardous) waste	5,100 HUF/t; 19.56 EUR/t 5,100 HUF/t; 19.56 EUR/t 450 – 1,400 HUF/t; 1.73 – 5.37 EUR/t	
Hazardous waste non-compliance fees	Compliance/ ear-marked environmental charge	Inadequate collection, treatment, transport, and disposal of hazardous waste	10,000 - 5 mil HUF/case; 38 – 19,172 EUR/case	
Deposit refund system	Incentive	Wine and beer bottles PET bottles (soft drinks)	10 – 20 HUF/item; 0.04 – 0.08 EUR/item 40 – 60 HUF/item; 0.15 – 0.23 EUR/item	
Nuclear power levy (Paks nuclear plant)	Cost recovery / waste management			

WATER

INSTRUMENTS FOR MANAGING WATER QUALITY

Water consumption charge²	Cost recovery	Households Industry	25.86 – 264 HUF/m ³ ; 0.1 – 1.01 EUR/ m ³ (weighted average: 120.4 HUF/m ³ ; 0.46 EUR/ m ³) 63.46 – 268.1 HUF/m ³ ; 0.24 – 1.03 EUR/ m ³ (weighted average: 128.1 HUF/m ³ ; 0.49 EUR/ m ³)	
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	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	2.285 bil HUF; 8.762 mil EUR	Tax collection authorities; Customs authority	Central budget - earmarked	Collection efficiency is around 78%.
	984 mil HUF; 3.776 mil EUR	Tax collection authorities, customs authority	Central budget - earmarked	Collection efficiency is around 96%.
		Service provider	Municipal waste collection companies	Charge rate depends on the size of containers and frequency of service; rate is usually lower in smaller communities (rural areas).
		Service provider	Waste management companies	The charges apply to the wastes disposed into landfills.
	93.8 mil HUF; 0.36 mil EUR	Environmental inspectorates	70% - Central budget – earmarked; 30% - Local government	The actual level of fees depends on the quantity, the class of hazard and the type of violation. Environmental efficiency is very low, since environmental inspectorates do not have necessary capacity to control self-reporting and adequacy of handling hazardous wastes.
		Retailers	Retailers and producers	Incentive for reuse and controlled collection of packaging materials.
	9.311 bil HUF/year; 35.703 mil EUR/ year	Central Nuclear Fund	Preparation of waste disposal sites	The levy should cover the cost of treatment and disposal of radioactive wastes (during the operational period and shutdown).
		Water and sewage water utility companies		97% of population connected to drinking water supply system. If residents' charge rises over the limit of 210 HUF/m ³ (0.81 EUR/m ³), state provides subsidies to the service provider to keep the price below the limit.

HUNGARY 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Sewage charge²	Cost recovery	Households Industry	23.87 – 397 HUF/m ³ ; 0.09 – 1.52 EUR/ m ³ (weighted average: 98.09 HUF/m ³ ; 0.38 EUR/ m ³) 47.2 – 903 HUF/m ³ ; 0.18 – 3.46 EUR/ m ³ (weighted average: 115.2 HUF/m ³ ; 0.44 EUR/ m ³)	
Water pollution non-compliance fees	Compliance/ earmarked environmental charge	Toxicity, quality and quantity of the effluent, and the location of discharges exceeding the permitted concentration levels.	Basic rate ranges from 2 to 20,000 HUF per kg of pollutant (0.008 – 78 EUR/kg)	

INSTRUMENTS FOR MANAGING WATER QUANTITY

Water extraction charge	Revenue raising/ resource management	User with legal approval of water rights Industrial use Extraction above the permitted level Extraction without a permit	1.7 HUF/m ³ ; 0.007 EUR/m ³ 5.3 HUF/m ³ ; 0.02 EUR/ m ³ 3.4 HUF/m ³ ; 0.013 EUR/m ³ 10.9 HUF/m ³ ; 0.04 EUR/m ³	
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NATURAL RESOURCES AND MINING

Mining tax	Revenue raising	Extraction of gas, oil, minerals, geothermic energy, etc.	2 - 12% of sales price	
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INSTRUMENTS FOR BIODIVERSITY AND NATURE CONSERVATION³

Hunting charge	Conservation Resource management	Rabbits Pheasants Large game	100 HUF; 0.38 EUR 50 HUF; 0.19 EUR 1,000 HUF; 3.83 EUR	
Wildlife protection non-compliance fees	Compliance/ resource management	Poor management practices Illegal hunting	10,000 – 100,000 HUF/case; 38 – 383 EUR/case 20,000 – 1,000,000 HUF/case; 77 – 3,834 EUR/case	
Forest protection non-compliance fees	Compliance / forest management	Poor management practices Illegal cutting	4,000-500,000 HUF/case; 15 – 1,917 EUR/case 2,000 – 50,000 HUF/case; 8 – 192 EUR/case	
Fish protection non-compliance fees	Compliance / resource management	Poor management practices Illegal fishing	100 – 10,000 HUF/case; 0.38 – 38 EUR/case 2,000 – 100,000 HUF/case; 8 – 383 EUR/case	

² The figures are based on the information from members of Cooperation of Water and Sewage Water Utilities (95% of all providers).

³ In nature conservation areas, all economic activities have to be permitted by nature conservation authority (command and control instruments).

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
		Water and sewage water utility companies		57% connected to sewage system. If residents' charge rises over the limit of 160 HUF/m ³ (0.61 EUR/m ³), state provides subsidies to the service provider to keep the price below the limit.
	318.59 mil HUF; 1.22 mil EUR	Water inspectors (for direct discharges) Sewage companies (for discharges into sewage system)	Central budget - earmarked	Basic rates for some of the pollutants are: - dichromate oxygen demand (2 HUF/kg; 0.008 EUR/kg) - active chloride, phosphorus (100 HUF/kg; 0.38 EUR/kg) - ANA detergents (120 HUF/kg; 0.46 EUR/kg) - cyanides (10,000 HUF/kg; 38.3 EUR/kg) - mercury (20,000 HUF/kg; 78 EUR/kg).
	5.55 bil HUF; 21.28 mil EUR (estimated revenues)	Water inspectors	Central budget - earmarked	
	19.1 bil HUF; 73.236 mil EUR (planned revenues)	Tax collection authority	Central budget	This tax is a royalty, aimed at setting a price for the mined resources. In some cases, revenues are used to finance shut-down projects (including remediation).
		Hunting authorities	Conservation	
		Hunting authorities	Central budget - earmarked	
			Central budget - earmarked	In special cases, the fee is linked to recovery of costs caused by the non-compliance (two, three times higher).
		Fishing authority	Central budget - earmarked	

HUNGARY 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Nature conservation non-compliance	Compliance / nature protection	Violations of 1995 Act on Nature Protection (licensing regime, endangered species, biodiversity, etc.)	50,000 – 750,000 HUF/ha; 192 – 2,876 EUR/ha	
DIRECT TAX PROVISIONS				
Import duty				
Accelerated depreciation⁴				
Corporate tax⁵				
Commuting⁶				
OTHER INSTRUMENTS				
Allowances in VAT	Incentive	Equipment for the use of renewable energy resource, asbestos-free brake-linings, catalytic converters, exhaust-gas filters for public road vehicles	12%	

⁴ Accelerated depreciation rate: 4% for steam, hot water and thermal pipes, 33% for solar cells, fluidised coal-fired equipment and other boilers, burning agricultural by-products, emission control equipment, electrostatic filters, other scrubbers serving cleaning of gaseous substances, dust separators, absorptive gas cleaners.

⁵ No corporate tax has to be paid for services connected to renewable energy and other environmental protection related services carried out by Public Utility Companies. The financial support for foundations can be accounted as expenditure.

⁶ In case of commuting employee, the employer has to finance 80 - 86% of public transport ticket between the two settlements. This payment is not taxable income. In case of commuting employee, the employer can pay 3 HUF/km for the use of private cars (maximum amount of 3 HUF/km x distance between the two settlements).

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	7.43 mil HUF; 0.028 mil EUR		Central budget - earmarked	In special cases, the fee is linked to monetary value of endangered species (two, three times higher).
				Incentive for environmentally friendly products (standard tax rate is 25%).

<i>Total Revenue</i>	<i>Revenue collec- tion authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
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<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
ENERGY TAXES/CHARGES				
MOTOR FUEL TAXES/CHARGES				
Excise tax	Revenue raising taxes	Leaded petrol Unleaded petrol Diesel Kerosene (as propellant)	140 LVL/kl; 250 EUR/kl 118 LVL/kl; 211 EUR/kl 111 LVL/kl; 198 EUR/kl 104 LVL/kl; 186 EUR/kl	
VAT	Revenue raising taxes	Leaded petrol Unleaded petrol Diesel Kerosene	18% 18% 18% 18%	
CO₂				
OTHER ENERGY PRODUCTS				
Excise tax	Revenue raising taxes	Gas oil Heavy fuel oil	30 LVL/t; 54 EUR/t 2 LVL/t; 3.6 EUR/t	
VAT	Revenue raising taxes	Gas oil Heavy fuel oil Coal Natural gas Electricity District heating	18% 18% 18% 18% 18% 18%	
AIR EMISSION CHARGES				
Emission charges	Incentive / earmarked environmental charge	SO ₂ NO _x Dust CO Ammonia, hydrocarbons, other inorganic compounds Heavy metals (lead, mercury, etc.)	10 LVL/t; 17.9 EUR/t 10 LVL/t; 17.9 EUR/t 3 LVL/t; 5.36 EUR/t 4.5 LVL/t; 8.04 EUR/t 10 LVL/t; 17.9 EUR/t 800 LVL/t; 1,429 EUR/t	
Emission non-compliance fees	Compliance/ earmarked environmental charge	Excess /illegal emissions of air pollutants	3 times the emission charge (EC) for emissions above the permitted level; 12 times the EC for illegal emissions or non-reporting	
TRANSPORT RELATED TAXATION				
Excise tax	Revenue raising taxes	Age of the vehicle: - New vehicle - 1 year old - 2 – 4 years - 5 – 7 years - 8 – 18 years - 19 – 25 years	250 LVL; 446 EUR 200 LVL; 357 EUR 150 - 100 LVL; 268 – 179 EUR 75 LVL; 134 EUR 80 - 230 LVL; 143 – 411 EUR 250 LVL; 446 EUR	

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
		State Revenue Service	50% State budget 50% State Road Fund ¹	
		State Revenue Service	State budget	
		State Revenue Service		Tax revenues from mineral oils such as heating fuel are transferred to the National Environment Fund as of 1 January 1999.
		State Revenue Service	State budget	
		State Revenue Service	40% National Environmental Protection Fund 60% Municipal environmental funds	Four classes of pollutants (non-toxic, medium dangerous, dangerous and highly dangerous) exist, with over 160 chargeable pollutants. Charge rates will increase in the year 2002 (according to the amendments on the Natural Resources Tax Law; the amendments were passed in April 2000).
		State Revenue Service	Environmental Protection Fund	State Environmental Inspectorate and regional environmental boards are responsible for the enforcement.
		State Revenue Service	State budget	There are 18 age categories for vehicles, which serve as the basis for excise tax. The rate is regressive for vehicles 0 to 7 years old; for vehicles 8 – 25+ years, charge is progressive. The lowest rates applied for 5 – 7 year-old cars. Excise tax is the same for new and vehicles older than 25 years.

¹ Close to 12% of the total revenue of the State Road Fund is used to subsidize public bus transport.

LATVIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Annual vehicle tax	Revenue raising taxes	Weight of the vehicle (in kg): - up to 1,500 - 1,501 – 1,800 - 1,801 – 2,100 - 2,101 – 2,600 - 2,601 – 3,500 - 3,501 – 12,000 - over 12,000	7.5 LVL; 13 EUR 16 LVL; 29 EUR 30 LVL; 54 EUR 35 LVL; 63 EUR 50 LVL; 89 EUR 70 LVL; 125 EUR 100 LVL; 179 EUR	
Registration charge	Administration cost recovery		1.4 LVL; 2.5 EUR	
Road tolls				
AIR TRANSPORT				
Flight transportation tax / noise charges				
AGRICULTURAL INPUTS				
Pesticides				
Fertilizers				
WASTE RELATED PRODUCT CHARGES²				
Batteries / accumulators	Incentive / earmarked environmental charge	Capacity of batteries containing lead: - up to 50 Ah - 51 to 100 Ah - 101 to 150 Ah - over 151 Ah Other	1.5 LVL/unit; 2.68 EUR/unit 3.0 LVL/unit; 5.36 EUR/unit 4.5 LVL/unit; 8.04 EUR/unit 6.0 LVL/unit; 10.71 EUR/unit 15% of product's value	
Disposable containers / packaging	Incentive / earmarked environmental charge	Glass Plastics (except PET) PET Metal Paper/board and other laminates with polymer or metal components Wood, paper, board or other natural material	0.040 LVL/kg; 0.071 EUR/kg 0.090 LVL/kg; 0.161 EUR/kg 0.105 LVL/kg; 0.188 EUR/kg 0.06 LVL/kg; 0.107 EUR/kg 0.06 LVL/kg; 0.107 EUR/kg 0.012 LVL/kg; 0.021 EUR/kg	

² Payments related to the consumption of goods and products harmful to the environment are partly refundable to the enterprises recycling these goods, in compliance with the technological and environmental standards established by the Ministry of Environment and Regional Development.

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
		Road Safety Board	Road fund	Increase of rates is planned for the next year.
		Road Safety Board		
	468,435 LVL; 751,902 EUR (in 1999)	State Revenue Service	Environmental Protection Fund	
		State Revenue Service	Environmental Protection Fund	<p>Since October 2000, a new approach in calculating packaging charges is in force (introduced through the amendments on the Natural Resources Tax Law). The new approach foresees one calculation method instead of the earlier four, and links charge rates to the weight of packaging materials. The amendments provided for an increase of the charge rates, and introduced clearer definitions of packaging materials.</p> <p>Ministry of Environmental Protection and Regional Development, upon recommendation of the Packaging Management Council, may grant allowances to the companies that carry out voluntary packaging waste management programs. A new law on packaging is under preparation in Latvia, in line with the requirements of the EU Council Directive 94/62/EC on packag-</p>

LATVIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Disposable containers / packaging continued				
Disposable plastic tableware	Incentive / ear-marked environmental charge	Value of the product	25%	
Tyres	Incentive / ear-marked environmental charge	All types of tyres	0.06 LVL/kg; 0.107 EUR/kg	
CFCs and/or halons	Incentive / ear-marked environmental charge	Ozone depleting substances, dependent on their ozone depleting potential (ODP)	1 LVL/kg x ODP; 1.786 EUR/kg x ODP	
Light bulbs	Incentive / ear-marked environmental charge	Mercury luminescent bulbs	0.1 LVL/item; 0.179 EUR/item	
Oil filters	Incentive / ear-marked environmental charge	Oil filters	0.1LVL/piece; 0.179 EUR/piece	
Lubricants	Incentive / ear-marked environmental charge	Mineral oils	0.03 LVL/kg; 0.054 EUR/kg	

WASTE

Waste user charge	Cost recovery	Municipal waste	2.2 – 5.4 LVL/ m ³ ; 3.93 – 9.64 EUR/m ³	
Waste disposal charge	Incentive / ear-marked environmental charge	Non-toxic waste Toxic waste Highly toxic waste	0.25 LVL/m ³ ; 0.446 EUR/m ³ 1.50 LVL/m ³ ; 2.68 EUR/m ³ 50.0 LVL/m ³ ; 89.29 EUR/m ³	
Waste non-compliance fees	Compliance / ear-marked environmental charge	Solid waste disposal	three times the disposal charge for disposal above the permitted level; 12 times the disposal charge for illegal disposal	
Levies related to nuclear waste management	Cost recovery	Radioactive waste	Differentiated by the level of radioactivity	

WATER

INSTRUMENTS FOR MANAGING WATER QUALITY

Water consumption charge	Cost recovery	Households Industry	0.08 – 0.29 LVL/m ³ ; 0.14 – 0.52 EUR/m ³ 0.08 – 1 LVL/m ³ ; 0.14 – 1.79 EUR/m ³	
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	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
				ing and packaging waste. The law is expected to come into force on 1 July 2002.
		State Revenue Service	Environmental Protection Fund	Since 1 July 2000.
	303,044 LVL; 486,427 EUR (in 1999)	State Revenue Service	Environmental Protection Fund	Charge rate has increased in July 2000 (according to the amendments to the Natural Resources Tax Law).
		State Revenue Service	Environmental Protection Fund	
	2,005 LVL; 3,218 EUR (in 1999)	State Revenue Service	Environmental Protection Fund	
		State Revenue Service	Environmental Protection Fund	Since 1 July 2000.
		State Revenue Service	Environmental Protection Fund	Charge rate has increased in July 2000 (according to the amendments on the Natural Resources Tax Law).
		Municipal companies	Municipalities	
		State Revenue Service	40% National Environmental Protection Fund 60% Municipal environmental funds	Paid by the waste disposal companies, for the deposition of solid wastes.
		State Revenue Service	Environmental Protection Fund	State Environmental Inspectorate and regional environmental boards establish non-compliance cases, and State Revenue Service collects the fees.
		State Revenue Service		
		Water companies	Municipality	

LATVIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Sewage charge	Cost recovery	Households Industry	0.11 – 0.29 LVL/m ³ ; 0.2 – 0.52 EUR/ m ³ 0.24 – 1.14 LVL/m ³ ; 0.43 – 2.04 EUR/ m ³	
Water effluent charge	Incentive / earmarked environmental charge	Non-toxic substances Suspended solids Moderately dangerous substances Dangerous substances Highly dangerous substances	3.0 LVL/t; 5.36 EUR/t 10.0 LVL/t; 17.86 EUR/t 30.0 LVL/t; 53.57 EUR/t 8,000 LVL/t; 14,286 EUR/t 50,000 LVL/t; 89,286 EUR/t	
Water pollution non-compliance fees	Compliance / earmarked environmental charge	Excess/illegal discharges of water pollutants	three times the effluent charge for exceeding the permitted limits; 12 times the effluent charge for illegal discharge or non-reporting	

INSTRUMENTS FOR MANAGING WATER QUANTITY

Water extraction charge	Earmarked environmental charge	Surface water Ground water: - drinking water - technological water Mineral water: - medicinal water - drinking mineral water Thermal water	0.002 LVL/m ³ ; 0.004 EUR/m ³ 0.01 LVL/m ³ ; 0.018 EUR/m ³ 0.005 LVL/m ³ ; 0.009 EUR/m ³ 0.1 LVL/m ³ ; 0.179 EUR/m ³ 0.2 LVL/m ³ ; 0.357 EUR/m ³ 0.05 LVL/ m ³ ; 0.089 EUR/ m ³	
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NATURAL RESOURCE AND MINING

Mining / natural resource extraction charge	Earmarked environmental charge	Soil Construction sand Glass and molding sand Sand, gravel Clay for cement and brick Clay for ceramic and ceramsite dolomite Decorative dolomite	0.2 LVL/m ³ ; 0.357 EUR/m ³ 0.05 LVL/m ³ ; 0.089 EUR/m ³ 0.2 LVL/m ³ ; 0.357 EUR/m ³ 0.1 LVL/m ³ ; 0.179 EUR/m ³ 0.1 LVL/m ³ ; 0.179 EUR/m ³ 0.13LVL/m ³ ; 0.232 EUR/m ³ 0.06 LVL/m ³ ; 0.107 EUR/m ³	
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INSTRUMENTS FOR BIODIVERSITY AND NATURE PROTECTION

Hunting charge				
Fishing charge		Based on permits		
Natural park entrance fees				
Nature protection non-compliance fees				

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
		Water companies	Municipality	
		State Revenue Service	40% National Environment Protection Fund 60% Municipal environmental funds	Charge rates are linked to water pollution hazard categories, ambient standards and effluent standards for 36 pollutants. Listed pollutants are classified into five categories (phosphorus, nitrogen and BOD fall into category of moderately dangerous substances).
		State Revenue Service	Environmental Protection Fund	State Environmental Inspectorate and regional environmental boards enforce the non-compliance fees.
		State Revenue Service	40% National Environmental Protection Fund 60% Municipal environmental funds	Water extraction charge rates increased in July 2000 (based on the amendments to the Natural Resources Tax Law; the amendments were passed in April 2000).
		State Revenue Service	40% National Environmental Protection Fund 60% Municipal environmental funds	
			State Fish Fund	

LATVIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Tree cutting charges	Revenue raising / resource management	Tree cutting, dependent on the species, quality, average tree trunk diameter, height, and type of cutting	Varies	
DIRECT TAX PROVISIONS				
Investments, grants, etc.				
Accelerated depreciation				
Income Tax/VAT allowances for environment				
Duty/tax allowance on import of environment-friendly goods				

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
		State Forestry Service	30% Local budget 70% Forestry Development Fund	

<i>Total Revenue</i>	<i>Revenue collec- tion authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
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LITHUANIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
ENERGY TAXES/CHARGES				
MOTOR FUEL TAXES/CHARGES				
Excise tax	Revenue raising	Unleaded petrol Diesel fuel Jet engine fuel Kerosene Lubricants	896 LTL/kl; 242 EUR/kl 478 LTL/kl; 129 EUR/kl 560 LTL/t; 151 EUR/t 560 LTL/t; 151 EUR/t 240 LTL/t; 65 EUR/t	
CO₂				
VAT	Revenue raising	Unleaded petrol Diesel Jet engine fuel Kerosene Lubricants	18% for all fuels	
OTHER ENERGY PRODUCTS				
Excise tax	Revenue raising	Light fuel oil Heavy fuel oil Orimulsion® Electricity	560 LTL/t; 151.4 EUR/t 20 LTL/t; 5.41 EUR/t 20 LTL/t; 5.41 EUR/t 1% of value	
VAT	Revenue raising	Light fuel oil Heavy fuel oil Orimulsion® Coal Natural gas Electricity District heating	18% for all products	
AIR EMISSION CHARGES				
Emission charges¹	Revenue raising	SO ₂ NO _x CO	208.26 LTL/t; 56.3 EUR/t 390.25 LTL/t; 105.5 EUR/t 13 LTL/t; 3.5 EUR/t	
Emission non-compliance fees	Compliance /ear-marked environmental charge	Violation of the Law on Pollution Charges, and environmental damage	Differentiated according to damage	

¹ In 2000, total revenue from all the pollution charges (air emission charges and non-compliance fees included) was 22 million LTL (5.95 mil EUR).

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	447.643 mil LTL; 120.985 mil EUR 319.482 mil LTL; 86.346 mil EUR 0.285 mil LTL; 0.075 mil EUR not available 6.988 mil LTL; 1.889 mil EUR	State Tax Inspectorate and Customs (for imported fuel)	68% Central budget; 32% Road Fund or 100% Central budget	Leaded gasoline not on sale since January 1998. 68% of the revenue from excise taxes from unleaded petrol and lubricants goes to Central budget, 32% to Road Fund. Excise taxes from other motor fuels are entirely revenue of the Central budget.
	299.788 mil LTL; 81.024 mil EUR	State Tax Inspectorate	Central budget	
	7.214 mil LTL; 1.95 mil EUR	State Tax Inspectorate and Customs (for imported fuel)	Central budget	
	n.a.	State Tax Inspectorate	Central budget	
	6.455 mil LTL; 1.74 mil EUR 4.332 mil LTL; 1.17 mil EUR 0.758 mil LTL; 0.20 mil EUR	State Tax Inspectorate	Since January 2000: 10% Central Budget; 20% Environmental Investment Fund; 70% municipal environmental protection funds	Emission charges are paid by stationary and mobile commercial sources. Over 100 pollutants are subject to the charge.
	0.258 mil LTL; 0.07 mil EUR (revenue from violations of the permit system) 0.044 mil LTL; 0.012 mil EUR (revenue collected from environmental non-compliance)	State Tax Inspectorate and Environmental Protection Inspectorate	State Nature Protection Fund	Non-compliance fees consist of two components: 1) in case of emissions above the permitted level (in contravention of the Law on Pollution Charges), so-called penalty rate is levied on total emissions; 2) for the environmental non-compliance (i.e. excess emission of pollutants), a fine is levied as a compensation for the damage done.

LITHUANIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
TRANSPORT RELATED TAXATION				
Sales tax				
Import duty	Revenue raising	Vehicles 5-10 years old Older than 10 years	5% 10%	
Excise tax	Revenue raising	Vehicles less than 5 years old, the value of which is more than 60,000 LTL (16,216 EUR)	15% of the value of the vehicle	
Annual vehicle tax	Revenue raising	Light duty vehicles Heavy duty vehicles Special road vehicles	100 – 300 LTL/vehicle; 27 – 81 EUR/vehicle 500 – 1,000 LTL/vehicle; 135 – 270 EUR/vehicle 100 – 300 LTL/vehicle; 27 – 81 EUR/vehicle	
Registration charge	Revenue raising	Car registration	1.25 LTL; 0.34 EUR	
Commuting				
Company car tax allowance				
Tax on the use of roads by vehicles registered in other countries		Buses Heavy duty vehicles Special purpose vehicles	up to 220 LTL (59.5 EUR) up to 400 LTL (108 EUR) up to 120 LTL (32.4 EUR)	
Tax on the use of roads by vehicles exceeding standard dimensions	Revenue raising	Excess of allowable dimensions (in cm) Exceeding of the allowable load on the axels (in tons)	5 – 14 LTL/cm; 1.35 – 3.78 EUR/cm 0.8 – 18.4 LTL/t; 0.22 – 4.97 EUR/t	
Road tax	Revenue raising	Corporate income	0.1 – 1%	
AIR TRANSPORT				
Flight transportation tax				
Noise charge				
AGRICULTURAL INPUTS				
Pesticides				
Fertilizers				

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	21.783 mil LTL; 5.887 mil EUR (source: Customs department)	State Tax Inspectorate and Customs	Central budget and Customs	
	2.940 mil LTL; 0.795 mil EUR (source: Ministry of Finance)	Customs and State Tax Inspectorate	Customs and Central budget	
	23.18 mil LTL; 6.3 mil EUR	State Tax Inspection	Road Fund – for the construction and maintenance of roads	
	n.a.	State Inspectorate (Road police)	Central budget	
				There are both state and municipal subsidies for public transportation tickets.
	0.009 mil LTL; 0.002 mil EUR	State Tax Inspectorate	Road Fund — for the construction and maintenance of roads	
	1.14 mil LTL; 0.308 mil EUR	State Tax Inspectorate	Road Fund — for the construction and maintenance of roads	
	284.33 mil LTL; 76.846 mil EUR	State Tax Inspectorate	Road Fund — for the construction and maintenance of roads	The tax is levied on all the companies in Lithuania, regardless of whether they have vehicles or not.

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<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
WASTE RELATED PRODUCT CHARGES				
Batteries/ accumulators	Revenue raising	Single product	7 – 11 LTL per product; 1.89 – 2.97 EUR per product	
Carrier bags				
Disposable containers/ packaging	Revenue raising	Beverage containers	0.1 LTL per litre; 0.027 EUR per litre	
Tyres	Revenue raising	Single product	0.3 – 0.36 LTL per product; 0.081 – 0.097 EUR per product	
CFCs and/or halons				
Light bulbs				
Lubricants				
Refrigerants				
WASTE				
Municipal waste user charges	Cost recovery	Per capita (for population) or volumetric charge (usually for industry)	0.13 – 3.0 LTL/inh/month; 0.03 – 0.8 EUR /inh/month 12 – 20 LTL/m ³ ; 3.24 – 5.41 EUR/m ³	
Waste disposal charge				
Waste non-compliance fees	Compliance/ earmarked environmental charge	Per case of non-compliance, dependent on waste toxicity: Class I Class II Class III Class IV Class V	73,800 LTL; 19,946 EUR 36,900 LTL; 9,973 EUR 11,070 LTL; 2,992 EUR 3,690 LTL; 997 EUR 738 LTL; 199 EUR	
Deposit-refund schemes²		Glass beverage containers (beer and some other types of bottles)	Payment depends on the agreement between breweries and collectors	
Levies related to nuclear waste management				

² Ministry of the Environment has prepared new legislation on the deposit-refund, but it has not been approved yet.

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
				Planned to be introduced
				Planned to be introduced
				Planned to be introduced
	n.a.	Municipal or private companies	Municipal or private companies	
	0.01 mil LTL; 0.003 mil EUR	State Environmental Protection Inspectorate	State Nature Protection Fund	Environmental inspectors are authorized to impose fines for violation of waste disposal rules. However, since it is difficult to identify violators, and since the level of the fees is very low, the use of this instrument is very rare.
				At the moment, breweries are refunding full market price of collected bottles.

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<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
WATER				
INSTRUMENTS FOR MANAGING WATER QUALITY				
Water consumption charge	Cost recovery	Households Municipal companies Industry	0.9 – 2.77 LTL/m ³ 0.24 – 0.75 EUR/m ³ 0.9 – 3.88 LTL/m ³ 0.24 – 1.05 EUR/m ³ 0.9 – 3.88 LTL/m ³ 0.24 – 1.05 EUR/m ³	
Sewage treatment charge	Cost recovery	Households Municipal companies Industry	0.9 – 4.5 LTL/m ³ ; 0.24 – 1.22 EUR/m ³ 1.32 – 4.5 LTL/m ³ ; 0.36 – 1.22 EUR/m ³ 1.32 – 8.00 LTL/m ³ ; 0.36 – 2.16 EUR/m ³	
Water effluent charge	Incentive/ ear-marked environmental charge	Direct discharges: BOD ₇ Suspended solids Oil products Phosphorus Nitrogen	490 LTL/t; 132.4 EUR/t 87 LTL/t; 23.5 EUR/t 29,612 LTL/t; 8,003 EUR/t 1,496 LTL/t; 404.3 EUR/t 440 LTL/t; 118.9 EUR/t	
Water pollution non-compliance fees	Compliance/ ear-marked environmental charge	Excess discharges and/or Damage caused to the environment	Penalty rate (based on formula ³) and/or Damage compensation (based on formula ⁴)	
INSTRUMENTS FOR MANAGING WATER QUANTITY				
Water extraction charge	Revenue raising / resource management	Ground water: - Households - Industry Surface water: - Industry and agriculture - Cooling purposes (power stations and fisheries) - Hydro-electric power stations - State nuclear power stations Mineral water	0.038 LTL/m ³ ; 0.01 EUR/m ³ 0.088 LTL/m ³ ; 0.024 EUR/m ³ 0.006 LTL/m ³ ; 0.0016 EUR/m ³ 0.0006 LTL/m ³ ; 0.0002 EUR/m ³ 0.00003 LTL/m ³ ; 0.000008 EUR/m ³ 0.0013 LTL/m ³ ; 0.0004 EUR/m ³ 5.23 LTL/m ³ ; 1.41 EUR/m ³	

³ $T_i = T_b (1 + 4F/N)$, where T_i is the penalty rate, T_b is the base rate in LTL/t (the same as for the water effluent charge), F is the actual emissions (in tons), and N is standard emissions (also in tons).

⁴ $D = D_b \times K$, where D is damage compensation, D_b is base amount for calculation of damages (as prescribed in the legal document called Methodology for Assessing Damages Resulting from Environmental Non-compliance), and K is category of the polluted water body.

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
		Water companies	Water companies	VAT included in the rates. Charges vary across the country, and it is the competence of the State Pricing Commission under the government of Lithuania to confirm them.
		Water companies	Water companies	
	3.430 mil LTL; 0.927 mil EUR 0.609 mil LTL; 0.165 mil EUR 1.877 mil LTL; 0.507 mil EUR 0.965 mil LTL; 0.261 mil EUR 1.615 mil LTL; 0.436 mil EUR	State Tax Inspectorate	Since January 2000: 10% Central budget; 20% Environmental Investment Fund; 70% Municipal environmental protection funds	In the case wastewater is discharged through the sewage system, companies (polluters) pay different charge rates to water companies (dependent on how many times pollution exceeds the limits agreed between the polluter and the water company); systems are different in different municipalities.
	1.032 mil LTL; 0.279 mil EUR (estimated revenue) 0.616 mil LTL; 0.166 mil EUR (estimated revenue)	State Environmental Protection Inspectorate	State Nature Protection Fund	Penalty rate is levied in the case of discharges exceeding the permitted limits (in contravention of the Law on Pollution Charges). Damage compensation is levied in cases when environmental damage is observed (e.g. dead fish, oil spills etc.) due to excess discharges of pollutants.
	8.376 mil LTL; 2.264 mil EUR	State Tax Inspectorate	Central budget	

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<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
NATURAL RESOURCE AND MINING				
Mining taxes	Revenue raising	Oil Anhydrite Dolomite Limestone Chalk marl Clay Opoka Sapropel Sand for construction works Sand for glass industry Sand and gravel mix Construction soil Amber Peat: - for export - for domestic use	20% of sales price 0.5 LTL/t; 0.14 EUR/t 0.63 LTL/m ³ ; 0.17 EUR/m ³ 0.82 LTL/t; 0.22 EUR/t 0.6 LTL/t; 0.16 EUR/t 0.35 – 0.95 LTL/m ³ ; 0.09 – 0.26 EUR/m ³ 0.5 LTL/t; 0.14 EUR/t 0.82 LTL/t; 0.22 EUR/t 0.32 LTL/m ³ ; 0.09 EUR/m ³ 3.67 LTL/t; 0.99 EUR/t 0.29 LTL/m ³ ; 0.08 EUR/m ³ 0.19 LTL/m ³ ; 0.05 EUR/m ³ 32.2 – 49.36 LTL/kg; 8.7 – 13.34 EUR/kg 5.15 LTL/t; 1.39 EUR/t 1.15 LTL/t; 0.31 EUR/t	

INSTRUMENTS FOR BIODIVERSITY AND NATURE PROTECTION

Hunting rent	Revenue raising	Surface of the hunting area	0.24 -1.8 LTL/ha/year; 0.06 – 0.49 EUR/ha/year, dependent on the type of habitat	
Hunting charges	Revenue raising /resource management	Big game hunting licenses: - Elk - Deer - Roe-deer - Fallow-deer - Wild boar	20 – 150 LTL/license; 32.4 – 40.5 EUR/license 60 – 90 LTL/license; 16.2 – 24.3 EUR/license 24 LTL /license; 6.5 EUR /license 30 LTL/license; 8.1 EUR /license 25 LTL/license; 6.8 EUR /license	
Fishing charges	Revenue raising /resource management	Commercial fishing	- 1% of the income from fish sales, and - 4% of the income from fish sales	
Natural park entrance fees				

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	43.743 mil LTL; 11.822 mil EUR 0.330 mil LTL; 0.090 mil EUR 0.7 mil LTL; 0.189 mil EUR 0 (not extracted) 0.087mil LTL; 0.024 mil EUR n.a. 0 (not extracted) 0 (not extracted) 0.282mil LTL; 0.076 mil EUR 0.283 mil LTL; 0.076 mil EUR 1.166 mil LTL; 0.315 mil EUR n.a. 0 (not extracted) 0.724 mil LTL; 0.089 mil EUR (for all peat)	State Tax Inspectorate	Central budget	Total revenue received by the state budget from the natural resource taxes amounts to 58.291 mil LTL (15.754 mil EUR).
	1.200 mil LTL; 0.324 mil EUR (from the state owned land)	State Tax Inspectorate	Forest Fund	Hunting rent is paid to acquire hunting rights on the given area of forest/land.
	Data for the season April '99 – April '00: 0.062 mil LTL; 0.017 mil EUR 0.226 mil LTL; 0.061 mil EUR 0.134 mil LTL; 0.036 mil EUR 0.002 mil LTL; 0.001 mil EUR 0.368 mil LTL; 0.099 mil EUR	State Tax Inspectorate	Central Budget	
	0.041 mil LTL (0.011 mil EUR), and 0.217 mil LTL (0.059 mil EUR) (figures for the first three quarters of the year 2000)	State Tax Inspectorate	Central budget – general spending (revenues from 1% of fish sales) Revenue form 4% of fish sales is earmarked for restoration and protection of fisheries	
				There are five national parks in Lithuania. None of them charges entrance fees, nor does the state regulate fees for national parks. According to the general regulations applied to national parks, visits, use of forest products and water bodies, and all the other resources on their territory, are restricted and user fees are imposed. Collected funds are transferred to the central budget.

LITHUANIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Nature protection non-compliance fees	Compliance/ ear-marked environmental charge	Damage done to different species of fish, animals, plants, and their habitats	Rates depend on the damaged species/ habitats (e.g. higher rates are applied for damage done in the protected areas).	
Tree cutting charges⁵	Resource management /earmarked environmental charge	Stumpage costs (dependent on the tree trunk diameter): - Pine and larch - Fir - Oak - Ash and maple - Birch - Alder, elm, lime, and hornbeam - Asp - Alder and goat-willow Firewood (all types of trees)	17-117 LTL/m ³ ; 4.59 – 31.62 EUR/m ³ 9 – 87 LTL/m ³ ; 2.43 – 23.51 EUR/m ³ 50 – 231 LTL/m ³ ; 13.51 – 62.43 EUR/m ³ 33 – 173 LTL/m ³ ; 8.92 – 46.76 EUR/m ³ 29 – 76 LTL/m ³ ; 7.84 – 20.54 EUR/m ³ 4 – 43 LTL/m ³ ; 1.08 – 11.62 EUR/m ³ 2 – 33 LTL/m ³ ; 0.54 – 8.92 EUR/m ³ 2 – 20 LTL/m ³ ; 0.54 – 5.95 EUR/m ³ 2 – 6 LTL/m ³ ; 0.54 – 1.62 EUR/m ³	
Non-compliance tree cutting	Compliance	Illegal tree cutting	- three to 10 times the stumpage cost, or - 2 – 220 LTL (0.54 – 59.5 EUR) per damaged tree	

DIRECT TAX PROVISIONS

Investments grants⁶, etc.			See footnote 6	
Exemption from pollution charges				
Accelerated Depreciation				
Income tax / VAT allowances for environmental technology				
Duty tax allowances on import of environmental technology				

⁵ Tree cutting charges as such do not exist in Lithuania. Forests are mainly owned by state enterprises, and stumpage costs are in fact the price private (or other) cutter pays to the State Forest Enterprise for the exploitation of certain type of forest. The Government determines stumpage costs.

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	0.311 mil LTL; 0.084 mil EUR (revenue from non-compliance fees for all fauna)	State Environmental Protection Inspectorate	State Nature Protection Fund	
	131.513 mil LTL; 35.544 mil EUR (total revenue)	State Forest Enterprises	Forest Fund	
	0.188 mil LTL; 0.051 mil EUR	Forest Inspectorate	Forest Fund	
				Polluters implementing measures to reduce pollution are exempt from paying pollution charges for three years, if the achieved pollution reduction is no less than 10%.

6 Government brings yearly resolutions regarding PIP (Public Investment Programme). Grants from Privatisation Fund, foreign grants and loans provided so far were mainly used for the water sector projects. Overview of the environmental investments is given below:
 Central budget - 0.875mil LTL; 0.236 mil EUR; Privatization Fund – 26 mil LTL; 6.486 mil EUR; State loans –58.872 mil LTL; 1.622 mil EUR
 Loans with State guarantees – 8.864 mil LTL; 11.081 mil EUR; Foreign grants – 24.352 mil LTL; 5.405 mil EUR

<i>Total Revenue</i>	<i>Revenue collec- tion authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
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FYR MACEDONIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
ENERGY TAXES/CHARGES				
MOTOR FUEL TAXES/CHARGES				
Excise tax	Revenue raising taxes	Leaded petrol Unleaded petrol Diesel LPG (as propellant)	24,396 MKD/kl; 427 EUR/kl 21,692 MKD/kl; 379 EUR/kl 12,121 MKD/kl; 212 EUR/kl 4,900 MKD/t; 86 EUR/t	
CO₂ tax				
VAT	Revenue raising taxes	Petrol leaded Petrol unleaded Diesel LPG (as propellant)	19% 19% 19% 19%	
OTHER ENERGY PRODUCTS				
Excise tax	Revenue raising taxes	Gas oil LPG (heating) Kerosene Coal Natural gas Electricity	3,742 MKD/t; 65.42 EUR/t 4,876 MKD/t; 85.25 EUR/t 1,800 MKD/t; 31.47 EUR/t 0 0 0	
CO₂ tax				
VAT	Revenue raising taxes	Gas oil LPG (heating) Kerosene Coal Natural gas Electricity	19% 19% 19% 5% 5% 5%	
AIR EMISSION CHARGES				
Emission charges				
Emission non-compliance fees				

Total Revenue		Revenue collection authority	Use of Revenue	Comments
		Tax Administration	Central budget Part ¹ of the excise tax is revenue of the environmental fund	Excise tax rates valid for April 2001 (exchange rate: 1 EUR = 57.198 MKD used). According to Macedonian Ministry of Finance, these rates are only slightly different from the ones valid in December 2000. Tax rates for petrol are differentiated dependent on the octane grade.
		Tax Administration	Central budget	VAT introduced in April 2000.
		Tax Administration	Central budget	
		Tax Administration	Central budget	
				The process of implementation of the air emission charges (SO ₂ , NO _x , dust, etc.) is under way. According to the provisions of Environmental Protection Act, the air emission charges should be revenue of the environmental fund; however, it is still possible that these charges will become revenue of the central budget.
				The process of implementation of non-compliance fees is under way. Once they are enforced, they will be revenue of the Central budget, and not the environmental fund.

¹ 0.39 to 0.64 EUR/kl (dependent on the type of fuel) are transferred to the Environmental Fund; in 2000, revenue of the Environmental Fund from excise taxes was estimated at 1.5 million EUR.

FYR MACEDONIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
TRANSPORT RELATED TAXATION				
Road tax	Revenue raising taxes	Value of the vehicle, dependent on the engine capacity and number of axels		
Annual vehicle tax	Revenue raising taxes	Rate depends of the load capacity of the vehicle		
Import duty	Revenue raising taxes	Rate depends on the age of the vehicle		
Excise tax	Revenue raising taxes	Value of the vehicle	25%	
Registration charge	Administration cost recovery	Annual registration card		
AIR TRANSPORT				
Flight transportation tax/noise charges				
AGRICULTURAL INPUTS				
Pesticides (VAT)	Revenue raising taxes	Value	5%	
Fertilizers (VAT)	Revenue raising taxes	Value	19%	
WASTE RELATED PRODUCT CHARGES				
Batteries/accumulator				
Carrier bags				
Disposable containers/packaging				
Tires				
CFCs and/or halons				
Light bulbs				
Lubricants				
Refrigerants				

[illegible]

FYR MACEDONIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
WASTE				
Municipal waste user charges	Cost recovery	Surface of premises and belonging yards: - Households - Industry	0.6 – 2.98 MKD/m ² of premises; 0.01 – 0.052 EUR/m ² of premises 0.4 – 0.5 MKD/m ² of yard; 0.007 – 0.009 EUR/m ² of yard 1.2 – 4.1 MKD/m ² of premises; 0.02 – 0.07 EUR/m ² of premises 0.75 MKD/m ² of yard; 0.013 EUR/m ² of yard	
Waste disposal charge	Cost recovery	Solid waste	577 MKD/t; 10.09 EUR/t	
Deposit – refund scheme				
Levies related to nuclear waste management				
WATER				
INSTRUMENTS FOR MANAGING WATER QUALITY				
Water consumption charge	Cost recovery	Households: volumetric charge (when metering equipment exists), or flat rate (per person per month) Industry:	14.83 MKD/m ³ ; 0.24 EUR/m ³ n.a.	
Sewage user charge				
Effluent charges				
Non-compliance fees		Per case of violation of the Law on Environmental Protection	150,000 – 300,000 MKD; 2,471 – 4,942 EUR	
INSTRUMENTS FOR MANAGING WATER QUANTITY				
Water extraction charge		- Public water supply - Hydro power plants - Thermal power plants - Fish ponds	Varies, based on the concession agreement 1% of the production price of 1 kWh 0.5% of the production price of 1 kWh 3% of the sales price of 1 kg of fish	

Total Revenue		Revenue collection authority	Use of Revenue	Comments
		Waste companies (municipal or private)	Waste companies (municipal or private)	Municipal waste user charges vary from one municipality to another. Charges for households in the capital of Skopje: 2.22 MKD/m ² of premises; 0.037 EUR/m ² of premises 0.47 MKD/m ² of yard; 0.008 EUR/m ² of yard
		Waste management company	Waste management company	There is currently only one landfill in Macedonia that meets the environmental standards. Drizla landfill receives wastes from the two most populated cities (Skopje and Tetovo). The disposal rate provided here refers to Drizla landfill.
		Public Water and Sewerage Company	Public Water and Sewerage Company	Household rates are for the capital of Skopje. Charge rates vary across the country VAT for water supply services is 5% (in addition to provided rates).
			Environmental Fund	Included in the water consumption charge. In 1999, average sewage charge was 4.97 MKD/m ³ (0.08 EUR/m ³)
				Extraction of water for public water supply is subject to concession agreement; water abstraction charges are determined by the concession agreement.

FYR MACEDONIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
NATURAL RESOURCE AND MINING				
Mining charges		Sand, gravel	5% of the price of the material	
INSTRUMENTS FOR BIODIVERSITY AND NATURE PROTECTION				
Hunting charges				
Fishing charges				
Natural park entrance fees				
Tree cutting charges				

[illegible]

<i>Total Revenue</i>	<i>Revenue collec- tion authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
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POLAND 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
ENERGY TAXES/CHARGES				
MOTOR FUEL TAXES/CHARGES				
Excise tax	Revenue raising taxes	Leaded petrol Unleaded petrol Diesel LPG (as propellant)	1,399 PLN/kl; 350 EUR/kl 1,257 PLN/kl; 314 EUR/kl 850 - 948 PLN/kl; 212.5 - 237 EUR/kl 0	
CO₂ tax				
VAT	Revenue raising taxes	Leaded petrol Unleaded petrol Diesel LPG	22% 22% 22% 22%	
OTHER ENERGY PRODUCTS				
Excise tax	Revenue raising taxes	Light fuel oil Heavy fuel oil Coal Natural gas Electricity District heating	948 PLN/kl; 237 EUR/kl 116 PLN/t; 29 EUR/t 0 0 0 0	
VAT	Revenue raising taxes	Light fuel oil Heavy fuel oil Coal Natural gas Electricity District heating	22% 22% 22% 22% 22% 22%	
AIR EMISSION CHARGES				
Emission charges	Revenue raising / earmarked environmental charge	Sulphur dioxide Nitrogen oxides CO ₂ CO Particulate matter Lead	340 PLN/t; 85 EUR/t 340 PLN/t; 85 EUR/t 0.18 PLN/t; 0.045 EUR/t 0.09 PLN/t; 0.023 EUR/t 230 - 940 PLN/t; 57.5 - 235 EUR/t ¹ 27,430 PLN/t; 6,858 EUR/t	
Emission non-compliance fee	Revenue raising / earmarked environmental charge	Emissions above the permitted level	ten times the emission charge	

¹ Within the given range, rate depends on the origin of emissions, i.e. on the production process where the emissions are generated (fuel combustion, metal processing etc.)

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	16 bil PLN; 4 bil EUR (estimated revenue; Source: <i>Gazeta Wyborcza</i> , 16 – 17 December 2000)	Tax Office	Central budget; 30% is earmarked for road maintenance	Leaded petrol is to be phased out until 2005 (source: new edition of the National Environmental Policy). Excise tax rates for diesel are differentiated based on the sulphur content the the fuel.
		Tax Office	Central budget	
		Tax Office	Central budget	
		Tax Office	Central budget	
	790 mil PLN; 186.876 mil EUR (in 1999) 761 mil PLN; 190.25 mil EUR (in 2000)	Regional administrators	Environmental funds ⁸	Major revenue sources are SO ₂ and NO _x emissions.
	7 mil PLN; 1.656 mil EUR (in 1999) 4 mil PLN; 1 mil EUR (in 2000)	Regional administrators Environmental inspectorates	Environmental funds ⁸	The fees are levied on polluters exceeding permitted emission levels; enforcement is a competence of inspectorates for environmental protection. Polluters have the right to apply for postponed payment of the penalty, payment in instalments, and allowances in the fine payments dependent on their environmental investment outlays.

POLAND 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
TRANSPORT RELATED TAXATION				
Excise tax	Revenue raising taxes	Vehicle value, dependent on engine capacity: > 2000 cm ³ < 2000 cm ³	17.6% 6.4%	
Import duty	Revenue raising taxes	Vehicle value: - New cars (up to 4 years old) - Older, used cars	10%, or a minimum of 357 EUR 10%, or a minimum of 714 EUR	
VAT	Revenue raising taxes	Vehicle value	22%	
Annual vehicle tax	Revenue raising taxes	Lorries and buses: - Capacity >12 t - Capacity 2 to 12 t, and buses	max 2,081 PLN/y; 520.35 EUR/y max 1,609 PLN; 402.36 EUR/y	
Registration charge	Administration cost recovery	Registration certificate Registration plates Vehicle registry card	55 PLN; 13.75 EUR 80 PLN; 20 EUR 50 PLN; 12.5 EUR	
Company car tax allowance				
Company car fee for environmental pollution	Revenue raising /incentive	Ton of fuel	10.7 PLN to 160.2 PLN/t (2.68 – 40.05 EUR/t), dependent on the type of vehicle and fuel	
Toll roads			8 PLN (2 EUR) for cars 20 PLN (5 EUR) for lorries	

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	900 mil PLN; 225 mil EUR (estimated revenue; Source: <i>Gazeta Wyborcza</i> , 19 February 2000)			Significant increase of excise tax rates in comparison with the previous year, which can be viewed as one of the reasons for a significant drop in car sales in Poland. In 2001, the excise tax is to increase again.
		Customs office	Central budget	Import duties differ according to country of origin. The preferential rate (import duty of 10%) applies to cars imported from the EU countries and most of the candidate countries. For other countries, the rate is 35% of the value of the vehicle. Rates are established by the Main Office on Import Duties, and are modified annually.
		Tax Office	Central budget	
		Gmina (local authority)	Local environmental funds	This tax is only levied on lorries and buses, while fuel taxes are intended to play a similar role in case of passenger cars. The rates are set by local authorities, but may not exceed the upper limits given here.
				Charges paid for permanent or temporary car registration (charges for temporary registration are approximately 50% lower than the cited ones).
				Private firms often offer cars to their employees as a form of non-wage benefit. Another measure is granting an additional lump sum to the employee every month for using her/his private car for business-related purposes. No concrete data on the scale of such policies exist.
	Negligible	Regional administrators	Local budgets	Lower charges are envisaged for cars with environmentally friendly motors/ using environmentally friendly fuels. The regulation has however been criticised as a "dead regulation" - lack of enforcement provisions results in a situation where almost nobody pays these fees.
				There is only one toll road in Poland for the time being – 60 km highway between Krakow and Katowice. The company that built the highway collects the charges for the first 30 years, and then they become state revenue.

POLAND 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
AIR TRANSPORT				
Flight transportation tax/ noise charges, etc.²				
AGRICULTURAL INPUTS				
Pesticides (VAT)	Revenue raising taxes	Value	7%	
Fertilisers (VAT)	Revenue raising taxes	Value	7%	
WASTE RELATED PRODUCT CHARGES				
Batteries/ accumulators				
Carrier bags				
Excise tax on plastic packaging	Revenue raising taxes	Balloons Barrels Drums Boxes Canisters Bottle crates Bottles < 1.5 l Bottles > 1.5 l Vials Tubes Cans and boxes Jars	0.60 PLN/piece; 0.15 EUR/piece 6.00 PLN/piece; 1.5 EUR/piece 7.20 PLN/piece; 1.8 EUR/piece 0.90 PLN/piece; 0.23 EUR/piece 0.50 PLN/piece; 0.13 EUR/piece 0.90 PLN/piece; 0.23 EUR/piece 0.04 PLN/piece; 0.01 EUR/piece 0.06 PLN/piece; 0.02 EUR/piece 1.20 PLN/1000 pieces; 0.3 EUR/1000 pieces 1.20 PLN/1000 pieces; 0.3 EUR/1000 pieces 12.00 PLN/1000 pieces; 3 EUR/1000 pieces 24.00 PLN/1000 pieces; 6 EUR/1000 pieces	
Tyres				
CFCs and/or halons				
Light bulbs				
Lubricants				
Refrigerants				
WASTE				
Municipal waste user charges	Cost recovery	Volumetric charge or flat rate	46.05 PLN/m ³ ; 11.51 EUR/m ³ (weighted average from 10 largest cities in Poland)	

² Polish Airlines (LOT) does not pay emission charges on airplane gases because plane engines were not mentioned in the relevant environmental regulations; they do not pay noise charges because *starosta* (*powiat* authority) did not issue a decision for LOT on permissible level of noise; noise fees are paid only after receiving such a decision (Act on Protection and Shaping of the Environment with amendments, O.J. 94.49.196 Art. 51). Source: Polish LOT airlines and "Przedsiębiorstwo Porty Lotniczej", the airport enterprise.

	Total Revenue	Revenue collection authority	Use of Revenue	Comments
				For noise non-compliance fees, see section Other Economic Instruments
		Tax Office	Central budget	Standard VAT rate is 22%.
		Tax Office	Central budget	
		Tax Office	Central budget	Rates reported here are standard rates for 12 types of containers. The excise tax rates are further differentiated (through the application of surcharge to the standard rates) dependent on what the substance is made form (e.g. total excise tax paid for PET containers is 90% lower than the tax for containers made of other, more harmful substances). Packages for pharmaceutical products are exempt from the tax.
	Data of each service provider	Service providers or municipalities	Cost recovery of waste collection, transport and disposal	Volumetric rate is applied in case of single-family houses; flat rate is applied to multi-apartment buildings.

POLAND 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Waste disposal charge	Incentive/ earmarked environmental charge	Industrial and hazardous waste only, dependent on the level of hazard and the origin of wastes	7.3 – 95.6 PLN/t; 1.83 – 23.9 EUR/t	
Waste non-compliance fees	Compliance/ earmarked environmental charge	Weight of illegally disposed waste	5% of waste disposal charge rate per day of illegal disposal	
Deposit-refund schemes				
Levies related to nuclear waste management				

WATER

INSTRUMENTS FOR MANAGING WATER QUALITY

Water consumption charge	Cost recovery	Volumetric charge m ³ or flat rate: - Households - Other	1.70 PLN/m ³ ; 0.43 EUR/m ³ 1.20 PLN/m ³ ; 0.55 EUR/m ³ (weighted average from 10 largest cities in Poland)	
Sewage treatment charge	Cost recovery	Volumetric charge m ³ or flat rate: - Households - Others	1.40 PLN/m ³ ; 0.35 EUR/m ³ 2 PLN/m ³ ; 0.5 EUR/m ³ (weighted average from 10 largest cities in Poland)	
Water effluent charge	Earmarked environmental charge	BOD ₅ COD Suspended solids Heavy metals Chloride and sulfate ions	3,840 PLN/t; 960 EUR/t 2,150 PLN/t; 537.5 EUR/t 329.6 PLN/t; 82.4 EUR/t 38,430 PLN/t; 9,607.5 EUR/t 27.2 PLN/t; 6.8 EUR/t (for concentration below 1,500 mg/l) 213.7 PLN/t; 53.4 EUR/t (for concentration higher than 1,500 mg/l)	
Water pollution non-compliance fee	Earmarked environmental charge	BOD ₅ COD Suspended solids	1.70 PLN/kg of O ₂ ; 0.43 EUR/kg of O ₂ 1.14 PLN/kg of O; 0.29 EUR/kg of O 1.70 PLN/kg; 0.43 EUR/kg	

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	164.5 mil PLN; 38.913 mil EUR (in 1999)	Regional administrators	Environmental funds ⁸	Payments of the disposal charge are sometimes delayed and carried over from one year to another. Additional surcharge of 3% of the cited rates is applied for further disposal of wastes deposited in the previous years.
	0.7 mil PLN; 0.166 mil EUR (in 1999)	Regional administrators	Environmental funds ⁸	Polluters can apply for postponed payment of the penalty, payment in instalments and allowances in the fine payments dependent on their environmental investment outlays.
				Deposit-refund schemes exist for some glass and plastic bottles; they are based on specific agreements between the producers and retailers.
	Data of each service provider	Service provider or municipality	Service provider or municipality	Charges modified once or twice a year; 7%VAT included in the charge.
	Data of each service provider	Service provider or municipality	Service provider or municipality	Charges modified once or twice a year; 7%VAT included in the charge.
	273.4 mil PLN; 64.673 mil EUR (in 1999) 299 mil PLN; 74.75 mil EUR (in 2000)	Regional administrators	Environmental funds ⁸	Listed rates are the basic ones - various correction factors are applied dependent on the source of effluent (e.g. chemical plants have higher correction factors than schools). Correction factors vary from 0.2 to 2.5. These rates are applied to discharges into surface waters and to the soil; rates for discharge into the sewerage system are based on individual agreements between municipal water companies and enterprises.
	22 mil PLN; 5.5 mil EUR (in 2000)	Regional administrators	Environmental funds ⁸	

POLAND 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Water pollution non-compliance fee continued		Heavy metals Chloride, sulfate	28.4 PLN/kg; 7.1 EUR/kg 0.58 PLN/kg of Cl or SO ₄ ; 0.15 EUR/kg of Cl or SO ₄	
INSTRUMENTS FOR MANAGING WATER QUANTITY				
Water extraction charge	Earmarked environmental charge	Surface water Ground water	0.117 PLN/m ³ ; 0.0293 EUR/m ³ 0.3691 PLN/m ³ ; 0.0923 EUR/m ³	
NATURAL RESOURCE AND MINING				
Mineral extraction charges	Earmarked environmental charge	Price of the mineral (in PLN per t or m ³): - Hard coal - Brown coal - Gas, methane and crude oil - Metals, excluding precious metals - Sulphur and other chemical resources - Salt - Mineral resources - Traded therapeutic minerals - Other minerals	2% 4% 6% 3% 3% 4% 6% 2% 10%	
INSTRUMENTS FOR BIODIVERSITY AND NATURE PROTECTION				
Hunting charges³				
Fishing charges – inland waters		Fishing licence	34 PLN/year; 8.5 EUR/year	
Commercial fishing charges – Baltic Sea⁴		Fishing licence for boats	25 SDR (Special Drawing Rights) per boat, based on exchange rate listed by the IMF for the day of licence issuing	
Salmon fishing charge		Licence for units specialised in salmon fishing	8,000 PLN/year; 2,000 EUR/year	
Natural park entrance fees			Typically 2 – 3 PLN (0.5 – 0.75 EUR) per person per visit	

³ Hunting is either carried out under the supervision of local associations of hunters (90% of hunting districts), or institutions such as National Forests, Polish Association of Hunters, and research institutions. Each local association of hunters has its own statute, in accordance with the Act on Hunting (O.J. 95.147.713). Members pay annual fees (varying across the country) and are obliged to provide a certain number of workdays for maintenance of the district. Except for membership fees, the associations can earn revenues from meat sales to special commercial units. Revenues earned in this way are spent on rent for the land (paid to local authorities), maintenance of the district (animal feeding etc.), and compensation

	Total Revenue	Revenue collection authority	Use of Revenue	Comments
	185 mil PLN; 43.762 mil EUR (in 1999)	Voivodas (regional authority); Regional administrators	Environmental funds ^a	These basic rates are further differentiated dependent on the region water is extracted from, and the intended use (e.g. production, use in public institutions, etc.).
		<i>Gmina</i> (local) and National Environmental Fund	60% <i>Gmina</i> (local) fund for environmental protection; 40% National Fund. For minerals extracted from the sea, the whole amount is transferred to the National Fund	Rate for resources extracted from mining wastes is 50% of the basic rate. Rates may be reduced or increased for up to 50%, depending on conditions of exploitation (in agreement with <i>gmina</i> authorities). Extraction charge cannot exceed 10% of the sale price.
		Polish Association of Anglers	Polish Association of Anglers	
		District inspectorates for marine fishing	Central budget	
				The charge is in force since February 2000. Licences are issued within the assigned fishing quota.
		Natural park authorities	Central budget	Various fees charged in different parks, usually lower rates for groups, children, local inhabitants, sometimes weekly/monthly tickets available.

payments to farmers for damages caused by wild animals. For non-members and for foreigners, associations may provide commercial services. Nevertheless, commercial hunting is mainly organised by private firms (concessionaires), both in the hunting districts supervised by the associations of hunters and by other institutions (National Forests etc). Unfortunately, no quantitative data is available for this type of activity. Information source: Polish Association of Hunters.

⁴ Each country around the Baltic Sea is assigned a fishing quota; licences are issued in such a way that this quota is not exceeded.

POLAND 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Nature protection non-compliance fees				
Tree cutting charges and fines for illegal cutting/removal of trees/shrubs		Type and diameter of the tree: - Group 1 (willow, poplar) - Group 2 (maple, chestnut, pine) - Group 3 (oak, linden, birch) - Group 4 (fir, magnolia) Shrubs	Charge: 9.7 – 52.5 PLN; 2.4 – 13.1 EUR Fine: 13.0 – 71.0 PLN; 3.3 17.8 EUR Charge: 26.4 – 101.0 PLN; 6.6 – 25.3 EUR Fine: 35.5 – 133 PLN; 8.9 – 33.3 EUR Charge: 64.1 – 653.7 PLN; 16 – 163.4 EUR Fine: 89 – 888 PLN; 22.3 – 222 EUR Charge: 336 – 1,340.6 PLN; 84 – 335.2 EUR Fine: 444 – 1,775 PLN; 111 – 443.8 EUR Charge: 123.6 PLN (30.9 EUR) per square meter Fine: 148 PLN (35 EUR)/m ²	
DIRECT TAX PROVISIONS				
Investments, grants, etc.				
Accelerated Depreciation				
Income Tax allowances for environmental technology⁵				
Duty tax allowance on imports of environmental technology⁶				
Environment provisions or allowances in Value Added Tax⁷				
OTHER INSTRUMENTS				
Noise non-compliance fee	Revenue raising taxes	Depending on the scale of exceeding the permissible noise levels	11.30 – 45.20 PLN/dB (only for dB in excess of the permissible level); 2.83 – 11.3 EUR/dB	

⁵ Possibility of deduction of capital investments incurred in a fiscal year for environmental protection related purposes from the taxable income; in the following year, additional 50% of these investment outlays can be deducted (in addition to new deduction of full investment outlays in a given year).

⁶ In 1997 and 1999 in relation to specific environmental protection equipment or other environment-related products some contingencies were established with the Executive Orders of the Council of Ministers. Such contingents set preferential tax rates (e.g. 0%) for a limited number of imported products. The products covered with these regulations include, among others: environmental monitoring devices, equipment for wastewater treatment plants and for removal of air pollutants (e.g. electrostatic precipitators).

	Total Revenue	Revenue collection authority	Use of Revenue	Comments
				These charges are applied on a case-by-case basis, according to the Civil Code and individual court trials. Within the area of national parks, park authorities have the right to establish fines for particular activities that are not in compliance with nature protection regulations.
		Gmina (local) authority	Gmina (local) environmental fund	Justified exemptions are common. For each group, charges (fines) vary dependent on the tree diameter.
	(1999: 1 mil PLN; 0.237 mil EUR)	Regional administrators	Environmental funds ⁸	

⁷ VAT exemption or preferential rate (7%) applies to the following environment-related products and services: forestry and hunting products, services related to forestry, services related to water provision and to wastewater management, removal and management of waste. Basic VAT rate is 22%.

⁸ Polish environmental fund system is comprised of the National Fund for Environmental Protection and Water Management, regional (*Voivode*) funds and also local (*Gmina*) funds. Where not specified, revenues from charges described above are distributed among these funds. In addition to the funds mentioned above, Polish Eco-Fund was established in 1991 based on debt-for-nature agreements with several countries.

<i>Total Revenue</i>	<i>Revenue collec- tion authority</i>	<i>Use of Revenue</i>	<i>Comments</i>

ROMANIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
ENERGY TAXES/CHARGES				
MOTOR FUEL TAXES/CHARGES				
Excise tax	Revenue raising taxes	Leaded petrol Unleaded petrol Diesel	4,959,589 ROL/kl; 248.6 EUR/kl 4,071,058 ROL/kl; 204.1 EUR/kl 2,239,761 ROL/kl; 112.3 EUR/kl	
Fuel road tax	Revenue raising taxes	Leaded petrol Unleaded petrol Diesel	1,422 ROL/kl; 0.071 EUR/kl 1,224 ROL/kl; 0.061 EUR/kl 1,695 ROL/kl; 0.085 EUR/kl	
CO₂ tax				
VAT	Revenue raising taxes	Leaded petrol Unleaded petrol Diesel	19% 19% 19%	
OTHER ENERGY PRODUCTS				
Excise tax	Revenue raising taxes	Light fuel oil "M" and "P" Heavy fuel oil Coal Natural gas Electricity District heating	2,094,435 ROL/t; 105 EUR/t 0 0 997,350 ROL/t; 50 EUR/t 0 0	
Import tax	Revenue raising taxes	Light fuel oil Natural gas	182,500 ROL/t; 9.15 EUR/t 73,000 ROL/ 1000 m ³ ; 3.66 EUR/ 1000 m ³	
Non-compliance fee for sulphur content of diesel	Incentive	Non-compliance with the limit values for sulphur content of diesel (0.2% until 2005, and 0.05% after 2005)	50,000,000-80,000,000 ROL/violation; 2,507 – 4,011 EUR/violation	
CO₂ tax				
VAT		Light fuel oil Heavy fuel oil Coal Natural gas Electricity District heating	19% 19% 0 0 19% 19%	

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	528,800 mil ROL; 26.51 mil EUR 68,000 mil ROL; 3.409 mil EUR 103,200 mil ROL; 5.174 mil EUR	Tax Administration Units	Central budget	Relevant acts: - Governmental Ordinance 42/2000 regarding excise duties (Official Gazette 42/31 January, 2000) ¹ - Government Decision 212/30 March 2000 on the Applications Norms regarding the calculation of excise and oil taxes ²
		National Road Agency	Special Road Fund	Relevant acts: - Methodological Norms 4566/1999 regarding the Special Road Fund ³ - Urgency Ordinance 35/2000 amending Law 118/1996 for the creation of the Special Road Fund ⁴
	92,000 mil ROL; 4.612 mil EUR 54,000 mil ROL; 2.707 mil EUR 92,400 mil ROL; 4.632 mil EUR	Tax Administration Units	Central budget	Urgency Ordinance 17/2000 ⁵
			Central budget	Excise tax on light fuel oil has been introduced since 15 February 2000.
		Ministry of Finance	Central budget	Custom duties for imported oil and natural gases represent 1.3% of the total budget revenues.
				Governmental Decision 1336/ 14 December 2000 on limiting the sulphur content of diesel fuel. The aim is to eliminate production of diesel with sulphur content higher then 0.2% by 2005; after 2005, the fee will be targeted at achieving 0.05% sulphur content of diesel. The fee becomes effective in 2001.
				Order 177/3.02.2000 of the Ministry of Finance amending Order 2.627/1998 of the same Ministry on documentation required for the VAT refund to the economic agents registered as VAT payers (Official Gazette no. 57/7.02.2000). ⁶

ROMANIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
AIR EMISSION CHARGES				
Emission charges				
Emission non-compliance fee	Incentive/ ear-marked environmental charge	Excess emissions of 22 air pollutants, including SO ₂ , NO _x , dust etc	Determined on case-to-case basis	
TRANSPORT RELATED TAXATION				
Excise tax	Revenue raising taxes	Vehicle value	Varies dependent on the engine capacity and level of pollution	
Sales tax				
Import duty	Revenue raising taxes	Value of vehicle	20% of retail price	
Annual vehicle tax	Revenue raising taxes	Engine capacity	300,000 – 900,000 ROL/ vehicle; 15.04 – 45.12 EUR/vehicle	
Registration charge	Administration costs recovery	Registration certificate	400,000 – 800,000 ROL/year; 20.05 – 40.11 EUR/year	
Company car tax allowance				
AIR TRANSPORT				
Noise non-compliance charge	Compliance	Violation of noise limits differentiated by the type of plane	Rates are not established yet	

Total Revenue	Revenue collection authority	Use of Revenue	Comments
			Urgency Governmental Ordinance 243/28 November 2000 on protection of the atmosphere ⁷
6,700 mil ROL; 0.336 mil EUR	Environmental Protection Agencies	Central budget	Emission non-compliance fees reported here are based on the old legislation that will be applied until the provisions of Urgency Governmental Ordinance 243/28 come into force. Local Environmental Agencies determine fine levels on case-to-case basis, for the polluters exceeding permitted emission levels. Emission levels are set by the Ministry for Water and Environmental Protection, and there are two nation-wide monitoring programmes. ⁸ Few of the recently reorganized (former EPAs) local Inspectorates for Environmental Protection also monitor air emissions; Romanian Auto Register monitors vehicle emissions.
	Tax Administration Units	Central budget	Governmental Decision 212/2000 on the calculation of excise taxes ⁹
	Tax Administration Units	Central budget	Romanian Customs Code ¹⁰
	Tax Administration Units	Central budget	Tax on means of transport ¹¹
			Governmental Ordinance 81/August 2000 on registration charge for vehicles according to the environmental norms and road safety rules. There is an annual technical check-up on the pollution level. ¹²
	Ministry of Transportation	Central Budget	Order no 9/4 January 2000 of the Ministry of Transportation on the approval of the Romanian civil aeronautic rules for environmental protection.

ROMANIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
AGRICULTURAL INPUTS				
Pesticides				
Fertilisers				
WASTE RELATED PRODUCT CHARGES				
Batteries/ accumulators				
Carrier bags				
Tyres				
Disposable containers/ packaging				
CFCs and/or halons charge and non-compliance fees	Incentive	Ozone depleting substances: - import, usage, trading of CFC 11,12,13,114, 115 etc - using CFCs without licence	10 – 30 mil ROL/tonne; 501 – 1,504 EUR/tonne 30 – 50 mil ROL/tonne; 1,504 – 2,507 EUR/tonne	
Light bulbs				
Lubricants				
Refrigerants				
WASTE				
Municipal waste user charges	Cost recovery	Charge for population Charge for enterprises	15,000 ROL/person/month; 0.75EUR/person/month 250,000 ROL/m ³ ; 12.53 EUR/m ³	
Waste disposal charge	Incentive/ ear-marked environmental charge	Industrial and hazardous waste, dependent on the level of hazard	The rates are not established yet	
Waste non-compliance fees	Compliance / incentive	Type of violation and level of hazard	100,000 – 75,000,000 ROL (5 – 3,760 EUR)	

Total Revenue	Revenue collection authority	Use of Revenue	Comments
	Environmental Protection Inspectorates (starting from March 2001)	Central Budget	Law no. 159/ 3 October 2000 on the Governmental Decision 89/1999 regarding the introduction of restrictions on the use of halogens. ¹³
	Local municipality	Local budget	Range of municipal waste user charges for population is 5,000 – 20,000 ROL per person per month (0.25 – 1 EUR).
			Relevant acts: - Urgency Government Decision no 78/ 16 June 2000 on the waste regime - Governmental Decision 173/ 13 March 2000 on the special regime for hazardous chemical substances ¹⁴
			Ministries for Water and Environmental Protection, Transport, Agriculture, and Industries, as well as municipalities are in charge of the enforcement. Ranges of fines: a) for violating provisions of the law: 100,000 – 1 mil ROL (5 – 50 EUR) for physical person; 1 – 10 mil ROL (50 – 501 EUR) for legal person; b) for inappropriate collection, transport and disposal of waste:

ROMANIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Waste non-compliance fees continued				
Deposit-refund schemes				
Levies related to nuclear waste management				
WATER				
INSTRUMENTS FOR MANAGING WATER QUALITY				
Water consumption charge	Cost recovery	Domestic users Industrial users	2,100 ROL/m ³ ; 0.1050 EUR/m ³ 550 ROL/m ³ ; 0.028 EUR/m ³ (rates are the weighted average for the country)	
Sewage treatment charge	Cost recovery		300 ROL/m ³ ; 0.015 EUR/ m ³ (average figure)	
Water effluent charge	Cost recovery	Direct discharge: - Suspended solids - BOD - Nitrogen - Phosphorous Indirect discharge	53,000 ROL/tonne; 2.66 EUR/tonne 217,000 ROL/tonne; 10.88 EUR/tonne 870,000 ROL/tonne; 43.62 ROL/tonne 870,000 ROL/tonne; 43.62 ROL/tonne 616 ROL/m ³ ; 0.031 EUR/m ³	
Water pollution non-compliance fees	Compliance	Excess discharges of pollutants and/ or illegal discharges: ¹⁵ - Suspended solids - BOD - Nitrogen - Phosphorous	100,000 ROL/t; 5.01 EUR/t 800,000 ROL/t; 40 EUR/t 30 mil ROL/t; 1,504 EUR/t 30 mil ROL/t; 1,504 EUR/t	
INSTRUMENTS FOR MANAGING WATER QUANTITY				
Water extraction charge	Revenue raising taxes	Domestic use from: -Inland water -Danube -Ground water Industrial use from: -Inland water -Danube -Ground water	151.2 ROL/m ³ ; 0.0076 EUR/m ³ 11.5 ROL/m ³ ; 0.0006 EUR/m ³ 167.7 ROL/m ³ ; 0.0084 EUR/m ³ 180 ROL/m ³ ; 0.009 EUR/m ³ 19 ROL/m ³ ; 0.001 EUR/m ³ 145 ROL/m ³ ; 0.0073 EUR/m ³	

Total Revenue		Revenue collection authority	Use of Revenue	Comments
				2 – 20 mil ROL (100 – 1,003 EUR) for physical person; 15 – 50 mil ROL (752 – 2,507 EUR) for legal person; c) for the lack of enforcement: 3 – 75 mil ROL (150 – 3,760 EUR) for the responsible person.
		Retailers' units	Producers and retailers	Deposit-refund schemes are implemented for glass bottles
		Local water companies		There are large variations between municipalities. For example, rates for Bucharest are: - potable water: 2,386 ROL/ m ³ (0.12 EUR/m ³) - industrial water: 632 ROL/m ³ (0.032 EUR/m ³).
		Municipalities		Rate for Bucharest is 349 ROL/m ³ (0.017 EUR/m ³).
310,000 mil ROL; 15.541 mil EUR		National company "Apele Romane" Local water companies	Central budget (earmarked for Water Fund) Local water companies	
		National Company "Apele Romane" Local water companies	Central Budget (earmarked for Water Fund) Local water companies	"Apele Romane", local environmental protection inspectorates, and the state water inspectorate establish basis for the non-compliance fees during the random inspections.
785,000 mil ROL; 39.354 mil EUR		National Company "Apele Romane"	Central budget (earmarked for Water Fund)	

ROMANIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Water extraction charge continued		Agricultural use from: - Inland water - Danube - Ground water	1.2 ROL/m ³ ; 0.00006 EUR/m ³ 0.5 ROL/m ³ ; 0.00003 EUR/m ³ 3 ROL/m ³ ; 0.00015 EUR/m ³	
NATURAL RESOURCE AND MINING				
Mining charges				
Taxes/charges on raw materials				
INSTRUMENTS FOR BIODIVERSITY AND NATURE PROTECTION				
Hunting charges	Cost recovery	Charge per user	2,000,000 ROL/year; 100.3 EUR/year	
Fishing charges	Cost recovery	Charge per user	2,000,000 ROL/year; 100.3 EUR/year	
Natural park entrance fees	Cost recovery	Charge per visitor	20,000 ROL/visitor; 1 EUR/visitor (on average)	
Nature protection charge	Cost recovery for the services	Charge for services performed within the protected areas		
Nature protection non-compliance fees	Incentive	Violation of regulations on protected areas	Physical person: 100,000 – 500,000 ROL; 5 – 25 EUR Legal person: 500,000 – 2,500,000 ROL; 25 – 125 EUR	
Tree cutting charges	Cost recovery	Surface ¹⁷ of the area used for tree cutting, dependent on the type of forest		
Tree cutting non-compliance fees	Compliance	Per case of violation	100,000 – 500,000 ROL/violation; 5 – 25 EUR/violation	
DIRECT TAX PROVISIONS				
Investments, grants, etc.				
Accelerated Depreciation				
VAT allowances for environmental technology				

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
				Tax incentives for oil businesses ¹⁶
		Romanian Association of Hunters	Romanian Association of Hunters	
		Romanian Association of Anglers	Romanian Association of Anglers	
		Natural parks administrations	Central budget	The entrance fees vary dependent on visitors: adults, children, groups, etc.
				Urgency Governmental Ordinance 236/22 May 2000 on the natural habitats conservation.
				Urgency Governmental Ordinance 236/4 December 2000 on the natural habitats conservation.
		Owner of the forest or the National Land Recovery Fund	Owner of the forest or the Land Recovery Fund	Governmental Ordinance 96/24 January 2000 on the forest regime establishes user charges for forest, indemnification and fees for trees cutting.

ROMANIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Duty/tax allowances on import of environmental technology				
Tax exemption for reduced consumption of thermal energy for district heating				
Profit tax exemption				
OTHER INSTRUMENTS				
Environmental Fund²⁰				

Sources:

1. *Environmental Protection Strategy*, Ministry of Water and Environmental Protection, 1999
2. *Ministry of Justice SUPERLEX*, 2000, Romania
3. *Investment in Romania*, ISBN November 2000- KPMG Romania
4. *Official Gazette Collection of Laws, Orders and Governmental Decisions*, 2000
5. *National Environmental Action Plan*, Ministry of Water and Environmental Protection, 1999, Romania
6. *National Plan for Environment ISPA Implementation*, Ministry of Water and Environmental Protection, 2000, Romania
7. *General Consolidated Budget, 1999-2000*, Ministry of Finance, Romania
8. *Economic and Trade Strategy*, Pro 2000, Chamber of Commerce and Industry of Romania and Bucharest
9. *Information on Environment Legislation*, 2000, Ministry of Water and Environmental Protection

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
				1. Governmental Decision 1179/ 28 November 2000 on the equipment used for pollution abatement (water, air etc) 2. Tax incentives for small and medium companies ¹⁸ 3. Tax incentives for disadvantaged areas ¹⁹
		Romanian Agency for Energy Conservation	Special Fund for thermal energy building evaluation	Under the Government ordinance 29/ 30 January 2000 on incentives for thermal energy savings, owners of the buildings who invest in the measures to reduce thermal power consumption will benefit from tax exemption for obtaining both the (i) District Heating Energy Certificate and (ii) building licence for the specific district heating rehabilitation works.
				Law no. 199/ 17 November 2000 on efficient energy use envisages that the economic agents implementing measures for efficient energy use be exempt from the profit tax.

1 This Ordinance unified in a sole legislative act the entire excise duty legislation and entered into force on 15 February 2000. It provides for certain changes regarding the goods subject to excise duties, as well as the methodology of computing and imposing such duties. This ordinance abrogates previous legislation on excise duty.

2 The Application Norms introduces rules for the calculation of excise duties and additional clarifications in respect of the application of Law 27/2000 on excise duties, as follows:

- refined ethilic alcohol and alimentary essences are treated as alcoholic beverages having an alcohol content above 0.5% per volume;
- any type of alcohol having a concentration above 95.5% per volume, regardless of the name under which it is traded will be treated as alcohol;
- domestic producers or importers of bottled refined ethilic alcohol and alcoholic beverages which do not hold a production license for that year and register stocks of marked out products as of 31 December (for which they have declared maximum retail prices) can re-notify such prices to the tax authorities. The maximum retail prices re-notified can be used exclusively for the stock of products registered as of 31 December of the previous year. The same rules are also applicable to cigarette producers.
- Excise duties are due in respect of any quantities of oil products, regardless if such products are obtained based on services agreements;
- Producers of products subject to excise duties, which have fixed bases located separately from the head office, must register such fixed bases as excise duty payers with the tax authority from the area where they are located in order to obtain the trade authorization.

Additionally, the Application Norms bring clarifications on the refund of excise duties for products traded in the duty-free system, issuance of trade authorisations, as well as on the accounting for excise duties.

3 New Application Norms for the Special Road Fund were issued in January 2000, detailing the sources of financing of the Fund and the destination of the money. In substance, the Norms do not diverge from the previous Norms issued in May 1999. The new road tax is higher, ranging from 25% to 45% of the fuel price. The road tax is no longer dependent of the type and weight of vehicle.

4 Urgency Ordinance 35/2000 amending Law 118/1996 for the creation of the Special Road Fund (published in Official Gazette 165/19 April 2000)

Starting 19 April 2000, the flat contribution to the Special Road Fund due by vehicle owners was eliminated. The Government has instead increased the percent quota applicable on the fuel price from 25% to 45%. Specifically, road tax is charged on the:

- fuel price at refinery, exclusive of excise duties, for fuel for internal supply, including fuel for own use of producers; and
- customs value of imported fuel.

The Road Fund quota shall be excluded from the taxable base for VAT purposes.

The obligation to calculate and pay the contribution to the Special Road Fund resides with the internal producer and importer of fuel. The tax should be paid on date of supply of products and date of customs declaration. Internal producers and importers of vehicles which had road fund taxes and late payment interest outstanding as of 31 March 2000, can benefit of the following payment facilities in respect of the amounts due:

- postponement of payment of late payments interest due by 31 March 2000 (unpaid until the enforcement of Urgency Ordinance 35/2000) until 10 May 2000. Such amounts are to be recorded in a special extra-balance sheet account.
- exemption from payment of late payments interest outstanding as of 31 March 2000 if the principal road tax outstanding as of the same date was paid until the enforcement of Ordinance 35/2000 or will be paid until 10 May 2000.
- reduction of the amount of late payments interest as follows:
 - by 60% if the principal outstanding by 31 March 2000 is paid until 31 May 2000;
 - by 40% if the principal is paid until 30 June 2000; and
 - by 20% if the principal is paid until 31 July 2000.

The flat contribution for year 2000 that was paid by individuals and legal entities shall be entirely reimbursed. The term for request of reimbursement of such amounts was 1 September 2000.

5 Romanian VAT regulations are, as a general rule, in line with the EU 6th VAT Directives. As from **15 March 2000**, the legislation regarding VAT has been governed by Urgency Ordinance no. 17/2000. VAT payers are individuals or companies that carry out taxable operations. Registration as a VAT payer, through local Tax Administrations, is compulsory for all businesses with turnover in excess of 50 million ROL. For businesses with a turnover below 50 million ROL, the decision to become a VAT payer is optional. The VAT return must be filed with the Tax Administration monthly by the 25th of the following month. If input VAT exceeds output VAT, the VAT payers may apply for reimbursement of the VAT credit. VAT credits can be off-set against other taxes and duties owed to the state, provided that a control of the tax authorities confirms this.

Operations subject to VAT fall into two categories:

- taxable operations;
- **exempt operations, including education, health care/medical services, school uniforms and clothes for children under 1 year, insurance and re-insurance, banking and financial activities, broadcasting rights and licenses for imported films and radio and television programs. Fuel, electrical and thermal power and water services for domestic use were exempt until 31 March 2000 when the 19% rate started to apply.**

6 The provisions stipulated in the Order refer to the heat distribution to public utilities. The Order stipulates that VAT is refunded to heat distributing utilities by compensation with the budget liabilities of the heat suppliers. Moreover, the heat distributing utilities are entitled for VAT refund, irrespective if the invoices for goods and services purchased by such utilities are only partially paid.

7 The decision from November 2000 establishes emission taxes for specific air pollutants and emission non-compliance fees for violations. The list of specific air pollutants, their classification criteria, the allowable emission limits and the non-compliance fees shall be established during 2001.

8 The two monitoring programmes are: *The National Monitoring Network for the Air Quality* with 350 sampling points (Ministry for Water and Environmental Protection), and *The National Monitoring Network of Air Pollution* with 86 sampling points (Ministry of Health).

9 The excise duties on vehicles depend of the cylinder capacity and level of pollution. The Romanian Auto Register establishes the pollution level (e.g. low, normal, high), based on their inspection of the vehicle. There appears to be only one change of excise duties in respect of the previous legislation of 1999: for gas-engine cars with a cylinder capacity between 1,601-1,800 cm³, the excise duty has been increased from 3% to 3.5%.

10 An additional 2% tax on customs duty rates applies for all the goods imported after 1 January 2000. This rate is valid until 31 December 2000.

11 This tax is calculated according to the engine cylinder capacity, and is paid by the owners, natural or legal person.

12 Romanian Auto Register (RAR) also performs periodic emissions inspections (every six months for heavy trucks, once a year for buses and once in 2 years for vehicles), as well as random ones. The penalty is cancellation of the vehicle identity card and 30 days for remediation. The fine is between 200,000 and 400,000 ROL (10 to 20 EUR).

13 Restrictions refer to the export, import and use of hydrocarbons and halogens. The non-compliance fees are introduced for exceeding the approved amounts of substances and for usage without environment licence.

14 A new piece of legislation (Urgency Governmental Ordinance no. 200/9) was passed in November 2000 on classification, labelling and packing of hazardous chemical substances, including pesticides and radioactive substances. Non-compliance fees will be introduced in 2001.

15 Substances subject to non-compliance fees are falling into 2 categories:

- 1) Pollutants with set effluent standards (BODs, nitrates etc), and
- 2) Toxic pollutants for which discharges are not permitted.

The non-compliance fees are calculated based on the following formula:

$$P_i = (C_i - C_i^*) \times V \times R_i, \text{ where}$$

P_i is the total fee determined for pollutant i ,

C_i is the actual concentration of pollutant i ,

C_i^* is the permitted concentration of pollutant i (for the second category of pollutants, C_i^* is 0),

V is the annual volume of waste water discharged, and

R_i is the penalty rate for discharging the pollutant i .

16 Law of Oil no. 134/1995 stipulated several tax incentives; customs duties exemptions for imports of goods needed for the oil business are, among other provisions, still in force.

17 1 ha, 1 to 50 ha, and more than 50 ha.

18 Small and medium size companies can benefit from customs duties exemption for imports of specified equipment and environmental know-how;

19 Disadvantaged regions are designated as such by Government Decision. They are isolated regions with weak infrastructure and with high unemployment rate, where collective dismissals have been made. 25 disadvantaged areas have been nominated so far, for a 10 years period. Companies set up in disadvantaged regions may benefit from several tax incentives, including reimbursement of customs duties paid for imports of raw materials and environmental know-how used for the production in the region.

20 Law 73/2000, regarding the Fund for Environmental Protection published in Official Gazette 207/11 May 2000. The Fund for Environmental Protection (extra-budgetary fund) is set-up as the financial instrument for supporting the national action plan for environmental protection. Following taxes/charges are, *inter alia*, revenues of the Fund:

- tax for issuing of environment agreements and authorizations;
- tax for exploitation of natural resources, other than those applied in respect of legal special funds;
- taxes for pollution of atmosphere, of surface and ground waters, of soil and vegetation, according to the principle "the Polluter Pays", e.g.:
- tax on use of highly noxious fuels;
- tax for domestic trade of dangerous substances and preparations and of products with high toxic potential on the population health and on the environment;
- taxes for non-recovery of the reusable packaging;
- taxes for domestic or offshore trade of natural, biological or mineral resources, including objects of wild flora and fauna.

The taxation and tariff regime, the tariff quantum and the collecting modalities shall be established by Decision of the Government within 90 days from entering into force of the present law, upon proposal of the central authority for environment protection.

<i>Total Revenue</i>	<i>Revenue collec- tion authority</i>	<i>Use of Revenue</i>	<i>Comments</i>

SLOVAKIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
ENERGY TAXES/CHARGES				
MOTOR FUEL TAXES/CHARGES				
Excise tax	Revenue raising tax	Unleaded petrol Diesel Ecological fuel	11,399 SKK/kl; 266 EUR/kl 8,874 SKK/kl; 207 EUR/kl 3,000 SKK/t; 70 EUR/t	
CO₂ tax				
VAT	Revenue raising tax	Unleaded petrol Diesel	23% 23%	
OTHER ENERGY PRODUCTS				
Excise tax	Revenue raising tax	Mineral oils ¹ Kerosene (and heating oils < 1% S) Heating oils (>2% S) Liquid natural gas Pressed natural gas Coal Natural gas Electricity	16,500 SKK/t; 385.5 EUR/t 9,500 SKK/t; 222 EUR/t 300 SKK/t; 7 EUR/t 2,370 SKK/t; 55.4 EUR/t 2 SKK/m ³ ; 0.047 EUR/m ³ 0 0 0	
CO₂ tax				
VAT	Revenue raising tax	Coal Natural gas Electricity District heating Biogas	10% 10% 10% 10% 10%	
AIR EMISSION CHARGES				
Emission charges	Incentive/ earmarked environmental charge	Solid Particles SO ₂ NO _x CO Total organic C Other pollutants (120 in 4 classes): 1. (Cd, Hg, benzopyrene, etc.) 2. (As, Pb, Zn, benzene, etc.) 3. (Biphenyl, CL, HCN, etc.) 4. (NH ₃ , HCl, styrene, etc.)	5,000 SKK/t; 116.8 EUR/t 2,000 SKK/t; 46.7 EUR/t 1,500 SKK/t; 35 EUR/t 1,000 SKK/t; 23.4 EUR/t 4,000 SKK/t; 93.5 EUR/t 40,000 SKK/t; 934.6 EUR/t 20,000 SKK/t; 467.3 EUR/t 10,000 SKK/t; 233.6 EUR/t 2,000 SKK/t; 46.7 EUR/t	
Emission non-compliance fee	Compliance	Violation of Clean Air Act	Varies; max 10 mil SKK (0.234 mil EUR)	

¹ Includes light and heavy fuel oil

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	n.a.	Ministry of Finance	Central budget	Leaded petrol was phased out in 1995. Ecological fuel is defined as a fuel mixture produced from substances that are at least 90% biodegradable within 21 days.
	n.a.	Ministry of Finance	Central budget	
	n.a.	Ministry of Finance	Central budget	<p>The tax rate is lower for natural gas in comparison with other heating fuels, and it provides incentive for the use of natural gas.</p> <p>Due to social and economic reasons (there are active mines for brown coal), no excise tax on coal and electricity is imposed.</p>
	n.a.	Ministry of Finance	Central budget	The reduced VAT rate (standard VAT is 23%) is extended to these energy products. Prior to August 1999, the rate was 6%.
	593 mil SKK; 13.855 mil EUR	MoE district office issues decision on emission charges; revenue collected by National Environmental Fund (NEF)	NEF	<p>According to the regulation on air pollution charges passed in 1998 (valid from January 2000) charge rates increased significantly in the year 2000. Charges have an incentive function.</p> <p>Pollution sources are categorized in A and B group, and the basic rates provided here are adjusted based on this classification (for details on the calculation of air pollution charges see note a) below).</p>
	1.644 mil SKK; 0.038 mil EUR	MoE district office; Enforcement by Environmental Inspectorates	NEF	

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<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
TRANSPORT RELATED TAXATION				
Commercial vehicle annual tax	Revenue raising tax	Dependent on the engine size: - Commercial vehicles - Lorries	1,600 – 5,600 SKK; 37.4 – 130.8 EUR 1,800 – 63,800 SKK; 42.1 – 1,490.7 EUR	
Import duty	Revenue raising tax	Value of imported cars	7%	
Registration charge	Administration cost recovery	All vehicles		
Road tolls	Revenue raising	Annual highway sticker (based on engine size): - Vehicles - Lorries	400 SKK – 800 SKK; 9.3 – 18.7 EUR 3,000 – 6,000 SKK; 70.1 – 140.2 EUR	
Company car tax allowance				
AIR TRANSPORT				
Flight transportation tax				
AGRICULTURAL INPUTS				
Pesticides				
Fertilisers				
WASTE RELATED PRODUCT CHARGES				
Ozone depleting substances	Incentive	Production or import of ozone-depleting substances	40 SKK – 1,000 SKK (0.9 – 23.4 EUR) per kg of ODS or piece of equipment	
Batteries / accumulators			8 SKK/kg; 0.19 EUR/kg	

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	n.a.	Ministry of Finance, through Tax office	70% Central budget; 30% State Road Fund	For private cars, no annual vehicle tax has to be paid. A provision allowing for the 50% reduction (in the first two years) of the basic rates for commercial vehicles with catalytic converters, or with liquid propane gas or compressed natural gas engines, was cancelled in January 1997. Exemptions are still in place for the vehicles for collection of municipal waste, and public transport; also for vehicles with electric or solar engines, and combined transport in 50 km distance.
	n.a.	Ministry of Finance	Central budget	Import of cars older than 5 years and those not equipped with catalytic converters is banned.
	n.a.	State Road Fund	State Road Fund	Revenues earmarked for the development of roads.
	7 mil SKK; 0.164 mil EUR	NEF and Custom offices	NEF	Charge linked to scheduled phase-out (see note b) below for further details).
		Reserve Fund		Charge and collection authority are proposed in a draft Waste Act that will come in force in July 2001. The Reserve Fund will collect the revenue, and funds will be used for recovery and disposal technologies.

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<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Carrier bags				
Disposable containers/ packaging				
Tyres				
Light bulbs				
Lubricants				
Refrigerators				
WASTE				
Municipal waste user charges	Cost recovery	Waste collection and disposal, dependent on the size of containers ² and frequency of service	7 – 40 SKK/110 litre containers; 0.16 – 0.93 EUR/110 litre 50 – 120 SKK/1,100 litre containers; 1.17 – 2.80 EUR/1,100 litre	
Waste disposal charge	Incentive	Industrial or municipal waste disposed at landfills: ³ - Organic matter - Municipal - Special - Hazardous	1 (3) SKK/t; 0.02 (0.07) EUR/t 20 (300) SKK/t; 0.47 (7.01) EUR/t 40 (480) SKK/t; 0.93 (11.2) EUR/t 250 (3,500) SKK/t; 5.8 (81.8) EUR/t	
Waste non-compliance fees	Compliance	Violation of waste management legislation	Linked to violation	
Deposit-refund schemes	Incentive	Glass/plastic bottles	5 – 10 SKK/bottle; 0.12 – 0.23 EUR/ bottle	

² Waste user charges are derived from the standard fee for the waste containers (volume of which is 110 or 1100 litres), and a number of containers at the given location

³ Incineration of waste is not covered by this charge

	Total Revenue	Revenue collection authority	Use of Revenue	Comments
				Charges are proposed in the draft act on packaging, which is under preparation and expected in 2002.
				See ozone depleting substances
	n.a.	Service provider	Service provider	Charges are negotiated between municipalities and service providers. Prices for households are usually cross-subsidised through commercial user rates (in Bratislava, for example, charges for commercial users are 30% higher than for the households). Municipalities usually hold shares in the companies providing waste services. Municipalities and/or service providers seek state grants/subsidies to introduce separation programmes. This activity is strongly supported by the Ministry of the Environment at the moment.
	Total revenue n.a. 183 mil SKK (4.276 mil EUR) for landfills that do not meet technical standards	Landfill operator	Municipal budgets and NEF	Charge rates are divided into two categories: the basic rate for waste disposed at landfills that meet technical requirements, and the higher rate (figure in brackets) for those landfills that do not meet these requirements. Regulations allow for delayed payments if a generator undertakes measures to reduce volume or hazard category of waste. From July 2000, "bad" landfills are gradually being closed. NEF receives a portion of the revenues from waste disposal charges for landfills that do not meet the technical requirements.
	7.01 mil SKK; 0.159 mil EUR (in 1999) 9.21 mil SKK; 0.215 mil EUR (in 2000)	MoE district office and Environmental Inspectorates	NEF	There are no fixed rates for the waste non-compliance fees – they are determined on a case-to-case basis.
				Share of non-returnable bottles is increasing immensely, due to lack of economic incentive i.e. packaging charge.

SLOVAKIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Levies related to nuclear waste management	Cost recovery for decommissioning and waste management	Electricity produced in nuclear plants	10% surcharge	

WATER INSTRUMENTS FOR MANAGING WATER QUALITY

Water consumption charge	Cost recovery	Drinking water: - Households - Industry (negotiable)	Average rates: 10 SKK/m ³ ; 0.23 EUR/m ³ 20 SKK/m ³ ; 0.47 EUR/m ³	
Sewage treatment charge	Cost recovery	Indirect water discharges: - Households - Industry (negotiable)	Average rates: 6 SKK/m ³ ; 0.14 EUR/m ³ 12 SKK/m ³ ; 0.28 EUR/m ³	
Water effluent charge	Earmarked environmental charge	Direct discharges by industry, based on permit	Basic rates for BOD ₅ , suspended solids, crude oil substances, etc – see note c) for details	
Water pollution non-compliance fee	Compliance	Violation of law	5,000 – 500,000 SKK (117 – 11,682 EUR), dependent on violation	

INSTRUMENTS FOR MANAGING WATER QUANTITY

Water extraction charge	Cost recovery/resource management	Extraction of water above the no-cost level: - Ground water for public supply - Ground water (other purposes) - Surface water	1 SKK/m ³ ; 0.023 EUR/m ³ 2 SKK/m ³ ; 0.047 EUR/m ³ 2 SKK/m ³ ; 0.047 EUR/m ³	
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NATURAL RESOURCE AND MINING

Mining taxes	Revenue raising	Area of land mined Extracted minerals	5,000 SKK/km ² /year; 116.8 EUR/km ² /year 0.3 – 10% of market value	
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	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	Data from 1998 and later not available	Ministry of Economy, administered through Slovenske Elektrarne (state-owned company)	State Fund for Decommissioning	Estimated revenue of the Fund for decommissioning of nuclear power plants until 2010 is 30.8 billion SKK (720 million EUR at the average exchange rate for the year 2000). This revenue is earmarked for decommissioning of the nuclear power station Jaslovske Bohunice.
	2.99 bil SKK; 68 mil EUR (in 1999)	Water Works and Sewerage Companies	Water Works and Sewerage Companies	The Government regulates water prices for households. Price for commercial users is subject to contractual arrangements between the supplier and the user. The ratio of households and commercial consumers is approximately 60 to 40%.
	1.98 bil SKK; 45 mil EUR (in 1999)	Water Works and Sewerage Companies	Water Works and Sewerage Companies	
	197 mil SKK; 4.603 mil EUR	River Basin Authority	NEF	New regulation on water effluent charges is proposed, to replace the existing one from 1970s. New proposal is expected to be passed in 2001, and come into force from 2002 (see note c) below for the new rates).
	6.04 mil SKK; 0.141 mil EUR	NEF	NEF	Pollution penalties are imposed by water authorities or by environmental inspectorates.
	792 mil SKK; 17.95 mil EUR for ground water (in 1999) 896 mil SKK; 20.31 mil EUR for surface water (in 1999)	River Basin Authority and State Water Management Fund	River Basin Authority and State Water Management Fund	Charges are uniform across the country, and applied to extraction of water above the no-cost level of 15,000 m ³ per year, or 1,250 m ³ per month. Public water supply was not subject to extraction charges prior to 1996. Since 1999, maximum water extraction charges are 2.0 SKK/m ³ for surface water (compared with 0.46 SKK/m ³ in 1991), and 2 SKK/m ³ for ground water.
	127 mil SKK; 2.88 mil EUR (in 1999) 123 mil SKK; 2.79 mil EUR (in 1999)	Mining Office	Central budget	

SLOVAKIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
INSTRUMENTS FOR BIODIVERSITY AND NATURE PROTECTION				
Charges for conversion of agricultural and forest land	Incentive	Use of agricultural and forest land for other purposes	Based on the quality and use of land	
Natural park entrance fees				
Nature protection non-compliance fees	Compliance	Violation of the Nature Protection Act	Varies; maximum 500,000 SKK; 11,682 EUR	
Tree cutting charges				
DIRECT TAX PROVISIONS				
Investments, grants, etc.				
Accelerated Depreciation				
Tax allowances for environmental technology				
Allowances on import of environmental technology				

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	767 mil SKK; 17.38 mil EUR for agricultural land (in 1999); 18 mil SKK; 0.407 mil EUR for forests (in 1999)	State Fund for Protection of Agricultural (Forest) Lands	State Fund for Protection of Agricultural (Forest) Lands	A 50% reduction of the basic rate can be given for construction of houses, garages, garden cottages, and other household-related construction. Conversion of agricultural land may be free of charge in case of the establishment of water reservoirs, protected zones for water reservoirs, protection against floods, waste water treatment plants, and landfills which meet technical conditions. The charge may be increased by 100% in the case of hop-fields, vineyards and orchards, and sub-standard landfills.
	1.5 mil SKK; 0.035 mil EUR	MoE district offices or Environmental inspectorates	NEF	

NOTES:

a) Air emission charges from 2000

Polluting substances emitted into the air from large and medium sources of pollution are classified into group A or group B, based on the technical status of the source. Group A includes all emitted substances from large and medium pollution sources that were able to meet the emission limits after January 1999. Group B includes facilities that are not able to meet these limits. Polluter must apply to the state environmental authority to be classified as B group source.

Pollution charge is calculated based on the group classification. The following coefficients are applied for the calculation of the pollution charge: compensation coefficient for inflation Kk, coefficient for exceeding of emission limit in the group A (Ks), coefficient for substances in the group B (Kb) and coefficient for exceeding quotas (Kq). As shown in the table, compensation coefficient Kk increases so as to address inflation. The coefficient for sources in the group B increases dramatically after the year 2004, and the group B will exist until 2007. After this time, all the sources are obliged to comply with the emission limits. In case of group A pollution source exceeding the emission limits, coefficient Ks (multiplier of 4) is applied. From 2003, coefficient Kq will be used in the case of pollution source exceeding quotas for SO₂ (there is also intention to set up quotas for NO_x at a later stage). Polluter must calculate the pollution charges in the previous year and submit the record to the environmental office not later than February 15 of the next year.

Coefficients for air pollution charge calculation

Year	Kk	Kq	Ks	Kb
		(A and B groups)	(A group)	(B group)
1999	0.55	-	4.0	1.1
2000	0.60	-	4.0	1.3
2001	0.65	3.0	4.0	1.8
2002	0.73	3.0	4.0	2.5
2003	0.80	3.0	4.0	3.5
2004	0.85	3.0	4.0	5.0
2005	0.90	3.0	4.0	10.0
2006	0.95	3.0	4.0	16.0
2007 and later	1.00	3.0	4.0	-

Kk – compensation coefficient (inflation indexation)

Kq – coefficient in the case of exceeding emission quotas

Ks – coefficient in the case of exceeding emission limits

Kb – coefficient for the group B facilities

b) Product Charges: Ozone Depleting Substances

<i>Production or import of</i>	<i>Rate (in SKK)</i>	<i>Rate (in EUR)</i>
Substances depleting O ₃ layer	100 SKK/kg	2.34 EUR/kg
Cooling equipment (340 litre)	40 SKK/piece	0.93 EUR/piece
Freezing equipment (400 litre)	40 SKK/piece	0.93 EUR/piece
Cooling equipment (340-900 litre)	120 SKK/piece	2.8 EUR/piece
Freezing equipment (400-900 litre)	120 SKK/piece	2.8 EUR/piece
Cooling or freezing equipment above 900 litre	200 SKK/piece	4.67 EUR/piece
Air conditioning equipment less than 5 kW	100 SKK/piece	2.34 EUR/piece
Air conditioning equipment 5 - 30 kW	200 SKK/piece	4.67 EUR/piece
Air conditioning equipment more than 30 kW	1,000 SKK/piece	23.36 EUR/piece

c) Water Effluent Charge

	<i>Current rates</i>	<i>2001 proposal</i>
BOD ₅	21.5*Z ^{0,8265} (in thousands SKK)	77.1*Z ^{0,8265} (in thousands SKK)
Suspended solids	2.34*Z ^{0,7514} (in thousands SKK)	8.4*Z ^{0,7514} (in thousands SKK)
Crude oil substances	1.00 – 3.00 SKK/m ³ ; 0.02 – 0.07 EUR/m ³	-
Acidity or alkalinity	135 SKK/kmol; 3.15 EUR/kmol	340 SKK/kmol; 7.94 EUR/kmol
Dissolved inorganic salts	120 – 600 SKK/t; 2.8 – 14.02 EUR/t	430-2,150 SKK/t (based on flow); 10.05 – 29.21 EUR/t
Non-polar extractable substances	-	200,000 SKK/t; 4,672.9 EUR/t

Where Z is the amount of pollution in tonnes per year

<i>Total Revenue</i>	<i>Revenue collec- tion authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
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SLOVENIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
ENERGY TAXES/CHARGES				
MOTOR FUEL TAXES/CHARGES				
Excise tax	Revenue raising taxes	Leaded petrol Unleaded petrol Diesel LPG (as propellant)	80,610 SIT/kl; 388 EUR/kl 76,260 SIT/kl; 368 EUR/kl 59,950 SIT/kl; 289 EUR/kl 0 (these tax rates include a CO ₂ tax component – see below the CO ₂ tax rates for 1999)	
CO₂ tax	Incentive for reducing CO ₂ emissions	Leaded petrol Unleaded petrol Diesel	6,600 SIT/kl; 31.8 EUR/kl 6,600 SIT/kl; 31.8 EUR/kl 7,800 SIT/kl; 37.6 EUR/kl (above tax rates were valid in 1999)	
VAT	Revenue raising taxes	Leaded petrol Unleaded petrol Diesel	19% 19% 19%	
OTHER ENERGY PRODUCTS				
Excise tax	Revenue raising taxes	Light fuel oil Heavy fuel oil Coal Natural gas Electricity	5,000 SIT/kl; 24.1 EUR/kl 3,000 SIT/t; 14.5 EUR/t 0 0 0	
CO₂ tax	Incentive for reducing CO ₂ emissions	Light fuel oil Heavy fuel oil Coal Natural gas Electricity District heating	7,800 SIT/kl; 37.6 EUR/kl 9,300 SIT/t; 44.8 EUR/t (above tax rates were valid in 1999) 0 0 0 0	
VAT	Revenue raising taxes	Light fuel oil Heavy fuel oil Coal Natural gas Electricity District heating	19% 19% 19% 19% 19% 19%	
AIR EMISSION CHARGES				
Emission charges				
Emission non-compliance fees				

	<i>Total Revenue</i>	<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
	96.830 bil SIT; 466.651 mil EUR (total revenue from excise taxes)	Ministry of Finance	Central budget	Leaded petrol will be phased out as of July 2001. Excise tax of 32,200 SIT/t (155.2 EUR/t) will be levied on LPG as of March 2001.
	7.610 bil SIT; 36.675 mil EUR (total revenue from CO ₂ taxes)	Ministry of Finance	Central budget	The CO ₂ tax on fluid fossil fuels was introduced in 1997, and is linked to the carbon content of the fuel. The rate was tripled in 1998.
		Ministry of Finance	Central budget	Slovenia introduced VAT in July 1999.
	See excise tax on motor fuels	Ministry of Finance	Central budget	Natural gas will be subject to excise tax as of March 2001 (tax rate of 1.5 SIT/m ³ ; 0.007 EUR/m ³).
	See CO ₂ tax on motor fuels	Ministry of Finance	Central budget	The CO ₂ tax is only levied on liquid fuels. Coal used for electricity production should be taxed from 2004.
		Ministry of Finance	Central budget	VAT was introduced in July 1999. The previous sales tax rates were: coal 20%; district heating 5%; and electricity 10%.

SLOVENIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
TRANSPORT RELATED TAXATION				
VAT (new cars)	Revenue raising tax	New vehicles	19%	
Import duty				
Annual vehicle tax				
Registration charge	Revenue raising	All vehicles		
Commuting				
Company car tax allowance				
Road tolls				
AIR TRANSPORT				
Flight transportation/airport tax				
AGRICULTURAL INPUTS				
Pesticides				
Fertilizers				
WASTE RELATED PRODUCT CHARGES				
Batteries/accumulators ¹				
Carrier bags				
Disposable containers/packaging				
Tyres				
CFCs and/or halons				
Light bulbs				
Lubricants				
Refrigerators				

¹ A scheme for separate collection of batteries and car batteries is in place in large municipalities such as Ljubljana, Maribor, Celje.

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SLOVENIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
WASTE²				
Municipal waste user charges	Cost recovery	Households	727 – 4,075 SIT/m ³ ; 3.5 – 19.6 EUR/m ³ (range) 1,969 SIT/m ³ ; 9.49 EUR/m ³ (weighted average)	
		Industry	922 – 7,046 SIT/m ³ ; 4.4 – 33.96 EUR/m ³ (range) 2,454 SIT/m ³ ; 11.83 EUR/m ³ (weighted average)	
Waste disposal charge				
Waste non-compliance fees				
Deposit-refund schemes				
Levies related to nuclear waste management				
WATER				
INSTRUMENTS FOR MANAGING WATER QUALITY				
Water consumption charge	Cost recovery	Households	27.7 – 180.3 SIT/m ³ ; 0.13 – 0.87 EUR/m ³ (range) 71.5 SIT/m ³ ; 0.34 EUR/ m ³ (weighted average)	
		Industry	45 – 305 SIT/m ³ ; 0.22 – 1.47 EUR/m ³ (range) 108.8 SIT/m ³ ; 0.52 EUR/ m ³ (weighted average)	
Sewage charge	Cost recovery	Households	2 – 204.7 SIT/m ³ ; 0.01 – 0.99 EUR/m ³ (range) 17.2 SIT/m ³ ; 0.08 EUR/ m ³ (weighted average)	
		Industry	3.6 – 329.7 SIT/m ³ ; 0.017 – 1.59 EUR/m ³ (range) 22.5 SIT/m ³ ; 0.11 EUR/m ³ (weighted average)	
Wastewater treatment charge	Cost recovery	Households	2.9 – 133.4 SIT/m ³ ; 0.014 – 0.64 EUR/m ³ (range) 19.6 SIT/m ³ ; 0.09 EUR/ m ³ (weighted average)	
		Industry	5 – 192.3 SIT/m ³ ; 0.024 – 0.93 EUR/m ³ (range) 28.3 SIT/m ³ ; 0.14 EUR/m ³ (weighted average)	

² Several rules on waste and hazardous waste management have been adopted in order to complete transposition of the relevant EC directives. In addition, rules on the disposal of PCBs and PCTs, labeling of batteries, and trans-boundary movements of waste have been adopted. Significant progress has also been made with transposition of the landfill directive, where certain rules were adopted early in 2000 aiming at full transposition by the end of 20001.

<i>Total Revenue</i>		<i>Revenue collection authority</i>	<i>Use of Revenue</i>	<i>Comments</i>
		Public waste companies	Public waste companies	Charge rates and charging schemes differ from one municipality to another.
				A landfill tax (in line with EC landfill directive) will be introduced as of January 2002 (it is expected that the supporting legislation be passed by the Government in July 2001).
		Public water companies	Public water companies	
		Public water companies	Public water companies	
		Public water companies	Public water companies	Wastewater treatment charge is only levied on the users who discharge into the sewage system connected to wastewater treatment plants.

SLOVENIA 2000

<i>Instrument</i>	<i>Objective of tax/charge</i>	<i>Tax base</i>	<i>Tax rate</i>	
Water effluent tax	Incentive	Unit of pollution ³	3,600 SIT/unit; 17.3 EUR/unit	
Water pollution non-compliance fees				
INSTRUMENTS FOR MANAGING WATER QUANTITY				
Water extraction charge/tax	Revenue raising taxes	Surface / groundwater for public supply	6.3 SIT/m ³ ; 0.03 EUR/m ³	
NATURAL RESOURCE AND MINING				
Mining charges/taxes				
Taxes/charges on raw materials				
INSTRUMENTS FOR BIODIVERSITY AND NATURE PROTECTION				
Hunting charges			8,000 – 13,000 SIT/day; 38.6 – 62.7 EUR/day	
Fishing charges				
Natural park entrance charges				
Nature protection non-compliance charges				
Tree cutting charges				
DIRECT TAX PROVISIONS				
Investments, grants, etc.				
Accelerated depreciation				
Tax allowances for environmental technology				
Allowances on import of environmental technology				

³ Unit of pollution is determined based on the quantity of the pollutant in the effluent (e.g. 3kg of phosphorus, 25kg of nitrogen)

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THE REGIONAL ENVIRONMENTAL CENTER FOR CENTRAL AND EASTERN EUROPE (REC) is a non-partisan, non-advocacy, not-for-profit organisation with a mission to assist in solving environmental problems in Central and Eastern Europe (CEE). The Center fulfils this mission by encouraging cooperation among non-governmental organisations, governments, businesses and other environmental stakeholders, by supporting the free exchange of information and by promoting public participation in environmental decision-making.

The REC was established in 1990 by the United States, the European Commission and Hungary. Today, the REC is legally based on a Charter signed by the governments of 27 countries and the European Commission, and on an International Agreement with the Government of Hungary. The REC has its headquarters in Szentendre, Hungary, and local offices in each of its 15 beneficiary CEE countries which are: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, FYR Macedonia, Poland, Romania, Slovakia, Slovenia and Yugoslavia.

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Environmental Taxes in an Enlarged Europe