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ENVIRONMENTAL TAXES

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SUMMARY

Comprehensive overview on environmental taxes and respective information flows were missing up to present.

Environmental tax data were compiled and compilation methodology was elaborated in Estonia first time during this pilot study. The need for the environmental tax statistics in Estonia became with the implementation of the ecological tax reform in 2005. The 2007 year data were studied.

Results of pilot study were the following:

- Data sources for the compilation of environmental taxes were investigated.
- For each environmental tax a description with the overview of existing data was generated in the first phase of the project.
- Methodology for the compilation of the statistics on environmental taxes in Estonia was developed for the first time.
- The Eurostat's standard tables of environmental taxes were filled for the first time.
- Provisional analyses of the taxes, tax burden and impacts for 2007 were carried out.
- Ecological tax reform's statistical data demand was analysed from the political side.
- Feasibility of the monitoring of the ecological tax reform with help of environmental taxes and related statistics in Estonia was analysed.
- The suggestions were made on relevant statistical modules for environmental tax statistics like the "households environmental tax burden".
- The methodological proposals on how to treat the specialized producers of environmental services (e g wastewater treatment, waste management etc) environmental taxes were made.
- Regarding the indirect taxes in general the suggestions were made on how to allocate them on the example of fuel excise duty or environmental taxes of electricity production.
- A rough analyses module linking the environmental taxes, profits and total expenditures on economic branch level was tested.
- The identified problems were outlined and discussed.

INTRODUCTION

The pollution has been reduced greatly in the beginning of 1990s in Estonia. This reduction of pollution came mostly from the bankruptcy of the economy and not from the application of economic instruments. However, the ecological tax reform was initiated in 2005 and hence the need to monitor the effectiveness and impacts of this reform aroused. One of the proposed monitoring mechanism was considered to be the environmental tax statistics account module.

Before the start of this pilot project statistics on environmental taxes was not compiled and analyzed in Estonia. Pilot study focused on the environmental taxes in Estonia for the year 2007.

Scope of the pilot project was to:

- give an overview on environmental taxes in Estonia
- elaborate the methodology for the compilation of the environmental tax statistics account
- produce statistics on environmental taxes by economic activities.
- propose the ways to measure the implementation of ecological tax reform.

Definition of environmental taxes

The definition of environmental taxes given in the Eurostat's statistical framework (2001) was used in this study. According to Eurostat's definition the environmental tax is "a tax whose tax base is a physical unit (or a proxy of it) of something that has a proven, specific negative impact on the environment". The scope of the taxes according to Eurostat's definition is wider in several cases: in Estonia not all those environmental charges, fees and excise duties are considered to be environmental taxes. Also the mineral resource extraction charge is not considered to be the tax according to national accounts. However in this study we followed Eurostat's definitions

Structure of the final report

The final report consists of four chapters. Detailed description of environmental taxes in Estonia is brought out in Chapter 1. Environmental taxes, which were included to the pilot study and covered in this chapter, were the following:

- Air pollution charge;
- Water pollution charge;
- Waste disposal charge;
- Water abstraction charge;
- Mineral resources extraction charge;
- Charge for cutting state forest;
- Charge for hunting rights;
- Fishing charge;
- Packaging excise duty;
- Fuel excise duty;
- Heavy goods vehicle tax;
- State fee for registration of motor vehicles, vessels and aircrafts;
- Fines and compensation of damages related to the violations of environmental laws.

The second chapter covers data compilation methodology and results. Administrative data sources were used as much as possible. In addition a round of data collection regarding some direct environmental charges was carried out as additional module to the environmental protection expenditure survey. Based on the

analysis of the existing information, the questionnaire block covering environmental tax components was designed.

The third chapter gives the theoretical overview and the description of ecological tax reform in Estonia.

The fourth chapter looks at the feasibility of the monitoring of the ecological tax reform with the help of the tax statistics. For the analyses "does the polluter pay" some rough estimation methods were elaborated and applied. The applicability of these methods are discussed in fourth chapter, but one thing is clear the fine-tuning is the work to be carried out in future and the assistance of environmental economist would be of great help.

At the end of the report occurred problems and conclusions are presented.

It should be noted that the comprehensive overview on environmental taxes and respective information flows were missing up to present and was now compiled.

1. OVERVIEW OF THE LEGISLATIONS AND AVAILABLE DATA

1.1. POLLUTION TAXES

1.1.1. Air pollution charge

Object of taxation

The air pollution charge shall be applied for the release into ambient air, from a stationary source of pollution, of:

- sulphur dioxide (SO_2) or other inorganic sulphur compounds;
- carbon monoxide (CO);
- carbon dioxide (CO_2);
- particulates;
- nitrogen oxides or other inorganic nitrogen compounds;
- volatile organic compounds (except methane);
- mercaptans;
- heavy metals or compounds of heavy metals.

Aim of the tax

The objective of air pollution charge is to prevent and reduce possible damage caused by the release of air pollutants into the environment from a stationary source of pollution.

Tax base

Rates of the air pollution charge depend on the sensibility of the receiving area, hazardousness of the air pollutants, use of the best available technology by enterprise etc. Estonian Environmental Charge Act establishes air pollution charges' rates at the moment for the years 2006 to 2009 (rates are shown in Annex 1). The air pollution charge rates can be increased by a factor of 1.2 to 2.5 depending on the location of the stationary source of pollution.

Increased air pollution charge rates are also used in following cases:

- Air pollutants are emitted into the ambient air in larger quantities than permitted by the environmental permit (ambient air pollution permit, special pollution permit or integrated environmental permit). Rates can be increased 5, 10 or 100 times depending on pollutant.
- Emissions of air pollutants are released into ambient air during the transportation of chemicals or waste. Rates can be 10, 20 or 200 times higher depending on pollutants.
- Emissions of air pollutants are released into ambient air without environmental permit. Rates can be 10, 20 or 200 times higher for various pollutants.
- Taking into consideration of the characteristics of economic activities and specific sectors, the Minister of the Environment shall establish, by a regulation, the emission levels of pollutants and capacities of plants used beyond which an ambient air pollution permit and a special pollution permit is required.

Payer

Legal or natural person, who releases air pollutants from a stationary source of pollution into ambient air by environmental permit or does it without environmental permit, shall pay air pollution charge.

If air pollutants are emitted into ambient air by a fuel terminal, motor vehicles, floating vessels, aircraft, or train at a location not prescribed for such purposes, the air pollution charge must paid by the owner of the fuel terminal or by the person in direct possession of the motor vehicle, floating vessel, aircraft or train.

CO_2 pollution charge shall be paid by the heat producing enterprises according to the amount of CO_2 emissions into ambient air during heat production. As of 1st January 2006, the pollution charge for emission of carbon dioxide (CO_2) into the ambient air shall be paid by electricity undertakings and by persons or agencies engaging in heat production who use boiler equipment. From the 1st of January 2008 the electricity sellers pay electricity excise duty in the same amount as would be the CO_2 pollution charge.

Starting from the 1st of the January 2006, use of biomass or peat and its products in energy production is excluded from CO_2 pollution charge.

Tax exemption

Air pollution charge is not requested from persons or bodies, whose facilities or activities do not need an environmental permit.

Also air pollution charge is not imposed on those who are releasing air pollutants into ambient air in the extent, which is needed for prevention of bigger damage or liquidate the consequence of natural calamity.

Air pollution charge is not requested than a contract of substitution of pollution charge with the Minister of the Environment is signed. The substitution can take place if the polluter implements, at its own expense environmental protection measures which ensure the reduction of air pollutants over the course of three years by not less than 15 per cent in comparison with the last accounting year of the period prior to the implementation of such measures.

Receipt of the tax

Air pollution charge revenues are collected into a state budget and forms the budget of Environmental Investment Centre. According to the Estonian Environmental Charge Act the revenues of air pollution charge must be used for environmental protection.

Legislation

Estonian Environmental Charge Act; Estonian Ambient Air Protection Act

Available administrative data

Available data on air pollution charge are shown in table 1.

Table 1. Air pollution charge paid into state budget, 2001-2007
(thousand kroons)

Year	Air pollution charge
2001	52 353
2002	31 376
2003	117 448
2004	119 366
2005	142 478
2006	189 145
2007	275 204

Source: Ministry of the Environment

Substitution of air pollution charge made up 0.4 million kroons in 2006, which comprised only 0.2% from receipts of air pollution charges. In 2007 was this figure 0.6% (1.6 million kroons) (Kraav; Lüpsik 2008).

1.1.2. Water pollution charge

Object of taxation

The water pollution charge shall be applied for the emission of pollutants into water bodies, groundwater or soil of:

- organic matter;
- phosphorous compounds;
- nitrogen compounds;
- suspended solids;
- sulphates;
- monophenols;
- oil, oil products, mineral oil or liquid products obtained from the thermal treatment of solid fuel or other organic matter;
- waste water which has a hydrogen ion exponent (pH) greater than 9.0 or less than 6.0;
- other dangerous substances[1].

Aim of the tax

The objective of water pollution charge is to prevent and reduce possible damage caused by the release of pollutants into the environment.

Tax base

Rates for water pollution charge depend on sensibility of the receiving water body or soil, hazardousness of the pollutants and use of best available technology. Estonian Environmental Charge Act establishes water pollution charges' rates at the moment for the years 2006 to 2009 (rates are shown in Annex 2). The water pollution charge rates can be increased by a factor of 1.2 to 2.5 depending on where the water is directed (e.g soil with unprotected groundwater etc). The pollution charge is increased 1.5 times if all or a part of the waste water directed to a water body passes by a deep-sea outlet

Increased water pollution charge rates are used in following cases:

- pollutants are emitted into water bodies, groundwater or soil in larger quantities or concentrations than permitted (permit of special use of water or integrated environmental permit). Charge rates can be 10 or 100 times higher depending on pollutant.
- pollutants are released into sea water;
- pollutants are released into soil, groundwater or water bodies during the transportation of chemicals or waste. Charge rates can be 10, 20 or 200 times higher regarding to the pollutants.
- pollutants are released into soil, groundwater or water bodies during the transportation of chemicals. Charge rates can be 10, 20 or 200 times higher regarding to the pollutants.
- pollutants are released into soil, groundwater or water bodies without an environmental permit. Charge rates is 15 times higher, but charge rate is even 1000 times higher for dangerous substances in the list (established by the regulation of the Minister of the Environment)
- volumes of fertiliser are used above the standard (calculated on the bases of total nitrogen and for the total volumes of fertiliser) used in violation of the requirements of the Estonian Water Act for use of mineral fertilisers, manure and silage juice- 10 times the basic water pollution charge rate is paid. Upon the emission of oil, oil products, mineral oil or liquid products obtained from the thermal treatment of solid fuel or other organic matter into sea water, the basic pollution charge rate is increased by a factor of 50.

[1] Lists of hazardous substances shall be approved by a regulation of the Minister of the Environment.

If all the indicators which characterise the waste water emitted by a payer of the pollution charge in all water outlets are less than or equal to the indicators established based on the Water Act, or are less than or equal to the limit values for pollution indicators determined by the water abstraction permit, and all other requirements determined by the water abstraction permit have been met, the pollution charge rates is reduced by a factor of 2. Reduction is not applied in the case of a temporary water abstraction permit.

Payer

Legal or natural person, who releases pollutants into soil, ground water or water bodies on the bases of environmental permit or does it without environmental permit, shall pay water pollution charge.

Tax exemption

The obligation to pay the environmental charge does not extend to persons who exploit the environment to an extent which does not require an environmental permit.

Also water pollution charge is not imposed on releasing pollutants into soil, ground water and water bodies in order to avoid bigger damage prevention or liquidate the consequence of natural calamity.

The water pollution charge is not imposed on organic matter, phosphorous compounds and nitrogen compounds, if these substances and compounds are used as fertilizers according to the requirements established pursuant to the Estonian Water Act. Also charge is not imposed on suspended solids and oil, oil products, mineral oil or liquid products obtained from the thermal treatment of solid fuel or other organic matter, if these substances and compounds are released into water bodies, ground water or soil with the raining water through sewerage of raining water according to the requirements established pursuant to the Estonian Water Act.

Water pollution charge is not requested than a contract of substitution of pollution charge with the Minister of the Environment is signed. The substitution can take place if the polluter implements, at its own expense environmental protection measures which ensure the reduction of the discharge of water pollutants over the course of three years by not less than 15 per cent in comparison with the last accounting year of the period prior to the implementation of such measures.

Receipt of the tax

Water pollution charge revenues are collected into state budget (and forms the budget of Environmental Investment Centre. According to the Estonian Environmental Charges Act the receipt of water pollution charge must be used for environmental protection.

Legislation

Estonian Environmental Charge Act; Estonian Water Act

Available administrative data

Available data on water pollution charge are shown in table 2.

Table 2. Water pollution charge paid into state budget, 2001-2007
(thousand kroons)

Year	Water pollution charge
2001	20 608
2002	31 349
2003	25 097
2004	29 933
2005	57 149
2006	59 177
2007	61 269

Source: Ministry of the Environment

Substitution of water pollution charge made up 5.2 million kroons in 2006, which comprised only 8.8% from receipts of water pollution charges. In 2007 was this figure 1.1% (0.76 million kroons) (Kraav, Lüpsik 2008).

1.1.3. Waste disposal charge

Object of taxation

The pollution charge is applied for waste disposal within the meaning of the Waste Act. The waste disposal charge shall be applied for following waste types and operations:

- waste deposited to landfill of non-hazardous waste and hazardous waste deposit which is permitted in a landfill for non-hazardous waste municipal waste;
- waste deposited in landfills for inert waste;
- waste from building materials and construction demolition waste containing asbestos;
- mine waste from oil shale, including waste from mineral dressing, discharged into open dumps;
- waste which contains wood preservatives, inorganic pesticides, asbestos, arsenic or lead, coal and oil shale tar and products thereof, as well as bituminous compounds containing such materials and waste pitch from the processing of oil shale;
- oil shale semi-coke;
- oil shale fly ash and oil shale bottom ash and cement clinker dust;
- waste which contains mercury, cadmium, cyanides, polychlorinated biphenyls or polychlorinated terphenyls (PCBs, PCTs) or organic pesticides.

Aim of the tax

The objective of waste disposal charge is to prevent and reduce possible damage caused by the release of waste into the environment and to encourage to follow the EU requirements and reuse of wastes.

Tax base

Rates for waste disposal charge depend on hazardousness of the waste and on the condition of the landfill. If a landfill does not comply with the environmental protection requirements established pursuant to the Waste Act, the basic pollution charge rates for disposal of waste are increased 2-8 times, depending on waste.

Estonian Environmental Charge Act establishes waste pollution charges' rates at the moment for the years 2006 to 2009 (rates are shown in Annex 3) presence and content of the substance specified above in the waste.

If a landfill does not comply with the environmental protection requirements established pursuant to the Waste Act, the basic pollution charge rates for disposal of waste are increased, depending on waste.

Waste charges are calculated according to an increased rate if:

- waste is disposed in quantities larger than permitted;
- waste are released into the environment in the course of transportation of chemicals or waste;
- waste is disposed into the environment without an appropriate permit. The charge rates are increased 5 to 500 times, depending on waste.

Payer

Legal or natural person, who disposes waste on the bases of environmental permit or does it without environmental permit, shall pay waste disposal charge.

Tax exemption

The pollution charge is not applied on:

- activities carried out in preparation for the release of waste into the environment;
- temporary release of waste into the environment for the purpose of their biological degradation or land treatment in waste management facilities prescribed for such purposes;
- waste incineration if the pollution charge is required for emission into the ambient air of the pollutants created by the incineration process.

The pollution charge is not applied for the release of waste into the environment with the purpose of recycling the waste within the meaning of the Waste Act also.

Receipt of the tax

The majority of waste disposal charge revenues are collected into state budget and forms the budget of Environmental Investment Centre.

A share of the waste charge revenues are directed to the local government budgets. According to the Environmental Charges Act, 75% of the revenue from municipal waste disposal charge calculated using the base charge rates, is directed into that local government's budget, where the waste was generated. Local governments must spend this revenue on development of local waste management. All other revenues from waste disposal charge goes to state budget.

Legislation

Estonian Environmental Charge Act; Estonian Waste Act

Available administrative data

Available data on waste disposal charge are shown in table 3.

Table 3. Waste disposal charge paid into state budget, 2001-2007 (thousand kroons)

Year	Waste disposal charge		Total
	State budget	Local budget	
2001	85 808	0	85 808
2002	109 370	0	109 370
2003	143 158	0	143 158
2004	140 680	0	140 680
2005	168 792	18 679	187 471
2006	233 277	33 751	267 028
2007	311 066	33 664	344 730

Source: Ministry of the Environment

In 2006 the substitution of waste disposal charge made up 5.8 million kroons, which comprised only 2.5% from receipts of waste charges. In 2007 was this figure only 1.1% (3.9 million kroons) (Kraav, Lüpsik 2008).

1.1.4. Substitution of pollution charges

Estonian tax system is based on a large tax base, relatively low tax rates, a minimum of exceptions. According to the reform on ecological taxes approved by the government of Estonia on 7th of July 2005, one of the principles of the reform is to refuse or reduce significantly the use of environmentally hostile subsidies and advantages. The only measure of direct assistance for enterprises resulting from the law on environmental taxes is the substitution of the pollution charge. In this case, as a particularity of those subsidies, they present no danger to the environment.

Aim of the substitution of pollution charge

The purpose of substituting the pollution charge payment obligation with efficient environmental protection investments is to encourage enterprises to take measures for protecting the environment and to assist those who in case of the rise of the pollution charge rates could no longer continue providing public services.

Criterions of substitution of pollution charge

The obligation to pay environmental charges may be substituted by an obligation to finance environmental protection measures if payer of pollution charge applies measures, which ensure at least a 15 % decrease in the emission of pollutants into the ambient air, the water body, groundwater or soil, or in the disposing of waste during a period of three years and, in comparison to the situation of the year preceding the period of application of the measures. Such result must remain after the contract for substitution of pollution charge ends.

The extent to which the pollution charge is substituted shall not exceed the cost of the environmental protection measures. If the actual cost of application of environmental protection measures exceeds the amount of pollution charge to be paid by the payer of the pollution charge during one calendar year, the pollution charge for the following years shall be reduced by the amount not substituted if the period of substitution of the pollution charge does not exceed three years.

Procedure of substitution of pollution charge

In order to substitute the pollution charge, the payer of the pollution charge shall submit an application to the Minister of the Environment before starting to implement the project. The pollution charge is substituted on the basis of a contract for substitution of the pollution charge entered into between the payer of the pollution charge and the Minister of the Environment. The contract also contains the organisation of monitoring performance of the contract. A project of environmental protection measures shall include the technical and economic indicators of these measures, a schedule for application of the measures by activity and quarter, and their costs.

Refusal from substitution of pollution charge

Substitution of the pollution charge shall be refused if:

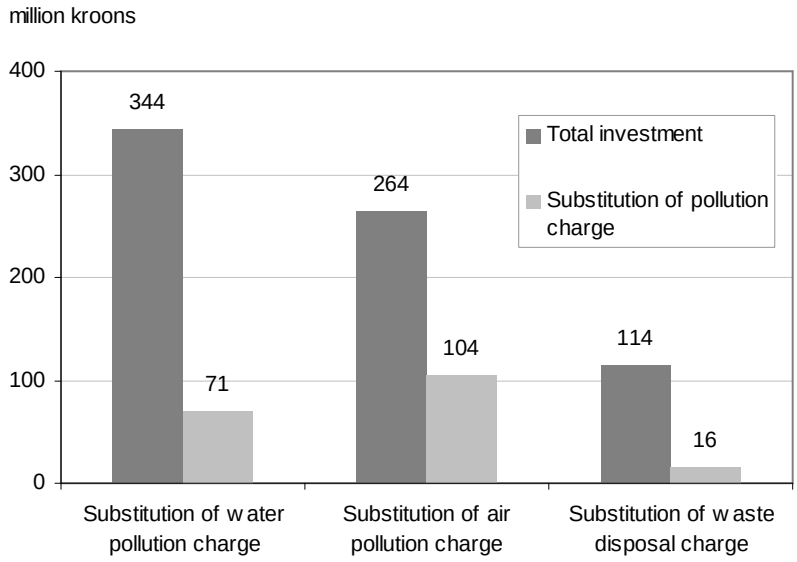
- the estimated results of the project of application of environmental protection measures do not conform to the requirements provided in Estonian Environmental Charges Act;
- the project of application of environmental protection measures is not justified for environmental protection;
- the project is not viable, technically correct or does not conform to the requirements of the best possible technology;
- the project is not economically justified;
- the terms are not realistic;

- the project may involve additional environmental or economical risks which the payer of the pollution charge has not estimated or specified in the application;
- verifying the schedule for performance of the project and budget of the project is impossible;
- the result of the plan is inconsistent.

Available administrative data

Investments for substitution of water pollution charge made up 344 million kroons in period 1999-2007. The substitution of pollution charges has been mostly used for financing projects related to the reduction of water pollution. Most of the reconstruction projects of sewage treatment plants corresponding to the requirements in Estonia have received support in the form of pollution charge substitution. During the years 1990 to 2000 the beneficiaries were mostly big water plants. Lately the benefits have gone generally to small sewage treatment plants in regions with 2000 habitants and even smaller localities. It is worth mentioning that the projects generally propose relatively simple and cheap technological solutions.

Investments for substitution of air pollution charge made up 264 million kroons in period 2000-2007. Investments for substitution of waste disposal charge made up 114 million kroons in period 2001-2007. Volume of investments made according to the contracts for substitution of pollution charges and of which volume of substitution of pollution charges is presented in figure 1.



Source: Ministry of Environment

Figure 1. Volume of investments made according to the contracts for substitution of pollution charges and of which volume of substitution of pollution charges, 1999-2007

1.1.5. Packaging excise duty

Object of taxation

Excise duty on packaging is imposed on packaging[2] filled in Estonia or acquired in another EU Member State or imported into Estonia.

Aim of the tax

Aim of the packaging excise duty is to promote recycling of packages.

Tax base

The duty to pay tax on an imported packaging shall arise when a customs debt is incurred.

Excise duty is imposed on packaging filled in Estonia or acquired in another Member State upon the sale, exchange, transfer without charge or use for self-consumption of packaging.

The payable sum of packaging excise duty depends on recovery rates of packaging waste and on the type of packaging. Excise duty rates per packaging types are established by the Estonian Packaging Excise Duty Act (rates are shown in Annex 4).

There are five types of packaging, which have different excise duty rates:

- glass and ceramics;
- plastic; metal;
- paper and cardboard, incl. composite cardboard products;
- other material

Excise duty is imposed on packaging filled in Estonia or acquired in another Member State upon the sale, exchange, transfer without charge or use for self-consumption of packaging. The activities are deemed to take place at the earliest of the following:

- at the time when the packaging is dispatched;
- at the time when the packaging is made available to the recipient;
- at the time when the packaging is used for self-consumption.

If recovery rates of packaging are not achieved in the tax year, the excise duty shall be paid from the difference between recovery rate established by Estonian Packaging Excise Duty Act and actual recovery rate. Recovery rates are brought out hereafter in the tax exemptions.

Payer

The person, who declares or for whom the imported packaging is declared before it is allowed into free circulation in the meaning of the Community Customs Code, shall pay excise duty on imported packaging.

Excise duty on packaging filled in Estonia shall be paid by the user of the packaging. Excise duty on packaging acquired in another Member State shall be paid by the person who acquires the packaging.

Tax exemptions

Packaging excise duty is not imposed on packaging with deposit (excl. metallic packaging of beverages), of which:

- at least 60% from the type of packaging is recovered since 01.01.2005;
- at least 63% from the type of packaging is recovered since 01.01.2006;
- at least 65% from the type of packaging is recovered since 01.01.2007;
- at least 70% from the type of packaging is recovered since 01.01.2008;
- at least 75% from the type of packaging is recovered since 01.01.2009.

Packaging excise duty is not required, if:

[2] "Packaging" means filled sales packaging as defined in the Estonian Packaging Act.

- at least 60% from packaging of alcohol and non-alcoholic beverages (not mentioned above) is recovered (this article was repealed with a new Packaging Excise Duty Act, which entered into force 01.01.2009);
- at least 40% from metallic packaging of beverages is recovered (at least 50% from metallic packaging is recovered since 01.01.2010);
- at least 15% from other selling packaging not mentioned above is recovered.

Packaging excise duty is not imposed as well:

- on packaging brought into another Member State from Estonia, including packaging which is conveyed on board a vessel or aircraft used for foreign travel in order to be consumed by or sold to the passengers on board (this article was repealed with a new Packaging Excise Duty Act, which entered into force 01.01.2009);
- on packaging containing goods which natural persons bring into Estonia within the maximum allowable amounts of alcohol permitted by customs rules or amounts of non-alcoholic beverages exempt from tax;
- on exported packaging if export is certified by an export declaration;
- on packaging imported by foreign diplomatic representations and consular posts, representations of intergovernmental organisations, and foreign diplomatic representatives, consular agents and representatives of special missions accredited to Estonia together with goods intended for internal use and on the basis of a declaration of goods for diplomatic purposes.

Receipt of the tax

Excise duty is paid into the state budget. 50% of the packaging excise duty is directed into Environmental Investments Centre's budget according to Estonian Packaging Excise Duty Act. This part of packaging excise duty, which is directed into Environmental Investments Centre's budget, must use for environmental protection. Other part is not earmarked.

Legislation

Estonian Packaging Excise Duty Act; Estonian Packaging Act

Available administrative data

Available data on packaging excise duty are shown in table 4.

Table 4. Packaging excise duty paid into state budget, 2000-2007
(thousand kroons)

Year	Packaging excise duty
2000	1 744
2001	439
2002	781
2003	449
2004	983
2005	1752
2006	2896
2007	-1 397

Source: Ministry of Finance

1.2. RESOURCE TAXES

1.2.1. Mineral resources extraction charge

Object of taxation

Mineral resources extraction charge is paid for the extraction, use or rendering unusable of mineral resources belonging to the state.

Aim of the tax

The objective of mineral resources extraction charges is to prevent and reduce possible damage caused by the use of resources and to encourage effective use of mineral resources and deposits of minerals.

Tax base

Mineral resources extraction charge rates depend on quality, deficit and protection measures of mineral resources, ecological value of the mining place, mining conditions and use of mineral resources.

The rates for the mineral resources extraction charge shall be established by a regulation of the Government of the Republic. Presently, mineral resources extraction charge rates are established by Estonian government regulation No 316 "State owned mineral resources extraction charge rates for years 2006-2009" (rates are shown in Annex 5). According to this regulation there are nine mineral resources under taxation: dolomite, granite, gravel, sand, limestone, clay, peat, phosphorite, oil shale.

Special factor (0.5) is used for calculating mineral extraction charge, when sand and gravel are mined below groundwater level.

The person or body, who excavates more than it is allowed in mining permit or mines without mining permit or does not use collateral mineral resource at mining, shall pay mineral resources extraction charge with coefficient (5.0).

Payer

The person or body, who have right to excavate mineral resources on the bases of the mining permit or by other means provided by law or who has mined illegally, shall pay mineral resources extraction charge.

Tax exemptions

Mineral resources extraction charge is not requested from person or body, whose activity and use of mineral resources does not need a mining permit.

No charge for mineral resource extraction is required if:

- the mineral resource or rock, deposit, liquid or gas not registered in the environmental register is extracted by the owner of an immovable, who is a natural person;
- the mineral resource is used or rendered unusable to an extent which is necessary for the protection of property or the environment in an emergency such as fire, flood or other accident. The issuer of the extraction permit shall determine the quantity of mineral resource for which the extraction charge is not required based on the written request of the holder of the extraction permit.

The owner of an immovable who is a natural person has the right to extract mineral resources, natural rock, sediments, liquid or gas not registered as mineral reserves and present within the limits of the immovable without an extraction permit for the owner's personal household, unless otherwise provided for in this Estonian Earth's Crust Act. In this case the mineral resources extraction charge is not requested.

Also mineral resources extraction charge is not imposed on mining natural mineral resources in the extent, which is needed for protection of environment or property (for example in emergency occasion like flood, fire, etc).

Receipt of the tax

Receipt of the mineral resources extraction charges is divided between state and local governments' budgets as follows:

- 100% of mineral resources extraction charge is paid into the state budget, if there are mined from a mineral deposit located in a transboundary water body, on the territorial sea or in inland maritime waters, in a water body, which are not been divided between local governments.
- 50% of charge is paid into the state budget and 50% to the local governments' budget (where the mining takes place), if the mining from mineral deposits of national importance takes places.
- 100% of mineral resources extraction charge is paid into the local governments' budget (where the mining takes place), if there mining from mineral deposits of local importance takes place.

That part of charge receipt, which is paid into state budget, must be used for environmental protection purposes. This part of the receipt goes to the Environmental Investment Centre's budget, where it is used for financing environmental projects.

Legislation

Estonian Environmental Charge Act; Estonian Earth's Crust Act; Estonian government regulation No 316 "Mineral resources extraction charge rates for years 2006-2009 for the minerals belonging to the state"

Available administrative data

Available data on mineral resources extraction charge are shown in table 5.

Table 5. Mineral resources extraction charge paid into state and local budget, 2001–2007
(thousand kroons)

Year	Mineral resources extraction charge		Total
	State budget	Local budget	
2001	23 661	55 014	78 675
2002	23 501	65 223	88 724
2003	28 732	77 029	105 761
2004	34 862	77 920	112 782
2005	32 920	90 254	123 174
2006	82 032	128 542	210 574
2007	112 720	165 679	278 399

Source: Ministry of the Environment

1.2.2. Water abstraction charge

Object of taxation

Water abstraction charge is paid for the right to abstract water from a water body or aquifer pursuant to the procedure for water abstraction.

Aim of the tax

The objective of water abstraction charge is to prevent and reduce possible damage caused by the use of resources and to encourage effective use of water resources.

Tax base

Water abstraction charge rates depend on the type of water body, groundwater layer, deficit of the taken water and use of water.

Water abstraction charge rates are established by Estonian government regulation No 317 "Water abstraction charge rates for water abstraction from surface or ground water layer" (rates are shown in Annex 6).

The person or body, who abstracts more water than it is allowed in permit of special use of water or abstracts water without this permit, shall pay water abstraction charge calculated with coefficient (5.0).

Payer

The person or body, who has right to abstract water by permit of special use of water (or by other means settled by law) or who abstracts water illegally, shall pay water abstraction charge.

A permit for the special use of water is necessary if:

- water is abstracted from a surface water body, including if ice is abstracted in a volume of more than 30 m^3 per one twenty-four hour period;
- is abstracted more than 5 m^3 of groundwater is abstracted per one twenty-four hour period;
- mineral water is abstracted;
- effluent or other water pollutants are discharged to a recipient;
- a water body is barred or dammed or the water level thereof is lowered, or hydro-electric energy is used;
- a water body is dredged or soil is disposed of on the bottom of the water body;
- solid substances are sunk into a water body;
- groundwater is amended, lowered or redirected;
- the physical or chemical characteristics of water or the biological characteristics of a water body change upon water use.

Tax exemption

Water abstraction charge is not imposed on:

- abstraction of water for agricultural irrigation;
- abstraction of water for fish farms;
- abstraction of ground water in an amount of less than 5 cubic metres daily, except in cases where the water abstracted is mineral water;
- generation of hydro energy (water abstraction from a body of surface water in an amount of less than 30 cubic metres daily).

Water abstraction charge is not requested for water abstraction without permit if it is in the extent, which is needed for preventing the bigger damage or for avoiding accidents with people protection of environment or property, or liquidate consequences of natural calamity

Receipt of the tax

Receipt of the water abstraction charge is divided between state and local governments' budgets as follows:

- 100% of water abstraction charge is paid into the state budget, if water is abstracted from a transboundary water body.
- 50% of charge is paid into the state budget and 50% to the local governments' budget (where the water abstraction takes place), if water is abstracted from inland water body or groundwater layer.

If the water catchment area is located on the territory of more than 1 local government the charge allocation is decided by the Ministry of Environment.

The part of charge revenue, which goes to state budget must be used for environmental protection purposes and is used for financing environmental projects by the Environmental Investment Centre.

Legislation

Estonian Environmental Charge Act; Estonian Water Act; Estonian government regulation No 317 "Water abstraction charge rates for water abstraction from surface or ground water"

Available administrative data

Available data on water abstraction charge are shown in table 6.

Table 6. Water abstraction charge paid into state and local budgets, 2001-2007 (thousand kroons)

Year	Water abstraction charge		Total
	State budget	Local budget	
2001	40 957	29 103	70 060
2002	43 179	32 980	76 159
2003	46 440	35 088	81 528
2004	47 529	43 400	90 929
2005	47 197	45 664	92 861
2006	63 342	55 855	119 197
2007	79 981	67 503	147 484

Source: Ministry of the Environment

1.2.3. Fishing charge

Object of taxation

Fishing charge is paid for rights to fish or collect aquatic plants:

- in waters or its parts inside the jurisdiction of the Republic of Estonia;
- in waters outside the jurisdiction of the Republic of Estonia, if Republic of Estonia has given or guaranteed fishing rights in these waters.

According to the Estonian Fishing Act, fishing is an activity the aim of which is the capture of fish, river lamprey, crayfish and other aquatic invertebrates by catching or killing them. Staying on a body of water or in a limited management zone on the shore thereof with fishing gear prepared for fishing is deemed to be equal to fishing.

According to the Estonian Fishing Act, the collection of aquatic plants is the gathering of agar-agar (*Furcellaria lumbricalis*) from the sea.

Depending on the fishing gear used, a difference is made in terms of fishing rights between line fishing, recreational fishing, and commercial fishing. Estonian Fishing Act establishes a special purpose fishing[3] separately.

Aim of the tax

The objective of fishing charge is to prevent and reduce possible damage caused by the use of fishery resources.

Tax base

Tax base differs for commercial, recreational and special purpose fishing. Rates of commercial, special purpose fishing charges by fish species are shown in Annex 7, in tables 1 and 2. Rates of recreational fishing charges by fishing period are shown in Annex 7 table 3.

Commercial fishing

The right to fish commercially is granted by a fishing permit, which may be either the fishing permit of a fishing vessel or a fisherman's fishing permit. Charge rates for commercial fishing depend on characteristics of fishing area, type of gear and its fishing capacity or fishing criterions from international treaty. Estonian Government's regulation establishes charge rates for commercial fishing in every year.

[3] According to the Estonian Fishing Act, fishing is considered to be of special purpose if it is carried out for the purpose of environmental studies, to collect roe needed for the production of restocking material, to catch breeder fish, to collect hypophysis, for the purpose of the transplantation of fish, to avoid the death of fish or to improve the ecosystem of a water body. In addition to the above, the Minister of the Environment may declare fishing carried out within the framework of recreational fishing competitions, or fishing organised, for the purposes of practical training, by schools which have fishing practice included in their approved curricula to be special purpose fishing.

Recreational fishing

Recreational fishing is allowed with following documents certifying the right to fish: a document certifying payment for recreational fishing rights and a fishing card. Charge rates for recreational fishing depend on fishing time and place, fishing capacity of a gear, fish stock conditions in a fishing area and value of a fish. These rates are established by the regulation of the Minister of the Environment.

Fishing card grants the right to fish for recreation in following cases:

Fishing in the restriction area[4] is allowed only by fishing card. These restrictions are made conserving fishery resources;

On the basis of a fishing card, a person may use one entangling net or one longline consisting of up to 100 hooks at sea up to the 20 m isobath, in internal water bodies or transboundary water bodies or in parts thereof, and one hoopnet or one dragnet in internal water bodies and, for catching crayfish, up to five dipnets or traps in water bodies where the Minister of the Environment has determined a limitation on the number of fishing cards to be issued. One fishing card shall be issued per person for fishing, within the limits of the quota established for the corresponding region, with one entangling net, one longline consisting of up to 100 hooks, one hoopnet, one dragnet, or up to five dipnets or five traps, except to permanent residents of permanently inhabited small islands.

Permanent resident of a permanently inhabited small island may use, on the basis of one fishing card, up to three entangling nets and one longline consisting of up to 300 hooks at sea up to the 20 m isobath, or an area with the width of one kilometre on a lake surrounding the island of the location of his or her residence.

Special purpose fishing

The right to carry out special purpose fishing is granted by a special purpose fishing permit. Charge rates for special purpose fishing depend on rarity of fish species, fish spawning conditions in natural water bodies, maturity and sex of a fish, price of first sale of fish. Minister of the Environment establishes charge rates for special purpose fishing. Special purpose fishing is taxed only when the catch of fish is sold or breeder fish is caught for roe collection needed for the production of restocking material or hypophysis collection for business purposes. Charge rates for special purpose fishing are established by the regulation of the Ministry of the Environment.

Payer

Legal or natural person, who fishes or collects aquatic plants, shall pay for fishing rights, except the cases, when the fishing is free of charge

Tax exemptions

Commercial fishing is not taxed, if Republic of Estonia has not guaranteed fishing opportunities.

Pre-school children, children under 16 years of age, pensioners, unlawfully repressed persons and persons treated as repressed persons and disabled persons may fish using recreational fishing tackle without a document certifying the right to fish, except if the fishing card is requested, which grants the right to fish for recreation.

Special purpose fishing is free of charge, if it is not made for business purposes.

[4] The Minister of the Environment has the right to designate, with the aim of conserving fishery resources, areas where limitations apply on the number of persons who fish, on fishing gear, fishing seasons or on fish caught, and areas where the use of entangling nets, longlines, hoopnets, dragnet, dipnets and traps is permitted for recreational fishing, and to establish a maximum permitted amount of fishing gear.

Line fishing with one simple hand line is free of charge.

Receipt of the tax

Fishing charge is paid into state budget. It is directed into the budget of Environmental Investment Centre. According to the Estonian Environmental Charge Act the receipt of fishing charge must be used for reproduction and protection of fishery resources.

Legislation

Estonian Environmental Charge Act; Estonian Fishing Act; Regulation of the Minister of the Environment

Available administrative data

Data about tax payments are available in aggregated level for the years 2004-2006 (table 7).

Table 7. Fishing charge paid into state budget, 2004-2007
(thousand kroons)

Year	Fishing charge
2001	37 834
2002	17 242
2003	25 425
2004	20 352
2005	17 622
2006	18 049
2007	17 800

Source: Ministry of the Environment

1.2.4. Forest stand cutting charge

Object of taxation

Forest stand cutting charge is paid for rights to do regeneration cutting[5] in a forest which belong to the state.

Aim of the tax

The objective of forest stand cutting charge is to prevent and reduce possible damage caused by the use of resources.

Tax base

The size of the forest stand cutting charge, the area of the state forest for which the charge is collected, the procedure for the sale of regeneration cutting rights or the sale of felled timber obtained as a result of regeneration cutting, and the procedure for calculation and payment of the charge shall be provided by the Forest Act and legislation established on the basis thereof.

The cutting right or timber in state forests shall be transferred by sale as follows:

- by a public auction;
- by tender with preliminary negotiations;
- at negotiated price.

The selling price of the cutting right or of timber in public auction or tender with preliminary negotiations shall not be lower than the base price calculated pursuant to the methodology established by the regulation of the Government of Estonia:

- basic price of the cutting right is determined by multiplying the amount of a timber by the respective average price and by subtracting the possible expenses on felling, logging and cleaning up the felling area.

[5] Regeneration felling – felling the aim of which is to create conditions for the formation of new generation of forest.

- Basic price of a timber in the timber landings is determined from the average price of timber. In case of other delivery points the basic price is estimated taking into consideration possible expenses on transport, etc.

A negotiated price may be applied in the case of improvement cutting right, volumes of timber of up to 50 solid cubic metres, firewood, rapidly perishable timber, the cutting right of forests damaged by a natural disaster, and the sale of trial consignments of timber and sales contracts with the duration exceeding one year.

A negotiated price of the cutting right or of timber shall not be lower than the usual value of the cutting right or timber.

Payer

Legal person or natural person shall pay charge for cutting state forest.

Tax exemptions

Private forestry is treated differently. There is no specific charge for the cutting of timber in private forest, but the income tax has to be paid while selling the timber. It should be noted that enterprises do not pay the income tax in Estonia, just the natural persons. The line of the 40 000 kroons is the threshold for yearly income which is free of charge.

Receipt of the tax

26 per cent of the income from the sale of regeneration cutting right and the income from the sale of timber received from regeneration cutting from which the expenses related to the logging, extraction and sale have been deducted pursuant to the matching principle provided for in the Estonian Accounting Act shall be transferred to the state budget. The income from the sale of regeneration cutting right and the income from the sale of timber received from regeneration cutting are recorded on an accrual basis.

15% of the forest stand cutting charge for the sale of the right to cut forest stand sold for regeneration cutting and the income from the sale of timber received from regeneration cutting which are paid into the state budget shall be transferred to the Environmental Investment Centre.

According to the Estonian Environmental Charge Act the receipt of charge for cutting forest transferred to the Environmental Investment Centre must be used for reproduction and protection of forest resources.

Legislation

Estonian Environmental Charge Act; Estonian Forest Act

Available administrative data

Data about charge revenue are available in aggregated level for the years 2005-2006 (table 8).

Table 8. Charge revenues from the forest stand cutting charge paid into state budget, 2005-2007
(thousand kroons)

Year	Forest stand cutting charge
2001	166 000
2002	169 000
2003	172 000
2004	174 167
2005	175 633
2006	214 175
2007	214 443

Source: Ministry of the Environment

1.2.5. Hunting charge

Object of taxation

Hunting charge is paid for the right to use the hunting district for hunting.

Aim of the tax

The objective of hunting charge is to prevent and reduce possible damage caused by the use of resources.

Tax base

Charge rates are established for 1000 hectares of hunting district, taking into account the quality of the habitat of the wild game. Charge rates are established by the regulation of the Minister of the Environment (rates are shown in Annex 8).

The rate of the charge for the right to use a hunting district shall be established by a regulation of the Minister of the Environment for each quality category of habitats suitable for wild game. The legal or natural person shall pay for the right to use the hunting district for hunting.

Payer

The hunting charge is paid by person, who has a right to use a hunting district.

The following have the right to obtain a permit in proof of the right to use a hunting district:

- non-profit associations whose members are natural persons, and companies which have the organisation of hunting listed as an area of activity in their articles of association;
- state agencies which have the organisation of hunting, the organisation of observation of wild game populations, the organisation of hunting instruction, and the implementation of good hunting practice, methods and modern experience in wild game protection and care listed as areas of activity in their statutes;
- a person who owns land constituting at least three-quarters of the area of a hunting district.

Tax exemptions

A land owner who holds a hunting certificate may hunt, except for hunting big game, on the land owner's registered immovable provided that the area of the immovable within a circular boundary exceeds 20 hectares. The right to hunt extends to the spouse or child of the land owner provided that the spouse or child holds a hunting certificate. In this case the hunting charge is not requested.

Receipt of the tax

Charges charged for the right to use hunting districts shall be used for the restocking and monitoring of the condition of wild game resources, training in the field of hunting, the exchange of information, research in the field of hunting and hunting grounds survey and management planning.

Legislation

Estonian Environmental Charge Act; Estonian Hunting Act

Available administrative data

Data about revenues from hunting charge are available in aggregated level for the years 2004-2006 (table 9).

Table 9. Hunting charge paid into state budget, 2004-2007
(thousand kroons)

Year	Hunting charge
2002	3 815
2003	4 647
2004	4 720
2005	6 503
2006	6 582
2007	6 630

Source: Ministry of the Environment

1.3. ENERGY TAXES

1.3.1. Fuel excise Duty

Object of taxation

Alcohol, Tobacco and Fuel Excise Duty Act defines as a "fuel" following products:

- motor fuel and fuel oil (unleaded and leaded petrol, aviation spirit, kerosene, diesel fuel, diesel fuel for specific purposes, light heating oil, heavy fuel oil, shale-derived fuel oil and liquid petroleum gas);
- solid fuel (coal, lignite and coke);
- specialty and unconventional fuel-like mineral oil[6];
- biofuel, which is used, offered for sale or sold as motor fuel or fuel oil;
- liquid combustible substances (other than motor fuel, fuel oil or specialty and unconventional fuel-like mineral oil), which are used, offered for sale or sold as motor fuel or fuel oil.

Aim of the tax

The objective of fuel excise duty is to impose taxes on fuel, which is compulsory for all EU member states (2003/96/EC).

More specifically the aims of the fuel excise duty are:

- to rise motor fuel excise to the EU minimum level and consider CO_2 emissions and other environmental aspects of motor fuel taxes in the second stage of ETR;
- to lessen benefits of fiscally marked liquid fuel;
- to facilitate the use of biofuel as motor fuel;
- to facilitate cogeneration of heat and power;
- to broaden the set of subjects paying CO_2 emission charge

Tax base

Estonian Alcohol, Tobacco and Fuel Excise Duty Act establishes the rates of fuel excise duty, which are valid for the year 2007. Rates of fuel excise rates are shown in Annex 9.

Payer

The excise duty is paid by:

- excise warehouse-keepers;
- debtors within the meaning of the Community Customs Code;
- persons and bodies, who transfer confiscated or abandoned fuel or keep such fuel in their possession in order to use it, although this fuel has to be destroyed pursuant to the procedure established on the basis of law;
- persons who have violated the requirements of this Act by unlawfully producing fuel outside an excise warehouse or by unlawfully transferring, using or dispatching fuel, on which excise duty has not been paid;
- holders of a permit for exemption from excise duty;
- persons, whose excise warehouse activity licence has been revoked;

[6] For the purposes of Alcohol, Tobacco and Fuel Excise Duty Act "specialty and unconventional fuel-like mineral oil" means a product for which the first four digits of the NC, the first six digits of the NC or the eight digits of the NC are 2707 10, 2707 20, 2707 30, 2707 50, 2710 11 11–2710 11 25, 2710 11 90, 2710 19 11, 2710 19 15, 2710 19 31, 2710 19 35, 2710 19 51, 2710 19 55, 2711 12–2711 14, and which are used as motor fuel, including in stationary engines, ex 2901 (substances which are not gaseous at atmospheric pressure and a temperature of 15°C), 2902 20 00, 2902 30 00, 2902 41 00, 2902 42 00, 2902 43 00 and 2902 44 00.

- handlers of liquid combustible substances, producers of heat from solid fuel, handlers of biofuels, handlers of liquefied gas and handlers of specialty and unconventional fuel-like mineral oil[7], who are not excise warehouse-keepers;
- tax representatives;
- registered traders and undertakings in ships navigating for commercial purposes or fishing outside Estonian waters;
- persons whose activity licences of a registered trader have been revoked;
- other persons for whom the obligation to pay excise duty arises.

The following are responsible for the payment of excise duty upon transportation of excise goods under an excise suspension arrangement:

- the excise warehouse-keeper who dispatched the excise goods until the moment when the recipient of the excise goods, including a person of another Member State, receives the excise goods or until the moment when a customs official of Estonia or another Member State makes a notation on the delivery note of the excise goods concerning transportation of the goods to a third country;
- the excise warehouse-keeper, including the excise warehouse-keeper of another Member State, as of the moment of receipt of the excise goods;
- the holder of a permit for exemption from excise duty as of the moment of receipt of the excise goods.

Tax exemptions

The following are exempt from excise duty:

- excise goods which an excise warehouse-keeper uses to verify quality or sends to an independent accredited laboratory for quality control or which the excise warehouse-keeper uses to clean production equipment or for other similar production purposes within the limits of the consumption rates established by the excise warehouse-keeper and accepted by the Tax and Customs Board;
- confiscated or abandoned excise goods or excise goods under an excise suspension arrangement, which are destroyed pursuant to the procedure established on the basis of law;
- justified loss of excise goods;
- fuel used for air navigation in civil aircraft operated for commercial purposes or in state aircraft, including fuel used for maintenance and repair on board of such aircraft;
- fuel processed or stored by shipchandlers for the purpose of use by ships operated by the armed forces of any Member State of the North Atlantic Treaty Organisation other than Estonia or by the ships navigating for commercial purposes or fishing outside Estonian waters[8];
- motor fuel and fuel oil brought into Estonia in standard fuel tanks in quantities permitted by the Estonian Alcohol, Tobacco, and Fuel Excise Duty Act;

7 Specialty and unconventional fuel-like mineral oil for which the eight digits of the CN code are 2711 12–2711 14 and which is used as motor fuel, including in stationary motors.
8 From the 1st of January 2007 there are included also the ships fishing in Estonian waters.

- motor fuel and fuel oil brought into Estonia by travellers in quantities permitted by the Estonian Alcohol, Tobacco, and Fuel Excise Duty Act;
- fuel used by handlers of fuel entered in the commercial register as undertakings for business purposes other than in the capacity of motor fuel or heating fuel;
- fuel used in ships navigating for commercial purposes or fishing outside Estonian waters, including fuel used for the regular maintenance of such ships for preparing such ships for the next fishing;
- diesel fuel for specific purposes, light heating oil used in ships fishing in Estonian waters, including this fuel used for the regular maintenance of such ships for preparing such ships for the next voyage outside Estonia;
- specialty and unconventional fuel-like mineral oil bottled in consumer packaging of up to one litre and fuel bottled in consumer packaging of up to one litre transported to a laboratory for analysis.
- fuel used in mineralogical processes. "Mineralogical processes" shall mean the processes classified in the NACE nomenclature under code DI 26 "manufacture of other non-metallic mineral products" in Council Regulation No 3037/90/EEC;
- shale-derived fuel oil used by distant heaters for production of heat. For the purposes of this Act, a distant heater is a heat producer who directs most of the heat produced thereby within the last twelve calendar months to a district heating network within the meaning of the Estonian Distant Heating Act;
- shale-derived fuel oil and solid fuels used in households as heating fuel;
- fuel which is consumed in the territory of the excise warehouse which produced the fuel in stationary engines or motor vehicles the use of which for traffic on public roads is prohibited by legislation;
- biofuel after issue of a permit by the European Commission for the exemption of the biofuel from excise duty until the expiry of the permit;
- the biofuel, which is produced from biomass, including fuel for which the first four digits of the CN code are 4401 or 4402;
- fuel dispatched from an excise warehouse into another Member State for official purposes to a diplomatic representative and a consular post, a representative or representation of an international organisation recognised by the Ministry of Foreign Affairs, a consular agent except an honorary consul, and a representative of a special mission;
- fuel which are dispatched from an excise warehouse into another Member State for the armed forces of any State party to the North Atlantic Treaty as well as for the armed forces referred to in Article 1 of Decision 90/640/EEC, for the use of those forces, for the civilian staff accompanying them or for supplying their canteens.

Receipt of the tax

Fuel excise duty is paid into the state budget on the account of the Estonian Tax and Customs Board.

Although the fuel excise duty is not earmarked, according to the Estonian Roads Act the amount of expenditure spent on road management must be at least 75% of the planned payments of fuel excise duty (except fuel marked with fiscal marker

and natural gas) and 25% of planned income from excise duty on fuel marked with fiscal marker (Estonian Roads Act §16).

Legislation

Estonian Alcohol, Tobacco, and Fuel Excise Duty Act (was in force: 01.07.2006-31.12.2007);

Estonian Alcohol, Tobacco, Fuel and Electricity Excise Duty Act (entered into force 1.01.2008) establishes higher excise duty rates on fuel and also this new Act brings into force electricity excise duty.

Available administrative data

Available data on fuel excise duty are shown in table 10.

Table 10. Fuel excise duty paid into state budgets, 2000-2007 (thousand kroons)

Year	Fuel excise duty
2001	1 707 353
2002	1 821 825
2003	2 072 490
2004	2 635 238
2005	3 349 898
2006	3 728 861
2007	4 353 322

Source: Ministry of the Finance

1.3.2. Excise duty on electricity[9]

From the 1st of January 2008 the electricity sellers pay electricity excise duty in the same amount as would be the CO_2 pollution charge. Revenues of electricity excise duty shall be used for environmental purposes according to the Estonian Environmental Charge Act. Excise duty on electricity is not described as detail as other environmental taxes, because this tax did not exist in the year 2007.

[9] According to the Eurostat's methodological guide on compilation of environmental tax statistics "Environmental taxes – A statistical guide" the excise duty on electricity are handled under the energy taxes to insure the comparability of the data among countries in European Union.

1.4. TRANSPORT TAXES

1.4.1. Heavy goods vehicles tax

Object of taxation

Heavy goods vehicles tax is paid for the following classes of vehicles, which are intended for the carriage of goods:

- trucks with a maximum authorised weight or gross laden weight of not less than 12 tonnes which are registered in the traffic register;
- road trains (composed of trucks and one or more trailers) with a maximum authorised weight or gross laden weight of not less than 12 tonnes whereas the trucks of the road trains must be registered in the traffic register.

Aim of the tax

The aim of heavy goods vehicles tax is to charge heavy goods vehicles for the use of infrastructure. The impulse for imposing heavy goods vehicle tax is the directive 1999/62/EC.

Tax base

Heavy Goods Vehicles Tax Act establishes heavy goods vehicles tax rates (rates are shown in Annex 10). Tax amount is different for trucks and road trains. The tax rates in Estonia are in accordance with EU minimum rates.

Tax amount for trucks depends on the maximum authorised weight, number of axles and the type of suspension of the driving axle of the truck. If the maximum authorised weight of a truck has not been entered on the registration certificate thereof, the tax shall be imposed according to the gross laden weight, the number of axles and the type of suspension of the driving axle thereof.

Tax amount for road trains depends on the maximum authorised weight or gross laden weight of a road train, the number of axles of trailers used in the composition of the road train at the same time and the maximum weight of the trailers which the owner or user of the truck has reported to the Estonian Motor Vehicle Registration Centre and which the Estonian Motor Vehicle Registration Centre has entered in the traffic register.

The tax rate of a road train in the composition of which several trailers are used at the same time shall be calculated on the basis of the maximum weight and the number of axles of the truck and the trailers together.

If information (which is the basis for taxation in the traffic register) is changed during a taxable period, the heavy goods vehicle tax payable during the same taxable period shall be calculated on the basis of the maximum tax rate arising from the information. An additional amount of tax due shall be calculated in proportion to the number of full calendar months from the entry of the changed information in the traffic register until the end of the taxable period, and shall be paid within fifteen calendar days as of the date of entry of the information in the traffic register.

Payer

Payers of heavy goods vehicle tax are, either:

- Owner of heavy goods vehicles (natural persons residing in Estonia on a temporary or permanent basis; legal persons registered in Estonia and state; or local government).
- The user of a heavy goods vehicle, if the user uses the heavy goods vehicle on the basis of a contract for use or a contract of sale with a reservation on ownership and contact information) are entered in the traffic register. If the specified entry is missing, the owner of the heavy goods vehicle shall pay the heavy goods vehicle tax.
- The tax paid by the person in possession of the corresponding vehicle, who has been entered in the traffic register, in other case not mentioned above.

Tax exemption Heavy goods vehicles of the fire and rescue service agencies of the Defence Forces, National Defence League, Border Guard, police authorities and state and local government agencies are exempt from the heavy goods vehicle tax.

Receipt of the tax The heavy goods vehicle tax is paid into the state budget and the taxable period is a quarter. Heavy goods vehicle tax is not earmarked tax for the environment.

Legislation Heavy Goods Vehicles Tax Act

Available administrative data Available data on heavy goods vehicle tax are shown in table 11.

Table 11. Heavy goods vehicle tax paid into state budgets, 2003-2007 (thousand kroons)

Year	Heavy goods vehicle tax
2003	52
2004	57 372
2005	55 592
2006	61 165
2007	65 674

Source: Ministry of the Finance

1.4.2. State fee for registration of motor vehicles, vessels and aircrafts

Object of taxation Object of taxation are motor vehicles, vessels and aircrafts subject to the registration.

Aim of the tax Aims of the tax are:
- to develop public transportation;
- to limit vehicles, vessels and aircrafts related benefits.

Tax base All vehicles imported to Estonia for use permanently or temporarily. Temporarily imported vehicles can be registered until the deadline fixed by the Customs authorities. Also are taxed vehicles manufactured and used in Estonia. Estonian State Fee Act establishes the rates of state fee for registration of motor vehicle, vessels and aircrafts. Rates of this state fee are shown in Annex 11.

Payer Person who enters his motor vehicle into Estonian Traffic Register shall pay state fee for registration of motor vehicles. Person who enters vessels into Estonian Ship Registers shall pay state fee for registration of vessel. Person who enters aircraft into Estonian Aircraft Register shall pay state fee for registration of aircraft.

Tax exemption Not known

Receipt of the tax State fees payable for acts of state agencies are paid into the state budget. Estonian Motor Vehicle Registration Centre collects the state fee for registration of motor vehicles. Ministry of the Finance collects the state fee for registration of vessels and aircrafts.

Legislation State Fees Act

Available administrative data Available data on state fee for registration of motor vehicles, vessels and aircrafts are shown in table 12.

Table 12. Estimated state fee for registration of motor vehicles, vessels and aircrafts, 2007
(thousand kroons)

Year	State fee for registration of…			Total
	…motor vehicles	…vessels	…aircraft	
2005	76 719	418*	15 837	92 713
2006	96 889	1 211	21 518	119 618
2007	99 017	1 404	3 027	103 448

Source: Pilot study

1.5. FINES AND COMPENSATION OF DAMAGES RELATED TO THE VIOLATIONS OF ENVIRONMENTAL LAWS

Object of taxation

Following environmental violations lead to the punishment:

- Violations of Deliberate Release Into the Environment of Genetically Modified Organisms Act;
- Violations of Waste Act;
- Violations of Fishing Act;
- Violations of Penal Code;
- Violations of Chemicals Act;
- Violations of Local Government Organisation Act;
- Violations of Traffic Act;
- Violations of Nature Conservation Act;
- Violations of Animal Protection Act;
- Violations of Earth's Crust Act;
- Violations of Economic Zone Act;
- Violations of Forest Act;
- Violations of Packaging Act;
- Violations of Rescue Act;
- Violations of Ambient Air Protection Act;
- Violations of Public Water Supply and Sewerage Act.

Aim of the tax

Aim of the tax is to reduce the environmental violations.

Tax base

Fine rates are different for legal person and natural person. Compensation of damage caused to the environment is considered as an environmental charge according to the Estonian Environmental Charge Act.

Payer

Legal or natural person, who violates the requirements of the law concerning environment, must pay a fine related to environment.

Tax exemption

Not relevant.

Receipt of the tax

Fine is paid into state budget. Receipts from compensation of damage caused to the environment are directed to the Estonian Environmental Investments Centre's budget and must be used for the environmental protection.

Legislation

Deliberate Release into the Environment of Genetically Modified Organisms Act;
Waste Act;
Fishing Act
Penal Code;
Chemicals Act;
Local Government Organisation Act;
Traffic Act;
Nature Conservation Act;
Animal Protection Act;
Earth's Crust Act;
Economic Zone Act;
Forest Act;
Packaging Act;
Rescue Act;
Ambient Air Protection Act;
Public Water Supply and Sewerage Act.

Available administrative data

Available data on fines and compensation of damages related to the violations of environmental laws are shown in table 13.

Table 13. Fines and compensation of damages related to the violations of environmental laws, 2004-2007
(thousand kroons)

Year	Fines for environmental violations	Fines of pollution charge	Compensation of damage caused to the environment
2004	6 205	n.a	n.a.
2005	6 833	192	6 365
2006	4 453	852	6 825
2007	6 195	805	6 164

Source: Environmental Inspectorate; report of State Treasury

2. PILOT STUDY

2.1. METHODOLOGY

Eurostat's Statistical Guide for environmental taxes points out that the environmental tax statistics should be prepared in close co-operation with the national accounts to ensure consistency.

National Accounts in Estonia is compiled according to statistical standards of "European System of National and Regional Accounts in the Community" (usually refer to as ESA95), which provide accounting principles and a systematic framework for the detailed assembling of economic data describing national economies. In the national accounts, compiling economic data by economic activity the homogenous industry branches groups are used.

The kind of activity units

The most of institutional units (for example enterprises) undertake during their activities a number of different elementary economic activities, which means that these institutional units (for example enterprises) are quite heterogeneous with regards to production activities. Thus, ESA95 defines a new type of unit: kind-of-activity unit (KAU). KAUs form the smallest entity and are as homogenous as possible with regards to the type of production activity.

Enterprises that carry out more than one activity (a principal economical activity and one or more secondary activities) could be divided with regard to the type of activity into KAUs. In principle, as many KAUs has to be pointed out as there are secondary activities. Each KAU (the secondary activity) should be classified under different NACE code from their principal activity. For example in the case of enterprise, which main activity is manufacturing of wood products, but which also deals with forest felling and retail sale, all its sales should be allocated under different economic activities (different NACE–categories).

Homogenous economic activities

The group of all KAUs defined in "pure" way, (i.e. all secondary activities are separated and regrouped to fully homogenous industries) constitutes homogenous industry (NACE–category).

The environmental tax statistics had to be re-arranged according to the accounting principles of National Accounts also. The environmental tax data had to be divided between the economic activities (NACE–categories) at the same way as economical data of the National Accounts, i.e. corresponding to the homogenous industry (NACE–category).

In order to achieve correspondence between economical data and environmental taxes paid inside particular homogenous industry all economic units under investigation (economic units that had paid at least one of described above environmental tax) were divided to kind-of-activity-units (KAU).

D part (containing data on net sales) of questionnaire of Structural Business Survey (EKOMAR) and PRODCOM[10] report (system for the collection and dissemination of statistics on the production of manufactured goods) of these enterprises were used as economic data. Net amount of enterprises sales by institutional sector from the D part of their EKOMAR-report was the bases for division enterprises into KAUs of different institutional sectors (NACE categories). Manufacturing sector

[10] The title of PRODCOM comes from the French "PRODuction COMmunautaire" (Community Production) for mining, quarrying and manufacturing: sections B and C of the Statistical Classification of Economy Activity in the European Union NACE 2

was next divided by 2-digit level of NACE–categories on the bases of net sale of the products from economic unit's PRODCOM report.

Data on environmental taxes were collected for the year 2007. Hence also we needed economic data of the same year. Economical data allocation under homogenous economic branches done routinely by economic statisticians was not ready before the end of our pilot study. Caused by this the allocation of the enterprises to the KAUs was made during this study.

Next the each environmental tax paid by economic unit was divided between KAUs of this economic unit proportionally to the net sales of these KAUs. As a result the database of economic data and environmental taxes paid by homogenous industries (NACE–category) arranged/allocated in the same way was formed.

Exceptions

The exceptions of tax allocation were made in following environment taxes:

- air pollution charge;
- fishing charge;
- forest stand cutting charge;
- hunting charge;
- fuel excise duty;
- heavy goods vehicles tax;
- State fees for registration of motor vehicles, vessels and aircrafts;

Exceptions are handled in detail in respective subchapters below.

2.1.1. Methodology for the compilation of the statistics on pollution and resource charge

2.1.1.1. Methodology for the compilation of the statistics on pollution charges, mineral resources extraction charge and water abstraction charge

Two data sources were used in the pilot study: administrative data of Ministry of Environment and database of survey carried out in Statistics Estonia.

Administrative database

Database of the Ministry of Environment contained data on appointed environmental charges (air pollution charge, water pollution charge, waste disposal charge, mineral resources extraction charge and water abstraction charge), whose calculation bases on the normative volume of environmental use. This administrative database does not include environmental charge fines, which are paid for environmental use without permit or over normative volume. Also this database does not contain small values of environmental charges (less than 1000 kroons).

Sample survey

Sample survey was carried out in Statistics Estonia during the pilot study. Database of sample survey contained actually paid environmental charges. Module of environmental taxes was added to the existing questionnaire of environmental protection expenditures. Enterprises were asked to provide data on paid sum of environmental charges by following charge types: air pollution charge, water pollution charge, mineral resources extraction charge, water abstraction charge and waste disposal charge. Local governments were asked to indicate both – the paid sums of environmental charges and the receipts of environmental charges. The module of environmental taxes added to the questionnaire of environmental protection expenditure is shown in Annex 12.

Population of sample survey

Survey was carried out among 2,652 enterprises and 238 local governments (rural municipalities, city governments and their environmental departments). Two kinds of enterprises were covered by the environmental protection expenditure survey: production enterprises and enterprises specialised on environmental protection. Production enterprises with less than 50 employees were surveyed using sampling. Totally were surveyed production enterprises, local governments and all enterprises specialised on environment. It should be noted that the range of enterprises was defined (sample frame) with the aim to reach the best coverage for environmental protection expenditures.

Total response rate of sample survey was 88.8% (including all enterprises and local governments). While looking at the response rate of different economic activities, the response rate was not less than 76% in any of those (see table 14).

Table 14. Survey parameters

The main economic activity		Sampled part		Totally surveyed part	
		Number enterprises and local governments surveyed	Response rate (%)	Number enterprises and local governments surveyed	Response rate (%)
	Enterprises:	**1 176**	**81.5**	**1 476**	**92.9**
01	Agriculture, hunting and related service activities	23	82.6	42	92.9
02	Forestry, logging and related service activities	20	85.0	3	100.0
05	Fishing	20	80.0	3	100.0
11-14	Mining and quarrying	41	95.1	10	100.0
15-36	Manufacturing (*excl. recycling*)	414	81.6	567	94.9
37	Recycling	-	-	31	77.4
40	Electricity, gas, steam and hot water supply	20	100.0	18	100.0
41+ 90.001	Waste water collection and purification	-	-	93	93.5
45	Construction	173	76.9	164	97.0
50	Sale, repair of motor vehicles; retail sale of automotive fuel	163	78.5	38	89.5
51.571	Wholesale of wastes and residuals	-	-	108	81.5
60	Transport	88	78.4	68	94.1
63	Supporting transport activities; travel agencies	214	83.6	56	96.4
74.209	Analysis of environmental damages, design of environmental protection	-	-	12	91.7
90 (excl. 90.001)	Waste management; street care	-	-	120	81.7
92.53	Activity of natural parks	-	-	3	100.0
	Secondary activities of environmental protection	-	-	140	95.0
	Local governments:			**238**	**99.2**
	Local governments	-	-	238	99.2

Environmental charges in sampled part were of minor importance: 2-17% of total environmental charges depending on charge type (figure 2).

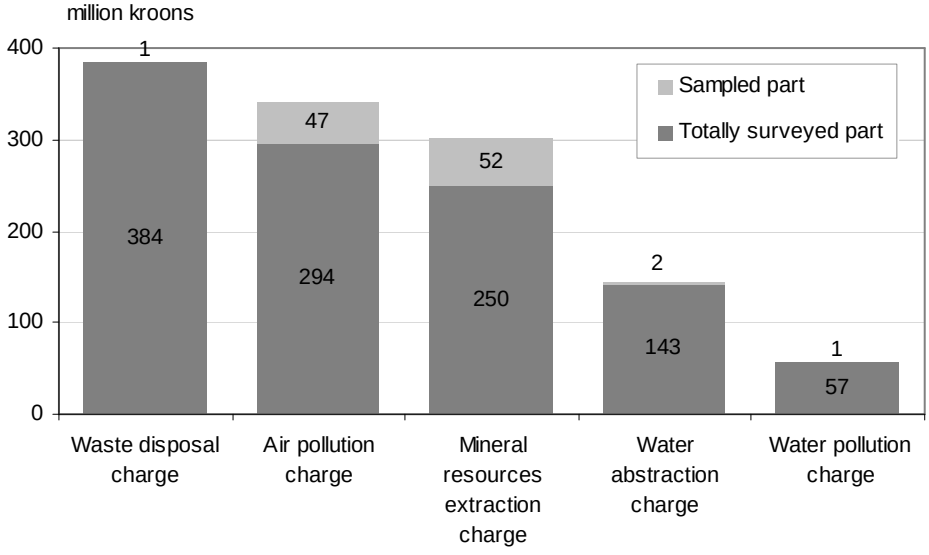


Figure 2. Sums of environmental charges in sampled part and totally surveyed part.

Generation of the merged database

Both databases had some deficiencies. Administrative database of the Ministry of Environment did not include all the environmental charges: small values of environmental charges were not included. Sample survey database consisted of just grossed up sums of environmental charges allocated by heterogeneous economic activities. Not all economic activities paying the charge were included to environmental protection expenditures survey (for example sector of financial intermediation, sector of wholesale and retail trade). Sample survey database with grossed up values of environmental charges was not sufficient, because grossed up data were not on enterprise level. For this reason the merged database was formed.

Merged database consisted of the data from administrative database on enterprise level and was supplemented with the Statistics Estonia's survey primary data for the enterprises missing in administrative database. Environmental charges of corporation enterprises (which consist of group enterprises having different economic activities) were indicated as a total sum under the parent company's economic activity in the administrative database. In these cases survey data were used for dividing the environmental charges into respective economic activities.

Comparison

The comparison of the administrative data on environmental charges and survey results was made. Difference between sample survey and administrative database by charge type was very little (1-13%) (figure 3). The smallest difference (1%) was observed in mineral resources extraction charge, waste disposal charge and water abstraction charge. Total sum of water pollution charge and air pollution charge differed respectively 4% and 13%. Quantities of these pollution and resource charges in the merged database were similar to the administrative database.

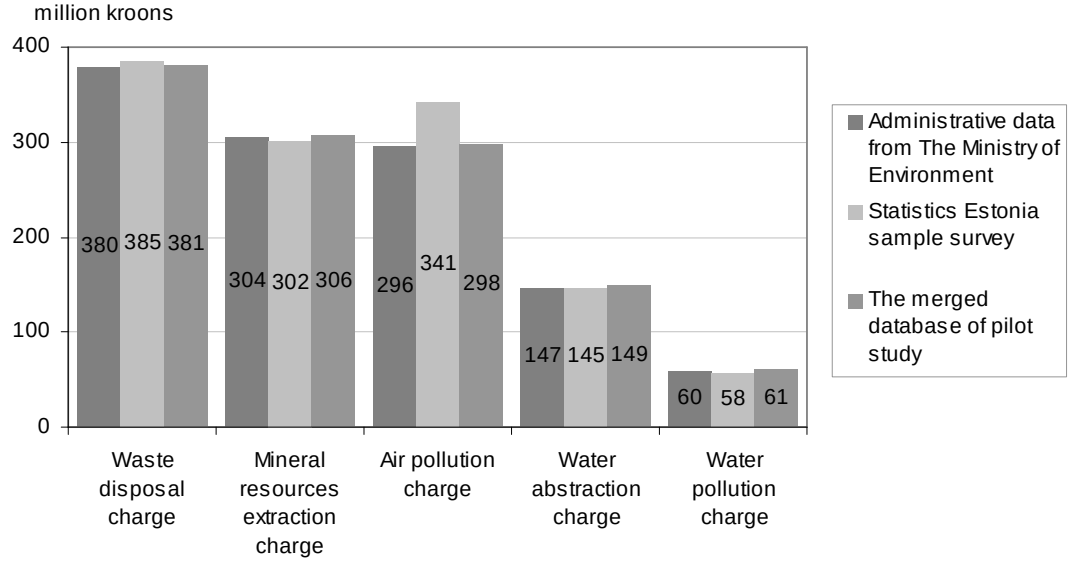


Figure 3. Difference in sums of environmental charges between administrative database and sample survey data, 2007

Allocation

Water pollution charge, waste disposal charge, water abstraction charge and mineral resources extraction charge were allocated under homogenous economical activities.

Allocation of air pollution charge was allocated differently. In case of air pollution charge was air emission data by facility types (NOSE–categories[11] of facilities) were used in addition. In case then all air emission originated from boiling house,

[11] NOSE – Nomenclature of the Sources of Emissions

total air emissions of enterprise were divided between KAUs of economic unit proportionally to the net sale of these KAUs as was described before. In case when one or some facilities were responsible for specific air emissions, which belong to only one particular KAU (for example air emission from dry cleaning; air emission from polystyrene foam processing; air emission from smokehouse of fish processing enterprise etc.) all their air emissions of this facility and respective taxes were appointed to this one KAU, and were not divided between all economic activities of this economic unit.

Special cases of allocation

In the case of mineral resources extraction charge only one enterprise's mineral resource charge was moved from the sector of real estate and renting (NACE-codes 70-74) under the KAU, where mineral resources was extracted and used (mining and cement production).

2.1.1.2. Methodology for the compilation of the statistics on packaging excise duty

Two data sources were used in the pilot study: administrative database of Estonian Tax and Customs Board and database of survey carried out in Statistics Estonia.

Administrative database

Administrative database consisted data on appointed packaging excise duty on enterprise level, but this database is in constant change even in during year 2008.

Sample survey

Sample survey was carried out in Statistics Estonia during the pilot study. Database of sample survey contained actually paid packaging excise duty. Packaging excise duty was one of the indicators in the module of environmental taxes, which was added to the existing questionnaire of environmental protection expenditures. Enterprises and local governments were asked to provide data on paid sum of packaging excise duty. The whole module of environmental taxes added to the questionnaire of environmental protection expenditures is shown in Annex 12.

Population of sample survey

Survey was carried out among 2,652 enterprises and 238 local governments (rural municipalities, city governments and their environmental departments). Two kinds of enterprises were covered by the environmental protection expenditure survey: production enterprises and enterprises specialised on environmental protection. Production enterprises with less than 50 employees were surveyed using sampling. Totally were surveyed production enterprises, local governments and all enterprises specialised on environmental. It should be noted that the range of enterprises was defined (sample frame) with the aim to reach the best for environmental protection expenditures.

Total response rate of sample survey was 88.8% (including all enterprises and local governments). While looking at the response rate of different economic activities, the response rate was not less than 76% in any of those (see table 14). Packaging excise duty in sampled part was of minor importance: 15% of total packaging excise duty.

Comparison

The comparison of the administrative data on packaging excise duty and survey results was made. Difference between sample survey and administrative database is illustrated in figure 4. In case of packaging excise duty the difference was 91%.

The big difference is apparently caused by the enterprises' uncertainty to fill the questionnaire with the right packaging excise data. Enterprises often pay for packaging waste collection to recycling enterprises not to the Tax and Customs Board. But payments to recycling enterprises are not considered as packaging excise duty. Sample survey database of packaging excise duty was not sufficient for

pilot study, because some economic activities, like for example trade and real estate, was not covered in survey carried out by Statistics Estonia, as the aim of the survey was to reach the best coverage for environmental protection expenditures. In these reasons sample survey results were not used in the pilot study and instead of this the administrative database was used.

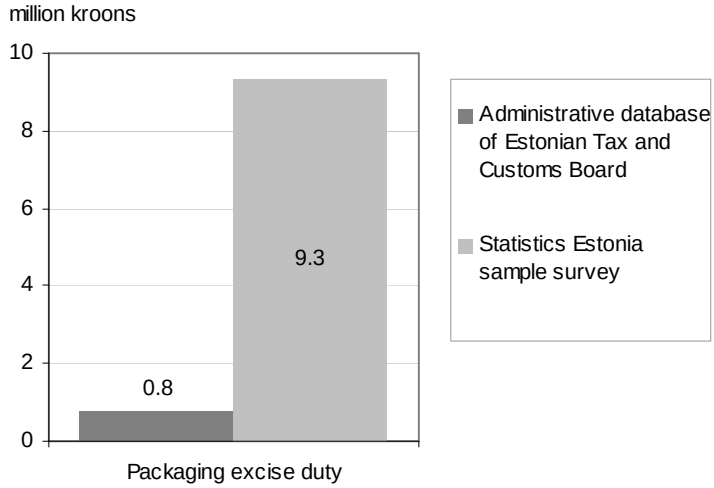


Figure 4. Difference in sums of packaging excise duty between administrative database and sample survey data, 2007

Allocation Packaging excise duty was allocated under homogenous economical activities.

2.1.1.3. Methodology for the compilation of the statistics on charge for cutting state forest

Data compilation As the forest stand cutting charge concerns only state forest, the paid sum of charge was taken from the report of Estonian State Treasury.

Allocation The total sum of forest stand cutting charge was allocated under sector of forestry, logging and related service activities (NACE-code 02).

2.1.1.4. Methodology for the compilation of the statistics on fishing charge

Data compilation Data on fishing charge concerning recreational fishing was available only in aggregated level in the report of State Treasury. Data on charge for fishing rights, concerning both — commercial and recreational fishing — was obtained from the Ministry of Environment.

Allocation The total sum of commercial fishing charge was allocated under the fishing sector (NACE-code 05) and the sum of recreational fishing charge was allocated under household sector.

2.1.1.5. Methodology for the compilation of the statistics on hunting charge

Data compilation

The database regarding the payers of the hunting charges is not formed electronically in Estonia, so the primary data are not readily available. Only aggregated sum of hunting charge was available in the report of Estonian State Treasury.

Allocation

The aggregated sum of hunting charge was totally allocated under hunting sector (NACE-code 01.5). There was no any basis for more detailed distinction.

2.1.2. Methodology for the compilation of the statistics on fuel excise duty (energy taxes)

Specialty of fuel excises duty

The fuel excises duty is considered separately from other environmental taxes, as there are some basic differences between energy taxes and other environmental taxes.

The most of environmental taxes were appointed to these economical branches (NACE–category), which correspond to KAU of economic units, which were charged for and who actually paid the taxes to the state. Even if KAU approach was not possible to use, (like in the case of hunting fee or fee for forest felling) the taxes were appointed to the economic activities, which actually paid the taxes.

The most of the fuels under taxation (except relatively small quantity of shale oil) are not produced in Estonia. Fuel excise duty was appointed and in fact was paid to the state by few enterprises which import the fuel to Estonia. There were 26 enterprises, which imported gasoline and diesel into Estonia in 2007 and their economic activity corresponded to NACE–categories 63 (storage) and 51 (bulk trade). In case of usage of same approach of tax account for fuel excise duty as it was done for other environmental taxes, i.e. appoint it to the economical activity which pay tax to the state, all fuel excise duty would be divided between NACE–categories 63 and 51.

By our opinion, this approach does not describe the real taxation burden in different economic activities and would distort the real situation, especially if monitoring of Ecological Tax Reform would be the goal.

By our opinion the fuel excise duty should be considered differently because:

- The enterprises, which import the fuels and paid the fuel excise duty, to state are not (figuratively) the "end payers" of this tax. They charge it back from their customers.
- All enterprises, which have some kind of vehicles, fuel using devises or boiling houses use some kind of fuel. So in fact fuel excise duty is paid in all economic activities.
- Fuel as gasoline, diesel and gas is used not only by enterprises and establishments but also by households.

By these reasons we considered it more relevant to look up, who used the taxed fuel (in which economic activities the fuel was used) and estimated the quantity of fuel excise duty paid in this economic activity using the tax rates of used fuels.

Characteristics of energy statistics

The energy statistics data of Estonian Statistics was used as the bases of estimation of fuel consumption in different economic branches.

The annual energy statistics consists of:

- data for energy balance sheet which show all energy flows, like production, foreign trade, stocks, transformation inputs and outputs, final consumption etc.;
- other detailed statistics as capacity, energy production and fuel input in power plants and number of boilers, capacity and heat generation in boiler houses;
- prices of energy and fuel by branches of economy.

The data of production, stock changes and consumption of electricity, heat and fuels are collected by questionnaire "Energy and fuels". This questionnaire is used for data collection from both data suppliers — from energy producers and from energy consumers.

Energy and fuels consumption data are collected totally from all enterprises and institutions with more than 49 employees. In case of the enterprises and institutions with less than 49 employees a stratified random sample is used.

Breakdown by economic categories correspond to "Classification of economic branches" used in energy statistics. Economic categories used by energy statistics do not match the 2-digit level of NACE breakdown. In some cases aggregations of several NACE 2-digit level economic categories are used (for example NACE 28-32, NACE 21-22, NACE 17-19), but sometimes one 2-digit economic activity is divided between several economic branches (for example 27).

The energy consumption of households is estimated on the basis of the data received by household budget survey.

Data about marine bunkering are available as quantities of fuels delivered to sea-going ships of all flags. No data are available about marine bunkering of Estonian ships abroad. Roughly it might be supposed, that quantity of fuels delivered to Estonia's ships abroad is equal to quantity of fuels delivered to foreign ships in Estonian ports.

Estimations of fuel excises duty for liquid fuels

As breakdown by economic branches in energy statistics does not meet the needs of environmental taxes accounts, the fuel consumption by different economic activities (NACE–categories) was estimated.

The database of energy statistics survey about the use of liquid fuels (gasoline, diesel and light fuel oil) was used as the bases for estimations. There were data of 3,703 enterprises included to survey database of energy use statistics in 2007. The main economic activities of these enterprises were used in order to divide the use of different fuels by NACE–categories.

This made another basic difference between the fuel excise duty and other environmental taxes: the main economic activities were used instead of KAUs, this means that heterogeneous NACE–categories were used. Use of main activity of enterprises was dictated by methodology of data collection and data management of energy statistics where only the enterprises' main economic activities are considered.

Energy use is the sample survey. As the sampling and grossing up according to economic branches were not in correspondence with environmental taxes accounting, only the total quantity of used liquid fuels (not the division by economic branches) from energy balance were used.

The difference between total fuel consumption and consumption of fuels in 3,703 enterprises included to sample (i.e. the grossed up part) was calculated. Next the fuel use by households was subtracted and remainder was divided between NACE–categories in the same proportion as it was in case of enterprises in sample.

The grossed up part made up 15-40% of total fuel use depending on fuel type. The fuel excise duty paid in different NACE–categories was estimated using the tax rate of particular fuel and consumption of this kind of fuel in this particular NACE–

category. The calculations were made separately for fuel excise duty paid for gasoline, diesel and light fuel oil.

There are some exemptions: use of some kind of liquid fuel in some particular economic activity is free of fuel excise duty. These exemptions are: diesel and light fuel oil used for fishing vessels, light fuel oil used in production of non-metallic mineral products, diesel and light fuel oil used for sea transportation and diesel used in air transport sector. The fuel excise duty corresponding to quantities of fuels free of fuel excise duty was subtracted from total fuel excise duty of these economic activities. The suspension count just for 6.7% of paid fuel excise duty.

The fuel excise duty paid for liquid fuels by economic branches and liquid fuel types were presented in Annex 15 in table 1.

Comparison of estimation results of fuel excise duty with Estonian Tax and Customs Board data about received revenues by different fuel types were presented in the table 15.

Table 15. Estimation of fuel excise duty based on energy statistics and Estonian Tax and Customs Board data of revived revenues of fuel excises duty, 2007 (thousand kroons)

Fuel type	Estimated fuel excise duty	Estonian Tax and Customs Board's data	Difference (%)
Gasoline	2 100 081	2 080 112	0.95
Diesel	1 727 126	1 712 921	0.82
Light fuel oil	47 611	47 112	1.05
TOTAL	**3 874 818**	**3 840 145**	**0.89**

Estimations of fuel excise duty for solid fuels

The different approach was used for estimation of the fuel excise duty for solid fuel. The only solid fuel having fuel excise duty is coal. According to the energy balance of 2007, coal was used only in few economic activities. Also the quantity of used coal was relatively small and respectively share of coal excise duty was less than 0.5% of total fuel excise duty. Therefore no special estimations were made in order to allocate the solid fuel excise duty by economic activities, but energy balance data were used. Coal excise duty was calculated using the duty rate for coal and was allocated to economic branches were coal was used according to energy statistic's energy balance data.

Another kinds of fuel having fuel excises duty — liquefied gas, heavy fuel oil and shale oil — were handled the same way as coal, because also in case of liquefied gas, heavy fuel oil and shale oil only some specific economic branches used these kinds of fuel and share of excises duties of these kinds of fuel was even less than in case of coal. Excise duties of these fuels were calculated using the duty rates and were allocated to economic branches were these fuels were used according to energy statistic's energy balance data.

The fuel excise duty paid for coal, liquefied gas, heavy fuel oil and shale oil by economic branches and fuel types were presented in the Annex 15 in the table 2.

Fuel excise duty of coal, liquefied gas, heavy fuel oil and shale oil are quite insignificant compared to liquid fuel excise duties. Comparison of fuel excise duties paid for different fuel types is presented in table 16.

Table 16. Fuel excise duty paid for different fuel types in Estonia, 2007 (thousand kroons)

Fuel type	Fuel excise duty	Share of fuel type on total fuel excise duty (%)
Gasoline	2 100 081	53.55
Diesel	1 727 126	44.04
Light fuel oil	47 611	1.21
Shale oil	17 860	0.46
Coal	16 497	0.42
Liquefied gas	10 990	0.28
Heavy fuel oil	1 410	0.04
TOTAL	**3 921 576**	**100.00**

The total fuel excise duty paid by specific economical branch (NACE-category) was calculated summarizing fuel excise duty paid for all kinds of fuel in this economical branch. The total fuel excise duty by economic activities in 2007 is shown in Annex 15 table 3.

2.1.3. Methodology for the compilation of the statistics on transport taxes

2.1.3.1. Methodology for the compilation of the statistics on heavy goods vehicles tax

Data compilation

Estonian Tax and Customs Board's database on heavy goods vehicles tax was used in pilot study. This administrative database consisted data on appointed heavy goods vehicles tax on enterprise level.

Allocation

Heavy goods vehicles tax was divided into homogenous economic activities by the division of sales revenues on individual enterprise level. The reason, why this tax was allocated under homogenous economic activities, is because there was no information in which activity heavy vehicles were used and respectively the tax paid. In case there was no information on dividing this tax into secondary activities, so the lump sum was allocated under main activities.

2.1.3.2. Methodology for the compilation of the statistics on state fee for registration of motor vehicles

Data compilation

Estonian Motor Vehicle Registration Centre registers vehicles and maintains the Estonian Traffic Register. The number of motor vehicles, which were registered for the first time, by vehicle type and the fee rates were used to estimate the sum of paid state fee.

Allocation

Several calculations and estimations in a number of motor vehicles registered for the first time were made to allocate the state fee under heterogeneous economical activities.

It can be summed up into three following steps:

1. separation of private motor vehicles and motor vehicles used for business purposes from the total number of motor vehicles registered for the first time;
2. state fee calculation by type of motor vehicles;
3. allocation of state fee under heterogeneous economical activities.

Even though the number of motor vehicles registered for the first time was not counted by enterprise level, the division was available by the type of motor vehicles as follows:

- Passenger cars;
- Lorries;
- Buses;
- Motorcycles;
- Trailers;
- Landrovers;
- Tractors;
- Tractor trailers;
- Travellers.

Estonian Motor Vehicle Registration Centre distinguishes from the number of motor vehicles registered for the first time of which number of registered motor vehicles, which were new (came straight from the car factory). The number of new motor vehicles registered for the first time in a private property was counted separately. Structure of data on motor vehicles entered in traffic register for the first time is shown in figure 5.

The number of "old" motor vehicles was calculated, separating the number of new motor vehicles from the total number of motor vehicles registered for the first time. Unfortunately it was not possible to separate the number of motor vehicles in a private property from the total number of "old" motor vehicles registered for the first time. The share of private motor vehicles in traffic register was used in the case of passenger cars, lorries and buses to estimate the number of "old" motor vehicles in a private property registered for the first time. Unfortunately there was no information in traffic register to separate private motor vehicles in the case of other types of motor vehicles.

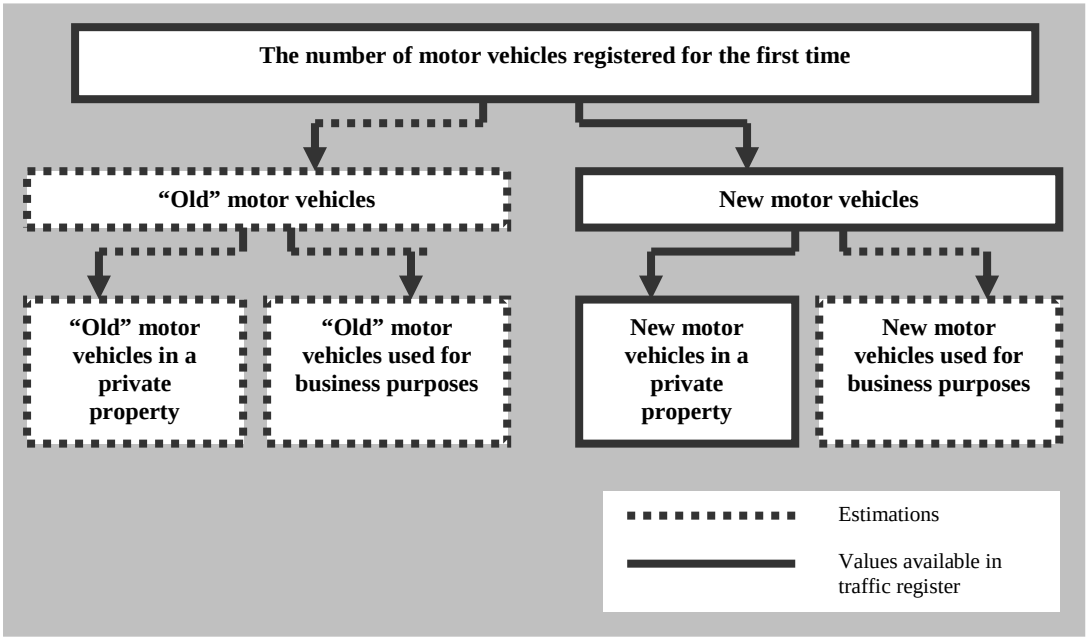


Figure 5. Structure of data on motor vehicles entered in traffic register for the first time

State fee, based on the number of motor vehicles in a private property registered for the first time, was allocated under household sector. Further allocation of state fee under heterogeneous economical activities was different according to type of motor vehicles. State fee for registration of passenger cars, lorries and buses, which were used for business purposes, was allocated under sectors proportionally according to gasoline and diesel spent for transport by heterogeneous economical activities. It should be mentioned that the share of motor vehicles using gasoline and diesel was taken into account in allocation to make this division more precise.

In traffic register there was no information to separate private and business purposed "old" motorcycles, trailers, landrovers, tractors, tractor trailers and travellers, which entered to the traffic register for the first time. In this case assumption that only households register "old" vehicles was made and this state fee was entirely allocated under household sector.

State fee for registration of new tractors and tractor trailers, which were used for business purposes, was allocated entirely under sector of agriculture, because there was no information to divide this state fee more precisely.

State fee for registration of new tractors and tractor trailers, which were used for business purposes, was allocated entirely under sector of agriculture (NACE-code 01), because there was no information to divide this state fee more precisely.

State fee for registration of new trailers, which were used for business purposes, was allocated entirely under sector of freight transport by road (NACE-code 60.24), because there was no information for more precise division of this state fee.

State fee for registration of new travellers, which were used for business purposes, was allocated entirely under sector of hotels (NACE-code 55), because there was no information for more precise division of this state fee.

State fee for registration of new motorcycles, which were used for business purposes, was divided between two economical activities proportionally according to gasoline and diesel spent for transport. These economical activities were public administration and defence; compulsory social security (NACE-code 75) and recreational, cultural and sporting activities (NACE-code 92).

State fee for registration of new landrovers, which were used for business purposes, was divided between four economical activities proportionally according to gasoline and diesel spent for transport. These economic activities were agriculture, hunting and related service activities (NACE-code 01), forestry, logging and related service activities (NACE-code 02), public administration and defence; compulsory social security (NACE-code 75) and recreational, cultural, sporting activities (NACE-code 92).

2.1.3.3. Methodology for the compilation of the statistics on state fee for registration of vessels

Data compilation

In Estonia there are three institutions which register vessels:

- Estonian Motor Vehicle Registration Centre registers personal recreational crafts (2,5–24 metres), ships with an overall length of less than 12 metres and watercrafts;
- County court (within the area of administration of the Ministry of Justice) keeps the Ship Register;
- Estonian Maritime Administration holds the Register of Bareboat Chartered Ships.

The state fee for registration of recreational crafts and personal watercrafts was estimated using the number of the vessels registered for the first time and the rates of state fee. The data on state fee for vessels' registration into Ship Register or Register of Bareboat Chartered Ships were obtained from the Ministry of Justice and from Estonian Maritime Administration.

Allocation

State fee for registration of vessels were handled individually according to the data sources. Allocation of the state fee for registration of vessels is shown in figure 6.

Structure of used data of Estonian Motor Vehicle Registration Centre is shown above in figure 4. Recreational crafts and ships with an overall length of less than 12 metres were presented together in the same figure. State fee, based on the number of personal ships with an overall length of less than 12 metres, personal watercrafts and recreational crafts in a private property registered for the first time, was allocated under household sector. In Traffic Register there was not possible to separate private and business purposed "old" watercrafts, ships and recreational crafts, which entered to the Traffic Register for the first time.

Recreational crafts and personal watercrafts were treated separately. In case of personal watercrafts the assumption was made that only households register "old"

personal watercrafts and this state fee was entirely allocated under household sector. State fee for registration of new personal watercrafts, which were used for business purposes, was allocated entirely under sector of recreational, cultural and sporting activities (NACE-code 92), because there was no information to divide this state fee more precisely.

In the case of recreational crafts its definition from the Estonian Maritime Safety Act was investigated[12]. In case of state fee for registration of new recreational crafts (and ships with an overall length of less than 12 metres), which were used for business purposes, was divided equally between three sectors: fishing sector (NACE-code 05), sector of water transport (NACE-code 61) and sector of public administration and defence, compulsory social security (NACE-code 75).

State fee for registration of "old" recreational crafts (and ships with an overall length of less than 12 metres) was divided equally between household sector, fishing sector (NACE-code 05), sector of water transport (NACE-code 61) and sector of public administration and defence, compulsory social security (NACE-code 75).

Ship Register, which is maintained by the county court, consists of Estonian marine and inland water ships, including fishing ships. Additional information for state fee precise allocation under economic activities was not available. Therefore sum of this state fee was divided equally between fishing sector (NACE–code 05) and sector of water transport (NACE–code 61) and the public administration sector (NACE–code 75) (figure 6).

In the case of state fee for vessel entered into Register of Bareboat Chartered Ships, the sum of state fee was obtained from Estonian Maritime Administration. Additional information for state fee precise allocation under economic activities was not available. Therefore sum of this state fee was divided equally between three economic sectors: fishing sector, sector of water transport and public administration sector (figure 6).

[12] "Recreational craft" means a water craft with an overall length of 2.5 to 24 metres (for example boats, sailing yachts, launches and similar water craft), which is used for recreational activities and registered in any register. Water craft which are used in competitive sports and training and which are correspondingly marked by a sports federation (for example personal watercraft, sailboards, sailing yachts, sports yachts and similar water craft), watercraft of primitive construction (for example canoes, pedal) and watercraft of special construction are not deemed to be recreational craft".

Ships with an overall length of less than 12 metres are ships are used for the business or working purposes (for example fishing boats, launches of inspectorate).

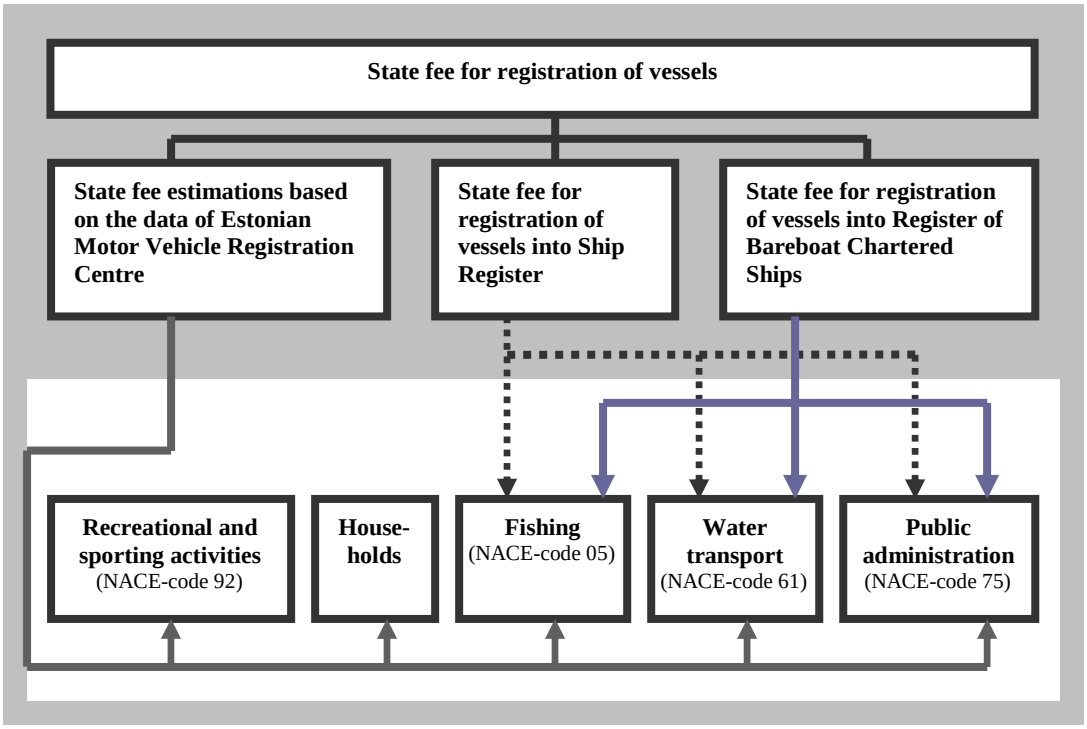


Figure 6. Allocation of the state fee for registration of vessels

2.1.3.4. Methodology for the compilation of the statistics on state fee for registration of aircraft

Data compilation

The sum of state fee for registration of aircraft for years 2005-2007 was estimated in the pilot study. Estonian Civil Aviation Administration registers the aircrafts in Estonia and the number of aircrafts by its types for present situation is available in homepage of Estonian Civil Aviation Administration. The number of registered aircrafts for earlier years is published by Statistics Estonia. The next step was the calculation of the difference in the number of registered aircraft to find out how many aircraft was registered for the first time.

As the rates of state fee for registration of aircraft depends on the maximum permitted take-off weight of the aircraft, the information in the Internet for the maximum permitted take-off weight of the aircraft was used in the state fee calculation.

Allocation

Additional information for state fee for registration of aircraft precise allocation under economic activities was not available. State fee for registration of balloons, sailplanes and moto-deltaplanes was allocated under household sector. All the rest of the state fee was allocated under air transport sector (NACE–code 62).

2.2. RESULTS

Numerical results of pilot study are outlined in detailed by each tax in next subchapters. Filled standard tables are presented in Annex 13-16. The taxes are grouped by the types of the environmental taxes respective to Eurostat's standard tables.

General: the share of environmental taxes in Estonia's taxes

The share of environmental taxes in Estonia can be seen on the graph below. The "Report of the state tax revenues" contains all environmental tax revenues, but only aggregated with other types of taxes. So, there is no possibility to distinguish total environmental tax revenues in State Budget in Estonia. Only revenues of fuel excise duty, packaging excise duty, heavy goods vehicle tax are shown separately in "Report of the state tax revenues". All other environmental tax revenues are allocated under other different revenue types. The absence of all the basic data is the reason, why the pilot study of environmental taxes was carried out. The following figure 7 outlines in large the comparison between all tax revenues and environmental tax revenues. Despite the fact that in absolute figures the sum of environmental taxes has increased from 4.1 to 5.6 billion kroons, the share of it is decreasing.

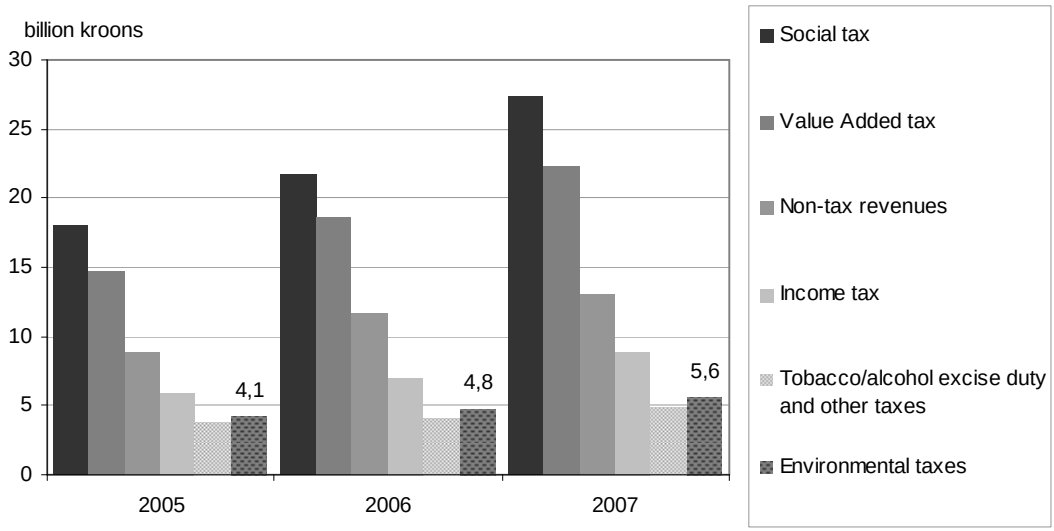


Figure 7. Tax revenues in Estonia, 2005-2007

Comparison of administrative and statistical data sources for total environmental taxes

Environmental taxes' totals in European Union countries, including Estonia, are available in Eurostat's homepage (http://epp.eurostat.ec.europa.eu/). In figure 8 is shown the time series of environmental tax revenues in Estonia. Environmental tax figures for the years 2001–2006 are taken from the above indicated Eurostat's homepage.

Two versions of environmental tax totals for the year 2007 are presented on the same graph. Environmental tax revenues in state and local budgets are presented in the first version (2007a). The second version (2007b) shows the pilot study's results of environmental taxes.

As can be seen the revenue tax data bigger. The difference comes mainly from fuel excise duty. The reason, why the fuel excise duty revenues exceed the pilot study results, is that in a current year the import could exceed the consumption. In administrative records the excise paid on import is indicated while in pilot study it has been estimated on the bases of fuel consumption.

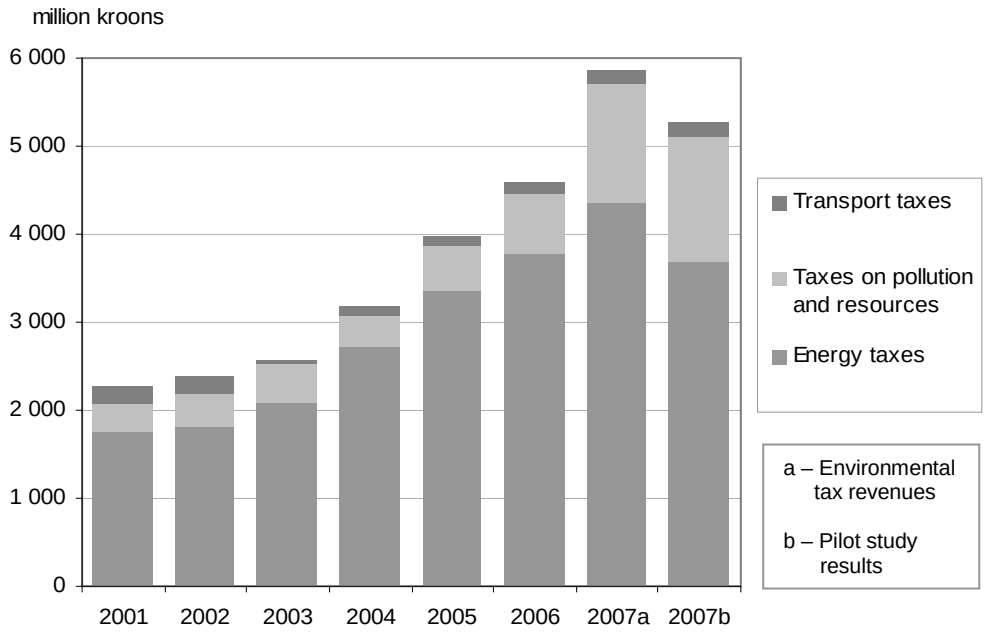


Figure 8. Sum of environmental taxes in Estonia, 2001-2007

In table 17 are presented the sum and share of environmental taxes in Estonia in 2007. Energy taxes comprised a majority of environmental taxes (70%), which was 3.7 billion kroons. 740 million kroons were paid on pollution taxes (14% of total environmental taxes). Resource taxes made up 694 million kroons, which was 13% of environmental taxes. Transport taxes had the smallest share (3%) in environmental taxes; the total sum of transport taxes was 172 million kroons. The reason, why transport taxes formed a little share in environmental taxes, is that the use of roads and use of motor vehicles is not taxed yet in Estonia.

Table 17. The sum and share of environmental taxes in Estonia, 2007

Type of environmental tax	Thousand kroons	%
Energy taxes	3 676 033	70
Pollution taxes	740 414	14
Resource taxes	694 054	13
Transport taxes	171 525	3
Fines	13 164	
TOTAL (excl. fines)	**5 282 026**	**100**

Source: Pilot study

In 2007 the environmental taxes according to the Eurostat's definition made up 5.3 billion kroons in Estonia. Environmental taxes comprised 2.21% of gross domestic product in Estonia, which was lower than average share of environmental taxes in European Union (figure 9).

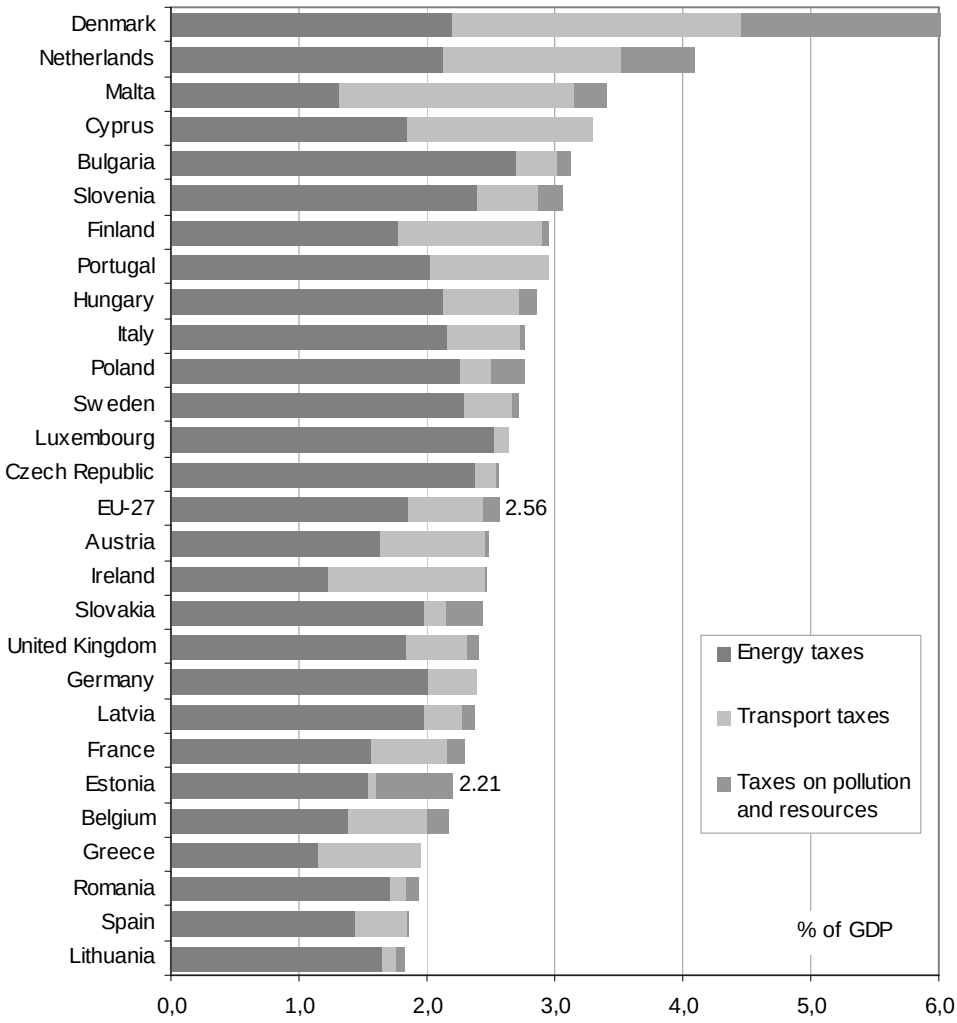


Figure 9. Environmental tax revenues as a share of GDP in European Union* (Eurostat)
*Estonia — year 2007 (pilot study results); other countries — year 2006 (Eurostat's data)

Numerical results of pilot study are outlined in detailed by each tax in next subchapters. Filled standard tables are presented in Annex 13-16. The taxes are grouped by the types of the environmental taxes respective to Eurostat's standard tables.

2.2.1. Results of the statistics on pollution taxes

In 2007 pollution taxes made up 740 million kroons, which comprised 14% of all environmental taxes in Estonia. The Eurostat's standard tables on pollution taxes by economic activities are available in Annex 13.

2.2.1.1. Results of the statistics on the air pollution charge

298 million kroons were paid on air pollution charge.

The ¾ of air pollution charge was paid by the sector of production and distribution of electricity (table 18). The main reason, why this sector paid the majority of air pollution charge, is high volume of exhaust gases emitted from the combustion of oil shale. Boiling houses paid the main part of air pollution charge in the steam and hot water supply sector.

Table 18. Air pollution charge by economic activities, 2007

NACE-code	Economic activities	Air pollution charge	
		Thousand kroons	%
40.1	Production and distribution of electricity	222 867	75
40.3	Steam and hot water supply	27 658	9
23.2	Manufacture of oil shale products	21 028	7
	Other	26 567	9
	TOTAL	**298 115**	**100**

2.2.1.2. Results of the statistics on the water pollution charge

Water pollution charge made up 61 million kroons and its allocation under economic activities is shown in table 19.

Sector of collection, purification and distribution of water paid 31% of water pollution charge. Sector of sewage collection and treatment paid 14% of water pollution charge. Enterprises dealing with wastewater treatment are mainly allocated under NACE–categories 41, 90 and 40. Oil shale extraction sector paid 13% of water pollution charge, which is mainly caused by the purification of mining water. Big manufacturing enterprises are often dealing with wastewater treatment and this is the reason, why water pollution charge is significant in some manufacturing activities.

Table 19. Water pollution charge by economic activities, 2007

NACE–code	Economic activities	Water pollution charge	
		Thousand kroons	%
41	Collection, purification and distribution of water	18 625	31
90	Wastewater treatment; waste management	8 176	13
11	Extraction of oil shale	7 852	13
21	Manufacture of pulp, paper and paper products	6 689	11
15	Manufacture of food products and beverages	3 896	6
40.3	Steam and hot water supply	3 285	5
70-74	Real estate, renting	3 088	5
75	Public administration	1 898	3
40.1	Production and distribution of electricity	1 327	2
26.6	Manufacture of cement, lime and plaster	1 177	2
	Other	4 687	9
	TOTAL	**60 700**	**100**

2.2.1.3. Results of the statistics on the waste disposal charge

Waste disposal charge made up 380.1 million kroons in 2007. Waste disposal charge allocation under economic activities is shown in table 20.

Production and distribution of electricity sector paid over a half of waste disposal charge in 2007, because disposal of ashes from oil shale combustion takes place in this sector. Landfills in the sector of waste management and disposal paid 21% of waste disposal charge. Sector of manufacture of shale oil paid 10% of waste disposal charge due to disposal of oil shale treatment waste. 9% of waste disposal charge was paid by the sector of extraction of oil shale, where the waste from oil shale mining was landfilled.

Table 20. Waste disposal charge by economic activities, 2007

NACE–code	Economic activities	Waste disposal charge	
		Thousand kroons	%
40.1	Production and distribution of electricity	211 672	56
90	Wastewater treatment; waste management	80 191	21
23.2	Manufacture of shale oil	39 332	10
11	Extraction of oil shale	34 421	9
	Other	15 193	4
	TOTAL	**380 809**	**100**

2.2.1.4. Results of the statistics on the packaging excise duty

Packaging excise duty is different than other environmental taxes in Estonia. They are designed in a manner that they should make the packaging recycling operating. So the packing excise paying should be seen as an exemption of the rule: packaging excise duty is paid only by these enterprises, which have not achieved the recovery rate established in Estonian Packaging Excise Duty Act. Rule is that enterprises have contracts with packaging recovery organizations, which collect and enter packaging waste into recovery by themselves instead of enterprises. Usually packaging recovery organizations achieve recovery rates and enterprises, which made a contract with packaging recovery organization, should not pay packaging excise duty. This is the reason, why paid sum of packaging excise duty is small — 790 thousand kroons (table 21).

Actual enterprises' payments for collection and recovery of packaging waste were much bigger (around 500 times higher) than packaging excise duty revenue received by State. In Estonia there are three packaging recovery organizations, which can take the enterprise's obligation to collect and recover packaging waste after signing a contract. Peeter Eek (2007) (Head of waste management department of the Ministry of Environment) has brought out the estimated turnover of packaging recovery organizations for the year 2006 in the presentation. The estimated turnover of packaging recovery organizations was 350 million kroons in 2006.

Table 21. Packaging excise duty by economic activities, 2007

NACE–code	Economic activities	Packaging excise duty	
		Thousand kroons	%
50-52	Wholesale and retail trade	314	40
15	Manufacture of food products and beverages	176	22
55	Hotels and restaurants	80	10
64	Telecommunication	52	7
36	Manufacture of furniture; other manufacture	27	3
17	Manufacture of textiles	24	3
20	Manufacture of wood and wood product	22	3
	Other	95	12
	TOTAL	**790**	**100**

2.2.2. Results of the statistics on resource taxes

In 2007 resource taxes made up 694 million kroons, which comprised 13% of all environmental taxes in Estonia. The Eurostat's standard tables on resource taxes by economic activities are available in Annex 14.

2.2.2.1. Results of the statistics on water abstraction charge

Water abstraction charge made up 147.3 million kroons and water pollution charge allocation under economic activities is shown in table 22.

Sector of extraction of oil shale paid 36% of water abstraction charge, the big share of this charge is caused mainly by the taxed water abstraction from quarries and mines. 25% of water abstraction charge was paid by the sector of production and distribution of electricity. The sector of production and distribution of electricity abstracts mainly cooling water, which is taxed according to the Estonian Fee Act. Sector of collection, purification and distribution of water paid 20% of water abstraction charge. Shares of water abstraction charge payments in other economic activities were not bigger than 3%.

Table 22. Water abstraction charge by economic activities, 2007

NACE–code	Economic activities	Water abstraction charge	
		Thousand kroons	%
11	Extraction of oil shale	52 676	35
40.1	Production and distribution of electricity	36 585	25
41	Collection, purification and distribution of water	29 914	20
15	Manufacture of food products and beverages	4 233	3
70-74	Real estate, renting	3 673	2
21	Manufacture of pulp, paper and paper products	2 847	2
23.2	Manufacture of shale oil	2 752	2
01	Agriculture	2 664	2
	Other	13 620	9
	TOTAL	**148 964**	**100**

2.2.2.2. Results of the statistics on mineral resources extraction charge

Mineral resources extraction charge was 306 million kroons in 2007. Allocation of mineral resources extraction charge under economic activities is shown in table 23.

Over a half of mineral resources extraction charge was paid by the sector of oil shale extraction. Sector of other mineral resources mining and quarrying paid 22%

of this charge. Construction sector, which often extracts raw materials itself, paid 7% of mineral resources extraction charge. Also sector of cement, lime and plaster extracts raw materials for production and due to this sector paid 5% of mineral resources extraction charge. The share of mineral resources extraction charge payments did not exceed 2% in other economic sectors.

Table 23. Mineral resources extraction charge by economic activities, 2007

NACE–code	Economic activities	Mineral resources extraction charge	
		Thousand kroons	%
11	Extraction of oil shale	169 686	55
14	Other mining and quarrying	68 312	22
45	Construction	21 593	7
26.5	Manufacture of cement, lime and plaster	14 956	5
10	Extraction of peat	8 765	3
23.2	Manufacture of shale oil	6 944	2
	Other	15 921	6
	TOTAL	**306 177**	**100**

2.2.2.3. Results of the statistics on the other resource charges

Forest stand cutting charge, fishing charge and hunting charge together made up 239 million kroons (table 24).

Table 24. Forest stand cutting charge, fishing charge and hunting charge by economic activities, 2007
(thousand kroons)

NACE–code	Economic activities	Other resource charges			Total	%
		Forest stand cutting charge	Fishing charge	Hunting charge		
02	Forestry	214 443	0	0	**214 443**	90
05	Fishing	0	11 250	0	**11 250**	5
01.5	Hunting	0	0	6 630	**6 630**	3
	Households	0	6 590	0	**6 590**	2
	TOTAL	**214 443**	**17 840**	**6 630**	**238 913**	**100**

2.2.3. Results of the statistics on energy taxes

In 2007 energy taxes made up 3.7 billion kroons, which was 70% of all environmental taxes in Estonia. The Eurostat's standard tables on pollution taxes by heterogeneous economic activities are available in Annex 15. Fuel excise duty paid by the sectors is shown in table 25.

40% of fuel excise duty was paid by the households for both — motor fuel and heating. Land transport sector paid 14% of fuel excise duty (516 million kroons). It should be mentioned that majority of fuel excise duty payments in the land transport sector was actually made by the sector of freight transport by road (343 million kroons). The third biggest share (10%) of fuel excise duty payments were in construction sector. Although shares of fuel excise duty payments did not exceed 3% in every other economic sector, the quantities of fuel excise duty were still huge.

Table 25. Fuel excise duty by the main economic activities, 2007

NACE–code	Economic activities	Fuel excise duty	
		Thousand kroons	%
	Households	1 468 696	40
60.2	Land transport (excl. transport via railways and pipelines)	516 002	14
45	Construction	372 493	10
01	Agriculture	117 555	3
75	Public administration	112 106	3
50-52	Wholesale trade and commission trade	103 923	3
11	Extraction of oil shale	89 776	2
20	Manufacture of wood and wood products	67 803	2
15	Manufacture of food products and beverages	63 947	2
	Other	763 731	21
	TOTAL	**3 676 033**	**100**

2.2.4. Results of the statistics on transport taxes

In 2007 transport taxes made up 171.5 billion kroons, which comprised only 3% of all environmental taxes in Estonia. The Eurostat's standard tables on pollution taxes by main kind of activity unit are available in Annex 16.

2.2.4.1. Results of the statistics on heavy goods vehicle tax

The volume of heavy goods vehicle tax paid by the sectors is shown in table 26.

Land transport sector paid over a half of heavy goods vehicle tax (37.7 million kroons — 55%), of which almost all of this sector's heavy goods vehicle tax was paid by the sector of freight transport by road (37.5 million kroons). Construction sector had the next biggest share of these tax payments (9%). Sector of wholesale trade and commission trade paid 8% of heavy goods vehicle tax. 5% of heavy goods vehicle tax was paid by households. Agriculture sector paid 4% of this tax.

Table 26. Heavy goods vehicle tax by economic activities, 2007

NACE–code	Economic activities	Heavy goods vehicle tax	
		Thousand kroons	%
60.2	Land transport (excl. transport via railways and pipelines)	37 608	55
45	Construction	5 831	9
50-52	Wholesale trade and commission trade	5 251	8
70-74	Real estate, renting	3 858	6
	Households	3 238	5
01	Agriculture	2 795	4
	Other	9 474	13
	TOTAL	**68 055**	**100**

2.2.4.2. Results of the compilation of statistics on the state fee for registration of motor vehicles, vessels and aircraft

The volume of state fee for registration of motor vehicles paid by the sectors is shown in table 27. The sum of state fee for registration of vessels and aircraft are presented in table 28.

44% of state fee for registration of motor vehicles is paid by households. Construction enterprises and land transport sector both paid the tenth of state fee for

registration of motor vehicles. All other economic sectors paid 5% of this sate fee or less.

The total sum of state fee for registration of vessels was little — only 1.4 million kroons. The biggest part (40%) of this state fee was paid by households. In this case households paid on registration of personal watercrafts and recreational crafts. The fishing sector and sectors of water transport, public administration and recreational/sporting activities paid the rest of this state fee.

Revenues of state fee for registration of aircraft were little (3 million kroons). Almost entire state fee was paid by the air transport sector. Households paid insignificant sum of state fee for registration of recreational aircraft (balloons, sailplanes, moto-deltaplanes).

Table 27. State fee for registration of motor vehicles by economic activities, 2007

NACE–code	Economic activities	State fee for registration of motor vehicles	
		Thousand kroons	%
	Households	43 133	44
45	Construction	9 623	10
60.2	Land transport (excl. transport via railways and pipelines)	8 831	9
50-52	Wholesale and retail trade	5 235	5
75	Public administration	4 412	4
01	Agriculture	3 829	4
70-74	Real estate, renting	2 725	3
	Other	21 229	21
	TOTAL	**99 017**	**100**

Table 28. State fee for registration of vessels and aircraft by economic activities, 2007 (thousand kroons)

NACE–code	Economic activities	State fee for registration of ..		Total	%
		..vessels	..aircraft		
62	Air transport	0	3 026	**3 026**	68
	Households	562	1	**563**	13
05	Fishery	237	0	**237**	5
61	Water transport	237	0	**237**	5
75	Public administration	237	0	**237**	5
92	Recreational and sporting activities	131	0	**131**	4
	TOTAL	**1 405**	**3 027**	**4 432**	**100**

2.2.5. The payers of environmental taxes according to the industry standard tables

The biggest environmental tax payers are shown in figure 10 and their environmental tax payments are presented in the figure 11.

Households paid the biggest part of environmental taxes, of which fuel excise duty made up the majority of it. Land transport sector (NACE–code 60) was the second biggest environmental tax payer and also fuel excise duty was the main environmental tax in this sector. There has to be noted out that 63% of land transport sector's environmental taxes are paid in the sector of freight transport by road.

The sector of production and distribution of electricity (NACE–code 40.1) was in third place among the biggest environmental tax payers. Pollution taxes were the main tax type in this sector's environmental taxes.

Construction enterprises (NACE–code 45) were the fourth bigger environmental tax payers. They paid mainly on fuel excise duty; other environmental taxes comprised a little share in this sector.

Extraction of oil shale paid 8% of total sum of environmental taxes in Estonia. Certainly resource charges made the vast part in this sector's environmental tax payments.

Every other economic activity paid from total sum of environmental taxes 5% or less.

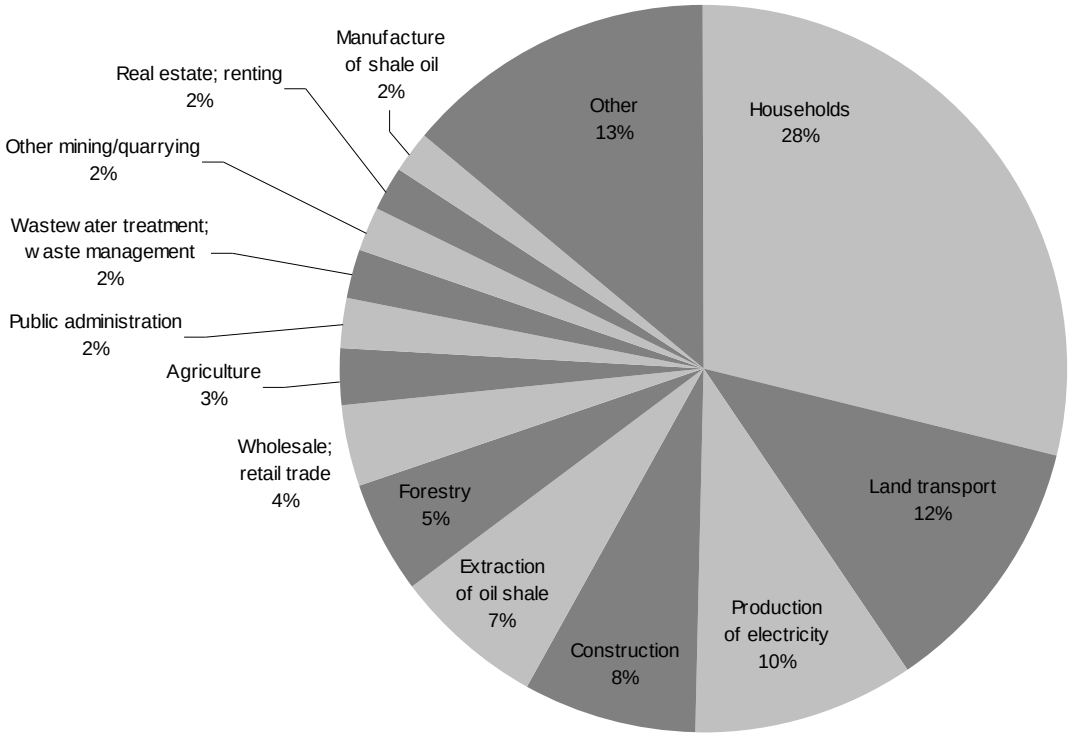


Figure 10. Share of total environmental taxes by payers, 2007

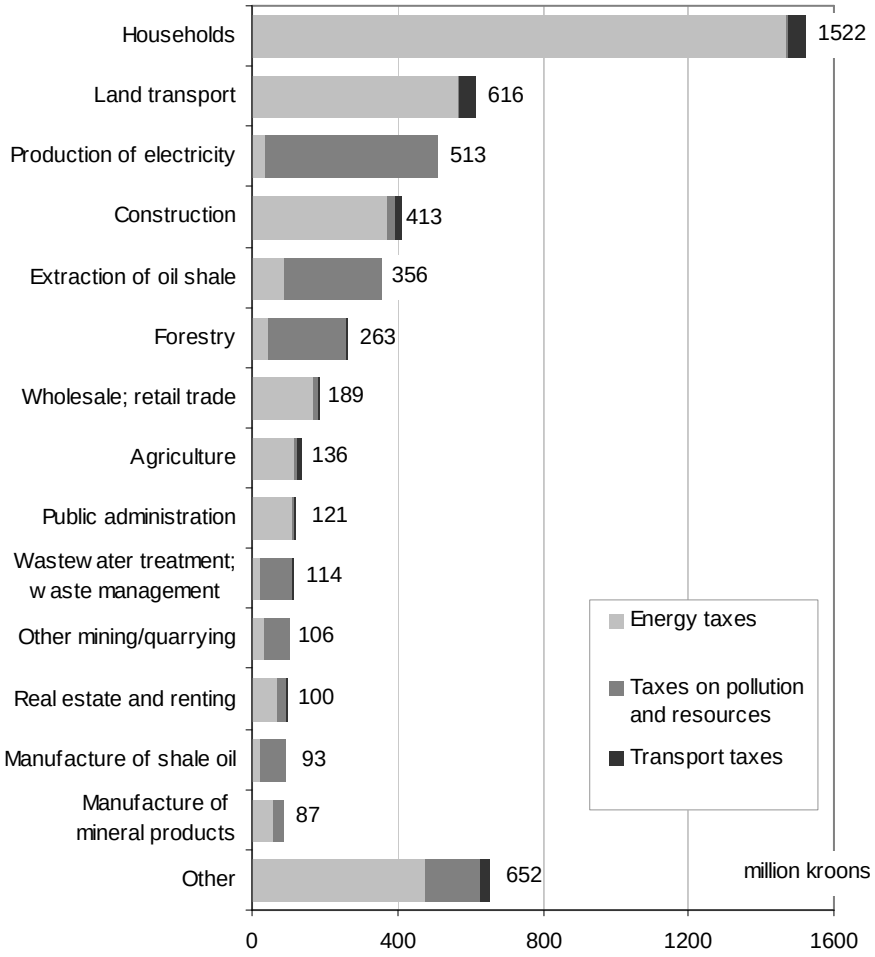


Figure 11. Amount of environmental taxes by payers, 2007

3. ECOLOGICAL TAX REFORM IN ESTONIA

Principals of ecological tax reform

The key principle of an ecological tax reform concept is a partial re-orientation of taxes from taxation of income to taxation the use of natural resources and pollution of nature. The broader goal of the tax reform concept is to improve the competitiveness, support the economic development and reduce unemployment.

According to ecological tax reform countries' should increase the use and weight of environmental economic instruments and reduce the burden on employment related taxes (income or social taxes). One of the aims of Estonian ecological tax reform is also that the overall tax burden (ration to GDP) would not increase.

Another basic principle set was that the overall tax burden had to remain the same – this means that the rise of environmental taxes and charges has to be balanced with decrease of income tax.

Possible measures and activities for ecological tax reform

The main measures for implementing of the ecological tax reform are the following:

Energy taxes:

- to rise motor fuel excise to the EU minimum level and consider CO_2 emissions and other environmental aspects of motor fuel taxes in the second stage of ecological tax reform;
- to lessen benefits of fiscally marked liquid fuel;
- to facilitate the use of biofuel as motor fuel;
- to tax aviation fuel;
- to tax natural gas;
- to tax electricity with excise;
- to facilitate cogeneration of heat and power;
- to broaden the set of subjects paying CO_2 emission charge.

Transport taxes:

- to impose yearly tax for small vehicles;
- to develop public transportation;
- to limit vehicles related benefits.

Heavy goods vehicle tax:

- to consider the indicators of blow gas emitted to ambient air when planning tax rates;
- to increase tax rates and tax also vehicles with weight less than 12 tons;
- to consider the use of road use charge based on mileage;
- to consider possibilities for tax exemption of the vehicles participating in combined transport of goods and enable flows of heavy goods vehicles participating in longer international carriages to be directed from road to railway.

Environmental charges:

- to consider rate raising in the first stage of ecological tax reform of the pollution and resource charges;
- to apply the principle of equal treatment of all users of natural resources and polluters the lower rates of environmental charges for oil shale energy producers have to be gradually abolished;
- to stimulate environmental protection the lower rates of environmental charges and state fees for proceeding environmental permits will be applied for enterprises, which implement ISO-14001 or EMAS environmental management systems;

- to assure sustainable resource use the upper limits of yearly resource use have to be evaluated in the second stage of ecological tax reform. When these upper limits are exceeded, environmental charges will increase significantly.

Implementation of ecological tax reform in Estonia

The principles of ecological tax reform in Estonia were approved at government cabinet meeting in 2005 (The principles of ecological tax reform). Until the year 2004 income tax rate was 26%, in 2005 it was lowered to 24% and since then it has been decreasing 1% till 2008 (figure 12). The plan was to decrease the income tax to 18% up to the year 2011. Income tax reduction was stopped due to State budget cuts by Estonian government and global economic hardship in 2008 due to economic crisis. But the fuel excise duty has been further raised from 01.01.2008 onwards.

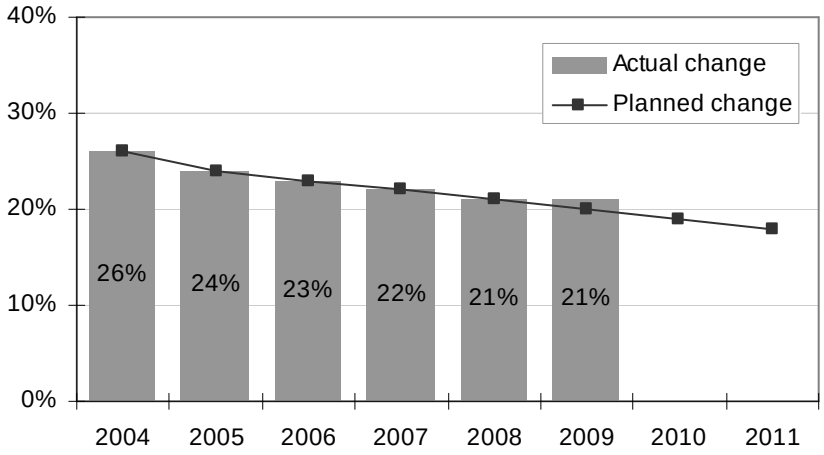


Figure 12. Planned and actual change in income tax rate according to ecological tax reform

The ecological tax reform concept states that the reform has to be planned like a package of different tax and other measures (for example subsidies) in order to maximize its impact. The reform does not take place overnight; it is a long process and has several stages. The rise of environmental taxes and charges must be done gradually so that reform measures will not damage the competitiveness of Estonia and will not result in a socio-economical shock. According to the document approved by government the implementation of the first stage of ecological tax reform is planned for 2005-2008, in 2006-2008 the effectiveness of the first stage is to be assessed and the second stage will be planned. The second stage of reform will be implemented in 2009-2013 (Koidu, Lüpsik 2005).

At present some changes in tax policy have been implemented, for example the EU minimum rate for motor fuel excise has been imposed since the beginning of 2008, although Estonia had transitional period until 2010. In the beginning of 2008 also natural gas and electricity were taxed with excise.

The changes listed above, but not implemented yet, regard especially vehicles, for example imposing the yearly tax for small vehicles and limiting benefits paid by employer. Also the changes planned for heavy goods vehicles taxation have not been implemented yet. Based on the principles of ecological tax reform, the rates of most environmental charges were increased substantially in 2006, implementing the first objective of ecological tax reform regarding environmental charges. The remaining three objectives have not been implemented yet.

The role of substitution of pollution charges with environmental investments in implementation of ecological tax reform

The basic idea behind pollution charge substitution is to initiate and help companies to take measures to reduce their environmental impact. The aid is granted by the State in the form of not collected environmental charges. This measure can be qualified as environmentally motivated subsidy to the company, because it reduces costs of installing environmental protection facilities or modifying the production technology so that the environmental impact reduces significantly.

When discussing the importance of the environmentally motivated subsidy in the context of the ecological tax reform, it is clear that it has a very positive impact on the application of ecological tax reform, even though the measure has not been designed within the framework of ecological tax reform. The substitution scheme leads to better environmental compliance; the pollution load reduces usually considerably. The level of necessary pollution reduction is at least 15% and it is considered to be high enough to create innovative technological solutions to environmental problems. In this the measure stimulates innovations and technological progress, introduces new technologies, supports for eco-effectiveness.

According to the economic theory, taking up environmental investments indicates that the company is interested in more sustainable mode of production and as a result can lead to higher market value for the company. Also company workers, partners and clients can react positively on higher environmental performance. This again leads to greater competitiveness and better market position. In future, it is expected that environmentally acceptable behavior and goods with relatively lower environmental impact will have significant competitive advantage. Among other positive effects is an increase in employment and lowering of the number of economically inactive people, which will subsequently lead towards increased incomes, a lowering of state budget expenses and a avoiding of the finance deficit

Pollution charge substitution scheme also improves policy effectiveness, especially when compared to normative regulation, as companies themselves can set the expected environmental targets and find the most cost-effective way for carrying out the investment.

The substitution scheme also can improve regional development, as it can create better investment climate in the region, for example when reconstructing a local waste water treatment plant.

It should be noted that the share of the investments made on expense of pollution charges is relatively low as it forms 6.3 million kroons in 2007.

Issues to be monitored when implementing ecological tax reform

One of the main purposes of environment market based instruments is to achieve environmental improvement (reduction of pollution and sustainable management of natural resources) more effective and efficient way as opposed to pure regulative matters. International experience in the field of applying environmental economic instruments and the efficiency and impact is very broad (OECD 2006).

The main general issues (OECD 2006) to be monitored and evaluate are:

- **Environmental effectiveness** – the aim is to cause changes in consumption and/or production patterns. Relevant issues are, who should change their behavior, by how much and within which timeframe. The issue of tax exemptions and revenue mobilization are related to effectiveness as well.

- **Sectoral competitiveness** – what economic sectors and firms are affected negatively or positively from ETR. Here the impact is very wide within and between the countries and also market conditions in globalised world play crucial role. EU directives on harmonizing taxes on energy products as well as directives affecting environmental quality aim at leveling the playing field, but important differences and competitiveness concerns remain.
- **Income distribution** – direct effects of environmentally related taxes, and especially energy taxes, can have a regressive impact on income distribution of households, as shown by many studies. Studies also show that the degree of regressivity decreases once the indirect distributional effects and the environmental effects of the tax are taken into account. Furthermore, regressive impacts can be softened or removed by mitigation or compensation measures so, that net effect of the environmental policy can be even progressive.
- **Administrative costs** – administrative cost of environmental taxes can be very different depending on the number of tax payers, tax bases and additional non-environmental reasons, to address competitiveness or income distribution concerns.
- **Political acceptance** – is depending on the awareness of the environmental problem the instrument is designed to address and perceived fairness of the instruments towards competitiveness impacts and/or impacts on low-income households. It is also key to remind that sectors or stakeholders facing the negative effect are more effective in mobilizing against tax changes than wider group (economic sectors and poorer households) of beneficiaries from planned measures.
- **Combined impact with other instruments** – in addition to taxes and charges many other environmental policy instruments are used in parallel and in combination, as tradable permits, regulations, standards, labeling systems, subsidy programs for improving insulation of buildings, government support programs for environmental technologies, etc. Thus, monitoring the combined impact of those instruments is important.

Effective monitoring is an important aspect of any tax reform. However, one must keep in mind that it is very difficult to separate the impact of the Ecological Tax Reform from the impact of other economic and administrative measures or general economic development and market conditions.

Political relevance

The monitoring of the Ecological Tax Reform should be able to provide decision makers with information for assessing the level of achievement of the reform goals, set by the Government. As a general principle, it would be advised that the Ecological Tax Reform monitoring system fits the already existing economic and environmental monitoring or indicator system so that no extra monitoring burden is added.

Indicator based approaches

Using indicators already in place helps to avoid unnecessary administrative burden of state offices such as ministries and Statistical Office, and companies, and therefore making the monitoring more effective. At the moment, there are set of indicators prepared for monitoring sustainable development in Estonia. As soon as the Government approves these indicators, they become usable also for monitoring the Ecological Tax Reform.

Specific environmental indicators for monitoring the ecological tax reform

Separate indicators are necessary to measure the achievement of the following goals of the tax reform:

- promoting sustainable use of natural resources and environment
- production of renewable energy;
- lower environmental impact of energy production;
- increased energy and resource intensity;
- better environmental awareness.

The most suitable data for assessing how these goals are achieved is to a great extent already collected – emission levels, data on natural resource use, production of renewable energy etc. Information on environmental impact of energy production can be obtained when existing data on energy production and environment use is merged. Energy and resource intensity should be viewed separately for each economic sector or in some cases even on product class level, therefore some information could be needed in more detail than it is available at the moment. Environmental awareness is difficult to measure, however methods exist to do that. Maybe a proxy could be developed from the existing company or household level data or questionnaires can be modified to estimate it.

Specific economic indicators for monitoring the ecological tax reform

Given, that the Ecological Tax Reform is expected to support the economic development, reduce regional distinction and create jobs in Estonia, by promoting competitiveness and improving economic effectiveness, reducing unemployment, improving environmental quality and protecting human health, as well as enhancing technological transfer, the monitoring system can include several macro-level indicators. These indicators are again mostly produced already; however, they need to be connected to Ecological Tax Reform.

Coverage of topics for monitoring the ecological tax reform

It is important that the monitoring of the Ecological Tax Reform covers all the charges and taxes that are discussed in the Ecological Tax Reform proposal — energy taxes (fuel excise duty, electricity excise duty), transport taxes (on motor vehicles, heavy good vehicles, road use) as well as pollution and resource use charge (waste, water and air pollution, natural resources). It is often the case, that when discussing the environmental taxes, only emission charges and natural resource charges are included, but in reality these form only a marginal share of the environmentally related taxes revenue in Ecological Tax Reform in Estonia.

Coverage of different aspects for monitoring the ecological tax reform

Given that the Ecological Tax Reform sets several aims and defines expected effects from economic and environmental point of view, the monitoring system has to guarantee that each of these can be reviewed. According to the Ecological Tax Reform proposal, the main aim of the ecological tax reform in Estonia is to shift tax burden from labour to the use of natural resources and pollution, so it is crucial that the monitoring system reports on the state level the revenue from and the share of labour taxes and environmentally related taxes in total budget tax revenue. Such information is also necessary to mark the trend of the general tax burden.

Measuring the achievement of the Ecological Tax Reform goals on the household level, the analysis should be done, whether the importance of the environmentally related taxes has increased compared to income tax. The indicators should show whether the consumption has moved towards more environmentally friendly or less resources wasting.

Suggestion of indicators for monitoring the ecological tax reform

Indicators on macro level:

- data concerning environmental tax revenue by sector (especially important is to have separate information concerning energy and heat production as well as waste and water treatment – the sectors that are often reported together;
- Total use of energy per total output (kWh/kroons or kWh per physical unit);
- indicators of use of transport mode (number of people using public transport etc), the length of bicycle roads;
- estimates of environmentally related innovations, number of patents, by economic sector;
- use of secondary material;
- etc.

Indicators on micro level:

- the environmental impact of the product X (for example emission of CO_2 per kWh of heat);
- the use of environmental resources or energy per unit of product (for example use of water per ton of output etc);
- amounts of produced waste per capita;
- volume of water use per person (m^3 per person);
- volume of electricity use (kWh per person);
- volume of fuel use (MWh per person);
- number of cars per person;
- etc.

Use of micro-simulation modelling

Public sector and households are paying environmental taxes hidden in the costs of the products they consume. Probably the pollution taxes form just a small part, whereas the fuel excise duty is considerable. The influence of the environment taxes on households could be analysed via micro-simulation. One of these models is developed (has been used) also in Estonia's conditions.

Studies carried out

Some modelling studies to analyze the impact of environmental taxes on Estonian households have been studied[13]. These studies have used computable general equilibrium (CGE), optimization (MARKAL) and micro-simulation models. All these studies are rather recent.

There have been some important pilot Environmental accounts compilation studies carried by the Statistics Estonia were integration of economic and environmental statistics has been developed. But these studies did not focus specifically on a subject area of ecological tax reform.

In 2007 Ministry of Environment launched the revision of the concept of environmental charges to analyze and determine new rates for the period beyond 2009. During that process several additional studies have been carried out – on

[13] Studies carried out:

Espenberg, S. 2008. Impact of Energy taxes on Estonian Economy – results from CGE model.

Poltimäe, H. 2008. Distributional effects of Estonian fuel excise.

Tallinn University of Technology. 2006. Impact of Taxing Energy Products.

Strategic Initiative Centre. 2004. Macroeconomic Analysis of the Implementation of a Carbon Tax in Estonia.

natural resource charge rates, on waste charging system and waste charge rates; and on environmental economic instruments in agriculture.

A separate study to analyse the impact of fuel excise duty n Estonian households was carried out recently. The distributional impacts of fuel excise duty are assessed in Estonia (Poltimäe 2008). The calculations are done with a micro-simulation model ALAN. The data used for simulation are from Household Budget Survey conducted by Statistics Estonia, from the period 2000-2007. Estonian results demonstrate also that motor vehicle fuel excise has a bigger impact on households living in rural areas: their tax share is almost twice as big as the ones living in urban areas. According to the social status the ones bearing the highest tax burden are employed people, tax burden for unemployed and retired

The key concept is that the tax incidence or tax burden does not depend on where the revenue is collected, but on the price elasticity of demand and price elasticity of supply. Tax incidence (tax burden) falls mostly upon the group that responds least to price (the group that has the most inelastic price-quantity curve).

The distributional analysis of environmental tax burden was dealt partially in current study, as it cannot be carried out on the bases of statistics in Environment Taxes Account alone.

Linking sectoral information

Linking sectors financial information (turnover, profit, production costs, assets, etc) we can analyze how the increase of environmental charges and taxes or reduction of labor taxes would impact enterprises and households.

In order to be able to analyze the impact on economic sectors concerning tax shift from human resources and labor (income tax) to pollution and resource use (environmental taxes) the statistics on income taxes (employment numbers) should be included also.
As Environmental Tax account allocates all environment related taxes according to economic sectors, this account is one of the components. This information should further be linked with: a) statistics on physical outcomes of resource use and generation of waste and pollution by NACE–categories and b) more financial information of the same sectors.

4. ANALYSES FOR THE MONITORING OF THE ECOLOGICAL TAX REFORM IN ESTONIA

4.1. ANALYSES OF THE EUROSTAT'S ENVIRONMENTAL TAX ACCOUNTS STANDARD TABLES

One of the aims of the current project was to clarify how the statistics on environmental taxes could be used for the monitoring of environmental tax reform. The second related aim was to observe if the "polluter pays" principle is in place also in Estonia.

What is an environmental tax?

How to classify the environmental taxes? The classification depends on the "background system" in which we look at the tax burden of the economic unit or economic branch. As we will see later the different background systems could lead to different conclusions that could be drawn regarding the relevance of the "polluter pays" principle in Estonia.

We can divide and group environmental taxes on the bases of various principles. According to economic criteria we can divide them to fees, charges and excises. Eurostat's methodology divides environmental taxes according to their environmental impact and/or the kind of the "source sector": pollution taxes, resource taxes, energy taxes, transport taxes.

Who pays the environmental tax?

One way of dividing of the environmental taxes is to look on "cashier" bases: who receives the tax: local budget, state budget, or "no one"? The latter is a case for example packaging excise duty.

One possibility is to group the environmental taxes as:

- **general environmental taxes** —In other words these are "everyone pays" environmental taxes like we interpreted the fuel excise duty
- **enterprise specific environmental taxes** — environmental taxes, which are appointed to and accredited from a specific enterprises (for example pollution charges, mineral resource extraction charge, heavy goods vehicle tax which is accrued only from the enterprises, which own that kind of motor vehicle).

Analyses of the burden of the environmental charges on the bases of first payer

In order to be consistent we analysed how the burden of the environmental taxes by economic activities would look like if we would allocate all environmental taxes in the same manner, on the bases of the first payer. Environmental taxes of the first payers are shown in detail in the table 29.

Table 29. Environmental taxes standard tables of the first payers, 2007
(thousand kroons)

NACE–code	Economic activities	Environ-mental taxes	..of which fuel excise duty	..share of fuel excise duty in environmental taxes (%)	Share of NACE in environ-mental taxes (%)
10	Extraction of peat	10 183	0	0.00	0.19
11	Extraction of oil shale	265 843	0	0.00	**5.03**
14	Other mining and quarrying	74 209	0	0.00	1.40
15	Manufacture of food products and beverages	12 736	0	0.00	0.24
17	Manufacture of textiles	1 333	0	0.00	0.03
18	Manufacture of wearing apparel; dressing and dyeing of fur	499	0	0.00	0.01
19	Manufacture of leather products and footwear	122	0	0.00	0.00

20	Manufacture of wood and wood products	5 640	0	0.00	0.11
21	Manufacture of pulp, paper and paper products	12 831	0	0.00	0.24
22	Publishing, printing and reproduction of recorded media	857	0	0.00	0.02
..23.2	*..manufacture of shale oil*	123 834	53 497	43.20	2.34
24	Manufacture of chemicals and chemical products	1 536	0	0.00	0.03
25	*Manufacture of rubber and plastic products*	849	0	0.00	0.02
26	Manufacture of other non-metallic mineral products	27 292	0	0.00	0.52
27	Manufacture of basic metals	117	0	0.00	0.00
28	Manufacture of fabricated metal products (except machinery)	2 298	0	0.00	0.04
29	Manufacture of machinery and equipment	1 396	0	0.00	0.03
30	Manufacture of office machinery and computers	35	0	0.00	0.00
31	Manufacture of electrical machinery and apparatus	248	0	0.00	0.00
32	Manufacture of radio, television and communication equipment	97	0	0.00	0.00
33	Manufacture of medical and optical instruments and watches	154	0	0.00	0.00
34	Manufacture of motor vehicles, trailers and semi-trailers	256	0	0.00	0.00
35	Manufacture of other transport equipment	586	0	0.00	0.01
36	Manufacture of furniture; other manufacturing	1 383	0	0.00	0.03
37	Recycling	193	0	0.00	0.00
40.1	*..production and distribution of electricity*	475 361	1 887	0.40	**9.00**
40.2	*.. distribution of gaseous fuels*	182	0	0.00	0.00
40.3	*..steam and hot water supply*	38 204	0	0.00	0.72
41	Collection, purification and distribution of water	50 118	0	0.00	0.95
45	Construction	40 543	0	0.00	0.77
50-52	Wholesale and retail sale	1 360 525	1 341 015	98.57	**25.76**
55	*Hotels and restaurants*	1 476	0	0.00	0.03
60	Land transport	47 470	0	0.00	0.90
61	Water transport	1 849	0	0.00	0.04
62	Air transport	3 048	0	0.00	0.06
63	Supporting transport activities; travel agencies	2 528 014	2 521 422	99.74	**47.74**
64	Post and telecommunications	1 151	0	0.00	0.02
65-67	Financial intermediation	852	0	0.00	0.02
70-74	Real estate; renting	27 053	0	0.00	0.51
75	Public administration and defence; compulsory social security	9 138	0	0.00	0.17
80	Education	1 129	0	0.00	0.02
85	Health and social work	1 385	0	0.00	0.03
90	Wastewater treatment, waste management	89 927	0	0.00	1.70
91	Activities of membership organizations	45	0	0.00	0.00
92	Recreational, cultural and sporting activities	741	0	0.00	0.01
93	Other service activities	499	0	0.00	0.01

The data are illustrated also on the figure 13. This figure shows in detailed who are the first payers of environmental taxes.

The first payers of the environmental tax are those who just import the fuel

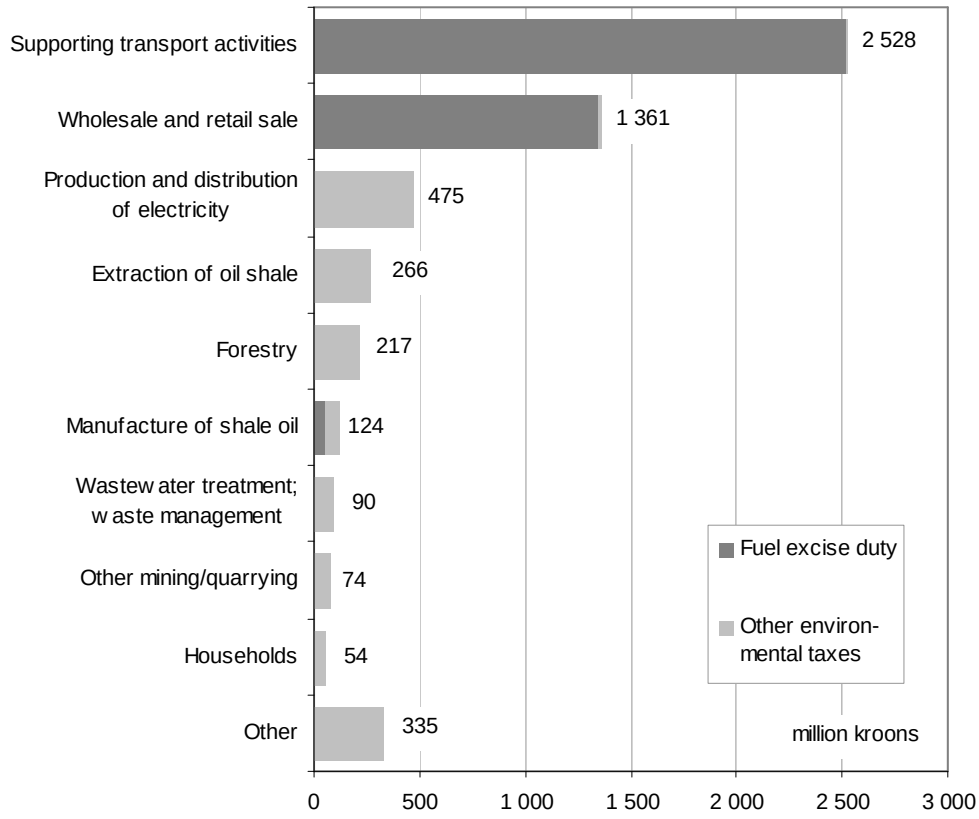


Figure 13. Environmental taxes of the first payers, 2007

We can observe from the figure12 that the biggest sums of the environmental taxes are paid by two activities: wholesale and retail trade (NACE–codes 50-52) and supporting transport and tourism agencies activities (NACE–code 63). This approach for environmental taxes is useful to those who assign the tax, or who collect the revenue or those who deal with the claiming of the debts. This is how the environmental taxes look from the tax revenue side. It should be emphasised that despite the fact we see the distribution by economic activities this is the micro economical approach.

"Does the polluter pay" according to outlined table 29? As we could wrongly conclude from the graph, the biggest polluters according to the figure 12 are the sector of supporting transport activities and sector of wholesale and retail trade who just import the fuel. But as those are just the firsthand tax payers, who do not pollute, we can conclude that this approach is not suitable for deeper analyses. Unfortunately this is also the way how this tax is treated in national accounts supply and use tables. Also the Eurostat's statistical guide suggests showing the fuel tax according to the first payer. This is also why these standard tables are too simplified for relevant (ecological tax reform) political analyses.

4.2. THE END PAYERS OF ENVIRONMENTAL TAXES

4.2.1. Redistribution of the fuel excise duty according to the "real" payers

The methodology for distribution of fuel excise duty

We divided the fuel excise duty according to the fuel consumption assuming that:

- Importers of the fuel, who pay the fuel excise duty, do not consume the fuel by themselves but sell this to others and add the excise duty to the cost;
- Fuel excise duty is paid by all fuel consumers.

By doing so we brought in the end-payer on the bases of the energy balance (in chapter 2.1.2.), who pays fuel excise duty indirectly and for whom the fuel excise duty is the real cost or burden. The fuel excise duty distribution by economic activities is outlined in the table 30. At present we cover here only industry, the household sector will be handled later. Also the sectors of agriculture, forestry and fishing were not included into following analyses, because economic data were not available for these sectors, in later analyses than the tax data are bound with the economical data the agriculture is added.

Table 30. Environmental taxes of after redistribution of the fuel excise duty according to the "end" payers, 2007
(thousand kroons)

NACE–code	Economic activities	Environ-mental taxes	..of which fuel excise duty	..share of fuel excise duty in environ-mental taxes (%)	Share of NACE in environ-mental taxes (%)
10	Extraction of peat	36 855	26 673	72	1
11	Extraction of oil shale	355 620	89 776	25	7
14	Other mining and quarrying	105 728	31 520	30	2
15	Manufacture of food products and beverages	76 684	63 947	83	1
17	Manufacture of textiles	12 042	10 709	89	0
18	Manufacture of wearing apparel; dressing and dyeing of fur	7 351	6 852	93	0
19	Manufacture of leather products and footwear	1 461	1 339	92	0
20	Manufacture of wood and wood products	73 443	67 803	92	1
21	Manufacture of pulp, paper and paper products	19 129	6 298	33	0
22	Publishing, printing and reproduction of recorded media	15 110	14 253	94	0
..23.2	*..manufacture of shale oil*	93 221	22 884	25	2
24	Manufacture of chemicals and chemical products	15 698	14 162	90	0
25	*Manufacture of rubber and plastic products*	14 600	13 751	94	0
26	Manufacture of other non-metallic mineral products	87 428	60 136	69	2
27	Manufacture of basic metals	966	849	88	0
28	Manufacture of fabricated metal products (except machinery)	31 766	29 467	93	1
29	Manufacture of machinery and equipment	15 519	14 123	91	0
30	Manufacture of office machinery and computers	751	717	95	0
31	Manufacture of electrical machinery and apparatus	5 926	5 677	96	0
32	Manufacture of radio, television and communication equipment	1 612	1 515	94	0
33	Manufacture of medical and optical instruments and watches	2 923	2 769	95	0
34	Manufacture of motor vehicles, trailers and semi-trailers	4 116	3 860	94	0
35	Manufacture of other transport equipment	7 827	7 241	93	0
36	Manufacture of furniture; other manufacturing	20 512	19 129	93	0
37	Recycling	2 926	2 734	93	0
40.1	*..production and distribution of electricity*	513 368	39 895	8	10
40.2	*.. distribution of gaseous fuels*	2 522	2 340	93	0

40.3	*..steam and hot water supply*	53 459	15 255	29	1
41	Collection, purification and distribution of water	59 224	9 106	15	1
45	Construction	413 037	372 493	90	8
50-52	Wholesale and retail sale	189 413	169 902	90	4
55	*Hotels and restaurants*	7 603	6 127	81	0
60	Land transport	616 087	568 617	92	12
61	Water transport	4 568	2 719	60	0
62	Air transport	3 496	448	13	0
63	Supporting transport activities; travel agencies	57 397	50 806	89	1
64	Post and telecommunications	23 195	22 044	95	0
65-67	Financial intermediation	17 231	16 379	95	0
70-74	Real estate; renting	100 081	73 028	73	2
75	Public administration and defence; compulsory social security	121 244	112 106	92	2
80	Education	15 567	14 438	93	0
85	Health and social work	16 966	15 581	92	0
90	Wastewater treatment, waste management	113 631	23 704	21	2
91	Activities of membership organizations	380	335	88	0
92	Recreational, cultural and sporting activities	9 020	8 280	92	0
93	Other service activities	2 435	1 937	80	0

"The most environmentally friendly" economic branches

Table 31 outlines in a first column the allocation of all environmental taxes. If we look at the share of fuel excise duty in all environmental taxes by economic activities we can assume that the bigger is the share of fuel excise duty, the more "environmentally friendly" is the activity as this activity does not pay the specific charges for environmental pollution.

This is not true those cases than we meat the highest absolute figures for fuel excise duty like explicitly road transport. But in majority of economic activities than fuel excise duty counts for 100%, it means that this economic sector does not pay the pollution taxes and resource taxes.

Table 31 shows these activities in which the fuel excise duty counts for more than 90%. The last column indicates that these activities also pay the smallest share of environmental taxes, so also the fuel excise duty paid by them is negligible. The exemption as we said above is road transport sector (NACE–code 60), which pays 16% of Estonia's fuel excise duty and hence also a big part of all environmental taxes in Estonia.

If we leave apart road transport sector, we could say that these are the most environmentally friendlier economic activities in Estonia. Than again among these "the most environmentally friendly" activities comprise also such known polluters like chemical industry, metallurgy, production of rubber and plastic are outlined (table 31).

Table 31. Environmental taxes of "the most environmentally friendly" economic units, 2007
(thousand kroons)

NACE–code	Economic activities	Environ-mental taxes	..of which fuel excise duty	..share of fuel excise duty in environ-mental taxes (%)	Share of NACE in environ-mental taxes (%)
61	Water transport	940	940	100	0
62	Air transport	80	80	100	0
30	Manufacture of office machinery and computers	308	308	100	0
31	Manufacture of electrical machinery and apparatus	2 461	2 344	95	0
60	Land transport	306 404	288 920	94	**16**
22	Publishing, printing and reproduction of recorded media	4 564	4 292	94	0

32	Manufacture of radio, television and communication equipment	658	617	94	0
37	Recycling	1 575	1 442	92	0
40.2	Distribution of gaseous fuels	1 183	1 082	91	0
27	Manufacture of basic metals	347	318	91	0
18	Manufacture of wearing apparel; dressing and dyeing of fur	2 661	2 426	91	0
34	Manufacture of motor vehicles, trailers and semi-trailers	1 257	1 146	91	0
64	Post and telecommunications	1 388	1 259	91	0
33	Manufacture of medical and optical instruments and watches	637	577	91	0
25	Manufacture of rubber and plastic products	5 059	4 555	90	0
35	Manufacture of other transport equipment	2 890	2 598	90	0
24	Manufacture of chemicals and chemical products	5 342	4 802	90	0
20	Manufacture of wood and wood products	32 538	29 179	90	2

"The biggest polluters" economic branches

Table 32 outlines the activities which fuel excise duty is less than 50% of their environmental taxes. The last column of the table shows that these activities pay the majority of environmental taxes in Estonia.

Table 32. Environmental taxes of "the biggest polluters", 2007
(thousand kroons)

NACE–code	Economic activities	Environ-mental taxes	..of which fuel excise duty	..share of fuel excise duty in environ-mental taxes (%)	Share of NACE in environ-mental taxes (%)
40.1	Production and distribution of electricity	483 635	11 932	2	**25**
41	Collection, purification and distribution of water	48 805	2 717	6	2
90	Wastewater treatment; waste management	99 018	13 128	13	**5**
40.3	Steam and hot water supply	41 283	6 528	16	2
26	Manufacture of other non-metallic mineral products	29 409	4 685	16	2
11	Extraction of oil shale	316 447	51 301	16	**16**
23.2	Manufacture of shale oil	77 560	13 121	17	4
14	Other mining and quarrying	90 741	17 240	19	5
21	Manufacture of pulp, paper and paper products	15 592	3 000	19	1
70-74	Real estate, renting	26 875	7 877	29	1
55	Hotels and restaurants	439	164	37	0

In firsthand we could conclude that table 32 outlines the "biggest" polluters who pay the majority of environmental. This conclusion is inconsiderate or even not true: two economic activities outlined in table 32, particularly the treatment of wastewater (NACE–code 41) and waste management (NACE–code 90) which are paying the majority of the pollution taxes, are the kind of activities who are specialised on environmental protection. If other economic activities are paying environmental taxes because they have created pollution as a result of their production processes than these activities are specialised on cleaning up the pollution created by others.

We concluded that the pollution taxes paid by specialized enterprises should be also divided according to the real pollution generators and hence also "the real end payers". How we did this, the next chapter handles in detail.

4.2.2. Redistribution of the waste disposal charge of enterprises dealing with waste management

The methodology for distribution of waste disposal charge

We decided that the waste management activities environmental taxes should ld be treated in the same manner as the fuel excise duty was redistributed to the "real payers" who are the clients of the waste management companies.

Waste management (collection, treatment and disposal) is a service, which is used by majority of the economic activities, including the households. Enterprises dealing with waste management are charging the clients and include their pollution charge also in a bills. This is on line with the "polluter pays" principle.

Waste management enterprises itself are gathered under NACE–code 90. At the same time NACE–code 90 contains various kinds of enterprises:

- **90.011** – wastewater treatment. We consider these enterprises under NACE–code 41 there are majority of waste treatment companies.
- **90.020** – waste treatment and disposal. This activity contains the majority of Estonia's landfills and it contributes the half of waste disposal charges.
- **90.021** – waste collection and transport. This activity gives the remaining half of waste disposal charge. According to environmental protection expenditure survey several enterprises in this activity also pay for provided waste management services to other enterprises with NACE–code 90 and so they behave also like enterprises specialised on environmental production.
- **90.022** – hazardous waste management.
- **90.031** – cleaning of the parks and roads.

Considering the latter we decided that the waste disposal charge should be treated in the same manner as the fuel excise duty was treated and that it should be divided between the activities proportionally to the collected amounts of the waste. These data were unfortunately not available, so the indirect estimations were made using the data on the clients' payments to enterprises dealing with waste management. These data were obtained from environmental protection expenditure survey.

For each economic activity the payments made for waste management were estimated. The share of waste disposal charge in payments for waste management was found comparing the detailed data obtained from waste management companies. These data were gathered and validated in the frame of the survey "Environmental protection expenditures". The share of waste disposal charge in costs of provided waste management services is around 10%. Next the clients' share in waste disposal charge was found and allocated between the economic activities. The rest of the waste disposal charge was divided proportionally to the generated waste amounts among the group of economic activities comprising households and economic activities not covered by environmental protection expenditure survey).

The proportions for waste generation were derived from waste statistics for the year 2006 (respective to Eurostat's waste statistics regulation reporting format). Comparisons of the waste disposal charge before and after allocation are outlined in Annex 17 table 1. This table also shows also what is the amount of "hidden waste disposal charge" paid through the payments for services (column "from payment"). The conclusions on reallocation are drawn out later.

4.2.3. Redistribution of the water pollution charge of enterprises dealing with wastewater management

The methodology for distribution of water pollution charge

Wastewater management in line with waste management is a service, which is used by the majority of the society. Water pollution charge was divided into enterprise specific and into general water pollution charge following the same logic that was used while redistributing the waste disposal charge.

Water pollution charge was divided among the clients proportionally to the generated (and hence treated wastewater) wastewater. In Estonia the majority of the wastewater treatment companies are allocated under NACE–code 41 (water collection, treatment and supply). This is due to the fact that the majority of these companies carry out both: the water supply and wastewater treatment activities. In addition quite a number of wastewater treatment companies are allocated under NACE–code 70 (real estate activities). In addition some industrial enterprises are also treating the wastewater of the surrounding settlements. For the reallocation of water pollution charge, the water pollution charge from sector with NACE–codes 41, 90.011 and 70 were considered. Settlements wastewater treated by industrial enterprises was not taken into account as it was not possible to drive reliable estimations on respective shares. We found that this part of wastewater is anyhow negligible.

Water pollution charge paid by wastewater treaters was divided into two parts:

- charge paid for the wastewater generated by the enterprise itself;
- charge paid for the treatment of wastewater received (provided service).

In one side the wastewater treatment plants database regarding their wastewater treatment patterns, amounts and clients and from other side environmental expenditures survey data regarding payments for wastewater treatment were used.

Comparison was made between the water pollution charges paid and payments received from the clients. The share of the water pollution charge formed around 7% in presented bills for payments and was allocated to source sectors. The rest of the water pollution charge was paid by enterprises with NACE–codes 41, 90.011 and 70 was divided between households and activities not covered by environmental protection expenditure survey proportionally. The comparison of water pollution charge before and after allocation is seen in Annex 17 table 1 and discussed in further down. This table shows also what is the amount of "hidden water pollution charge" paid through the payments for services (column "from payment").

4.2.4. Redistribution of the water abstraction charge of enterprises dealing with water supply

The methodology for distribution of water abstraction charge

Despite the fact that the water supply is not environmental protection activity according to CEPA (Classification of Environmental Protection Activities), we arrived on opinion that the water abstraction charge should be handled in the same manner as the as waste disposal and water pollution charges, apart and differently than other resource charges. So we reallocated the water abstraction charge according to the same logic as charges of other enterprises specialized on environmental protection.

Another reason is that water supply and wastewater treatment are quite often performed by same companies in Estonia. So, water abstraction charge was divided in two parts: into enterprise specific charge which is paid for water supply to others and self-supply. Among the clients of water supply companies the charge was distributed using the same proportions which were used for wastewater discharges assuming that proportionally equal amounts of water is supplied and treated. It was also supposed that that the charge per unit for wastewater treatment and water supply are almost equal.

The comparison of water abstraction charge distribution before and after allocation is outlined in Annex 17 table 1. This table also shows also what is the amount of "hidden water abstraction charge" paid through the payments for services (column "from payment").

4.3. ANALYSES OF THE INDUSTRIES' BURDEN OF ENVIRONMENTAL TAXES AFTER REALLOCATION OF THE FUEL EXCISE DUTY, WASTE DISPOSAL CHARGE, WATER POLLUTION CHARGE, WATER ABSTRACTION CHARGE

The following table 33 outlines how the Eurostat's environmental taxes standard table (table 30) looks after reallocation of the fuel excise duty, waste disposal charge, water pollution charge and water abstraction charge.

Table 33. Environmental taxes after reallocation of the fuel excise duty, waste disposal charge, water pollution charge, water abstraction charge, 2007 (thousand kroons)

NACE–code	Economic activities	Environ-mental taxes	..of which fuel excise duty	..share of fuel excise duty in environ-mental taxes (%)	Share of NACE in environ-mental taxes (%)
10	Extraction of peat	24 580	14 639	60	1
11	Extraction of oil shale	315 676	51 301	16	16
14	Other mining and quarrying	90 418	17 240	19	5
15	Manufacture of food products and beverages	45 353	28 514	63	2
17	Manufacture of textiles	13 758	4 635	34	1
18	Manufacture of wearing apparel; dressing and dyeing of fur	3 283	2 426	74	0
19	Manufacture of leather products and footwear	740	573	77	0
20	Manufacture of wood and wood products	33 418	29 179	87	2
21	Manufacture of pulp, paper and paper products	9 239	3 000	32	0
22	Publishing, printing and reproduction of recorded media	11 654	4 292	37	1
23	Manufacture of shale oil	66 728	13 121	20	3
24	Manufacture of chemicals and chemical products	7 569	4 802	63	0
25	Manufacture of rubber and plastic products	5 460	4 555	83	0
26	Manufacture of other non-metallic mineral products	31 494	4 685	15	2
27	Manufacture of basic metals	497	318	64	0
28	Manufacture of fabricated metal products (except machinery)	11 019	9 043	82	1
29	Manufacture of machinery and equipment	6 186	4 760	77	0
30	Manufacture of office machinery and computers	318	308	97	0
31	Manufacture of electrical machinery and apparatus	3 043	2 344	77	0
32	Manufacture of radio, television and communication equipment	1 126	617	55	0
33	Manufacture of medical and optical instruments and watches	832	577	69	0
34	Manufacture of motor vehicles, trailers and semi-trailers	1 491	1 146	77	0
35	Manufacture of other transport equipment	3 255	2 598	80	0
36	Manufacture of furniture; other manufacturing	9 175	7 135	78	0
37	Recycling	1 600	1 442	90	0
40.1	Production and distribution of electricity	486 102	11 932	2	25
40.2	Distribution of gaseous fuels	1 228	1 082	88	0
40.3	Steam and hot water supply	41 723	6 528	16	2
41	Collection, purification and distribution of water	9 109	2 717	30	0
45	Construction	177 118	151 204	85	9
50-52	Wholesale and retail trade	67 535	47 694	71	4
55	Hotels and restaurants	2 814	164	6	0
60	Land transport	308 570	288 920	94	16
61	Water transport	2 492	940	38	0
62	Air transport	1 111	80	7	0
63	Supporting transport activities; travel agencies	32 801	24 767	76	2
64	Post and telecommunications	4 945	1 259	25	0
65-67	Financial intermediation	3 376	1 826	54	0
70-74	Real estate, renting	41 448	7 877	19	2

75	Public administration and defence; compulsory social security	6 396	4 793	75	0
80	Education	1 634	2 118	56	0
85	Health and social work	5 049	2 253	37	0
90	Wastewater treatment; waste management	26 568	13 128	49	1
91	Activities of membership organizations	1 860	335	18	0
92	Recreational, cultural and sporting activities	2 029	223	11	0
93	Other service activities	2 728	606	22	0

Comparison of standard tables regarding industries before and after reallocation

The pie charts figures 14 and 15 visualize the economic branches who pay the most of the environmental taxes. Figure 13 shows the first payers of these taxes and the figures 14 shows who really pays these taxes for comparison than environmental charges and fuel excise duty are reallocated.

First pie chart shows that sector of supporting transport activities and sector of wholesale and retail sale together paid ¾ of environmental taxes (respectively 2.6 and 1.4 billion kroons).

The reason why these two sectors paid majority of environmental taxes, is that they import fuel and pay fuel excise duty on imported fuel. Sectors related to the electricity production and manufacture of oil shale comprise together also a significant share of environmental tax totals (16%).

The second figure outlines payers of environmental taxes after the reallocation of pollution charges and fuel excise duty. Figure 15 shows that environmental tax burden is moved from the fuel importers mostly to the household sector, which paid 36% of environmental taxes. Land transport sector paid 13% and construction sector 9% of environmental taxes.

Share of environmental taxes paid by sectors importing fuel (sector of wholesale, retail trade and sector of supporting transport activities) was very little after reallocation of environmental tax: both sectors' environmental taxes made up only 9% of total environmental taxes. Also the share of environmental taxes paid by the sectors related to electricity production decreased greatly after reallocation of environmental taxes from 16% to 6%.

It should be mentioned that the sectors of agriculture, forestry and fishing are not included to the analyse as the economical data were not available yet for 2007.

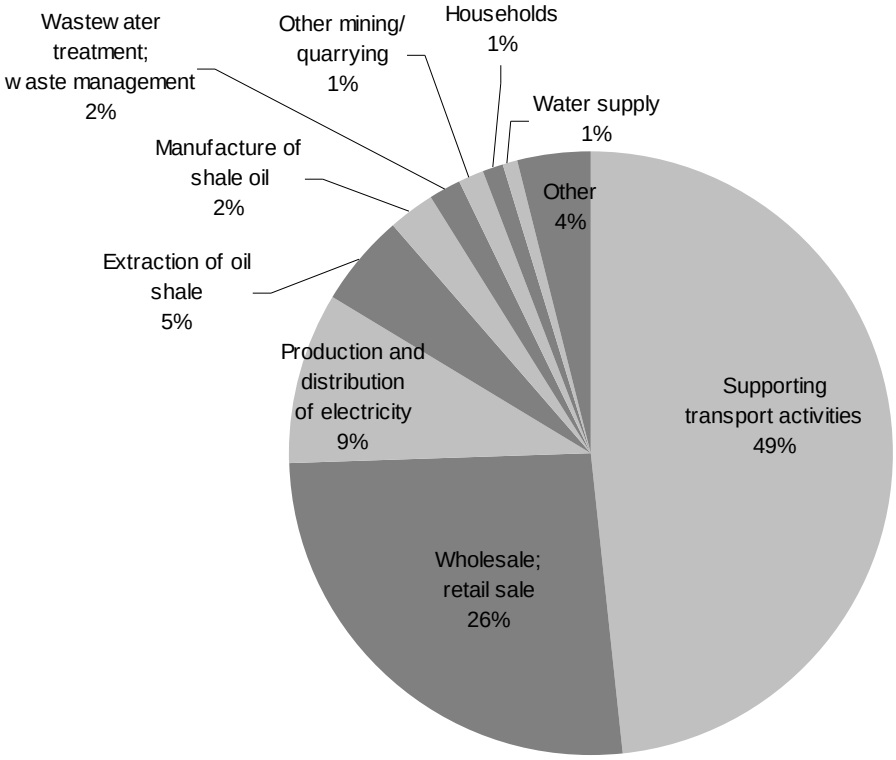


Figure 14. Payers of total environmental taxes before the reallocation of environmental taxes, 2007

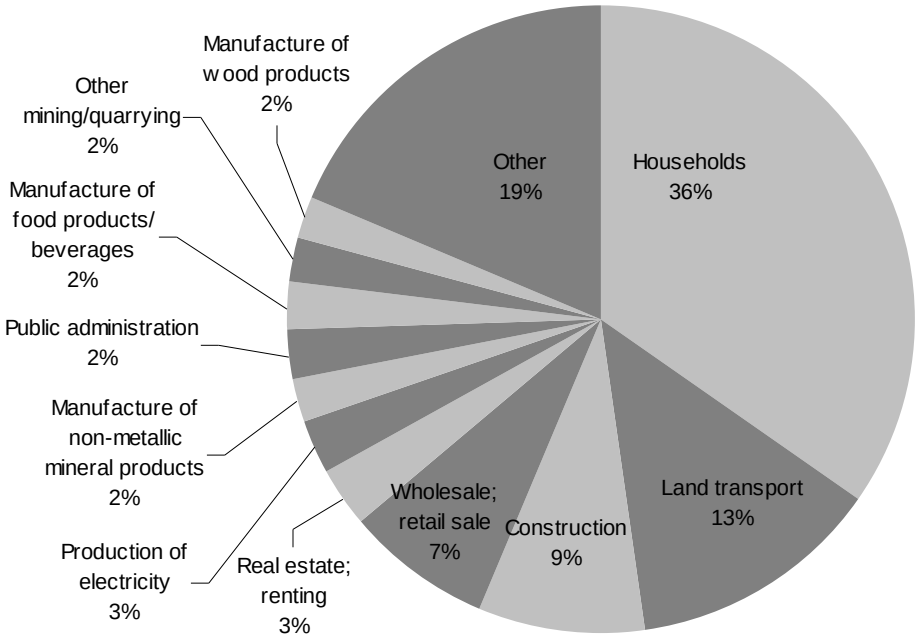


Figure 15. Payers of total environmental taxes after the reallocation of pollution charges and fuel excise duty, 2007

Comparison of environmental taxes and total expenditures

It is not possible to judge only on the bases of the environmental taxes data if the polluter pays or is the environmental tax fair?

In one hand we have to look how big is the absolute value of the environmental taxes and in another hand it is also important to look at the share of environmental taxes in total taxes, expenses and profit of a given economic activity. In another hand it is important to know the share each activity pays in total respective environmental taxes in order to evaluate the environmental tax burden.

Table 34. Comparison of environmental taxes and total expenditure, 2007 (thousand kroons)

NACE–code	Economic activities	Total environmental taxes	..of which enterprise specific environmental taxes	..share of enterprise specific environmental taxes (%)	Total expenditures	Share of environmental taxes in total expenditures (%)	..of which share of specific environmental taxes (%)
40.1	Production and distribution of electricity	486 102	471 696	97	12 744 489	4	4
11	Extraction of oil shale	315 676	264 206	84	2 008 856	16	13
40.3	Steam and hot water supply	41 723	34 712	83	2 765 604	2	1
14	Other mining and quarrying	90 418	73 121	81	981 094	9	7
26	Manufacture of other non-metallic mineral products	31 494	24 711	78	5 564 003	1	0
23.2	Manufacture of shale oil	66 728	48 434	73	1 458 424	5	3
21	Manufacture of pulp, paper and paper products	9 239	6 140	66	2 038 647	0	0
22	Publishing, printing and reproduction of recorded media	11 654	6 957	60	2 994 606	0	0
10	Extraction of peat	24 580	9 836	40	719 153	3	1
17	Manufacture of textiles	13 758	4 856	35	3 607 995	0	0
70-74	Real estate, renting	41 448	13 854	33	8 573 112	0	0
29	Manufacture of machinery and equipment	6 186	982	16	3 415 507	0	0
50-52	Wholesale and retail trade	67 535	10 074	15	71 312 931	0	0
41	Collection, purification and distribution of water	9 109	1 350	15	1 111 469	1	0
15	Manufacture of food products and beverages	45 353	6 705	15	15 350 209	0	0
63	Supporting transport activities; travel agencies	32 801	4 360	13	14 147 454	0	0
90	Wastewater treatment; waste management	26 568	3 472	13	1 107 656	2	0
45	Construction	177 118	18 890	11	36 384 150	0	0
19	Manufacture of leather products and footwear	740	79	11	314 932	0	0
28	Manufacture of fabricated metal products (except machinery)	11 019	1 057	10	8 866 372	0	0
20	Manufacture of wood and wood products	33 418	3 088	9	14 585 319	0	0
35	Manufacture of other transport equipment	3 255	291	9	1 181 642	0	0
55	Hotels and restaurants	2 814	246	9	521 179	1	0
37	Recycling	1 600	133	8	1 035 692	0	0
40.2	Distribution of gaseous fuels	1 228	101	8	2 408 114	0	0
36	Manufacture of furniture; other manufacturing	9 175	736	8	4 221 750	0	0
92	Recreational, cultural and sporting activities	2 029	161	8	106 937	2	0
34	Manufacture of motor vehicles, trailers and semi-trailers	1 491	110	7	2 040 492	0	0
18	Manufacture of wearing apparel; dressing and dyeing of fur	3 283	235	7	1 696 562	0	0
24	Manufacture of chemicals and chemical products	7 569	520	7	4 907 604	0	0
85	Health and social work	5 049	340	7	1 091 489	0	0
93	Other service activities	2 728	170	6	255 054	1	0
27	Manufacture of basic metals	497	29	6	1 148 085	0	0
60	Land transport	308 570	17 475	6	16 899 527	2	0
25	Manufacture of rubber and plastic products	5 460	285	5	3 544 842	0	0
33	Manufacture of medical and optical	832	34	4	1 226 849	0	0

	instruments and watches						
32	Manufacture of radio, television and communication equipment	1 126	42	4	2 218 996	0	0
64	Post and telecommunications	4 945	128	3	986 731	1	0
31	Manufacture of electrical machinery and apparatus	3 043	43	1	6 538 327	0	0
80	Education	1 634	9	1	26 143	6	0
65-67	Financial intermediation	3 376	11	0	93 257	4	0
30	Manufacture of office machinery and computers	318	0	0	478 550	0	0
61	Water transport	2 492	0	0	…	…	…
62	Air transport	1 111	0	0	…	…	…
75	Public administration and defence; compulsory social security	6 396	0	0	…	…	…
91	Activities of membership organizations	1 860	0	0	…	…	…

Among others some activities are outstanding regarding their high share of enterprise specific environmental taxes in all environmental taxes. For the majority of them also the share of the environmental taxes in total expenses is the highest.

Than to line the economic branches (according to NACE–categories) in descending order according to the share of specific environmental taxes (table 34) we can form different environmental tax burden groups.

Activities which "do not pollute and do not pay environmental taxes"

The first group consists of enterprise on the bases of information outlined in table 35: activities which environmental taxes are just "general". These general costs are: fuel excise duty, waste disposal charge, water pollution charge and water abstraction charge. Simultaneously the share of their environmental taxes is relatively low in their total expenses. We could say that these activities are not polluting and not paying for pollution. These activities are outlined in table 35.

Quite surprisingly also chemical industry (NACE–code 24), waste recycling (NACE–code 37), wood processing (NACE–code 20) and manufacturing of metal products (NACE–code 27) belong to this group.

Table 35. Environmental taxes of economic units, which "do not pollute and do not pay environmental taxes"
(thousand kroons)

NACE–code	Economic activities	Total environ-mental taxes	..of which specific environ-mental taxes	..share of specific taxes (%)	Total expendi-tures	Share of environ-mental taxes in total expendi-tures (%)	..of which share of specific environ-mental taxes (%)
30	Manufacture of office machinery and computers	318	0	0	478 550	0	0
31	Manufacture of electrical machinery and apparatus	3 043	43	1	6 538 327	0	0
32	Manufacture of radio, television and communication equipment	1 126	42	4	2 218 996	0	0
33	Manufacture of medical and optical instruments and watches	832	34	4	1 226 849	0	0
25	Manufacture of rubber and plastic products	5 460	285	5	3 544 842	0	0
27	Manufacture of basic metals	497	29	6	1 148 085	0	0
85	Health and social work	5 049	340	7	1 091 489	0	0
24	Manufacture of chemicals and chemical products	7 569	520	7	4 907 604	0	0
18	Manufacture of wearing apparel; dressing and dyeing of fur	3 283	235	7	1 696 562	0	0
34	Manufacture of motor vehicles, trailers and semi-trailers	1 491	110	7	2 040 492	0	0

36	Manufacture of furniture; other manufacturing	9 175	736	8	4 221 750	0	0
40.2	Distribution of gaseous fuels	1 228	101	8	2 408 114	0	0
37	Recycling	1 600	133	8	1 035 692	0	0
35	Manufacture of other transport equipment	3 255	291	9	1 181 642	0	0
20	Manufacture of wood and wood products	33 418	3 088	9	14 585 319	0	0

Activities which "do not pollute but do pay environmental taxes"

Activities, where the share of enterprise specific environment taxes is low in environmental taxes, but whose environmental taxes still represent high share in total taxes. These activities could be classified as the ones "who do not pollute but who do pay environmental taxes". These activities are listed in the following table 36.

Table 36. Environmental taxes of economic units "who do not pollute but who do pay environmental taxes"
(thousand kroons)

NACE–code	Economic activities	Total environ-mental taxes	..of which specific environ-mental taxes	..share of specific taxes (%)	Total expendi-tures	Share of environ-mental taxes in total expendi-tures (%)	..of which share of specific environ-mental taxes (%)
80	Education	1 634	9	1	26 143	6	0
65-67	Financial intermediation	3 376	11	0	93 257	4	0
92	Recreational, cultural and sporting activities	2 029	161	8	106 937	2	0
60	Land transport	308 570	17 475	6	16 899 527	2	0
93	Other service activities	2 728	170	6	255 054	1	0
55	Hotels and restaurants	2 814	246	9	521 179	1	0
64	Post and telecommunications	4 945	128	3	986 731	1	0

Activities which "pollute but do not pay environ-mental taxes"

Activities, where the share of enterprise specific environmental taxes is high, but whose environmental taxes form small part of total taxes. These activities could be classified as the ones "who pollute but who do not pay environmental taxes". These activities are listed in the following table 37.

Table 37. Environmental taxes of economic units "who pollute but who do not pay environmental taxes"
(thousand kroons)

NACE–code	Economic activities	Total environ-mental taxes	..of which specific environ-mental taxes	..share of specific taxes (%)	Total expendi-tures	Share of environ-mental taxes in total expendi-tures (%)	..of which share of specific environ-mental taxes (%)
21	Manufacture of pulp, paper and paper products	9 239	6 140	66	2 038 647	0	0
22	Publishing, printing and reproduction of recorded media	11 654	6 957	60	2 994 606	0	0
17	Manufacture of textiles	13 758	4 856	35	3 607 995	0	0
70-74	Real estate, renting	41 448	13 854	33	8 573 112	0	0

Activities which "pollute but do not pay environ-mental taxes"

Activities, where the share of enterprise specific environmental taxes is high environmental taxes, but whose environmental taxes form a big share in total taxes. These activities could be classified as the ones "who pollute and pay environmental taxes". These activities are listed in the following table 38.

Table 38. Environmental taxes of economic units "who pollute and pay environmental taxes"
(thousand kroons)

NACE–code	Economic activities	Total environ-mental taxes	..of which specific environ-mental taxes	..share of specific taxes (%)	Total expendi-tures	Share of environ-mental taxes in total expendi-tures (%)	..of which share of specific environ-mental taxes (%)
40.1	Production and distribution of electricity	486 102	471 696	97	12 744 489	4	4
11	Extraction of oil shale	315 676	264 206	84	2 008 856	16	13
40.3	Steam and hot water supply	41 723	34 712	83	2 765 604	2	1
14	Other mining and quarrying	90 418	73 121	81	981 094	9	7
26	Manufacture of other non-metallic mineral products	31 494	24 711	78	5 564 003	1	0
23	Manufacture of shale oil	66 728	48 434	73	1 458 424	5	3
10	Extraction of peat	24 580	9 836	40	719 153	3	1

Activities which are not classified in any of the categories represent either a mixture of different types or for some of them data were not available

Up to present we observed how the share of the environmental taxes varies among economic activities. The picture could differ than we look at the share of each activity in total economy: for example we can have the activity, which environmental taxes form a big share in their expenses, but the tax itself could be rather small and vice versa.

The highest share of the environmental taxes is paid by sector of production of electricity activities (NACE–code 40.1) and sector of extraction of oil shale (NACE–code 11), which together give 41% of all environmental taxes and 72% of the enterprise specific environmental taxes.

Both activities are connected to the oil shale production and one corporation is dominating in both of these activities. As this corporation is paying the majority of environmental taxes we handle this corporation's data separately. 90% of electricity is produced from oil shale in Estonia. Despite the fact that the production of electricity from oil shale is related to the formation of big quantities of waste, air pollution and wastewater, there is no good alternative to this technology in Estonia at present.

4.4. REALLOCATION OF ENVIRONMENTAL CHARGES FROM ELECTRICITY PRODUCTION

The methodology for distribution of environmental charges related to electricity production

As we described in previous chapter in Estonia one corporation pays most of environmental taxes. In case of electricity production we have this kind of specific situation. Production of electricity from oil shale is very polluting activity accompanied with the generation of huge quantity of waste (including 98% of hazardous waste generated in Estonia), the abstraction of the majority of groundwater (mining water) and the formation of lot of air emissions of various kinds. At the same time it is considered as an „unavoidable damage", because there is no real alternative. Even more, production of electricity from oil shale has the political aspect also, as insures the energetically independence. From the one side production of electricity is more than economic activity of one corporation. From other side the corporation, which is a monopoly, is also in the position of dictating the price of products of this economic activity.

Air pollution charge, water pollution charge, waste disposal charge, water abstraction charge and mineral resources extraction charge of this monopolistic electricity producing company were extracted and divided between economical branches proportionally to electricity use of these branches. Because all environmental charges of monopolistic sector of electricity production are actually paid by the enterprises, households and other economic units, which use electricity.

This corporation includes besides NACE–categories 40.1 and 11 also NACE 23 (production of shale oil). Environmental taxes of small companies who belong to the same NACE–categories were not divided. Electricity used for electricity production was considered as electricity use of this corporation. If energy balance shows only summarized electricity use on a group level (for example NACE–codes 21+22 or NACE–codes 17+18+19), the electricity use of these NACE–categories were divided between them proportionally to the total net sale of these NACE–codes.

The energy balance of Estonia was used to allocate the environmental charges of energy production to respective economic activities proportionally to the use of electricity. So we transposed the environmental taxes from electricity producers to electricity users. Table 39 shows environmental taxes of electricity production are by consumer categories.

This table outlines, that though electricity production still contributes to the big share of environmental taxes connected to electricity production, the biggest payers are trade sector (20%) and households (19%). The electricity production and distribution occupies the next positions among the biggest environmental taxes payers. Other NACE–categories, which pay essential share of environmental taxes connected with electricity production, are manufacturing of wood and wood products (NACE–code 20), manufacturing of chemical products (NACE–code 24) and manufacturing of food (NACE–code 15).

Table 39. Distribution of environmental taxes related to electricity production between economical activities according to electricity use, 2007 (thousand kroons)

NACE–code	Economic activities	Environmental charges					Total	Share of NACE category in total (%)
		Air pollution charge	Water pollution charge	Waste disposal charge	Water abstraction charge	Mineral resources extraction charge		
10	Extraction of peat	1 795	69	2 073	682	1 246	5 866	0.7
11	Extraction of oil shale	4 014	154	4 636	1 526	2 786	13 116	1.6
14	Other mining and quarrying	619	24	715	235	430	2 024	0.3
15	Manufacture of food products and beverages	9 755	374	11 267	3 709	6 770	31 876	4.0
17	Manufacture of textiles	2 957	113	3 415	1 124	2 052	9 661	1.2
18	Manufacture of wearing apparel; dressing and dyeing of fur	1 431	55	1 653	544	993	4 676	0.6
19	Manufacture of leather products and footwear	258	10	298	98	179	842	0.1
20	Manufacture of wood and wood products	10 406	399	12 018	3 956	7 222	34 001	4.2
21	Manufacture of pulp, paper and paper products	3 937	151	4 547	1 497	2 732	12 864	1.6
22	Publishing, printing and reproduction of recorded media	6 748	259	7 793	2 565	4 683	22 047	2.8
..23.2	*..manufacture of shale oil*	3 537	136	4 084	1 344	2 454	11 555	1.4
24	Manufacture of chemicals and chemical products	9 879	379	11 410	3 756	6 856	32 281	4.0
25	*Manufacture of rubber and plastic products*	2 536	97	2 929	964	1 760	8 285	1.0
26	Manufacture of other non-metallic mineral products	8 083	310	9 335	3 073	5 610	26 411	3.3
27	Manufacture of basic metals	434	17	501	165	301	1 417	0.2
28	Manufacture of fabricated metal products (except machinery)	3 396	130	3 922	1 291	2 357	11 096	1.4
29	Manufacture of machinery and equipment	1 102	42	1 273	419	765	3 601	0.4
30	Manufacture of office machinery and computers	166	6	192	63	115	543	0.1
31	Manufacture of electrical machinery and apparatus	1 541	59	1 780	586	1 070	5 036	0.6
32	Manufacture of radio, television and communication equipment	732	28	845	278	508	2 391	0.3
33	Manufacture of medical and optical instruments and watches	822	32	950	313	571	2 686	0.3
34	Manufacture of motor vehicles, trailers and semi-trailers	715	27	826	272	496	2 336	0.3
35	Manufacture of other transport equipment	957	37	1 106	364	664	3 128	0.4
36	Manufacture of furniture; other manufacturing	3 461	133	3 997	1 316	2 402	11 307	1.4
37	Recycling	614	24	709	234	426	2 007	0.3
40.1	*..production and distribution of electricity*	28 902	1 108	33 380	10 988	20 058	94 436	11.8
40.2	*.. distribution of gaseous fuels*	11 923	457	13 771	4 533	8 275	38 959	4.9
40.3	*..steam and hot water supply*	588	23	680	224	408	1 923	0.2
41	Collection, purification and distribution of water	238	9	275	91	165	779	0.1
45	Construction	3 283	126	3 791	1 248	2 278	10 726	1.3
50-52	Wholesale and retail sale	48 823	1 872	56 387	18 561	33 884	159 527	19.9
55	*Hotels and restaurants*	1 258	48	1 453	478	873	4 111	0.5
60	Land transport	2 168	83	2 504	824	1 505	7 084	0.9
61	Water transport	155	6	179	59	107	506	0.1
62	Air transport	62	2	72	24	43	202	0.0
63	Supporting transport activities; travel agencies	4 841	186	5 591	1 840	3 360	15 817	2.0
64	Post and telecommunications	2 083	80	2 405	792	1 445	6 805	0.9
65-67	Financial intermediation	4 634	178	5 352	1 762	3 216	15 142	1.9
70-74	Real estate; renting	8 480	325	9 794	3 224	5 885	27 708	3.5
75	Public administration and defence; compulsory social security	1	0	1	0	1	3	0.0
80	Education	158	6	182	60	110	516	0.1
85	Health and social work	838	32	968	319	582	2 738	0.3

90	Wastewater treatment, waste management	282	11	326	107	196	922	0.1
91	Activities of membership organizations	12	0	13	4	8	38	0.0
92	Recreational, cultural and sporting activities	810	31	935	308	562	2 645	0.3
93	Other service activities	167	6	193	63	116	545	0.1
	Households	45 376	1 740	52 407	17 251	31 492	148 266	18.5

4.5. HOUESHOLDS' ENVIRONMENTAL TAX BURDEN

Up to now we have handled only economic branches (enterprises, establishments, governmental institutions etc.) as environmental tax payers. But households have important share here as well. Also in case of households we can point out specific taxes, appointed directly to households and general taxes paid as part of payments for different services.

Specific environmental taxes appointed directly to households are for example state fee for registration of motor vehicles. Fuel excise duty paid for used fuels (gasoline, diesel and light fuel oil) is not directly the specific environmental tax, but may be considered more as a specific environmental tax than general environmental tax. Data for estimation of state fee the environmental taxes paid for registering the vehicles were obtained from Estonian Motor Vehicle Registration Centre. Fuel excise duty paid by households was estimated on the bases of the energy balance (for energy balance household budged survey data are used).

General taxes paid as part of payments are waste pollution charge paid as part of payment for waste collection, water pollution charge paid as part of payment for wastewater management (sewage service) and water use tax paid as part of service for water distribution. In addition to above mentioned taxes households pay environmental taxes connected to electricity production (table 40). Environmental taxes paid by households are presented in the table.

As it is seen in the following table the biggest environmental tax paid by households in 2007 was fuel excise duty, which made up about 89% of all environmental taxes.

Table 40. Estimation of environmental taxes paid by households 2007 (thousand kroons)

Environmental tax	Tax paid	Share of tax (%)
Energy excise duty	1 468 696	88.6
Air pollution charge from electricity use	45 376	2.7
Water pollution charge from wastewater collection and treatment service	9 791	0.6
Water pollution charge from electricity use	1 740	0.1
Waste disposal charge from waste collection	12 330	0.7
Waste disposal charge from electricity use	52 407	3.2
Water abstraction charge from water distribution service	14 670	0.9
Water abstraction charge from electricity use	17 251	1.0
Mineral resources extraction charge from electricity use	31 492	1.9
State fee for registration of vehicles	3 238	0.2
TOTAL	**1 656 992**	**100.0**

The rough simulation of the environmental tax burden of households was made on the bases of the tax data obtained by this study. We outline the simulation here just as an illustration how could these kind of data be used in a future. Up to present we have not enough additional data and capacity to carry out the deeper analyses. Altogether this kind of analyses is already beyond the scope of current pilot study.

The population of Estonia was 1.3 million in 2007, of which the number of employed persons was 655.3 thousand. In 2007, natural persons paid 4.5 billion kroons, which made 6847 kroons per employed person per year (or 571 per month).

If to decrease the income tax by 1 % than the state revenue from income tax will decrease by 44.9 million kroons, which will make 68 kroons per month per employee additional extra income.

In 2007, 5.3 billion kroons of environmental taxes was received by state. The fuel excise duty formed 3.8 billion kroons of which. Households paid 1.7 billion kroons, which makes 2530 kroons per employed person per year. If to raise the environmental taxes per 10% than in total households will pay altogether 165 millions kroons more, which makes 253 kroons more for each employed person. According to current data the balance remains than environmental tax is risen not more than 2.6%. The indirect impacts (via the changes of the prices of the products is not considered here).

As one of the aims of the environmental taxes is to change also the consumption patterns and to decrease the consumption of energy.

The fuel excise duty is 70% in environmental charges. Coefficient of elasticity for the fuel is around 0.18 (Aasness, Schroyen 2005), which indicates that if we increase the fuel excise duty than it will be paid by the final consumers as there are no alternatives.

4.6. ENVIRONMENTAL TAX BURDEN

The biggest burden of environmental taxes lays on households, which paid 36% of all environmental taxes in 2007 (table 41). However, current methodological approach did not allow to allocate all the respective environment tax burden to the household sector as there was not enough information for doing so. The share of environmental taxes in the cost of the products and services is not taken into account for example. However we managed to allocate the most visible environmental taxes.

According to our study the next biggest environmental tax payers were transport (due to high fuel excise duty), construction and trade sectors. It should be mentioned that the sectors of agriculture, forestry and fishing are not included to the analyse as the economical data were not available yet for 2007. The sum of environmental taxes, which were left out from the analyses, made up 411 million kroons (less than ten percent).

Table 41. Total environmental taxes of different economic activities included environmental taxes connected to electricity production, 2007
(thousand kroons)

NACE–code	Economic activities	Environmental taxes (excl. fuel excise duty)	Fuel excise duty	Total environmental taxes	Share of NACE in environmental taxes (%)
10	Extraction of peat	16 153	26 673	42 826	0.8
11	Extraction of oil shale	14 182	89 776	103 958	2.0
14	Other mining and quarrying	75 833	31 520	107 353	2.0
15	Manufacture of food products and beverages	50 989	63 947	114 936	2.2
17	Manufacture of textiles	19 154	10 709	29 863	0.6
18	Manufacture of wearing apparel; dressing and dyeing of fur	5 797	6 852	12 649	0.2
19	Manufacture of leather products and footwear	1 052	1 339	2 391	0.0
20	Manufacture of wood and wood products	40 471	67 803	108 274	2.0
21	Manufacture of pulp, paper and paper products	19 342	6 298	25 640	0.5
22	Publishing, printing and reproduction of recorded media	29 994	14 253	44 247	0.8
23.2	Manufacture of shale oil	26 027	22 884	48 911	0.9
24	Manufacture of chemicals and chemical products	36 063	14 162	50 225	1.0
25	*Manufacture of rubber and plastic products*	9 755	13 751	23 506	0.4
26	Manufacture of other non-metallic mineral products	55 790	60 135	115 925	2.2
27	Manufacture of basic metals	1 684	849	2 533	0.0
28	Manufacture of fabricated metal products (except machinery)	14 313	29 467	43 780	0.8
29	Manufacture of machinery and equipment	5 442	14 123	19 565	0.4
30	Manufacture of office machinery and computers	588	717	1 305	0.0
31	Manufacture of electrical machinery and apparatus	5 941	5 677	11 618	0.2
32	Manufacture of radio, television and communication equipment	2 956	1 515	4 471	0.1
33	Manufacture of medical and optical instruments and watches	3 062	2 769	5 831	0.1
34	Manufacture of motor vehicles, trailers and semi-trailers	2 827	3 860	6 687	0.1
35	Manufacture of other transport equipment	4 079	7 241	11 320	0.2
36	Manufacture of furniture; other manufacturing	13 995	19 129	33 124	0.6
37	Recycling	2 225	2 734	4 959	0.1
40.1	Production and distribution of electricity	95 819	39 895	135 714	2.6
40.2	Distribution of gaseous fuels	39 186	2 340	41 526	0.8
40.3	Steam and hot water supply	38 071	15 255	53 326	1.0
41	Collection, purification and distribution of water	7 400	9 106	16 506	0.3
45	Construction	58 274	372 493	430 767	8.2
50-52	Wholesale and retail sale	188 634	169 903	358 537	6.8

55	*Hotels and restaurants*	7 965	6 127	14 092	0.3
60	Land transport	56 728	568 616	625 344	11.8
61	Water transport	3 908	2 719	6 627	0.1
62	Air transport	4 281	448	4 729	0.1
63	Supporting transport activities; travel agencies	26 099	50 806	76 905	1.5
64	Post and telecommunications	11 515	22 044	33 559	0.6
65-67	Financial intermediation	17 532	16 379	33 911	0.6
70-74	Real estate; renting	68 087	73 028	141 115	2.7
75	Public administration and defence; compulsory social security	7 134	112 106	119 240	2.3
80	Education	2 958	14 438	17 396	0.3
85	Health and social work	7 092	15 581	22 673	0.4
90	Wastewater treatment, waste management	12 412	23 704	36 116	0.7
91	Activities of membership organizations	1 589	335	1 924	0.0
92	Recreational, cultural and sporting activities	5 009	8 280	13 289	0.3
93	Other service activities	2 951	1 937	4 888	0.1
	Households	238 581	1 468 696	1 707 277	32.3

In fact these economic activities, which we named the „end payers" are not yet the real final payers, as the share of their environmental taxes (both specific for enterprise and general ones) are usually included in the price of their products. Than we analyse the economy further we see that the real "end payer" is the consumer (mostly the households). The revealing of the proper burden on the real end payer is complicated and asks for other statistical methods to be elaborated. Not only Estonian economy but also the export and import should be considered and this kind of analyses is beyond the frame of present project. In this report we are not going to analyze the share of environmental taxes in products of different economic activities.

However, just pure environmental tax data do not provide us with the sufficient bases for environmental tax burden analyses. In previous chapters we reached the point than we understood that the households' tax burden is important component of the eco tax reform to be monitored. There is another important aspect of ecological tax reform that has to be monitored and the competitiveness of the economic players (Chapter 3). An effort was made to build an analyses module which considers in addition to environmental taxes also other economic characteristics like: total expenditures, net sales and profit.

We assumed that in general enterprises and branches of industry are influenced by a variety of the factors. If we draw the parallel with mathematics we can say that the result is a sum of the various vectors. The change in the vectors direction and size causes the change in the result vector or sum. Than we want to estimate how one of the factors influences the system conditions we have to keep other factors unchanged.

As we already said above, the share of each economic activity in all environmental taxes does not reflect the environmental tax burden in given activity. In other cases despite the fact that environmental tax could be low compared to other activities, it could form a big part in given activities total tax burden. The changes in environmental tax rates could influence one activity more than others and in different ways.

We assumed theoretically that other economical conditions remain the same and observe how the environmental tax changes could potentially influence the economic indicators on branch level. As the only readily available financial indicators for the year 2007 are net sales and the total expenses, these were the bases for the analyses. Analyses will be based on the data of 2,774 enterprises, for

which all above mentioned data were available. Estimation of the fuel excise duty for these enterprises is described in Annex 19. Next subchapters outline roughly how the increase of environmental charges could hypothetically influence the economic performance of different branches with the help of "total expenditures" and "profit".

Hypothetical impact of pollution charges burden

Next let's look how total expenditures and profit in different economic activities will change in case of increase of pollution charge by 10%, 50%, 100%, 500% and supposing that all other conditions that influence economical results stay unchanged. The results are presented in Annex 18 table 1.

For the majority of the activities the increase of the pollution taxes 100% does not cause the major decrease of the profit. Simultaneously some activities are very much negatively influenced already by 10% of the increase in pollution tax. The activities which are most vulnerable to the increase in pollution charge are outlined in table 42.

As could be expected the most vulnerable are the activities connected to the production of energy and mining of mineral resources. But we cannot forget that this activity has a specific status in Estonia being strategically important. Surprisingly among the vulnerable activities are also education, medicine, social care, sports and leisure. For those we can say that the pollution charge is not fair and those who do not pollute have to pay. This 100% of gain in pollution taxes could bring additional 690 millions to the state and local budgets.

Table 42. The most vulnerable economic activities' changes of profits due to increase of pollution charges
(thousand kroons)

NACE–code	Economic activities	Changes of profit (%)			
		10%	50%	100%	500%
90	Wastewater treatment; waste management	-11	-57	-114	-572
80	Education	-10	-48	-97	-483
40.1	Production and distribution of electricity	-4	-21	-42	-210
40.3	Steam and hot water supply	-3	-17	-35	-173
11	Excavation of oil shale	-3	-16	-32	-158
40.2	Distribution of gaseous fuels	-2	-8	-16	-78
85	Health and social work	-1	-6	-12	-59
23	Manufacturing of shale oil	-1	-5	-9	-45
55	Hotels and restaurants	-1	-4	-7	-35
36	Manufacture of furniture; other manufacturing	-1	-3	-6	-28
22	Publishing, printing and reproduction of recorded media	0	-2	-5	-23

If we increase the environmental taxes than industrial enterprises with the aim to maintain their profits could change their production technologies in order to pollute less. In case of education, medicine, social care, sports and leisure this scheme does not work. These activities are financed from the state or local budgets. The gain in one part of the budget has to be covered in another part. Even worse, the increase in environment taxes could have a repressing influence on these activities. It is doubtful whether the subsequent increase in pollution charges would follow the principles set by ecological tax reform.

Hypothetical impact of water abstraction charge burden

In the table 43 we can follow how the net profits and expenditures are influenced by the 10%, 50%, 100%, 500% change of water abstraction charge. Detailed data on the changes of profits due to increase of water abstraction charge are presented in Annex 18 in table 2.

The increase in water abstraction charge in general influences the economic performance less than the increase of pollution taxes. There are just two activities which are highly vulnerable to the even 10% of increase of the water abstraction charge: extraction of oil shale and education (again).

Table 43. The most vulnerable economic activities' changes of profits due to increase of water abstraction charge
(thousand kroons)

NACE–code	Economic activities	Changes of profit (%)			
		10%	50%	100%	500%
80	Education	-7	-33	-67	-335
11	Extraction of oil shale	-3	-17	-35	-174
40.1	Production and distribution of electricity	0	-2	-4	-18
85	Health and social work	0	-1	-3	-14
55	Hotels and restaurants	0	-1	-3	-13
90	Wastewater treatment; waste management	0	-1	-2	-12
92	Recreational, cultural and sporting activities	0	-1	-2	-12

Hypothetical impact of mineral resources extraction charge

Table 3 in Annex 18 outlines how the net profits and expenditures are hypothetically influenced by the 10%, 50%, 100%, 500% increase of mineral resources extraction charge. The most vulnerable activities are listed in the following table 44.

Mineral resources extraction charge increase influences just some economic activities. Table 47 is online with the expectations and we can say that in case of this charge a "polluter pays", in a current case the "user pays".

Table 44. The most vulnerable economic activities' changes of profits due to increase of mineral resources extraction charge
(thousand kroons)

NACE–code	Economic activities	Changes of profit (%)			
		10%	50%	100%	500%
11	Extraction of oil shale	-11	-56	-112	-561
14	Other mining and quarrying	-1	-5	-10	-49
40.2	Distribution of gaseous fuels	-1	-3	-6	-28
10	Extraction of peat	0	-1	-3	-14
26	Manufacture non-metallic mineral products	0	-1	-3	-13
23	Manufacturing of shale oil	0	-1	-2	-9
36	Manufacture of furniture; other manufacturing	0	-1	-1	-7
40.1	Production and distribution of electricity	0	-1	-1	-7

PROBLEMS OCCURRED

Wide definition of environmental taxes

Eurostat's environmental tax definition is rather wide: "Environmental tax is a tax whose tax base is a physical unit (or a proxy of it) of something that has a proven, specific negative impact on the environment" (Eurostat 2001). "Proven, specific negative impact of the environment" is a part of the tax description, which needs to be clarified broad. Otherwise even a value added tax can be considered as an environmental tax, because consumption can be measured with physical units and consumption has a negative impact of the environment. In spite of that value added tax is excluded from environmental taxes according to the Eurostat's methodological guide. But how to handle the other similar taxes? For example land tax – is it an environmental resource tax? Land tax revenues were 500 million kroons in 2005, 520 million kroons in 2006 and 557 million kroons in 2007.

Handling with fines related to the violations of environmental laws

Fines and compensation of damages related to the violations of environmental law are considered as environmental taxes according to the Estonian Fee Act. Question remains on classification of this tax, whereas there are components which can not be divided into tax categories. Not easily classified components are for example fines on hindering environmental inspection, fines related to the violations of requirements of environmental impact assessment or environmental monitoring etc. Our proposal is to add a new tax category for environmental fines.

The substitution of the of environment taxes with environmental investments could hinder the NAMEA type of the analyses as respective amounts of pollutants are not directly than related to environmental charges. The same problem arises with the tax exceptions than some activities like fishery are not a subject of the fuel excise duty on diesel.

The handling of the CO2 quota is not clear from the viewpoint of the environmental taxes. We did not consider the CO2 quota in pilot study.

Low quality of the basic data

Mistakes in basic data provided by local governments and enterprises are a common problem. For example in the environmental tax module of environmental expenditure survey filled in by enterprises and local governments, quite often not relevant categories of tax receipts are indicated. Mistakes in units, interpretation of definitions etc are also rather common. Also the level of knowledge regarding the environmental taxes is low in enterprises. Additional interviews by phone are needed to in order to ensure the data quality.

The cross checking of the data provided by local governments and those available in state budget do not quite often match. The additional analysis and clarification are needed. State budget allocates environmental taxes under various categories, which are usually difficult to discover.

Shift in the time allocation of the data. The revenues of the state budget have the shift of one quarter.

The aggregation of the economic activities (and also the sample designs of the survey behind it) of the energy balance is different from the one applied in Environmental tax account.

Different handling of the KAU-s in financial and environment statistics. This problem mainly concerns big enterprises.

DISCUSSION AND CONCLUSIONS

Environmental taxes account has been compiled and it is now possible to carry out further analysis after that study. Further and more detailed analyses across longer time horizon are of course needed to understand the underlying reasons as well as to see whether increasing environmental taxes do have impact on environmental quality and resource management.

The continuation of the compilation of this statistics is important , as time series are crucial to monitor the trends and evaluate whether the ecological tax reform policy is achieving the goals.

Further development of monitoring system istelf and policy impact assessment procedures are important as the methodology to monitor ecological tax reform is still vague.

The clear and well described methodology to monitor ecological tax reform is also not available on international level. The bits and the pieces are found here and there. So also kind of the overview of the relevant literature was made.

An understanding deepened that the integration between the statistics of economic factors and environmental pressures should be further developed. Up to now economic instruments and resource use and pollution generation are separate fields both in politics and statistics.

We are also on an opinion that politicians need simpler and more easily "digestible" outcomes from statistics than the long tables of taxes by economic activities by tax types. The question also is, what matters in sense, what is relevant. With the respect to ecological tax reform the decrease in environment exploitation is one aim and the reaching of these goals could be followed by the trends of respective environmental pressures. Another questions are is someone paying the price for reaching of these goals and if yes, than who? So also in this report, the tax burden of the enterprises and households were analysed and discussed. We proposed to focus on sectors who really pay the tax and we tried to reallocate several of the taxes (fuel excise duty, environmental taxes on electricity production, pollution charges of waste and wastewater treatment service providers) on those who really have to pay theses taxes.

Very briefly the households' environmental tax burden was analysed from the viewpoint of ecological tax reform. As the key principle of an ecological tax reform concept is a partial re-orientation of taxes from taxation of income to taxation the use of natural resources and pollution of nature, one of the measures taken in Estonia was to decrease the income tax and increase the fuel excise duty while keeping the overall tax-burden in balance. On the bases of obtained and analyzed data we tried to model the effect of both tax changes on households income and state revenues. One of the problems of used estimation methodology was that the hidden taxes under the variety of the products prices are not considered here. Probably also the elasticity of the products prices should be considered.

Income tax reduction was stopped due to State budget cuts by Estonian government and global economic hardship but the energy excise taxes have been further raised, so the distributional impacts of environment related taxes (fuel excise duty) will definitely be different from what have been desired in coming years.

The reduction of pollution in the beginning of 1990s came mostly from the bankruptcy of the economy. Now economic instruments have been applied also: the environmental charges rates have been raised by almost 20% a year since 2005 but

the impact cannot be seen in that short time lag as the changes in production do not occur during 1-2 years. We will see the effects years later but than the effects will of course last longer. We think that the modelling have to be applied in order to make the prognoses for the future but these analyses need more advanced methodologies which of course should be supplemented with trustful and enough detailed and relevant statistical data. The experts of Environmental Ministry in Estonia routinely do the prognoses for the environment taxes and these are based on expert knowledge and present bilateral agreements with enterprises. These analyses again do need better support from statistical data but also relevant analyses mechanism or model to apply.

At present we concluded that the Eurostat's standard tables on taxes are too simplistic and do not enough detailed bases for environmental economical tax analyses.

The revealing of the tax burden is complicated and asks for additional statistical methods to be elaborated: households' burden investigation, considering not only Estonian economy but also the export and import, analyzes of the share of environmental taxes in products of different economic activities etc.

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ANNEXES

ANNEX 1. Rates of air pollution charge

Table 1. Air pollution charge rates by air pollutants, 2005-2009 (kroons per ton)

Air pollutants	2005	2006	2007	2008	2009
SO_2 and other inorganic sulphur compounds	137	275	329	395	474
CO	20	39	47	57	68
Solid particles	137	275	329	395	474
NO_x	315	629	755	906	1 087
Volatile organic compounds	315	629	755	906	1 087
Mercaptans	264 829	291 312	320 443	352 487	387 736
Heavy metals and its compounds	5 005	10 010	12 012	14 415	17 297
CO_2	11.3	15.65	15.65	23.5	31.3

Source: Estonian Environmental Charge Act

ANNEX 2. Rates of water pollution charge

Table 1. Water pollution charge rates by water pollutants, 2005-2009 (kroons per ton)

Water pollutants	2006	2007	2008	2009
Organic substances, BOD_7	11 239	13 487	16 184	19 421
Total phosphorus	16 929	20 315	24 378	29 253
Total nitrogen	10 604	12 725	15 270	18 324
Suspended solids	2 841	3 409	4 091	4 909
Sulphates	48	58	69	83
Phenols	75 375	90 450	108 541	130 249
pH<6; pH>9	1,5	1,7	2	3
Oil products, mineral oil, other pollutants from thermotreatment	17 945	21 534	25 841	31 009
Other hazardous waste within the meaning of the Water Act	90 450	108 500	130 000	156 000

Source: Estonian Environmental Charge Act

ANNEX 3. Rates of waste disposal charge

Table 1. Waste disposal charge rates by type of waste, 2005-2009

(kroons per ton)

Type of waste	2007	2008
Waste deposited to landfill of non-hazardous waste and hazardous waste deposit of which is permitted in a landfill for non-hazardous waste based on the waste permit or integrated environmental permit for the operation of landfills held by the possessor of the landfill	122	133
Municipal waste	122	133
Waste deposited in landfills for inert waste	122	133
Waste from building materials and construction demolition waste containing asbestos	122	133
Mine waste from oil shale, including waste from mineral dressing, discharged into open dumps	8	10
Waste which contains wood preservatives, inorganic pesticides, asbestos, arsenic or lead, coal and oil shale tar and products thereof, as well as bituminous compounds containing such materials and waste pitch from the processing of oil shale	567	680
Oil shale semi-coke	5,5	16
Oil shale fly ash and oil shale bottom ash and cement clinker dust	7,5	10
Waste which contains mercury, cadmium, cyanides, polychlorinated biphenyls or polychlorinated terphenyls (PCBs, PCTs) or organic pesticides	5 665	6 798

Source: Estonian Environmental Charge Act

ANNEX 4. Rates of packaging excise duty

Table 1. Rates of packaging excise duty by packaging material, 2007 (kroons per kg)

Type of material	2007
Glass and ceramics	10
Plastic	40
Metal	40
Paper and carton, including multiply carton	20
Other	20

Source: Packaging Excise Duty Act

ANNEX 5. Rates of mineral resources extraction charge

Table 1. Mineral resources extraction charge rates, 2006-2009 (kroons)

Mineral resource	Unit	2006	2007	2008	2009
Dolomite for fill-up soil	m^3	6	6.3	6.6	7
Dolomite with low quality	m^3	7	7.4	7.7	8
Dolomite with high quality	m^3	9.5	12	13	14
Technological dolomite	m^3	30	33	36	39
Decorative dolomite	m^3	19	26	27	29
Chrystalline building stone	m^3	10	10	10	10.5
Gravel for fill-up soil	m^3	4	4.2	4.4	4.6
Constructional gravel	m^3	15	20	21	22
Sand for fill-up soil	m^3	3.4	3.6	3.7	3.9
Construction sand	m^3	9	12.5	13	14
Sand for technology	m^3	10	15	16	17.5
Limestone for fill-up soil	m^3	5.5	5.7	6	6.5
Limestone with low quality	m^3	7	7.4	7.7	8
Limestone with high quality	m^3	9.5	12	13	14
Technological limestone	m^3	15	20	21	22
Limestone for clay	m^3	19	26	28	29
Ceramic and ceramsite clay	m^3	4	5	6	6.5
Infusible clay	m^3	9.5	12.5	13	14
Cement clay	m^3	4.5	6	6.5	7
Peat for fuels and fertilizers	ton	14	14.7	15.4	16.2
Peat dust	ton	9	9.5	9.9	10.4
Phosphatic rock	ton	10	10.5	11	11.6
Oil shale	ton	10.4	10.9	11.5	12

Source: Estonian Government Regulation no 316 "Mineral resources extraction charge rates for years 2006-2009 for the minerals belonging to the state"

ANNEX 6. Rates of water abstraction charge

Table 1. Water abstraction charge rates, 2006-2009 (kroons per 1000 m^3 of water)

Water resource	2006	2007	2008	2009
Water abstraction from water bodies connected to water supply of Tallinn	350	360	380	400
Cooling water abstraction from water bodies connected to water supply of Tallinn	60	60	70	80
Water abstraction from other water bodies	230	250	270	300
Cooling water abstraction from other water bodies	25	25	25	25
Water abstraction from aquifer of Quaternary (Q)	480	530	580	640
Water abstraction from aquifer of Upper and Middle Devon (D3-2)	640	710	780	860
Water abstraction from aquifer of Middle Devon and Silurian (D2-S)	640	710	780	860
Water abstraction from aquifer of Silur and Ordovician (S-O)	640	710	780	860
Water abstraction from aquifer of Ordovician and Cambrian (O-E)	640	710	780	860
Water abstraction from aquifer of Cambrian and Vend (E-V)	720	800	880	960
Water abstraction for technological use (excl. manufacture of food products) from acquitter of Cambrian and Vend	1 290	1 420	1 560	1 710
Drinking water abstraction	23 100	24 300	25 500	26 700
Water abstraction for therapy baths	2 300	2 400	2 600	2 700
Water abstraction from quarries	150	157	173	190
Water abstraction from mines	400	440	480	530

Source: Estonian Government Regulation no 317 "Water abstraction charge rates of water abstraction from surface or ground water"

ANNEX 7. Rates of fee for fishing rights

Table 1. Rates of fee for commercial fishing rights by fish species and fishing areas, 2007
(kroons)

Fish		Unit	2007
Areas of Northwest Atlantic Fisheries Organization (NAFO), Northeast Atlantic ocean and Spitsbergen:			
Shrimp (NAFO area 3L)	*Palaemon*	ton	400
Shrimp (NAFO area 3M)	*Palaemon*	a vessel	1500
Shrimp (in Spitsbergen area)	*Palaemon*	a vessel	1001
Goliath grouper	*Epinephelus itajara*	ton	500
Giant squid	*Architeuthis*	ton	300
European plaice	*Pleuronectes platessa*	ton	1000
Gutted	*Scomber scombrus*	ton	300
Skate	*Rajomorphii*	ton	500
Blue ling	*Molva dypterygia*	ton	800
Portuguese dogfish	*Centroscymnus coelolepis*	ton	800
Roundnose grenadier	*Coryphaenoides rupestris*	ton	800
Black scabbardfish	*Aphanopus carbo*	ton	130
Unregulated species		ton	500
Southwest Atlantic open seas district:			
Unregulated species		ton	100
Baltic Sea:			
Baltic herring	*Clupea harengus membras balticus*	ton	20
Sprat	*Clupea sprattus balticus*	ton	20
Codfish	*Gadus morhua*	ton	500
Salmon	*Salmo salar*	per fish	5
Flounder	*Platichthys flesus*	ton	150

Source: Regulation of the Government of Estonia nr 242

Table 2. Rates of fee for special purpose fishing rights by fish species, 2007
(kroons per fish)

Fish		2007
Pike	*Esox lucius L.*	10
Brook Trout	*Salmo trutta trutta morpha fario L.*	30
European crayfish	*Astacus astacus*	15
Pike-perch	*Stizostedion lucioperca (L.)*	20
Bream	*Abramis brama (L.)*	10
Tench	*Tinca tinca (L.)*	10
Atlantic Salmon	*Salmo salar L.*	100
Powan	*Coregonus lavaretus lavaretus (L.)*	15
Sea Trout	*Salmo trutta trutta L.*	30

Source: The Regulation of the Minister of the Environment nr 11

Table 3. Rates of fee for recreational fishing rights, 2007
(kroons)

Fishing time period	2007
For one week	25
For six months	120
For twelve months	15

Source: The Regulation of the Minister of the Environment nr 11

ANNEX 8. Rates of hunting charge

Table 1. Rates of fee for use of hunting district for one year, 2007 (kroons per 1000 hectares of hunting district)

Wild game		Class of quality of hunting grounds				
		I	II	III	IV	V
European Elk	*Alces alces (L.)*	2800	2500	2000	1500	1000
Wild Boar	*Sus scrofa (L.)*	1500	1200	800	600	400
Red Deer	*Cervus elaphus (L.)*	600	500	400	300	250
Roe Deer	*Capreolus capreolus (L.)*	550	440	320	280	200

Source: The Regulation of the Minister of the Environment nr 11

ANNEX 9. Rates of fuel excise duty

Table 1. Rates of fuel excise duty, 2007-2008 (kroons)

Fuel	Unit	1.01.2007	1.02.2008
Motor fuel and fuel oil:			
Unleaded petrol	1000 litres	4500	5620
Leaded petrol	1000 litres	6600	6600
Aviation spirit	1000 litres	1120	1120
Kerosene	1000 litres	4730	5165
Diesel fuel	1000 litres	3840	5165
Fuel for specific purposes	1000 litres	960	960
Light heating oil	1000 litres	960	960
Heavy fuel	1000 kg	235	235
Shale-derived fuel oil	1000 kg	235	235
Liquid petroleum	1000 kg	1570	1960
Diesel fuel and light heating oil released for consumption from which the fiscal marker has been removed	1000 litres	3840	5165
Liquid combustible substances:			
Liquid combustible substances if it is used for the same purposes as petrol	1000 litres	6600	6600
Liquid combustible substances if it is used for the same purposes as diesel fuel.	1000 litres	3840	5165
Liquid combustible substances, if those substances are used for the same purposes as light heating oils	1000 litres	960	960
Liquid combustible substances if those substances are used for the same purposes as heavy fuel oils	1000 kg	235	235
Specialty and unconventional fuel-like mineral oil:			
Fuel for which the first four digits, first six digits or eight digits of the CN code are 270710, 270720, 270730, 270750, 27101111 – 2710 11 25, 2710 11 90, ex 2901 (substances which are not gaseous at atmospheric pressure and a temperature of 15°C) 2902 20 00, 2902 30 00, 2902 41 00, 2902 42 00, 2902 43 00 or 2902 44 00	1000 litres	4500	5620
Fuel for which the eight digits of the CN code are 2710 19 11 or 2710 19 15	1000 litres	4730	5165
Fuel for which the eight digits of the CN code are 2710 19 31 or 2710 19 35	1000 litres	3840	5165
Fuel for which the eight digits of the CN code are 2710 19 51 or 2710 19 55	1000 kg	235	235
Fuel for which the eight digits of the CN code are 2711 12–2711 14 and which is used as motor fuel, including in stationary motors	1000 kg	1570	1960
Other:			
Natural gas (CN 2711 21 00)	1000 m^3	-	157
Electricity	MWh	-	50
Coal	1GJ of the upper calorific value	4.7	4.7
Lignite	1GJ of the upper calorific value	4.7	4.7
Coke	1GJ of the upper calorific value	4.7	4.7

Source: Estonian Alcohol, Tobacco and Fuel Excise Duty Act

ANNEX 10. Rates of heavy goods vehicles tax

Table 1. Rates of heavy goods vehicles tax, 2007
(kroons)

Number of axles	Maximum authorised weight or gross laden weight (kg)	Tax rate according to type of suspension of driving axle (kroons per quarter)	
		air suspension or equivalent suspension	other type of suspension
Lorry or truck:			
2	12 000 – 12 999	0	125
2	13 000 – 13 999	125	340
2	14 000 – 14 999	340	475
2	15 000 and more	475	1075
3	12 000 – 14 999	0	0
3	15 000 – 16 999	125	215
3	17 000 – 18 999	215	440
3	19 000 – 20 999	440	565
3	21 000 – 22 999	565	875
3	23 000 and more	875	1350
4	12 000 – 22 999	0	0
4	23 000 – 24 999	565	575
4	25 000 – 26 999	575	890
4	27 000 – 28 999	890	1415
4	29 000 and more	1415	2100
Road train (truck + trailer):			
2+1	12 000 – 13 999	0	0
2+1	14 000 – 15 999	0	0
2+1	16 000 – 17 999	0	50
2+1	18 000 – 19 999	50	125
2+1	20 000 – 21 999	125	290
2+1	22 000 – 22 999	290	375
2+1	23 000 – 24 999	375	690
2+1	25 000 and more	690	1200
2+2	12 000 – 14 999	0	0
2+2	15 000 – 22 999	0	0
2+2	23 000 – 24 999	115	275
2+2	25 000 – 25 999	275	450
2+2	26 000 – 27 999	450	665
2+2	28 000 – 28 999	665	800
2+2	29 000 – 30 999	800	1315
2+2	31 000 – 32 999	1315	1825
2+2	33 000 and more	1825	2765
2+3	12 000 – 35 999	0	0
2+3	36 000 – 37 999	1450	2015
2+3	38 000 and more	2015	2740
2+3	12 000 – 35 999	0	0
2+3	36 000 – 37 999	1275	1775
2+3	38 000 – 39 999	1775	2465
2+3	40 000 and more	2465	3640
≥ 3+3	12 000 – 35 999	0	0
≥ 3+3	36 000 – 37 999	725	875
≥ 3+3	38 000 – 39 999	875	1315
≥ 3+3	40 000 and more	1315	2090

Source: Estonian Heavy Goods Vehicles Tax Act

ANNEX 11. Rates of state fee for registration of motor vehicles

Table 1. Rates of state fee for registration of motor vehicles, 2007 (kroons)

Type of registration of a motor vehicle	2007
Registration of a vehicle	1000
Registration of an all-terrain vehicle or jet bike	300
Registration of a vehicle temporarily imported into Estonia	3700

Source: Estonian State Fee Act

Table 2. Rates of state fee for registration of aircraft, 2007 (kroons)

Type of registration of an aircraft	2007
Maximum permitted take-off weight of the aircraft is:	
not over 450 kg	500
451-5700 kg	3 000
over 5700 kg…	7 000
… and each extra ton	200

Source: Estonian State Fee Act

Table 3. Rates of state fee for entries in register of bareboat chartered ships, 2007 (kroons)

Type of registration of a vessel	2007
Acts of register of bareboat chartered ships:	
For the entry of a ship in the register of bareboat chartered ships…	500
… for every gross tonnage unit (but not more in total than 50 000 kroons per ship)	1
Acts of register of traffic register:	
Registration of a recreational craft with an overall length of less than 12 metres or personal watercraft	600
Acts of ship register:	
For the first entry of the ship register together with the issue of a certificate of a sea-going vessel or a certificate of an inland vessel, a state fee shall be paid as follows:	
… a sea-going vessel or non-propelled floating vessel	2 000
… an inland vessel	500

Source: Estonian State Fee Act

ANNEX 12. Module of environmental taxes

Local governments

Enterprises

Pollution charges (thousand kroons)		
Type of pollution charge	Paid pollution charge (thousand kroons)	Receipt of pollution charge (thousand kroons)
Air pollution charge		
Water effluent charge		
Waste disposal charge		
Resource charges (thousand kroons)		
Type of resource tax	Paid resource charge (thousand kroons)	Receipt of resource charge (thousand kroons)
Water abstraction charge		
Mining charge		
Packaging excise tax (thousand kroons)	Paid packaging excise tax (thousand kroons)	
Packaging excise tax		

Figure 1. Module of environmental taxes added to the questionnaire of environmental protection expenditure

ANNEX 13. Pollution taxes by economic activities

Table 1. Pollution taxes by economic activities, 2007
(thousand kroons)

	Economic activities	Pollution taxes				Total
		Air pollution charge	Water pollution charge	Waste disposal charge	Packa-ging excise duty	
	TOTAL	**298 115**	**60 700**	**380 809**	**790**	**740 414**
01	Agriculture, hunting	1 069	847	197	14	**2126**
02	Forestry	3	27	0	6	**36**
05	Fishing	0	6	0	9	**15**
10	Extraction of peat	435	41	13	22	**512**
11	Extraction of oil shale	389	7 852	34 421	3	**42 665**
14	Other mining and quarrying	1 398	414	1 640	0	**3 452**
15	Manufacture of food products and beverages	2 021	3 896	0	176	**6 094**
17	Manufacture of textiles	471	0	0	24	**495**
18	Manufacture of wearing apparel; dressing and dyeing of fur	53	0	0	0	**53**
19	Manufacture of leather products and footwear	38	1	27	0	**65**
20	Manufacture of wood and wood products	1 531	275	0	15	**1 820**
21	Manufacture of pulp, paper and paper products	3 093	6 689	0	0	**9 782**
22	Publishing, printing and reproduction of recorded media	255	3	0	8	**266**
..23.2	*..manufacture of shale oil*	*21 028*	*100*	*39 332*	*8*	***60 469***
24	Manufacture of chemicals and chemical products	775	38	90	7	**910**
…24.14	*....manufacture of other organic basic chemicals*	*120*	*0*	*0*	*0*	***120***
…24.15	*....manufacture of fertilizers and nitrogen compounds*	*400*	*0*	*0*	*2*	***401***
25	Manufacture of rubber and plastic products	319	1	0	2	**322**
26	Manufacture of other non-metallic mineral products	1 669	1 374	921	0	**3 964**
..26.1	*..manufacture of glass and glass products*	*93*	*16*	*0*	*0*	***109***
..26.2	*..manufacture of non-refractory, refractory ceramic products*	*0*	*0*	*0*	*0*	***0***
..26.3	*..manufacture of ceramic tiles and flags*	*0*	*0*	*0*	*0*	***0***
..26.4	*..manufacture of construction products in baked clay*	*277*	*0*	*0*	*0*	***277***
..26.5	*..manufacture of cement, lime and plaster*	*998*	*1 177*	*921*	*0*	***3 096***
..26.6	*..manufacture of articles of concrete, plaster and cement*	*199*	*181*	*0*	*0*	***380***
..26.7	*..cutting, shaping, finishing of ornamental and building stone*	*0*	*0*	*0*	*0*	***0***
..26.8	*..manufacture of other non-metallic mineral products*	*103*	*0*	*0*	*0*	***103***
27	Manufacture of basic metals	78	5	0	0	**82**
..27.1-3	*..manufacture of basic iron and steel and of ferro-alloys; manufacture of tubes; other first processing of iron and steel*	*8*	*5*	*0*	*0*	***12***
..27.4	*..manufacture of basic precious and non-ferrous metals*	*31*	*0*	*0*	*0*	***31***
..27.5	*..casting of metals*	*39*	*0*	*0*	*0*	***39***
28	Manufacture of fabricated metal products (except machinery)	674	182	0	3	**859**
29	Manufacture of machinery and equipment	480	3	301	0	**784**
30	Manufacture of office machinery and computers	0	0	0	0	**0**
31	Manufacture of electrical machinery and apparatus	32	0	0	2	**33**
32	Manufacture of radio, television and communication equipment	40	0	0	0	**40**
33	Manufacture of medical and optical instruments and watches	13	7	0	1	**21**
34	Manufacture of motor vehicles, trailers and semi-trailers	54	0	0	1	**55**
35	Manufacture of other transport equipment	298	89	0	0	**387**
36	Manufacture of furniture; other manufacturing	568	21	0	27	**617**
37	Recycling	0	0	0	0	**0**
40	Electricity, gas, steam and hot water supply	250 535	4 656	215 808	0	**470 999**
..40.1	*..production and distribution of electricity*	*222 867*	*1 327*	*211 672*	*0*	***435 865***

..40.2	*.. distribution of gaseous fuels*	*10*	*45*	*0*	*0*	***55***
..40.3	*..steam and hot water supply*	*27 658*	*3 285*	*4 136*	*0*	***35 079***
41	Collection, purification and distribution of water	1 065	18 625	5	0	**19 694**
45	Construction	906	378	1 259	1	**2 544**
50-52	Wholesale and retail trade	1 051	631	377	314	**2 373**
55	Hotels and restaurants	42	115	0	80	**237**
60	Land transport	82	29	451	1	**563**
..60.1	*..transport via railways*	*18*	*0*	*0*	*0*	***18***
..60.2	*..other land transport*	*64*	*29*	*451*	*1*	***545***
…60.24	*….freight transport by road*	*16*	*27*	*451*	*1*	***494***
..60.3	*..transport via pipelines*	*0*	*0*	*0*	*0*	***0***
61	Water transport	0	0	0	0	**0**
..61.1	*..sea and coastal water transport*	*0*	*0*	*0*	*0*	***0***
..61.2	*..inland water transport*	*0*	*0*	*0*	*0*	***0***
62	Air transport	0	0	0	0	**0**
63	Supporting transport activities; travel agencies	2 781	*463*	*37*	*0*	***3 281***
64	Post and telecommunications	2	4	0	52	**58**
65-67	Financial intermediation	12	0	0	2	**13**
70-74	Real estate, renting	3 631	3 088	5 740	11	**12 469**
75	Public administration and defence; compulsory social security	583	1 898	0	0	**2 480**
…75.22	*….defence activities*	*0*	*128*	*0*	*0*	***128***
80	Education	196	167	0	0	**363**
85	Health and social work	110	517	0	0	**627**
90	Wastewater treatment; waste management	117	8 176	80 191	0	**88 484**
91	Activities of membership organizations	0	0	0	0	**0**
92	Recreational, cultural and sporting activities	58	85	0	0	**143**
93	Other service activities	162	0	0	0	**162**
95	Activities of households as employers of domestic staff	0	0	0	0	**0**
99	Extra-territorial organizations and bodies	0	0	0	0	**0**
	Households	0	0	0	0	**0**
	Non-residents	n.a	n.a	n.a	n.a	**n.a**

ANNEX 14. Resource taxes by economic activities

Table 1. Resource taxes by economic activities, 2007
(thousand kroons)

	Economic activities	Resource taxes					Total
		Water abstrac-tion charge	Mineral resources extractio n charge	Fishing charge	Hunting charge	Forest stand cutting charge	
	TOTAL	**148 964**	**306 177**	**17 839**	**6 630**	**214 443**	**694 054**
01	Agriculture, hunting	2 664	134	0	6 630	0	**9428**
02	Forestry	1	95	0	0	214 443	**214 540**
05	Fishing	28	0	11 250	0	0	**11 277**
10	Extraction of peat	516	8 765	0	0	0	**9 281**
11	Extraction of oil shale	52 676	169 686	0	0	0	**222 362**
14	Other mining and quarrying	1 898	68 312	0	0	0	**70 210**
15	Manufacture of food products and beverages	4 233	14	0	0	0	**4 247**
17	Manufacture of textiles	453	0	0	0	0	**452**
18	Manufacture of wearing apparel; dressing and dyeing of fur	168	0	0	0	0	**168**
19	Manufacture of leather products and footwear	5	0	0	0	0	**5**
20	Manufacture of wood and wood products	418	332	0	0	0	**750**
21	Manufacture of pulp, paper and paper products	2 847	1	0	0	0	**2 847**
22	Publishing, printing and reproduction of recorded media	1	0	0	0	0	**1**
..23.2	*..manufacture of shale oil*	*2 752*	*6 944*	*0*	*0*	*0*	***9 695***
24	Manufacture of chemicals and chemical products	206	13	0	0	0	**219**
…24.14	*....manufacture of other organic basic chemicals*	*0*	*0*	*0*	*0*	*0*	***0***
…24.15	*....manufacture of fertilizers and nitrogen compounds*	*183*	*0*	*0*	*0*	*0*	***183***
25	Manufacture of rubber and plastic products	5	0	0	0	0	**5**
26	Manufacture of other non-metallic mineral products	2 563	19 087	0	0	0	**21 650**
..26.1	*..manufacture of glass and glass products*	*88*	*317*	*0*	*0*	*0*	***405***
..26.2	*..manufacture of non-refractory, refractory ceramic products*	0	0	0	0	0	**0**
..26.3	*..manufacture of ceramic tiles and flags*	0	0	0	0	0	**0**
..26.4	*..manufacture of construction products in baked clay*	*50*	*518*	*0*	*0*	*0*	***568***
..26.5	*..manufacture of cement, lime and plaster*	*2 246*	*14 956*	*0*	*0*	*0*	***17 201***
..26.6	*..manufacture of articles of concrete, plaster and cement*	*169*	*3 034*	*0*	*0*	*0*	***3 203***
..26.7	*..cutting, shaping, finishing of ornamental and building stone*	*10*	*204*	*0*	*0*	*0*	***213***
..26.8	*..manufacture of other non-metallic mineral products*	*0*	*60*	*0*	*0*	*0*	***60***
27	Manufacture of basic metals	2	1	0	0	0	**2**
..27.1-3	*..manufacture of basic iron and steel and of ferro-alloys; Manufacture of tubes; other first processing of iron and steel*	*2*	*1*	*0*	*0*	*0*	***2***
..27.4	*..manufacture of basic precious and non-ferrous metals*	*0*	*0*	*0*	*0*	*0*	***0***
..27.5	*..casting of metals*	*0*	*0*	*0*	*0*	*0*	***0***
28	Manufacture of fabricated metal products (except machinery)	75	116	0	0	0	**191**
29	Manufacture of machinery and equipment	62	57	0	0	0	**119**
30	Manufacture of office machinery and computers	0	0	0	0	0	**0**
31	Manufacture of electrical machinery and apparatus	3	1	0	0	0	**5**
32	Manufacture of radio, television and communication equipment	0	0	0	0	0	**0**
33	Manufacture of medical and optical instruments and watches	11	0	0	0	0	**11**
34	Manufacture of motor vehicles, trailers and	0	22	0	0	0	**22**

	semi-trailers						
35	Manufacture of other transport equipment	0	0	0	0	0	**0**
36	Manufacture of furniture; other manufacturing	68	0	0	0	0	**68**
37	Recycling	0	85	0	0	0	**85**
40	Electricity, gas, steam and hot water supply	38 844	395	0	0	0	**39 239**
..40.1	*..production and distribution of electricity*	*36 585*	*0*	*0*	*0*	*0*	***36 585***
..40.2	*.. distribution of gaseous fuels*	*41*	*5*	*0*	*0*	*0*	***47***
..40.3	*..steam and hot water supply*	*2 218*	*389*	*0*	*0*	*0*	***2 608***
41	Collection, purification and distribution of water	29 914	275	0	0	0	**30 189**
45	Construction	953	21 593	0	0	0	**22 546**
50-52	Wholesale and retail trade	1 132	5 519	0	0	0	**6 651**
55	Hotels and restaurants	67	12	0	0	0	**79**
60	Land transport	38	101	0	0	0	**139**
..60.1	*..transport via railways*	*0*	*0*	*0*	*0*	*0*	***0***
..60.2	*..other land transport*	*38*	*101*	*0*	*0*	*0*	***139***
…60.24	*….freight transport by road*	*35*	*101*	*0*	*0*	*0*	***136***
..60.3	*..transport via pipelines*	*0*	*0*	*0*	*0*	*0*	***0***
61	Water transport	0	0	0	0	0	**0**
..61.1	*..sea and coastal water transport*	*0*	*0*	*0*	*0*	*0*	***0***
..61.2	*..inland water transport*	*0*	*0*	*0*	*0*	*0*	***0***
62	Air transport	0	0	0	0	0	**0**
63	Supporting transport activities; travel agencies	301	0	0	0	0	**301**
64	Post and telecommunications	10	0	0	0	0	**10**
65-67	Financial intermediation	0	0	0	0	0	**0**
70-74	Real estate, renting	3 673	4 329	0	0	0	**8 002**
75	Public administration and defence; compulsory social security	1 712	290	0	0	0	**2 002**
…75.22	*….defence activities*	*0*	*0*	*0*	*0*	*0*	***0***
80	Education	146	0	0	0	0	**146**
85	Health and social work	274	0	0	0	0	**274**
90	Wastewater treatment; waste management	114	0	0	0	0	**114**
91	Activities of membership organizations	20	0	0	0	0	**20**
92	Recreational, cultural and sporting activities	69	0	0	0	0	**69**
93	Other service activities	45	0	0	0	0	**45**
95	Activities of households as employers of domestic staff	0	0	0	0	0	**0**
99	Extra-territorial organizations and bodies	0	0	0	0	0	**0**
	Households	0	0	6 590	n.a	n.a	**6590**
	Non-residents	n.a	n.a	n.a	n.a	n.a	**n.a**

ANNEX 15. Energy taxes by economic activities

Table 1. The fuel excises duty paid for liquid fuels in Estonia by economic activities and liquid fuel types, 2007
(thousand kroons)

	Economic activities	Fuel excise duty of liquid fuel				Total
		Diesel	Gasoline	Light fuel oil	Under suspension	
	TOTAL	**1 727 126**	**2 100 081**	**47 611**	**245 542**	**3 629 276**
01	Agriculture, hunting	83 206	30 331	2 321	0	**115 858**
02	Forestry	21 363	24 135	25	0	**45 523**
05	Fishing	4 285	537	486	4 771	**537**
10	Extraction of peat	22 517	3 572	583	0	**26 673**
11	Extraction of oil shale	87 801	1 976	0	0	**89 776**
14	Other mining and quarrying	28 131	2 813	575	0	**31 520**
15	Manufacture of food products and beverages	25 367	33 556	2 205	0	**61 127**
16	Manufacture of tobacco products	0	0	0	0	**0**
17	Manufacture of textiles	3 018	6 812	644	0	**10 474**
18	Manufacture of wearing apparel; dressing and dyeing of fur	1 762	4 947	142	0	**6 852**
19	Manufacture of leather products and footwear	501	838	0	0	**1 339**
20	Manufacture of wood and wood products	41 003	25 763	566	0	**67 333**
21	Manufacture of pulp, paper and paper products	2 815	3 161	322	0	**6 298**
22	Publishing, printing and reproduction of recorded media	2 573	11 665	15	0	**14 253**
..23.2	*..manufacture of shale oil*	*22 647*	*237*	*0*	*0*	***22 884***
24	Manufacture of chemicals and chemical products	5 608	5 358	56	0	**11 022**
….24.14	*....manufacture of other organic basic chemicals*	*282*	*221*	*0*	*0*	***503***
….24.15	*....manufacture of fertilizers and nitrogen compounds*	*242*	*348*	*0*	*0*	***590***
25	Manufacture of rubber and plastic products	4 724	8 788	239	0	**13 751**
26	Manufacture of other non-metallic mineral products	31 324	14 636	1 240	1 240	**45 961**
..26.1	*..manufacture of glass and glass products*	*2 213*	*1 865*	*16*	*16*	***4 078***
..26.2	*..manufacture of non-refractory, refractory ceramic products*	*56*	*1 770*	*5*	*5*	***1 827***
..26.3	*..manufacture of ceramic tiles and flags*	*0*	*16*	*0*	*0*	***16***
..26.4	*..manufacture of construction products in baked clay*	*3 041*	*1 818*	*334*	*334*	***4 858***
..26.5	*..manufacture of cement, lime and plaster*	*4 369*	*885*	*78*	*78*	***5 255***
..26.6	*..manufacture of articles of concrete, plaster and cement*	*20 440*	*6 591*	*769*	*769*	***27 031***
..26.7	*..cutting, shaping, finishing of ornamental and building stone*	*693*	*1 517*	*0*	*0*	***2 210***
..26.8	*..manufacture of other non-metallic mineral products*	*512*	*174*	*38*	*38*	***686***
27	Manufacture of basic metals	355	363	4	0	**722**
..27.1-3	*..manufacture of basic iron and steel and of ferro-alloys; manufacture of tubes; other first processing of iron and steel*	*0*	*63*	*0*	*0*	***63***
..27.4	*..manufacture of basic precious and non-ferrous metals*	*242*	*174*	*0*	*0*	***416***
..27.5	*..casting of metals*	*113*	*126*	*4*	*0*	***243***
28	Manufacture of fabricated metal products (except machinery)	10 417	18 603	447	0	**29 467**
29	Manufacture of machinery and equipment	4 161	7 840	318	0	**12 318**
30	Manufacture of office machinery and computers	84	632	0	0	**717**
31	Manufacture of electrical machinery and apparatus	1 746	3 746	186	0	**5 677**
32	Manufacture of radio, television and communication equipment	293	1 122	100	0	**1 515**
33	Manufacture of medical and optical instruments and watches	304	2 450	15	0	**2 769**
34	Manufacture of motor vehicles, trailers and semi-trailers	946	2 750	164	0	**3 860**
35	Manufacture of other transport equipment	2 832	3 620	193	0	**6 644**
36	Manufacture of furniture; other manufacturing	8 733	9 910	485	0	**19 129**

37	Recycling	1 841	854	39	0	**2 733**
40	Electricity, gas, steam and hot water supply	11 447	30 805	2 058	0	**44 310**
..40.1	*..production and distribution of electricity*	*6 442*	*20 500*	*28*	*0*	***26 969***
..40.2	*.. distribution of gaseous fuels*	*743*	*1 596*	*0*	*0*	***2 340***
..40.3	*..steam and hot water supply*	*4 262*	*8 709*	*2 030*	*0*	***15 001***
41	Collection, purification and distribution of water	2 658	3 177	0	0	**5 835**
45	Construction	193 327	174 606	3 855	0	**371 788**
50	Sale, repair of motor vehicles; retail sale of automotive fuel	6 605	18 493	158	0	**25 255**
51	Wholesale trade and commission trade	44 877	58 560	486	0	**103 923**
52	Retail trade, excl motor vehicles; repair of household goods	17 174	23 219	331	0	**40 724**
55	Hotels and restaurants	1 447	4 599	80	0	**6 126**
60	Land transport; transport via pipelines	533 240	21 812	13 437	0	**568 490**
..60.1	*..transport via railways*	37 861	1 470	13 156	0	***52 488***
..60.2	*..other land transport*	*495 379*	*20 342*	*281*	*0*	***516 002***
…60.24	*….freight transport by road*	*327 458*	*15 490*	*206*	*0*	***343 154***
..60.3	*..transport via pipelines*	*0*	*0*	*0*	*0*	***0***
61	Water transport	215 788	2 719	6 155	221 943	**2 719**
..61.1	*..sea and coastal water transport*	*215 535*	*2 719*	*6 155*	*221 690*	***2 719***
..61.2	*..inland water transport*	*253*	*0*	*0*	*253*	***0***
62	Air transport	23	443	5	23	**448**
63	Supporting transport activities; travel agencies	25 918	24 104	784	0	**50 806**
64	Post and telecommunications	1 943	20 058	44	0	**22 044**
65	Financial intermediation	952	7 761	0	0	**8 712**
66	Insurance and pension funding	265	5 737	0	0	**6 002**
67	Activities auxiliary to financial intermediation	163	1 502	0	0	**1 665**
70	Real estate activities	2 275	6 638	172	0	**9 085**
71	Renting of machinery and equipment without operator	3 863	3 161	1 609	0	**8 633**
72	Computer and related activities	163	3 620	0	0	**3 783**
73	Research and development	546	601	0	0	**1 147**
74	Other business activities	9 392	40 984	4	0	**50 380**
75	Public administration and defence; compulsory social security	32 647	76 437	3 022	0	**112 106**
…75.22	*….defence activities*	*10 152*	*6 923*	*489*	*0*	***17 564***
80	Education	3 649	10 416	373	0	**14 438**
85	Health and social work	6 025	9 104	452	0	**15 581**
90	Wastewater treatment; waste management	20 626	3 066	12	0	**23 704**
91	Activities of membership organizations	238	86	10	0	**335**
92	Recreational, cultural and sporting activities	1 560	6 638	81	0	**8 280**
93	Other service activities	563	1 296	77	0	**1 937**
95	Activities of households as employers of domestic staff	n.a	n.a	n.a	n.a	**n.a**
99	Extra-territorial organizations and bodies	n.a	n.a	n.a	n.a	**n.a**
	Households	159 241	1 302 500	2 547	0	**1 464 287**
	Non-residents	n.a	n.a	n.a	n.a	**n.a**

Table 2. The fuel excises duty paid for coal, liquefied gas, heavy fuel oil and shale oil in Estonia by economic branches and other fuel types, 2007 (thousand kroons)

	Economic activities	Fuel excise duty of other fuel				Total
		Coal	Liquefied gas	Heavy fuel oil	Shale oil	
	TOTAL	**16 497**	**10 990**	**1 410**	**17 860**	**46 757**
01	Agriculture, hunting	127	1 570	0	0	**1 697**
02	Forestry	0	0	0	0	**0**
05	Fishing	0	0	0	0	**0**
10	Extraction of peat	0	0	0	0	**0**
11	Extraction of oil shale	0	0	0	0	**0**
14	Other mining and quarrying	0	0	0	0	**0**
15	Manufacture of food products and beverages	0	0	0	2 820	**2 820**
17	Manufacture of textiles	0	0	0	235	**235**
18	Manufacture of wearing apparel; dressing and dyeing of fur	0	0	0	0	**0**
19	Manufacture of leather products and footwear	0	0	0	0	**0**
20	Manufacture of wood and wood products	0	0	235	235	**470**
21	Manufacture of pulp, paper and paper products	0	0	0	0	**0**
22	Publishing, printing and reproduction of recorded media	0	0	0	0	**0**
..23.2	*..manufacture of shale oil*	*0*	*0*	*0*	*0*	***0***
24	Manufacture of chemicals and chemical products	0	3 140	0	0	**3 140**
…24.14	*....manufacture of other organic basic chemicals*	*0*	*0*	*0*	*0*	***0***
…24.15	*....manufacture of fertilizers and nitrogen compounds*	*0*	*0*	*0*	*0*	***0***
25	Manufacture of rubber and plastic products	*0*	*0*	*0*	*0*	***0***
26	Manufacture of other non-metallic mineral products	13 705	0	235	235	**14 175**
..26.1	*..manufacture of glass and glass products*	*0*	*0*	*0*	*0*	***0***
..26.2	*..manufacture of non-refractory, refractory ceramic products*	*0*	*0*	*0*	*0*	***0***
..26.3	*..manufacture of ceramic tiles and flags*	*0*	*0*	*0*	*0*	***0***
..26.4	*..manufacture of construction products in baked clay*	*0*	*0*	*0*	*0*	***0***
..26.5	*..manufacture of cement, lime and plaster*	*13 705*	*0*	*235*	*235*	***14 175***
..26.6	*..manufacture of articles of concrete, plaster and cement*	*0*	*0*	*0*	*0*	***0***
..26.7	*..cutting, shaping, finishing of ornamental and building stone*	*0*	*0*	*0*	*0*	***0***
..26.8	*..manufacture of other non-metallic mineral products*	*0*	*0*	*0*	*0*	***0***
27	Manufacture of basic metals	127	0	0	0	**127**
..27.1-3	*..manufacture of basic iron and steel and of ferro-alloys; Manufacture of tubes; other first processing of iron and steel*	*0*	*0*	*0*	*0*	***0***
..27.4	*..manufacture of basic precious and non-ferrous metals*	*127*	*0*	*0*	*0*	***127***
..27.5	*..casting of metals*	*0*	*0*	*0*	*0*	***0***
28	Manufacture of fabricated metal products (except machinery)	0	0	0	0	**0**
29	Manufacture of machinery and equipment	0	1 570	0	235	**1 805**
30	Manufacture of office machinery and computers	0	0	0	0	**0**
31	Manufacture of electrical machinery and apparatus	0	0	0	0	**0**
32	Manufacture of radio, television and communication equipment	0	0	0	0	**0**
33	Manufacture of medical and optical instruments and watches	0	0	0	0	**0**
34	Manufacture of motor vehicles, trailers and semi-trailers	0	0	0	0	**0**
35	Manufacture of other transport equipment	127	0	470	0	**597**
36	Manufacture of furniture; other manufacturing	0	0	0	0	**0**
37	Recycling	0	0	0	0	**0**
40	Electricity, gas, steam and hot water supply	254	0	0	12 925	**13 179**
..40.1	*..production and distribution of electricity*	*0*	*0*	*0*	*12 925*	***12 925***
..40.2	*.. distribution of gaseous fuels*	*0*	*0*	*0*	*0*	***0***
..40.3	*..steam and hot water supply*	*254*	*0*	*0*	*0*	***254***
41	Collection, purification and distribution of water	761	1 570	470	470	**3 271**
45	Construction	0	0	0	705	**705**
50	Sale, repair of motor vehicles; retail sale of	0	0	0	0	**0**

	automotive fuel					
51	Wholesale trade and commission trade	0	0	0	0	**0**
52	Retail trade, excl motor vehicles; repair of household goods	0	0	0	0	**0**
55	Hotels and restaurants	0	0	0	0	**0**
60	Land transport; transport via pipelines	*127*	*0*	*0*	*0*	***127***
..60.1	*..transport via railways*	127	0	0	0	***127***
..60.2	*..other land transport*	*0*	*0*	*0*	*0*	***0***
…60.24	*….freight transport by road*	*0*	*0*	*0*	*0*	***0***
..60.3	*..transport via pipelines*	*0*	*0*	*0*	*0*	***0***
61	Water transport	0	0	0	0	**0**
..61.1	*..sea and coastal water transport*	*0*	*0*	*0*	*0*	***0***
..61.2	*..inland water transport*	*0*	*0*	*0*	*0*	***0***
62	Air transport	0	0	0	0	**0**
63	Supporting transport activities; travel agencies	0	0	0	0	**0**
64	Post and telecommunications	0	0	0	0	**0**
65	Financial intermediation	0	0	0	0	**0**
66	Insurance and pension funding	0	0	0	0	**0**
67	Activities auxiliary to financial intermediation	0	0	0	0	**0**
70	Real estate activities	0	0	0	0	**0**
71	Renting of machinery and equipment without operator	0	0	0	0	**0**
72	Computer and related activities	0	0	0	0	**0**
73	Research and development	0	0	0	0	**0**
74	Other business activities	0	0	0	0	**0**
75	Public administration and defence; compulsory social security	0	0	0	0	**0**
…75.22	*….defence activities*	*0*	*0*	*0*	*0*	**0**
80	Education	0	0	0	0	**0**
85	Health and social work	0	0	0	0	**0**
90	Wastewater treatment; waste management	0	0	0	0	**0**
91	Activities of membership organizations	0	0	0	0	**0**
92	Recreational, cultural and sporting activities	0	0	0	0	**0**
93	Other service activities	0	0	0	0	**0**
95	Activities of households as employers of domestic staff	n.a	n.a	n.a	n.a	**n.a**
99	Extra-territorial organizations and bodies	n.a	n.a	n.a	n.a	**n.a**
	Households	1 269	3 140	0	0	**4 409**
	Non-residents	n.a	n.a	n.a	n.a	**n.a**

Table 3. The total fuel excise duty by economic activities, 2007 (thousand kroons)

	Economic activities	Fuel excise duty		
		Liquid fuel	Other fuel	Total
	TOTAL	**3 629 276**	**46 757**	**3 676 033**
01	Agriculture, hunting	115 858	1 697	**117 555**
02	Forestry	45 523	0	**45 523**
05	Fishing	537	0	**537**
10	Extraction of peat	26 673	0	**26 673**
11	Extraction of oil shale	89 776	0	**89 776**
14	Other mining and quarrying	31 520	0	**31 520**
15	Manufacture of food products and beverages	61 127	2 820	**63 947**
17	Manufacture of textiles	10 474	235	**10 709**
18	Manufacture of wearing apparel; dressing and dyeing of fur	6 852	0	**6 852**
19	Manufacture of leather products and footwear	1 339	0	**1 339**
20	Manufacture of wood and wood products	67 333	470	**67 803**
21	Manufacture of pulp, paper and paper products	6 298	0	**6 298**
22	Publishing, printing and reproduction of recorded media	14 253	0	**14 253**
..23.2	*..manufacture of shale oil*	*22 884*	*0*	***22 884***
24	Manufacture of chemicals and chemical products	11 022	3 140	**14 162**
…24.14	*....manufacture of other organic basic chemicals*	*503*	*0*	***503***
…24.15	*....manufacture of fertilizers and nitrogen compounds*	*590*	*0*	***590***
25	Manufacture of rubber and plastic products	13 751	0	**13 751**
26	Manufacture of other non-metallic mineral products	45 961	14 175	**60 136**
..26.1	*..manufacture of glass and glass products*	*4 078*	*0*	***4 078***
..26.2	*..manufacture of non-refractory, refractory ceramic products*	*1 827*	*0*	***1 827***
..26.3	*..manufacture of ceramic tiles and flags*	*16*	*0*	***16***
..26.4	*..manufacture of construction products in baked clay*	*4 858*	*0*	***4 858***
..26.5	*..manufacture of cement, lime and plaster*	*5 255*	*14 175*	***19 430***
..26.6	*..manufacture of articles of concrete, plaster and cement*	*27 031*	*0*	***27 031***
..26.7	*..cutting, shaping, finishing of ornamental and building stone*	*2 210*	*0*	***2 210***
..26.8	*..manufacture of other non-metallic mineral products*	*686*	*0*	***686***
27	Manufacture of basic metals	722	127	**849**
..27.1-3	*..manufacture of basic iron and steel and of ferro-alloys; Manufacture of tubes; Other first processing of iron and steel*	*63*	*0*	***63***
..27.4	*..manufacture of basic precious and non-ferrous metals*	*416*	*127*	***543***
..27.5	*..casting of metals*	*243*	*0*	***243***
28	Manufacture of fabricated metal products (except machinery)	29 467	0	**29 467**
29	Manufacture of machinery and equipment	12 318	1 805	**14 123**
30	Manufacture of office machinery and computers	717	0	**717**
31	Manufacture of electrical machinery and apparatus	5 677	0	**5 677**
32	Manufacture of radio, television and communication equipment	1 515	0	**1 515**
33	Manufacture of medical and optical instruments and watches	2 769	0	**2 769**
34	Manufacture of motor vehicles, trailers and semi-trailers	3 860	0	**3 860**
35	Manufacture of other transport equipment	6 644	597	**7 241**
36	Manufacture of furniture; other manufacturing	19 129	0	**19 129**
37	Recycling	2 734	0	**2 734**
40	Electricity, gas, steam and hot water supply	44 311	13 179	**57 490**
..40.1	*..production and distribution of electricity*	*26 970*	*12 925*	***39 895***
..40.2	*.. distribution of gaseous fuels*	*2 340*	*0*	***2 340***
..40.3	*..steam and hot water supply*	*15 001*	*254*	***15 255***
41	Collection, purification and distribution of water	5 835	3 271	**9 106**
45	Construction	371 788	705	**372 493**
50-52	Wholesale and retail trade	169 902	0	**169 902**
55	Hotels and restaurants	6 127	0	**6 127**
60	Land transport	568 490	127	**568 617**
..60.1	*..transport via railways*	*52 488*	*127*	***52 615***
..60.2	*..other land transport*	*516 002*	*0*	***516 002***
…60.24	*….freight transport by road*	*343 154*	*0*	***343 154***
..60.3	*..transport via pipelines*	*0*	*0*	***0***
61	Water transport	2 719	0	**2 719**
..61.1	*..sea and coastal water transport*	*2 719*	*0*	***2 719***

..61.2	*..inland water transport*	*0*	*0*	***0***
62	Air transport	448	0	**448**
63	Supporting transport activities; travel agencies	50 806	0	**50 806**
64	Post and telecommunications	22 044	0	**22 044**
65-67	Financial intermediation	16 379	0	**16 379**
70-74	Real estate, renting	73 028	0	**73 028**
75	Public administration and defence; compulsory social security	112 106	0	**112 106**
…75.22	*….defence activities*	*17 564*	*0*	***17 564***
80	Education	14 438	0	**14 438**
85	Health and social work	15 581	0	**15 581**
90	Wastewater treatment; waste management	23 704	0	**23 704**
91	Activities of membership organizations	335	0	**335**
92	Recreational, cultural and sporting activities	8 280	0	**8 280**
93	Other service activities	1 937	0	**1 937**
95	Activities of households as employers of domestic staff	n.a	n.a	**n.a**
99	Extra-territorial organizations and bodies	n.a	n.a	**n.a**
	Households	1 464 287	4 409	**1 468 696**
	Non-residents	n.a	n.a	**n.a**

ANNEX 16. Transport taxes by the economic activities

Table 1. Transport taxes by economic activities, 2007
(thousand kroons)

	Economic activities	Transport taxes				Total
		Heavy goods vehicle tax	State fee for registration of...			
			..motor vehicles	..vessels	..aircraft	
	TOTAL	**68 055**	**99 017**	**1 405**	**3 027**	**171 504**
01	Agriculture, hunting	2 795	3 829	n.a	n.a	**6 624**
02	Forestry	1 320	1 298	n.a	n.a	**2 618**
05	Fishing	79	55	**237**	n.a	**371**
10	Extraction of peat	65	324	n.a	n.a	**389**
11	Extraction of oil shale	119	697	n.a	n.a	**816**
14	Other mining and quarrying	221	327	n.a	n.a	**548**
15	Manufacture of food products and beverages	628	1 768	n.a	n.a	**2 396**
17	Manufacture of textiles	41	344	n.a	n.a	**385**
18	Manufacture of wearing apparel; dressing and dyeing of fur	31	247	n.a	n.a	**278**
19	Manufacture of leather products and footwear	9	43	n.a	n.a	**52**
20	Manufacture of wood and wood products	1 564	1 506	n.a	n.a	**3 070**
21	Manufacture of pulp, paper and paper products	33	170	n.a	n.a	**202**
22	Publishing, printing and reproduction of recorded media	18	572	n.a	n.a	**590**
..23.2	*..manufacture of shale oil*	*6*	*167*	*n.a*	*n.a*	***173***
24	Manufacture of chemicals and chemical products	114	293	n.a	n.a	**407**
….24.14	*....manufacture of other organic basic chemicals*	*10*	*12*	*n.a*	*n.a*	***23***
….24.15	*....manufacture of fertilizers and nitrogen compounds*	*24*	*18*	*n.a*	*n.a*	***43***
25	Manufacture of rubber and plastic products	72	450	n.a	n.a	**521**
26	Manufacture of other non-metallic mineral products	767	911	n.a	n.a	***1 678***
..26.1	*..manufacture of glass and glass products*	*33*	*104*	*n.a*	*n.a*	***136***
..26.2	*..manufacture of non-refractory, refractory ceramic products*	*0*	*85*	*n.a*	*n.a*	***85***
..26.3	*..manufacture of ceramic tiles and flags*	*0*	*1*	*n.a*	*n.a*	***1***
..26.4	*..manufacture of construction products in baked clay*	*10*	*107*	*n.a*	*n.a*	***117***
..26.5	*..manufacture of cement, lime and plaster*	*48*	*72*	*n.a*	*n.a*	***120***
..26.6	*..manufacture of articles of concrete, plaster and cement*	*658*	*454*	*n.a*	*n.a*	***1 111***
..26.7	*..cutting, shaping, finishing of ornamental and building stone*	*14*	*77*	*n.a*	*n.a*	***91***
..26.8	*..manufacture of other non-metallic mineral products*	*5*	*12*	*n.a*	*n.a*	***17***
27	Manufacture of basic metals	13	20	n.a	n.a	**32**
..27.1-3	*..manufacture of basic iron and steel and of ferro-alloys; Manufacture of tubes; other first processing of iron and steel*	*6*	*3*	*n.a*	*n.a*	***9***
..27.4	*..manufacture of basic precious and non-ferrous metals*	*2*	*10*	*n.a*	*n.a*	***12***
..27.5	*..casting of metals*	*4*	*7*	*n.a*	*n.a*	***11***
28	Manufacture of fabricated metal products (except machinery)	293	955	n.a	n.a	**1 249**
29	Manufacture of machinery and equipment	91	401	n.a	n.a	**492**
30	Manufacture of office machinery and computers	4	31	n.a	n.a	**35**
31	Manufacture of electrical machinery and apparatus	21	190	n.a	n.a	**211**
32	Manufacture of radio, television and communication equipment	2	55	n.a	n.a	**57**
33	Manufacture of medical and optical instruments and watches	4	119	n.a	n.a	**122**
34	Manufacture of motor vehicles, trailers and semi-trailers	41	137	n.a	n.a	**178**
35	Manufacture of other transport equipment	8	191	n.a	n.a	**199**
36	Manufacture of furniture; other manufacturing	168	531	n.a	n.a	**699**
37	Recycling	55	53	n.a	n.a	**108**
40	Electricity, gas, steam and hot water supply	80	1 542	n.a	n.a	**1 622**
..40.1	*..production and distribution of electricity*	*6*	*1 018*	*n.a*	*n.a*	***1 024***
..40.2	*.. distribution of gaseous fuels*	*0*	*81*	*n.a*	*n.a*	***81***
..40.3	*..steam and hot water supply*	*74*	*443*	*n.a*	*n.a*	***517***

41	Collection, purification and distribution of water	65	169	n.a	n.a	**235**
45	Construction	5 831	9 623	n.a	n.a	**15 454**
50-52	Wholesale and retail trade	5 251	5 235	n.a	n.a	**10 486**
55	Hotels and restaurants	198	962	n.a	n.a	**1 161**
60	Land transport	37 608	9 161	n.a	n.a	**46 769**
..60.1	*..transport via railways*	*8*	*330*	*n.a*	*n.a*	***338***
..60.2	*..other land transport*	*37 600*	*8 831*	*n.a*	*n.a*	***46 431***
…60.24	*….freight transport by road*	*37 451*	*6 960*	*n.a*	*n.a*	***44 411***
..60.3	*..transport via pipelines*	*0*	*0*	*n.a*	*n.a*	***0***
61	Water transport	0	1 612	237	n.a	**1 849**
..61.1	*..sea and coastal water transport*	*0*	*1 610*	*119*	*n.a*	***1 729***
..61.2	*..inland water transport*	*0*	*2*	*119*	*n.a*	***120***
62	Air transport	0	21	n.a	3 026	**3 048**
63	Supporting transport activities; travel agencies	1 687	1 323	n.a	n.a	**3 010**
64	Post and telecommunications	117	966	n.a	n.a	**1 083**
65-67	Financial intermediation	117	722	n.a	n.a	**839**
70-74	Real estate, renting	3 858	2 725	n.a	n.a	**6 582**
75	Public administration and defence; compulsory social security	6	4 412	237	n.a	**4 656**
…75.22	*…defence activities*	*0*	*399*	*n.a*	*n.a*	***399***
80	Education	99	520	n.a	n.a	**619**
85	Health and social work	10	474	n.a	n.a	**484**
90	Wastewater treatment; waste management	1 042	287	n.a	n.a	**1 330**
91	Activities of membership organizations	20	6	n.a	n.a	**25**
92	Recreational, cultural and sporting activities	23	374	131	0.5	**529**
93	Other service activities	226	65	n.a	n.a	**291**
95	Activities of households as employers of domestic staff	n.a	0	n.a	n.a	**0**
99	Extra-territorial organizations and bodies	n.a	0	n.a	n.a	**0**
	Households	3 238	43 133	562	n.a	**46 933**
	Non-residents	n.a	n.a	n.a	n.a	**0**

ANNEX 17. Water pollution charge, waste disposal charge and water abstraction charge before and after its allocation

Table 1. Water pollution charge, waste disposal charge and water abstraction charge before and after its allocation, 2007 (thousand kroons)

NACE–code	Economic activities	Water pollution charge			Waste disposal charge			Water abstraction charge		
		..specific	..from payment	Total	..specific	..from payment	Total	..specific	..from payment	Total
10	Extraction of peat	41	23	64	13	61	75	516	21	537
11	Extraction of oil shale	7 852	59	**7 911**	33 484	57	**33 541**	52 676	54	**52 730**
14	Other mining and quarrying	379	19	399	1 640	20	1 660	1 856	18	1 873
15	Manufacture of food products and beverages	3 893	3 818	**7 711**	0	2 786	2 786	3 993	3 530	7 524
17	Manufacture of textiles	0	1 955	**1 955**	0	504	504	453	1 808	2 261
18	Manufacture of wearing apparel; dressing and dyeing of fur	0	215	215	0	207	207	168	199	367
19	Manufacture of leather products and footwear	1	16	16	27	57	85	5	15	20
20	Manufacture of wood and wood products	236	211	447	0	745	745	371	195	565
21	Manufacture of pulp, paper and paper products	6 689	16	**6 705**	0	68	68	2 847	15	2 862
22	Publishing, printing and reproduction of recorded media	3	35	38	0	338	338	1	32	33
23.2	..manufacture of shale oil	100	1 477	**1 577**	23 475	2 331	**25 806**	2 752	1 365	4 117
24	Manufacture of chemicals and chemical products	38	836	874	90	637	727	206	773	979
25	Manufacture of rubber and plastic products	1	73	75	0	479	479	5	68	73
26	Manufacture of other non-metallic mineral products	1 374	320	**1 693**	921	1 483	2 404	2 551	296	2 847
27	Manufacture of basic metals	5	7	12	0	137	137	2	6	8
28	Manufacture of fabricated metal products (except machinery)	182	166	348	0	599	599	75	154	229
29	Manufacture of machinery and equipment	3	95	98	301	262	563	62	88	150
30	Manufacture of office machinery and computers	0	2	2	0	7	7	0	2	2
31	Manufacture of electrical machinery and apparatus	0	43	43	0	575	575	3	39	43
32	Manufacture of radio, television and communication equipment	0	149	149	0	181	181	0	138	138
33	Manufacture of medical and optical instruments and watches	7	71	78	0	84	84	11	66	77
34	Manufacture of motor vehicles, trailers and semi-trailers	0	61	61	0	119	119	0	56	56
35	Manufacture of other transport equipment	89	42	131	0	285	285	0	39	39
36	Manufacture of furniture; other manufacturing	21	296	317	0	735	735	68	274	342
37	Recycling	0	9	9	0	8	8	0	8	8

40.1	Production and distribution of electricity	1 327	1 208	**2 534**	211 672	150	**211 821**	36 585	1 117	**37 702**
40.2	Distribution of gaseous fuels	45	7	52	0	31	31	41	7	48
40.3	Steam and hot water supply	1 540	140	**1 679**	4 136	214	4 350	1 425	129	1 554
41	Collection, purification and distribution of water	0	2 306	**2 306**	5	603	607	0	2 132	2 132
45	Construction	377	674	**1 051**	1 259	5 726	6 985	934	623	1 557
50-52	Wholesale and retail sale	482	932	**1 414**	377	7 974	8 350	1 112	862	1 973
55	Hotels and restaurants	90	723	812	0	1 013	1 013	67	668	735
60	Land transport	29	310	339	451	1 578	2 028	37	287	324
61	Water transport	0	723	723	0	162	162	0	668	668
62	Air transport	0	505	505	0	58	58	0	467	467
63	Supporting transport activities; travel agencies	479	0	480	37	3 673	3 710	301	0	301
64	Post and telecommunications	3	980	983	0	1 674	1 674	301	906	1 207
65-67	Financial intermediation	0	723	723	0	148	148	10	668	678
70-74	Real estate; renting	369	294	664	5 693	19 150	**24 843**	0	272	272
75	Public administration and defence; compulsory social security	0	723	723	0	212	212	0	668	668
80	Education	0	723	723	0	235	235	0	668	668
85	Health and social work	203	723	925	0	2 063	2 063	103	668	771
90	Wastewater treatment; waste management	48	267	315	3 420	9 483	**12 903**	0	247	247
91	Activities of membership organizations	0	723	723	0	134	134	0	668	668
92	Recreational, cultural and sporting activities	85	723	807	0	254	254	47	668	715
93	Other service activities	0	723	723	0	562	562	0	668	668

ANNEX 18. Hypothetical impact of burden of pollution charges, water abstraction charge and mineral resources extraction charge

Table 1. Hypothetical impact of burden of pollution charges
(thousand kroons)

NACE–code	Economic activities	Share of environmental taxes in total expenditures (%)				Changes of total expenditures (%)				Changes of profit (%)			
		10%	50%	100%	500%	10%	50%	100%	500%	10%	50%	100%	500%
10	Extraction of peat	4	4	5	7	0	0	1	3	0	-1	-1	-5
11	Extraction of oil shale	16	17	18	25	0	1	2	12	-3	-16	-32	-158
14	Other mining and quarrying	9	10	10	11	0	0	0	2	0	0	-1	-3
15	Manufacture of food products and beverages	0	0	1	1	0	0	0	1	0	-1	-1	-7
17	Manufacture of textiles	1	1	1	2	0	0	0	1	…	…	…	…
18	Manufacture of wearing apparel; dressing and dyeing of fur	0	0	0	1	0	0	0	1	0	-2	-4	-21
19	Manufacture of leather products and footwear	0	0	0	1	0	0	0	1	…	…	..	…
20	Manufacture of wood and wood products	0	0	0	1	0	0	0	1	0	0	-1	-3
21	Manufacture of pulp, paper and paper products	1	1	1	3	0	0	0	2	0	-1	-1	-5
22	Publishing, printing and reproduction of recorded media	1	1	1	3	0	0	0	2	0	-2	-5	-23
23.2	..manufacture of shale oil	5	7	8	19	0	2	3	17	-1	-5	-9	-45
24	Manufacture of chemicals and chemical products	1	1	1	2	0	0	0	1	0	-1	-2	-12
25	Manufacture of rubber and plastic products	0	0	0	1	0	0	0	0	0	-1	-3	-14
26	Manufacture of other non-metallic mineral products	1	1	1	2	0	0	0	1	0	-1	-1	-7
27	Manufacture of basic metals	0	0	0	1	0	0	0	1	0	0	-1	-4
28	Manufacture of fabricated metal products (except machinery)	0	0	0	0	0	0	0	0	0	-1	-1	-5
29	Manufacture of machinery and equipment	0	0	0	1	0	0	0	0	0	-1	-2	-8
30	Manufacture of office machinery and computers	0	0	0	0	0	0	0	0	0	-1	-2	-8
31	Manufacture of electrical machinery and apparatus	0	0	0	0	0	0	0	0	0	0	-1	-4
32	Manufacture of radio, television and communication equipment	0	0	0	0	0	0	0	0	0	-1	-2	-8
33	Manufacture of medical and optical instruments and watches	0	0	0	1	0	0	0	0	0	-1	-1	-7
34	Manufacture of motor vehicles, trailers and semi-trailers	0	0	0	0	0	0	0	0	0	0	-1	-4

35	Manufacture of other transport equipment	0	0	0	1	0	0	0	0	0	0	-1	-5
36	Manufacture of furniture; other manufacturing	0	0	0	1	0	0	0	1	-1	-3	-6	-28
37	Recycling	0	0	0	1	0	0	0	0	0	2	4	22
40.1	Production and distribution of electricity	5	6	8	19	0	2	4	19	-4	-21	-42	-210
40.2	Distribution of gaseous fuels	1	1	2	5	0	0	1	4	-2	-8	-16	-78
40.3	Steam and hot water supply	2	2	3	7	0	1	1	6	-3	-17	-35	-173
41	Collection, purification and distribution of water	1	1	1	3	0	0	0	2	0	-1	-1	-6
45	Construction	1	1	1	1	0	0	0	0	0	0	0	0
50-52	Wholesale and retail sale	0	0	0	0	0	0	0	0	0	-1	-1	-6
55	Hotels and restaurants	1	1	1	2	0	0	0	2	-1	-4	-7	-35
60	Land transport	2	2	2	2	0	0	0	0	0	0	-1	-4
61	Water transport	…	…	…	…	…	…	…	…	…	…	…	…
62	Air transport	…	…	…	…	…	…	…	…	…	…	…	…
63	Supporting transport activities; travel agencies	0	0	0	1	0	0	0	0	0	0	-1	-4
64	Post and telecommunications	1	1	1	2	0	0	0	1	0	2	3	17
65-67	Financial intermediation	4	4	5	8	0	0	1	5	1	3	7	34
70-74	Real estate; renting	1	1	1	2	0	0	0	2	0	-1	-2	-9
75	Public administration and defence; compulsory social security	…	…	…	…	…	…	…	…	…	…	…	…
80	Education	15	16	17	28	0	2	4	18	-10	-48	-97	-483
85	Health and social work	1	1	1	2	0	0	0	2	-1	-6	-12	-59
90	Wastewater treatment; waste management	3	3	4	8	0	1	1	6	-11	-57	-114	-572
91	Activities of membership organizations	…	…	…	…	…	…	…	…	…	…	…	…
92	Recreational, cultural and sporting activities	2	2	3	7	0	1	1	5	0	-2	-4	-18
93	Other service activities	1	1	2	4	0	0	1	3	0	-2	-3	-15

… data were not available

Table 2. Hypothetical impact of burden of water abstraction charge
(thousand kroons)

NACE–code	Economic activities	Share of environmental taxes in total expenditures (%)				Changes of total expenditures (%)				Changes of profit (%)			
		10%	50%	100%	500%	10%	50%	100%	500%	10%	50%	100%	500%
10	Extraction of peat	4	4	4	5	0	0	0	1	0	0	0	-1
11	Extraction of oil shale	16	17	18	26	0	1	3	13	-3	-17	-35	-174
14	Other mining and quarrying	9	10	10	10	0	0	0	1	0	0	0	-1
15	Manufacture of food products and beverages	0	0	0	1	0	0	0	0	0	0	-1	-3
17	Manufacture of textiles	1	1	1	1	0	0	0	0	…	…	…	…
18	Manufacture of wearing apparel; dressing and dyeing of fur	0	0	0	0	0	0	0	0	0	-1	-1	-6
19	Manufacture of leather products and footwear	0	0	0	0	0	0	0	0	…	…	…	…
20	Manufacture of wood and wood products	0	0	0	0	0	0	0	0	0	0	0	0
21	Manufacture of pulp, paper and paper products	1	1	1	2	0	0	0	1	0	0	0	-2
22	Publishing, printing and reproduction of recorded media	1	1	1	1	0	0	0	0	0	0	0	-1
23.2	..manufacture of shale oil	5	5	5	7	0	0	0	2	0	0	-1	-4
24	Manufacture of chemicals and chemical products	1	1	1	1	0	0	0	0	0	0	0	-2
25	Manufacture of rubber and plastic products	0	0	0	0	0	0	0	0	0	0	0	-1
26	Manufacture of other non-metallic mineral products	1	1	1	1	0	0	0	0	0	0	0	-2
27	Manufacture of basic metals	0	0	0	0	0	0	0	0	0	0	0	0
28	Manufacture of fabricated metal products (except machinery)	0	0	0	0	0	0	0	0	0	0	0	-1
29	Manufacture of machinery and equipment	0	0	0	0	0	0	0	0	0	0	0	-1
30	Manufacture of office machinery and computers	0	0	0	0	0	0	0	0	0	0	0	-1
31	Manufacture of electrical machinery and apparatus	0	0	0	0	0	0	0	0	0	0	0	0
32	Manufacture of radio, television and communication equipment	0	0	0	0	0	0	0	0	0	0	0	-1
33	Manufacture of medical and optical instruments and watches	0	0	0	0	0	0	0	0	0	0	0	-1
34	Manufacture of motor vehicles, trailers and semi-trailers	0	0	0	0	0	0	0	0	0	0	0	-1
35	Manufacture of other transport equipment	0	0	0	0	0	0	0	0	0	0	0	0
36	Manufacture of furniture; other manufacturing	0	0	0	0	0	0	0	0	0	0	-1	-4
37	Recycling	0	0	0	0	0	0	0	0	0	0	1	3

40.1	Production and distribution of electricity	4	4	5	6	0	0	0	2	0	-2	-4	-18
40.2	Distribution of gaseous fuels	1	1	1	2	0	0	0	0	0	-1	-2	-8
40.3	Steam and hot water supply	2	2	2	2	0	0	0	0	0	-1	-2	-8
41	Collection, purification and distribution of water	1	1	1	2	0	0	0	1	0	0	-1	-3
45	Construction	1	1	1	1	0	0	0	0	0	0	0	0
50-52	Wholesale and retail sale	0	0	0	0	0	0	0	0	0	0	0	-1
55	Hotels and restaurants	1	1	1	1	0	0	0	1	0	-1	-3	-13
60	Land transport	2	2	2	2	0	0	0	0	0	0	0	0
61	Water transport	…	…	…	…	…	…	…	…	…	…	…	…
62	Air transport	…	…	…	…	…	…	…	…	…	…	…	…
63	Supporting transport activities; travel agencies	0	0	0	0	0	0	0	0	0	0	0	0
64	Post and telecommunications	1	1	1	1	0	0	0	0	…	…	…	…
65-67	Financial intermediation	4	4	4	7	0	0	1	4	…	…	…	…
70-74	Real estate; renting	1	1	1	1	0	0	0	0	0	0	0	0
75	Public administration and defence; compulsory social security	…	…	…	…	…	…	…	…	…	…	…	…
80	Education	15	15	17	24	0	1	3	13	-7	-33	-67	-335
85	Health and social work	1	1	1	1	0	0	0	0	0	-1	-3	-14
90	Wastewater treatment; waste management	2	2	2	3	0	0	0	0	0	-1	-2	-12
91	Activities of membership organizations									…	…	…	…
92	Recreational, cultural and sporting activities	2	2	3	5	0	0	1	3	0	-1	-2	-12
93	Other service activities	1	1	1	2	0	0	0	1	0	-1	-1	-7

… data were not available

Table 3. Hypothetical impact of burden of mineral resources extraction charge (thousand kroons)

NACE–code	Economic activities	Share of environmental taxes in total expenditures (%)				Changes of total expenditures (%)				Changes of profit (%)			
		10%	50%	100%	500%	10%	50%	100%	500%	10%	50%	100%	500%
10	Extraction of peat	4	5	5	10	0	1	1	7	0	-1	-3	-14
11	Extraction of oil shale	17	20	23	41	1	4	9	43	-11	-56	-112	-561
14	Other mining and quarrying	10	12	15	33	1	4	7	35	-1	-5	-10	-49
15	Manufacture of food products and beverages	0	0	0	1	0	0	0	0	0	0	0	-1
17	Manufacture of textiles	1	1	1	1	0	0	0	0	…	…	…	…
18	Manufacture of wearing apparel; dressing and dyeing of fur	0	0	0	0	0	0	0	0	0	-1	-1	-5
19	Manufacture of leather products and footwear	0	0	0	1	0	0	0	0	…	…	…	…
20	Manufacture of wood and wood products	0	0	0	1	0	0	0	0	0	0	0	-1
21	Manufacture of pulp, paper and paper products	1	1	1	1	0	0	0	1	0	0	0	-1
22	Publishing, printing and reproduction of recorded media	1	1	1	1	0	0	0	0	0	0	-1	-4
23.2	..manufacture of shale oil	5	5	6	8	0	0	1	3	0	-1	-2	-9
24	Manufacture of chemicals and chemical products	1	1	1	1	0	0	0	0	0	0	-1	-4
25	Manufacture of rubber and plastic products	0	0	0	0	0	0	0	0	0	0	-1	-4
26	Manufacture of other non-metallic mineral products	1	1	1	3	0	0	0	2	0	-1	-3	-13
27	Manufacture of basic metals	0	0	0	0	0	0	0	0	0	0	0	-1
28	Manufacture of fabricated metal products (except machinery)	0	0	0	0	0	0	0	0	0	0	0	-1
29	Manufacture of machinery and equipment	0	0	0	0	0	0	0	0	0	0	0	-2
30	Manufacture of office machinery and computers	0	0	0	0	0	0	0	0	0	0	-1	-3
31	Manufacture of electrical machinery and apparatus	0	0	0	0	0	0	0	0	0	0	0	-1
32	Manufacture of radio, television and communication equipment	0	0	0	0	0	0	0	0	0	0	0	-2
33	Manufacture of medical and optical instruments and watches	0	0	0	0	0	0	0	0	0	0	0	-2
34	Manufacture of motor vehicles, trailers and semi-trailers	0	0	0	0	0	0	0	0	0	0	0	-1
35	Manufacture of other transport equipment	0	0	0	0	0	0	0	0	0	0	0	-1
36	Manufacture of furniture; other manufacturing	0	0	0	0	0	0	0	0	0	-1	-1	-7
37	Recycling	0	0	0	0	0	0	0	0	0	1	2	10

40.1	Production and distribution of electricity	4	4	4	5	0	0	0	1	0	-1	-1	-7
40.2	Distribution of gaseous fuels	1	1	1	2	0	0	0	1	-1	-3	-6	-28
40.3	Steam and hot water supply	2	2	2	2	0	0	0	0	0	0	-1	-3
41	Collection, purification and distribution of water	1	1	1	1	0	0	0	0	0	0	0	-1
45	Construction	1	1	1	1	0	0	0	0	0	0	0	0
50-52	Wholesale and retail sale	0	0	0	0	0	0	0	0	0	0	0	-2
55	Hotels and restaurants	1	1	1	1	0	0	0	0	0	0	0	-1
60	Land transport	2	2	2	2	0	0	0	0	0	0	0	-1
61	Water transport	…	…	…	…	…	…	…	…	…	…	…	…
62	Air transport	…	…	…	…	…	…	…	…	…	…	…	…
63	Supporting transport activities; travel agencies	0	0	0	0	0	0	0	0	0	0	0	-1
64	Post and telecommunications	1	1	1	1	0	0	0	0	…	…	…	…
65-67	Financial intermediation	4	4	4	4	0	0	0	0	…	…	…	…
70-74	Real estate; renting	1	1	1	1	0	0	0	0	0	0	0	-1
75	Public administration and defence; compulsory social security	…	…	…	…	…	…	…	…	…	…	…	…
80	Education	14	14	14	14	0	0	0	0	0	0	0	-1
85	Health and social work	1	1	1	1	0	0	0	0	0	0	0	-2
90	Wastewater treatment; waste management	2	2	2	2	0	0	0	0	0	0	-1	-4
91	Activities of membership organizations	…	…	…	…	…	…	…	…	…	…	…	…
92	Recreational, cultural and sporting activities	2	2	2	2	0	0	0	0	0	0	0	0
93	Other service activities	1	1	1	1	0	0	0	0	0	0	0	0

… data were not available

ANNEX 19. Description of the frame and the calculation of the fuel excise duty for the group of enterprises which were used as a bases for the analyses of the burden of environmental taxes

Description of the frame

One of the aims of this study, besides to compilation of the environmental taxes standard tables, was to investigate the possibility of monitoring the environmental taxes reform carried out in Estonia at present.

At first two groups of economic units were formed and analysed. Economic units, which had paid at least one of the following environmental tax (pollution charges, mineral resources extraction and water abstraction charge, heavy goods vehicles tax) in 2007 made up the first group.

These groups of economic units are illustrated in the figure 1.

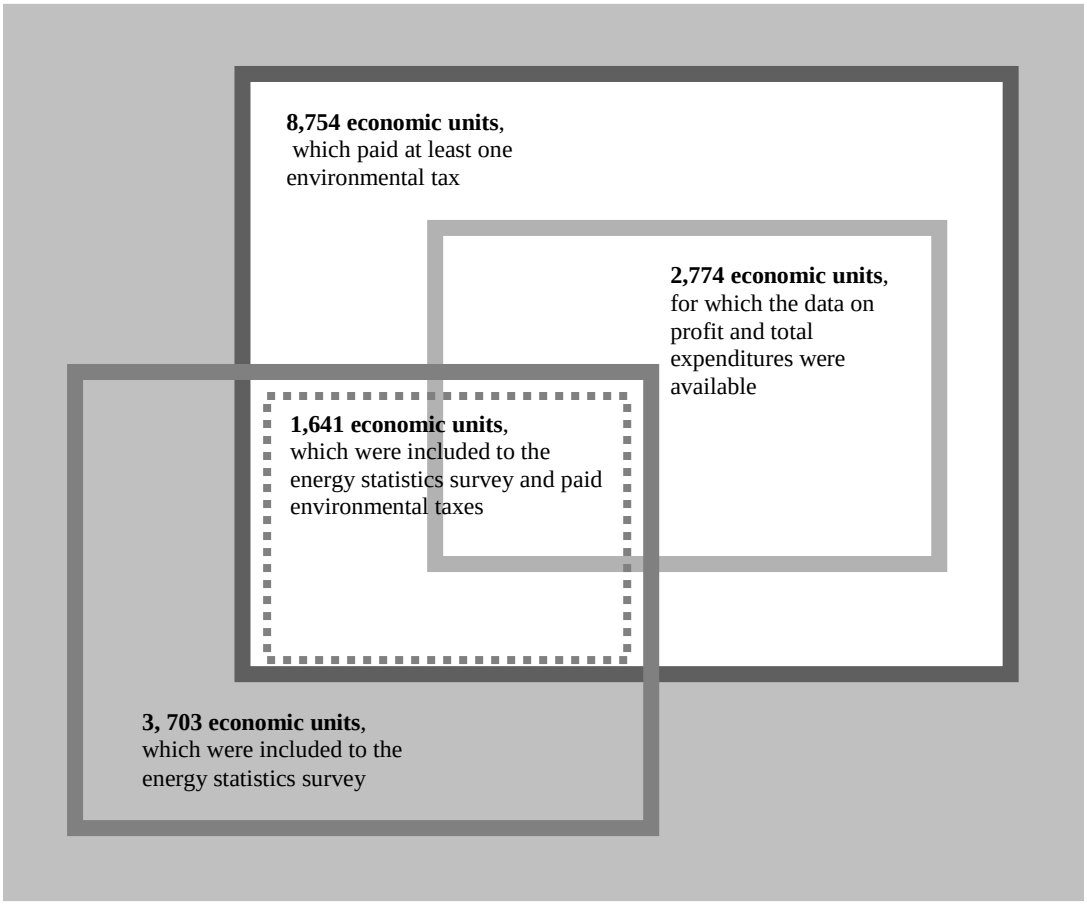

Figure 1. Groups of economic units used in the pilot study for estimations and further analysis

This group consisted of 8,754 enterprises. The total of these environmental taxes paid in Estonia equals the respective sums in current database. All pollution tax payers are represented in this group.

Estimation of fuel excise duty for the enterprises in the frame

In case of energy taxes the situation was different. Everyone pays energy tax, directly or indirectly. 1,875 enterprises represent just a small share of the total number of Estonian enterprises. In another hand we supposed that everyone of these 8,745 pays also the energy taxes. The energy taxes paid in this group of 8,754 were estimated. These estimations were made only for liquid fuel, as liquid fuel duty covers 89.8% of all energy taxes (see table above).

As a first step, the comparison of database of enterprises included to energy statistics survey and database of enterprises having paid at least one of the above

listed environmental taxes were compared. 1,641 common enterprises presented in both databases were identified.

As it was described in chapter 2, all enterprises in 8,754 group were divided into KAUs according to the net sales in their different KAUs using Structural Business survey questionnaire EKOMAR and PRODCOM report of these economic units. It was valid also for these 1,641 common enterprises established by comparison of two databases. This made possible to divide the liquid fuel usage of these 1,641 economic units by KAUs in the same proportion as their net sales from their KAUs. As the result the fuel use in homogenous economical branches was obtained, but only about 20% of economic units in group of 8,754 were covered. How to find the energy taxes paid by another 80 % KAU-s, is described in following.

Common enterprises are the biggest

The aggregated net sales of economical branches (NACE–categories) in group 8,754 or "full economy" and net sales of the branches in group of 1,641 economic units having were compared. The comparisons of net sales by economical branches are presented on the table 1. It is seen from the table, that common 1,641 economic units regardless of small share in number, gave the most of net sale of the group 8,754 economic units. This means, that they are the biggest economic units in group of 8,754.

Table 1. The comparisons of net sales by economic branches of economic units which paid at least one environmental tax and of which common to energy statistics, 2007 (thousand kroons)

	Economic activities	Net sale		
		Net sale of economic units (8,754), which paid at least one environmental tax	..of which the net sale of economic units (1,641), which was inclu-ded to the energy statistics survey	..share of 1,641 economic units in total of 8,754 economic units (%)
	TOTAL	**366 484**	**284 087**	**78**
01	Agriculture, hunting	4 952	3 388	68
02	Forestry	5 097	3 798	75
05	Fishing	257	141	55
10	Extraction of peat	1 220	1 186	97
11	Extraction of oil shale	2 126	2 124	100
14	Other mining and quarrying	1 459	1 323	91
15	Manufacture of food products and beverages	19 703	17 716	90
17	Manufacture of textiles	3 968	3 888	98
18	Manufacture of wearing apparel; dressing and dyeing of fur	2 071	1 958	95
19	Manufacture of leather products and footwear	363	297	82
20	Manufacture of wood and wood products	18 783	16 731	89
21	Manufacture of pulp, paper and paper products	3 715	3 341	90
22	Publishing, printing and reproduction of recorded media	3 125	2 947	94
23.2	Manufacture of shale oil	*1 981*	*1 695*	*86*
24	Manufacture of chemicals and chemical products	6 561	5 421	83
…24.14	*....manufacture of other organic basic chemicals*	*766*	*50*	*7*
…24.15	*....manufacture of fertilizers and nitrogen compounds*	*990*	*973*	*98*
25	Manufacture of rubber and plastic products	3 687	3 056	83
26	Manufacture of other non-metallic mineral products			
..26.1	*..manufacture of glass and glass products*	*1 820*	*1 797*	*99*
..26.2	*..manufacture of non-refractory, refractory ceramic products*	*12*	*12*	*100*
..26.3	*..manufacture of ceramic tiles and flags*	*7*	*7*	*100*
..26.4	*..manufacture of construction products in baked clay*	*986*	*985*	*100*
..26.5	*..manufacture of cement, lime and plaster*	*1 095*	*1 094*	*100*
..26.6	*..manufacture of articles of concrete, plaster and*	*4 038*	*3 952*	*98*

	cement			
..26.7	*..cutting, shaping, finishing of ornamental and building stone*	*171*	*155*	*91*
..26.8	*..manufacture of other non-metallic mineral products*	*140*	*140*	*100*
27	Manufacture of basic metals			
..27.1-3	*..manufacture of basic iron and steel and of ferro-alloys; manufacture of tubes; other first processing of iron and steel*	*83*	*41*	*49*
..27.4	*..manufacture of basic precious and non-ferrous metals*	*587*	*587*	*100*
..27.5	*..casting of metals*	*136*	*134*	*99*
28	Manufacture of fabricated metal products (except machinery)	10 241	9 083	89
29	Manufacture of machinery and equipment	3 564	3 105	87
30	Manufacture of office machinery and computers	796	705	88
31	Manufacture of electrical machinery and apparatus	6 941	4 892	70
32	Manufacture of radio, television and communication equipment	3 353	2 672	80
33	Manufacture of medical and optical instruments and watches	1 484	1 272	86
34	Manufacture of motor vehicles, trailers and semi-trailers	2 398	2 133	89
35	Manufacture of other transport equipment	2 212	1 639	74
36	Manufacture of furniture; other manufacturing	5 459	4 808	88
37	Recycling	1 388	351	25
40	Electricity, gas, steam and hot water supply			
..40.1	*..production and distribution of electricity*	14 816	13 607	92
..40.2	*.. distribution of gaseous fuels*	2 586	2 568	99
..40.3	*..steam and hot water supply*	3 005	2 884	96
41	Collection, purification and distribution of water	1 491	1 200	81
45	Construction	70 053	61 676	88
50	Sale, repair of motor vehicles; retail sale of automotive fuel	30 534	16 672	55
51	Wholesale trade and commission trade	32 604	19 199	59
52	Retail trade (excl. motor vehicles); repair of household goods	8 456	5 618	66
55	Hotels and restaurants	311	171	55
60	Land transport			
..60.1	*..transport via railways*	*3 558*	*3 195*	*90*
..60.2	*..other land transport*	*16 874*	*6 783*	*40*
…60.24	*….freight transport by road*	*15 538*	*5 553*	*36*
..60.3	*..transport via pipelines*	*0*	*0*	***0***
61	Water transport	7 914	7 914	100
..61.1	*..sea and coastal water transport*	*7 914*	*7 914*	*100*
..61.2	*..inland water transport*	*0*	*0*	***0***
62	Air transport	1 638	274	17
63	Supporting transport activities; travel agencies	15 308	8 346	55
64	Post and telecommunications	853	830	97
65	Financial intermediation	28 725	16 402	57
66	Insurance and pension funding	0	0	0
67	Activities auxiliary to financial intermediation	70	0	0
70	Real estate activities	1 829	488	27
71	Renting of machinery and equipment without operator	1 150	690	60
72	Computer and related activities	29	0	0
73	Research and development	17	17	100
74	Other business activities	1 575	615	39
75	Public administration and defence; compulsory social security	6	2	33
…75.22	*….defence activities*	*0*	*0*	*0*
80	Education	1 018	955	94
85	Health and social work	4 326	4 275	99
90	Wastewater treatment; waste management	1 699	876	52
91	Activities of membership organizations	73	0	0
92	Recreational, cultural and sporting activities	267	39	14
93	Other service activities	322	215	67

In order to estimate the liquid fuel usage of the rest of economic units (which were not included to energy statistics survey) the "fuel use factors" were introduced. It

was supposed that inside homogenous economical branch the use of fuel per kroon of net sale was the same. The "fuel use factor" was calculated as quantity of fuel in kilograms per one kroon of net sale for each economical branch. Separate factors were calculated for gasoline, diesel and light fuel oil. The fuel use factors were presented in the table 2.

Table 2. Fuel use factors for different economical branches (kg per kroon)

	Economic activities	**Fuel use factors**		
		Diesel	**Gasoline**	**Light fuel oil**
01	Agriculture, hunting	3.682	0.486	1.276
02	Forestry	0.917	0.369	0.316
05	Fishing	4.228	0.212	6.331
10	Extraction of peat	3.318	0.183	0.983
11	Extraction of oil shale	7.342	0.059	0.000
14	Other mining and quarrying	3.768	0.110	0.283
15	Manufacture of food products and beverages	0.239	0.114	0.229
17	Manufacture of textiles	0.126	0.102	0.290
18	Manufacture of wearing apparel; dressing and dyeing of fur	0.135	0.123	0.113
19	Manufacture of leather products and footwear	0.286	0.158	0.000
20	Manufacture of wood and wood products	0.407	0.071	0.059
21	Manufacture of pulp, paper and paper products	0.146	0.056	0.163
22	Publishing, printing and reproduction of recorded media	0.139	0.159	0.316
23.2	Manufacture of shale oil products	2.372	0.009	0.000
24	Manufacture of chemicals and chemical products	0.168	0.052	0.017
…24.14	*....manufacture of other organic basic chemicals*	1.003	0.281	0.000
…24.15	*....manufacture of fertilizers and nitrogen compounds*	0.044	0.023	0.000
25	Manufacture of rubber and plastic products	0.205	0.120	0.113
26.1	Manufacture of glass and glass products	0.209	0.055	0.316
26.2	Manufacture of non-refractory, refractory ceramic products	0.974	0.669	0.328
26.3	Manufacture of ceramic tiles and flags	0.000	0.140	0.000
26.4	Manufacture of construction products in baked clay	0.548	0.117	0.684
26.5	Manufacture of cement, lime and plaster	0.709	0.051	0.144
26.6	Manufacture of articles of concrete, plaster and cement	0.845	0.098	0.358
26.7	Cutting, shaping, finishing of ornamental and building stone	0.393	0.541	0.328
26.8	Manufacture of other non-metallic mineral products	0.650	0.036	0.521
27.2	Manufacture of tubes	0.000	0.099	0.000
27.4	Manufacture of basic precious and non-ferrous metals	0.073	0.019	0.000
27.5	Casting of metals	0.149	0.060	0.060
28	Manufacture of fabricated metal products (except machinery)	0.129	0.085	0.072
29	Manufacture of machinery and equipment	0.201	0.127	0.149
30	Manufacture of office machinery and computers	0.021	0.057	0.000
31	Manufacture of electrical machinery and apparatus	0.057	0.041	0.073
32	Manufacture of radio, television and communication equipment	0.017	0.022	0.075
33	Manufacture of medical and optical instruments and watches	0.039	0.053	0.024
34	Manufacture of motor vehicles, trailers and semi-trailers	0.056	0.060	0.094
35	Manufacture of other transport equipment	0.267	0.098	0.210
36	Manufacture of furniture; other manufacturing	0.254	0.092	0.167
37	Recycling	0.932	0.154	0.222
40.1	Production and distribution of electricity	0.083	0.093	0.004
40.2	Distribution of gaseous fuels	0.051	0.039	0.000
40.3	Steam and hot water supply	0.259	0.189	1.320
41	Collection, purification and distribution of water	0.393	0.167	0.000
45	Construction	0.507	0.141	0.124
50	Sale, repair of motor vehicles; retail sale of automotive fuel	0.063	0.064	0.014
51	Wholesale trade and commission trade	0.343	0.071	0.008
52	Retail trade (excl. motor vehicles); repair of household goods	0.345	0.056	0.044

55	Hotels and restaurants	0.070	0.082	0.479
60.1	Transport via railways	1.934	0.027	8.299
60.2	Other land transport	12.736	0.187	0.083
…60.24	*….freight transport by road*	10.340	0.176	0.075
61.1	Sea and coastal water transport	3.197	0.018	1.393
61.2	Inland water transport	1.011	0.183	0.328
62	Air transport	0.000	0.044	0.022
63	Supporting transport activities; travel agencies	0.541	0.179	0.183
64	Post and telecommunications	0.279	0.093	0.024
65	Financial intermediation	0.001	0.012	0.000
66	Insurance and pension funding	1.011	0.183	0.000
67	Activities auxiliary to financial intermediation	0.974	0.176	0.316
70	Real estate activities	0.611	0.334	0.556
71	Renting of machinery and equipment without operator	0.898	0.204	0.049
72	Computer and related activities	0.974	0.176	0.316
73	Research and development	4.921	1.200	0.000
74	Other business activities	0.707	0.532	0.328
75	Public administration and defence; compulsory social security	346.743	126.437	832.375
…75.22	*….defence activities*	1.011	0.183	0.328
80	Education	0.269	0.204	0.054
85	Health and social work	0.055	0.045	0.137
90	Wastewater treatment, waste management	4.182	0.221	0.027
91	Activities of membership organizations	1.011	0.183	0.328
92	Recreational, cultural and sporting activities	1.324	0.234	0.328
93	Other service activities	0.288	0.325	0.636

The estimations of fuel use of economic units not included to energy statistics survey were made multiplying the fuel use factors with the total net sale of these economic units by KAUs. The total fuel use by KAUs was obtained summarizing the real fuel use of 1,641 economic units included to energy statistics survey and estimations made on the bases of fuel use factors. Using the fuel taxes rates the fuel excise duties of economical branches (NACE–categories) were calculated.

The fuel excise duty by economical branches for group of economic units, which paid at least one of economical taxes, is presented in the table 3.

Table 3. The fuel excise duty by economical branches for group of enterprises (8,754), which paid at least one of environmental taxes, 2007
(thousand kroons)

	Economic activities	**Fuel excise duty of liquid fuel paid by the group of 8,754**				
		Diesel	**Gasoline**	**Light fuel oil**	**Under suspension**	**Total**
	TOTAL	**1 831 731**	**288 296**	**39 123**	**197 129**	**1 962 020**
01	Agriculture, hunting	59 041	15 591	2 683	0	**77 315**
02	Forestry	15 136	12 176	174	0	**27 487**
05	Fishing	3 514	353	690	4 204	**353**
10	Extraction of peat	13 104	1 447	509	0	**15 060**
11	Extraction of oil shale	50 539	811	0	0	**51 350**
14	Other mining and quarrying	17 799	1 044	175	0	**19 018**
15	Manufacture of food products and beverages	15 262	14 572	1 914	0	**31 748**
17	Manufacture of textiles	1 623	2 619	489	0	**4 730**
18	Manufacture of wearing apparel; dressing and dyeing of fur	904	1 645	99	0	**2 649**
19	Manufacture of leather products and footwear	337	373	0	0	**709**
20	Manufacture of wood and wood products	24 737	8 635	474	0	**33 846**
21	Manufacture of pulp, paper and paper products	1 757	1 340	257	0	**3 354**
22	Publishing, printing and reproduction of recorded media	1 411	3 216	24	0	**4 651**
23.2	Manufacture of shale oil	15 216	114	0	0	**15 329**
24	Manufacture of chemicals and chemical products	3 562	2 204	46	0	**5 813**
…24.14	....manufacture of other organic basic chemicals	2 486	1 393	0	0	**3 879**
…24.15	....manufacture of fertilizers and nitrogen compounds	142	145	0	0	**286**

25	Manufacture of rubber and plastic products	2 442	2 877	177	0	**5 496**
..26.1	..manufacture of glass and glass products	1 230	643	3	3	**1 873**
..26.2	..manufacture of non-refractory, refractory ceramic products	0	52	0	0	**52**
..26.3	..manufacture of ceramic tiles and flags	0	6	0	0	**6**
..26.4	..manufacture of construction products in baked clay	1 750	746	286	286	**2 496**
..26.5	..manufacture of cement, lime and plaster	2 515	363	67	67	**2 878**
..26.6	..manufacture of articles of concrete, plaster and cement	11 043	2 576	613	613	**13 619**
..26.7	..cutting, shaping, finishing of ornamental and building stone	217	599	2	2	**816**
..26.8	..manufacture of other non-metallic mineral products	295	32	31	31	**327**
..27.2	Manufacture of tubes	0	53	0	0	**53**
..27.4	..manufacture of basic precious and non-ferrous metals	139	71	0	0	**211**
..27.5	..casting of metals	65	52	3	0	**121**
28	Manufacture of fabricated metal products (except machinery)	4 264	5 619	313	0	**10 196**
29	Manufacture of machinery and equipment	2 316	2 923	225	0	**5 464**
30	Manufacture of office machinery and computers	55	293	0	0	**348**
31	Manufacture of electrical machinery and apparatus	1 282	1 830	214	0	**3 325**
32	Manufacture of radio, television and communication equipment	187	480	107	0	**774**
33	Manufacture of medical and optical instruments and watches	189	514	15	0	**718**
34	Manufacture of motor vehicles, trailers and semi-trailers	437	940	96	0	**1 472**
35	Manufacture of other transport equipment	1 913	1 408	198	0	**3 519**
36	Manufacture of furniture; other manufacturing	4 485	3 259	386	0	**8 130**
37	Recycling	4 187	1 384	131	0	**5 701**
40.1	Production and distribution of electricity	3 998	8 968	26	0	**12 992**
40.2	Distribution of gaseous fuels	430	659	0	0	**1 089**
40.3	Steam and hot water supply	2 523	3 679	1 683	0	**7 886**
41	Collection, purification and distribution of water	1 898	1 618	0	0	**3 516**
45	Construction	115 009	64 005	3 691	0	**182 705**
50	Sale, repair of motor vehicles; retail sale of automotive fuel	6 197	12 664	187	0	**19 048**
51	Wholesale trade and commission trade	36 171	15 021	110	0	**51 302**
52	Retail trade, excl motor vehicles; repair of household goods	9 436	3 082	158	0	**12 676**
55	Hotels and restaurants	71	165	63	0	**299**
..60.1	..transport via railways	22 282	621	12 533	0	**35 435**
..60.2	..other land transport	695 912	20 457	598	0	**716 967**
…60.24	….freight transport by road	520 227	17 679	494	0	**538 399**
..61.1	..sea and coastal water transport	81 942	940	4 681	86 622	**940**
..61.2	..inland water transport	146	0	0	146	**0**
62	Air transport	0	465	15	0	**480**
63	Supporting transport activities; travel agencies	26 837	17 780	1 187	0	**45 804**
64	Post and telecommunications	772	512	9	0	**1 293**
65	Financial intermediation	102	2 156	0	0	**2 258**
66	Insurance and pension funding	152	2 352	0	0	**2 504**
67	Activities auxiliary to financial intermediation	222	80	9	0	**312**
70	Real estate activities	3 620	3 962	431	0	**8 013**
71	Renting of machinery and equipment without operator	3 347	1 523	24	0	**4 894**
72	Computer and related activities	91	33	4	0	**127**
73	Research and development	266	130	0	0	**395**
74	Other business activities	3 606	5 424	134	0	**9 163**
75	Public administration and defence; compulsory social security	7 186	5 244	2 261	0	**14 690**
…75.22	….defence activities	5 838	2 838	418	0	**9 095**
80	Education	887	1 346	24	0	**2 257**
85	Health and social work	763	1 266	251	0	**2 280**
90	Wastewater treatment; waste management	23 002	2 438	20	0	**25 459**
91	Activities of membership organizations	238	86	10	0	**335**
92	Recreational, cultural and sporting activities	1 145	404	32	0	**1 581**
93	Other service activities	301	679	87	0	**1 067**

It should be pointed out, that fuel excise duty estimated for group of economic units, which paid at least one of economical taxes corresponds to homogenous economical branches and is totally comparable with other environmental taxes and economical data of these economic units.

The only economical data available at the moment for all economic units, which paid at least one tax, was net sale of that economic unit as the data collection and data analysis of economical data for 2007 was still ongoing during carrying out this pilot project. Nevertheless 2,774 economic units were identified inside the group of 8,754, for which the data about profits and total expenditures were available. These 2,774 economic units made up the second special group of economic units used for further analysis of environmental tax reform of Estonia. The fuel excise duty paid by this group of economic units was estimated using the same approach as in case of group 8,754. The same fuel use factors presented in the table above were used for estimations of fuel use of economic units not included to energy statistics survey.