9. Environmental management tools

Whether we can preserve a safe and healthy environment depends on the behaviour of individuals. However, sustainable decisions are based primarily on environmental policy and other environmental management tools.

Businesses and their everyday decisions have a great impact on the environment. Environmental charges, for example, have played an important role in raising environmental awareness because they give a clear signal to entrepreneurs. Penalties constitute the state's reaction to environmental hostility. The increasing or decreasing of penalties shows our attitude towards the environment.

There are also other means, such as environmental management systems, environmental charges and penalties, various labels and environmental investments. Environmental impact assessments are only some of the outputs that signal the way forward for society. This chapter of the environmental performance review focuses on environmental charges and penalties and addresses an issue that has become topical recently — residual pollution. This shows how much effort is required to put right the consequences of our reckless behaviour in the past. Environmentally friendly businesses are becoming increasingly popular. Their efforts are recognised and people are beginning to realise that environmentally responsible thinking will bring long-term benefits. Consumers are also becoming increasingly environmentally conscious. We are taking small steps towards being a society that does not tolerate environmental hostility. This is confirmed by increased environmental charges.

9.1 Environmental taxes and charges

Estonia is implementing environmental policy by using economic instruments — environmental taxes and charges (Figure 9.1).

The purpose of environmental taxes is to motivate consumers to reduce their environmental "footprint".

The environmental taxes implemented in Estonia are fuel excise duty, electricity excise duty, excise duty on packaging, heavy vehicle tax and excise duty on motor vehicles. In 2009–2012, state revenues from environmental taxes and duties increased, constituting around 9% of the total state budget tax revenue (Table 9.11).

Environmental charges differ from environmental taxes in that they are paid by producers and are therefore included in the production costs of goods and services. They affect the cost price of products and services and consequently their competitiveness in the market. Environmental charges encourage entrepreneurs to implement environmental measures to reduce the environmental impact of production and also the environmental charges.

The Environmental Charges Act provides the grounds for determining the natural resource charges, the rates of the pollution charge, the procedure for calculation and payment thereof, and the grounds and specific purposes for using state budget revenue obtained from environmental use. According to the Environmental Charges Act, a person who, on the basis of an environmental permit or another basis provided by law, has been granted the right to remove natural resources from their natural state, emits pollutants into the environment or disposes of waste or who has performed those acts without the corresponding right pays environmental charges. Environmental charges are divided into natural resource charges (hereinafter "resource charges") and pollution charges.

Natural resource charges include the following charges: forest regeneration cutting charge, mineral extraction charge, water abstraction charge, fishing charge, hunting charge. The pollution charge is imposed in the event of the emission of pollutants into the ambient air (hereinafter "ambient air pollution charge"), water body, groundwater or soil (hereinafter "water pollution charge") and upon waste disposal (hereinafter "waste disposal charge").

In 2009–2012, Estonian companies paid a total of 239.6 million euros in environmental charges; waste disposal charges and mineral extraction charges constituted a major part of this amount (Figure 9.2).

The revenue from environmental charges in 2012 increased by nearly 7 million euros or 9% compared with 2009. The decline in tax revenue from environmental charges in 2009–2010 was related to the overall economic performance — both production and consumption decreased during that period. The increase in the revenue from environmental charges in 2011–2012 was related to an increase in the rates of those charges and the recovery of the Estonian economy.

Other reasons for the changes in the revenue from environmental charges were changes in the rates established by the Environmental Charges Act, changes in the principles of the implementation of pollution charges (abolishment of conformity coefficients for landfills), decreased pollution charges for the disposal of waste and decreased environmental pollution levels.

The principles of the application of resource charges set forth in the Environmental Charges Act were not changed in the period concerned. Therefore, the changes were brought about by changes in the use of resources (in particular in the building and energy sectors) and by increased rates, in particular those of the mineral extraction charges.

The earlier regulation on the forest regeneration cutting charge was repealed in 2009. The principle of the payment of the revenue from forests into the state budget changed in line with the relevant amendment to the Forest Act — a part of the net profit of the State Forest Management Centre (RMK) will be transferred to the state budget.

Environmental charges are paid into the state budget (from where one part of the charges are allocated for maintaining the status of the environment and the other part for non-specified use) and into the budgets of local governments to be used for local needs (Figure 9.3).

The revenues from environmental use are used through SA Keskkonnainvesteeringute Keskus (the Environmental Investment Centre - EIC) for promoting environmental protection in accordance with Section 4 of the Environmental Charges Act (Figure 9.4). EIC's environmental programme is the state's primary measure for funding environmental protection.

A total of 138 million euros was paid out through the environmental programme in 2009–2012.

Besides the environmental programme, an important source of funding environmental investment is foreign aid. In 2009–2012, Estonia received foreign aid in the amount of 465 million euros for infrastructure development and environmental protection. The government contributed around 38 million euros in the form of co-financing.

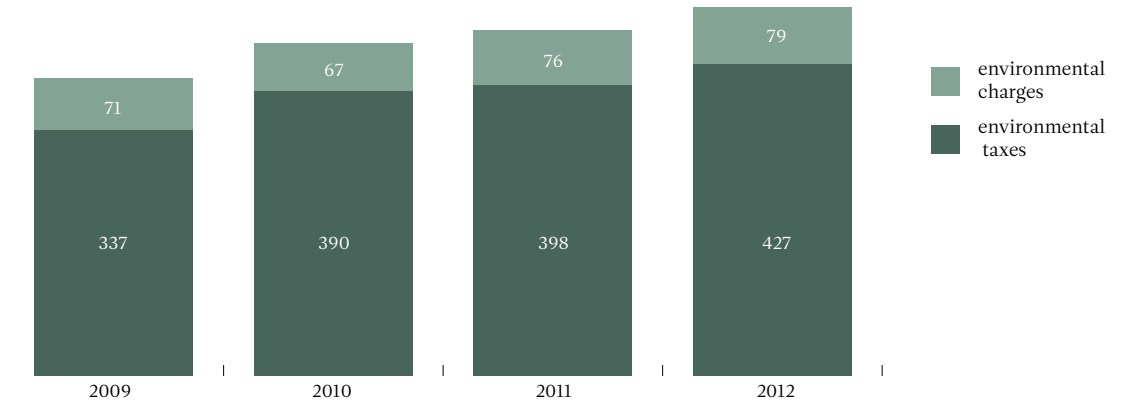

Figure 9.1. Environmental taxes and charges paid in 2009–2012 (mln euros). Source: Ministry of the Environment; Statistics Estonia.

Table 9.1. Environmental charges received in 2009–2012 (mln euros) Source: Statistics Estonia.

	2009	**2010**	**2011**	**2012**
Fuel excise duty	311,6	357,1	361,4	389,8
Electricity excise duty	22,0	29,3	32,3	32,6
Heavy vehicle tax	3,544	3,496	3,680	3,895
Excise duty on motor vehicles	0,001	0,002	0,002	0,001
Excise duty on packaging	0,030	0,010	0,197	0,276

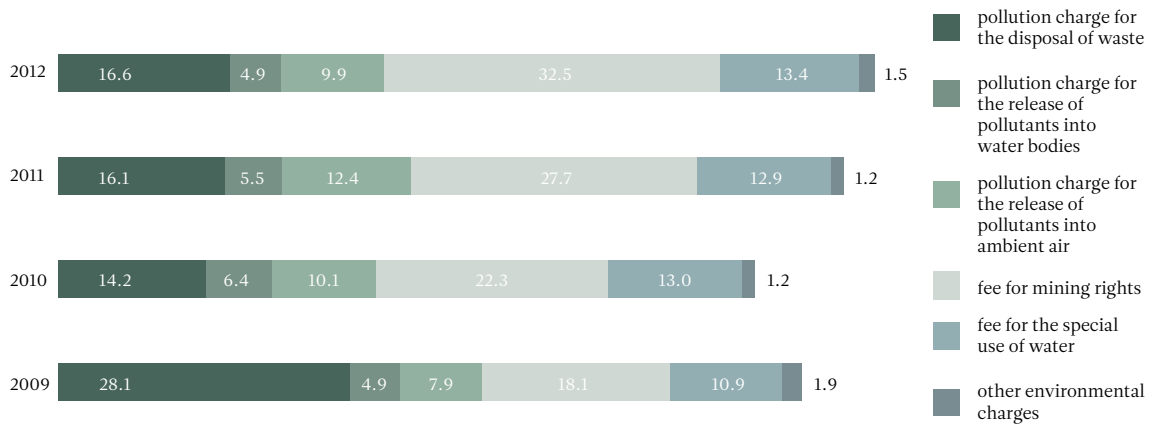

Figure 9.2. Environmental charges received in 2009–2012 (mln euros). Source: Ministry of the Environment.

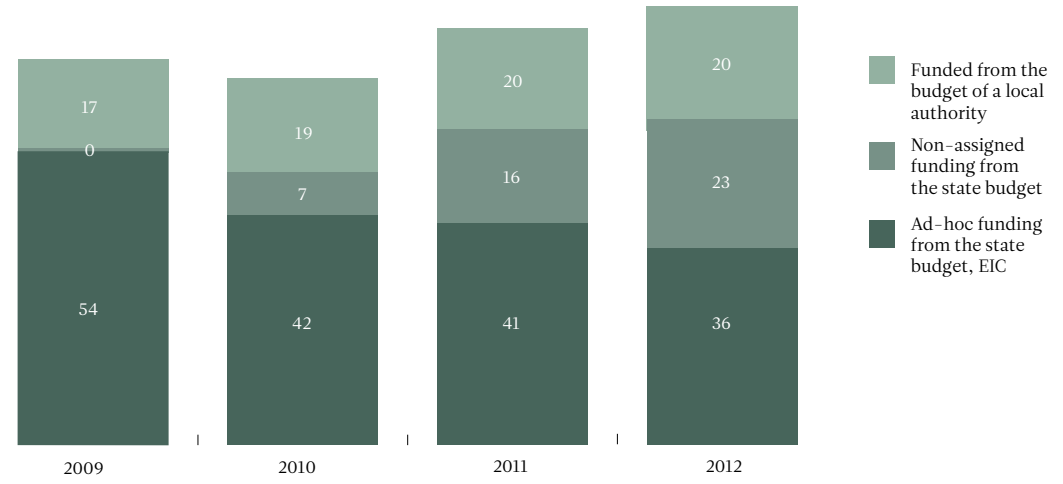

Figure 9.3. Allocation of the revenue from environmental charges in 2009–2012 (mln euros). Source: Ministry of Finances; Ministry of the Environment.

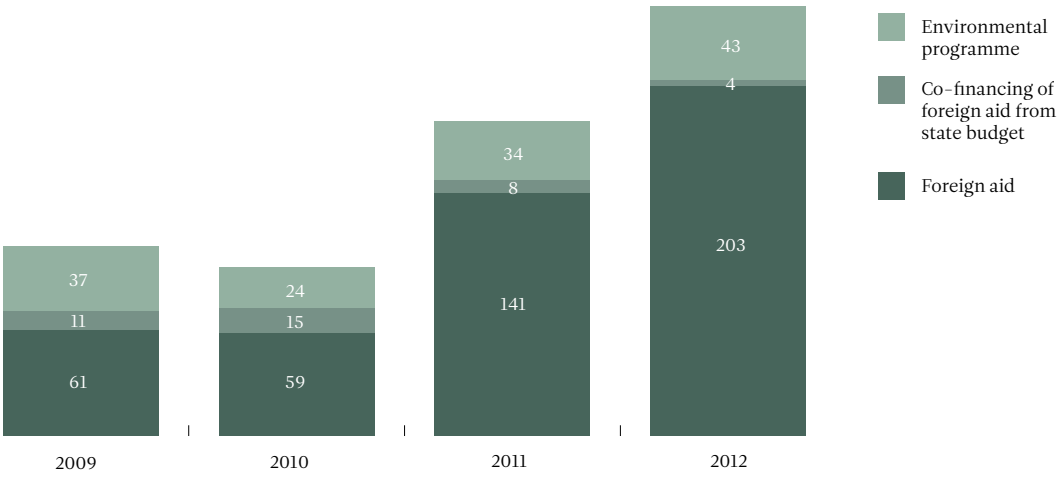

Figure 9.4. Funding of environmental measures in 2009–2012 (mln euros). Source: Environmental Investment Centre.

9.2 Impact of the environmental charges

Estonia has applied environmental charges since 1991. The purpose of environmental charges is to avoid or reduce potential losses related to the use of natural resources, emissions of pollutants into the environment and waste disposal. There has been a consistent increase in the rates of environmental charges because the applicable rates were found to be too low and not sending a signal to individuals and businesses that they need to change their behaviour in order to protect the environment, and to attach greater value to natural resources. The Ministry of the Environment commissioned a study in 2012 in order to assess the impact of environmental charges on investments, economic performance and competitiveness of businesses, on prices and the efficiency of the use of natural resources as well as on the reduction of waste and pollutants. The findings of the study are described below.

In general, we can say that no significant changes in either direction have been observed that could be attributed to the increase in the rates of environmental charges. The majority of businesses do not consider environmental charges a factor that affects their economic decisions, probably because for most businesses environmental charges do not constitute a significant part of their overall costs. When looking at the overall tax burden (Figure 9.5) we can see that resource and pollution charges only constitute 0.3% of GDP or less than 1% of the total tax burden.

The planning and making of investments depends primarily on the overall economic situation and market specifics as well as on the need to save costs (the latter also includes any changes in environmental charges). The most important environmental aspects for businesses are the environmental requirements and emission limit values of pollutants — these determine whether they can obtain an activity licence and the size of the amount of pollution penalties. Environmental charges are not considered to be an important factor that affects investments (see Figure 9.6). However, environmental charges are very important in some sectors of the economy, such as the mining, energy and waste management sectors. In these sectors, the impact of environmental charges on investment decisions is much bigger. It should also be borne in mind that the costs of environmental charges are passed on to other sectors through the costs of water, energy and waste handling.

As regards the links between environmental charges and competitiveness, the majority of businesses do not perceive any negative impact. 71% of the businesses that participated in the survey conducted in the course of preparing this report said that environmental charges do not impede competition with other EU Member States, while businesses in the energy sector stressed that technical progress helps to improve their competitiveness. However, the respondents pointed out that Estonian businesses are at a disadvantage compared to those in third countries where the environmental requirements are more relaxed and ambiguous and production generates more pollution.

On the one hand, companies feel pressure from the government to strictly observe the environmental requirements; on the other hand, they receive no support from the state for investments. Therefore, it is understandable that the findings of the interviews reflect the expectation that support measures for planning and implementing environmentally efficient innovations were more accessible, the application procedure unequivocal and that the specific needs of applicants were taken into account. Also, it is very important that any amendments to the environmental requirements were known in advance by businesses. Unfortunately, the positive impact of environmental charges is cancelled out if the changes are too abrupt and no time is left for adjustment. Today, businesses perceive the environmental charges as a tax that generates revenues for the government, rather than serving its principal purpose.

Environmental charges have an important role in raising environmental awareness because they give a clear signal to entrepreneurs. The emissions of many pollutants and the use of resources have decreased in recent years. However, in some sectors, the use of resources and demand for transport are increasing at a time when natural resources (such as sand, clay and oil shale) are decreasing. In these sectors, the environmental charges need to be raised as a priority in order to provide an incentive for extraction companies and users to use non-renewable resources more efficiently and to prefer fuel-saving vehicles. The survey also identifies the sectors where the implementation of economic instruments needs further analysis.

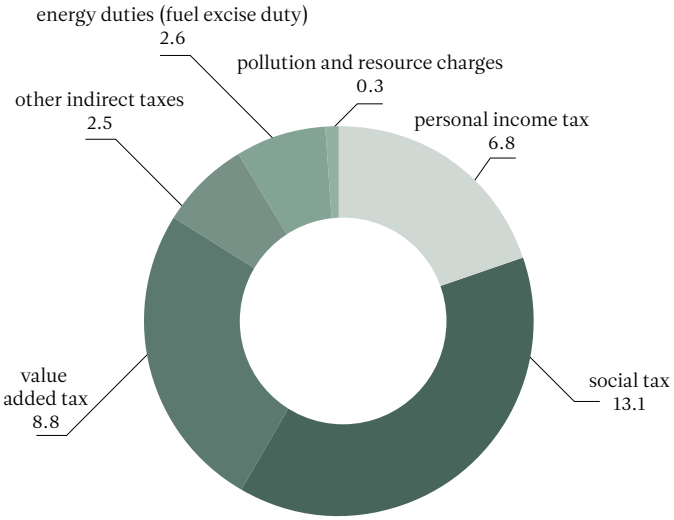

Figure 9.5. Tax revenues by types of tax, 2010, % of GDP.

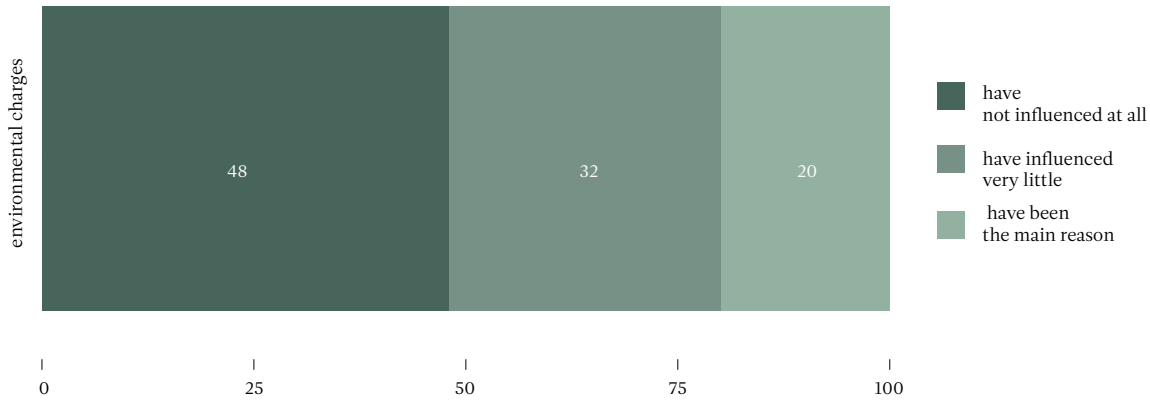

Figure 9.6. Answers to the question "To what extent have environmental charges affected the investments and improvements intended to reduce the environmental impact?"

Further reading:

- SEI Tallinn and RAKE. (2013). Keskkonnatasude mõjuanalüüs. *[www] http://www.seit.ee/publications/4447.pdf*

9.3 Infringement of environmental requirements and penalties

While most people protect nature willingly, the government has adopted legislation and put in place surveillance systems in order to ensure the sustainable use and protection of natural values.

In Estonia the authority responsible for environmental supervision is the Environmental Inspectorate. The Environmental Inspectorate monitors the use of the natural environment and resources in all areas, be it forest protection, the protection of the earth's crust or fish protection, waste management, or the issues related to packaging or ambient air — in a total of around twenty areas.

The Environmental Inspectorate is a body that conducts extra-judicial proceedings related to environmental misdemeanours, i.e. the Inspectorate imposes penalties and recoups damages for environmental harm. The amount of a penalty imposed for a misdemeanour depends on the nature of the infringement — how serious it is and whether there are mitigating or aggravating circumstances. The purpose of the penalties is to deter offending.

From 2011, the Environmental Inspectorate as an investigation authority has the right to conduct proceedings on environmental offences. In criminal cases, punishment is imposed by the court.

The main legislation on environmental supervision is the Environment Supervision Act.

Environmental provisions are laid down in the relevant legislation, such as the Hunting Act, the Waste Act, the Fishing Act, the Chemicals Act, the Nature Conservation Act, the Animal Protection Act, the Earth's Crust Act and the Forest Act.

Offences are dealt with based on the Code of Misdemeanour Procedure, the Penal Code and Code of Criminal Procedure.

Based on the organisation of work of the Inspectorate, the areas of supervision are the following: environmental protection, nature conservation and fish protection.

Most infringements in the area of environmental protection are related to waste. For example, fly-tipping, i.e. illegal deposit of any waste in the environment, e.g. on land or in forest, continues to be a problem. So is the pollution of water bodies or land, which may result in serious damage to the environment.

A significant number of offences in the area of nature conservation are related to people's behaviour in nature, such as illegal camping or campfires in protected areas or driving outside the designated paths. Another problem is illegal construction in riparian and shore zones. More often than not people start the construction before the approval procedure has been completed, hoping that the required authorisations and permits can be obtained later.

The biggest problem in the area of fish protection is the use of fishing gear that does not have the required labelling and markings, fishing without a permit as well as fishing at a time or place when or where it is prohibited. Fishing is the area in which the biggest number of offences has been committed over time. One of the reasons is definitely the huge number of anglers.

The overall trend is that the number of environmental offences has decreased constantly since 2003. This has been facilitated by more organised and efficient surveillance, cooperation with other surveillance authorities, improved environmental management and increased awareness and concern about the environment.

The data of the last four years indicate that by the end of 2012, the number of environmental offences dropped by 33% compared with 2009 (Figure 9.7). The number of offences identified in 2012 increased by 265, compared with 2011.

The number of environmental offences has remained at the same level in the past few years (Figure 9.8).

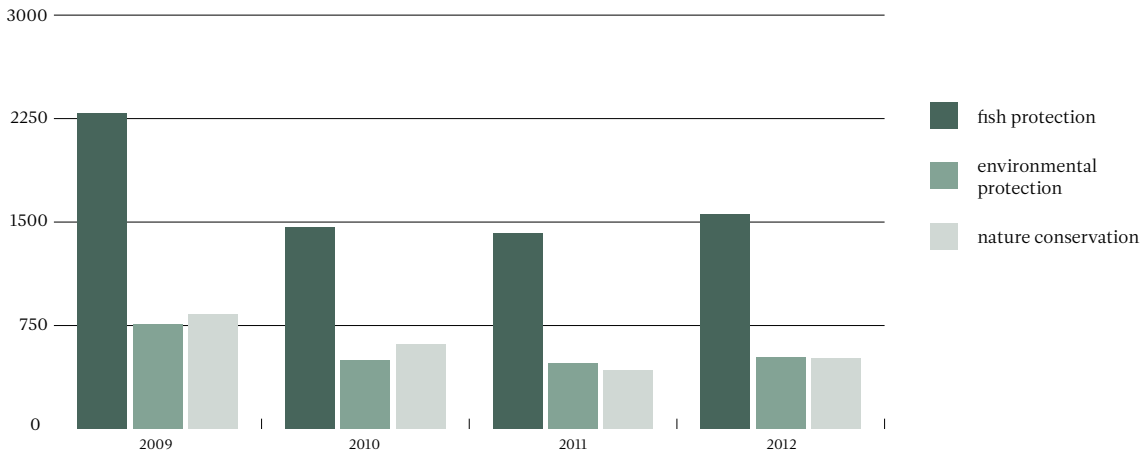

Figure 9.7. Number of environmental offences in 2009–2012. Data: Environmental Inspectorate.

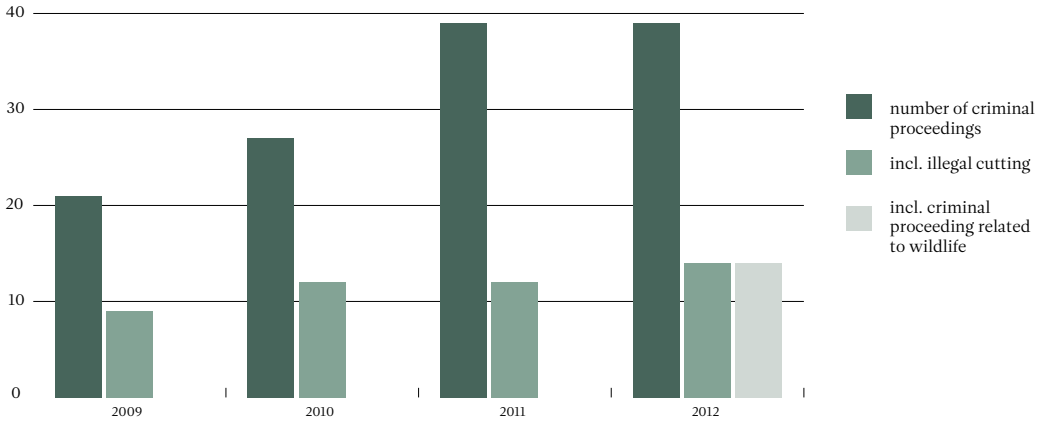

Figure 9.8. Number of environmental offences in 2009–2012. Data: Environmental Inspectorate.

9.4 Residual pollution

Residual pollution refers to a polluted area of the land or water environment created as a result of human activity, or a quantity of hazardous substances left in the environment, which pose a threat to the health of the people and wildlife in the area and may even cause deaths. After the Russian army withdrew from Estonia, it left behind large quantities of corrosive or combustible substances, toxic gases and thousands of explosives.

The unstable economic relations and environmentally adverse behaviour of the Soviet Union created many areas that were dangerous to humans. However, due to the policy of secrecy and denial, very few people were aware of their existence. Military objects, more than 1,500 on the small territory of Estonia, were fiercely guarded by secrecy. However, in the early years of independence, Estonia also generated residual pollution, in particular due to the oil shale industry. For example, residual pollution can be found on the territories of the production units of RAS Kiviter in Kiviõli and Kohtla-Järve. The cement industry was also a major source of pollution in the newly-independent Estonia. In 1991, the annual emissions of pollutants from the Kunda cement factory constituted 107,000 tonnes and the situation persisted for years. In addition to air pollution, soil and vegetation within a 10 km radius of the factory were covered in a thick layer of cement dust. Coniferous trees were dead and the quality of drinking water was poor. The situation started to improve in 1997 and today Kunda is almost dust free.

On 12 March 1997, the Riigikogu adopted the first national environmental strategy that defined nearly 40 important environmental issues. The priority issues were defined taking into account the risk to human health, impact on the economy, sustainable development and international obligations. The major objectives included the reduction of the negative impact of energy production, improvement of the air quality, reduction of waste and organisation of waste management, protection of surface water and groundwater as well as the elimination of residual pollution. As regards residual pollution, the objective was the elimination of pollution from decommissioned objects and site rehabilitation. The target for 2010 was to ensure that high risk residual pollution objects are sealed off from the natural environment. The target has not been fully met due to a lack of resources, e.g. the works at the former military airfield in Tapa have not been completed. The semi-coke landfills in Kohtla-Järve continue to pose a risk to the environment. The Ministry of the Environment is actively involved in the project of closing the landfill. An important achievement is the rehabilitation of the nuclear waste depository in Sillamäe, which was a significant threat to the whole Baltic Sea region. The depository was sealed off and by 2005 it did not pose any risk to the Baltic Sea or the residents of Sillamäe. Today, there is a green hill at the site of a former uranium tailing pond. The project has a guarantee of one thousand years.

On 19 February 2007, the Riigikogu adopted a decision approving the Estonian Environmental Strategy 2030. It is noted in the decision that the pollution from industrial, agricultural and military objects continues to be a major problem. The environmental action plan 2007–2013 lists environmental actions intended to eliminate residual pollution. The progress in eliminating the hotbeds of residual pollution is monitored based on annual reviews. The National Audit Office is also monitoring the activities related to the elimination of residual pollution[1].

Military objects continue to be a great concern. In 1992, a committee for funding the assessment and elimination of the environmental damage caused by the Soviet army was established by the Ministry of the Environment. The activities of the committee were funded from the state budget. The findings of the committee were published in 1999 in the report "Residual pollution, left by the former Soviet army and the elimination of the pollution". A total of 194 military objects with a total area of 80,000 ha were assessed for environmental damage; additional pollution studies were carried out at another 64 objects. The pollution levels were very high at 19 objects and high at 38 objects. A major part of the funding was allocated to alleviate the situation at these objects. A total of 761,427 tonnes of oil products, 8,257 tonnes of chemicals, 59 tonnes of batteries and dry elements, 48,544 tonnes of scrap metal, 12,038 tonnes of oil and fuel residue, etc. were identified in the soil on a total of 4,335 hectares of land. A total of 39.4 million kroons was spent from the state budget in 1992–1998 to clean up the former military sites. This amount was supplemented by considerable foreign aid from Germany, Finland, Denmark and Sweden as well as from the European Union and the World Bank.

Radioactive waste (a Soviet Navy nuclear submarine training centre in Paldiski, a nuclear waste depository in Sillamäe), corrosive chemicals (e.g. sodium peroxide), explosives, toxic gases, mercury-vapour lamps (more than 20,000 were collected), NiCad batteries and oils containing PCBs were considered particularly dangerous.

Rocket fuel also posed an enormous threat to the environment. At the former Raadi military airfield in Tartu, barrels containing melange (concentrated nitric acid with admixtures) were not properly sealed and emitted toxic fumes, posing a threat to people's health. At the Keila-Joa missile base, samine, a toxic alkaline component of liquid rocket fuel, was simply poured on the ground and 10–15 tonnes of it penetrated the ground and reached ground water.

By the end of 1998, most of the dangerous pollution at former military objects, which posed a risk to people's health and lives, was eliminated. However, there are still numerous residual pollution objects of various risk levels in Estonia and their rehabilitation will take decades. These include asphalt, wax and tar residues, fuel and oil waste and their emulsions, waste paint and lacquer as well as zinc sheet scrap, which do not pose a direct risk to life but are still unpleasant and disturbing. For example,

1 http://www.riigikontroll.ee/upload/failid/ka_7042_jaak_reo_10.02.2004_lopp.pdf

nearly 100,000 litres of kerosene and 680,000 m3 of polluted ground water were pumped out of the ground at a former military airfield in Tapa. This operation cost 7,390,840 Estonian kroons and 8 million Danish kroner. As the cost of pumping continued to increase (from 47 kroons in 1995 to 274 kroons in 1998), the clean-up operations were suspended in the hope that the soil and water would self-clean over time. The majority of the residents of Tapa have access to clean drinking water from the public water supply. As a result of the Tapa water management project carried out in 2011, which was funded from the Cohesion Fund (hereinafter CF), the majority of the residents of Tapa whose wells are polluted were ensured access to clean drinking water by 2013. However, according to OÜ Tapa Vesi, there are still households to whom clean drinking water has to be delivered by tank trucks. The work to ensure that these households are connected to the public water supply is in progress and the situation is expected to be resolved in the course of future investment projects.

As of 2013, the Ministry of the Environment had commissioned seven studies from AS Maves and Sweco International AB in order to get a comprehensive overview of the status of residual pollution objects. In 2004, a list of TOP 75 dangerous residual pollution objects was prepared. Over the last decade, dangerous objects have been eliminated and rehabilitated with funding from the Environmental Investment Centre (hereinafter "EIC"). In 2002–2012, funds from the environmental programme of EIC (income from environmental charges) were used to clean up the following objects: Tallinn oil storage facility, Tallinn fuel terminal, Kapasto asphalt concrete plant (hereinafter ACP), Soldina oil storage facility, Jänesselja, Raikküla, Rapla and Kõrkküla ACPs, Laguja oil lake, Raadi military airfield (Raadi-Jaamamõisa catchment area), Lagedi and Maadevahe ACPs, a boiler plant in Pärnjõe, Lohusuu ACP, the former heavy fuel oil storage facility in Sinalepa, a boiler plant in Võhma, a former petrol station in Valjala, the pesticides storage facility of the former Viru-Maidla collective farm, the wood preservative plant in Turba, boiler plants in Neeme, Sinimäe, Jüri and Tamsalu, Alatskivi ACP, a boiler plant in Olgina, etc. The funding from EIC in the amount of 5.5 million euros has been used to clean up a total of 50 objects.

In addition to national resources, funding provided within the EU framework programme period 2007–2013 (from the Cohesion Fund)has been used to clean up residual pollution. For example, the closing of the semi-coke landfill in Kiviõli, which was completed in 2012, cost a total of 5.9 million euros. The closing of the semi-coke landfill in Kohtla-Järve is nearly completed. The project has received more than 35 million euros from the Cohesion Fund. The support from CF is also used to clean up former asphalt concrete plants, ports and railway objects. The funding is provided under measure "Elimination of residual pollution at former military and industrial sites". 14 objects will be cleaned up. The total cost of the clean-up operations is 13.5 million euros. As of the beginning of 2013, the clean-up of the following objects was completed in Harju, Lääne-Viru and Ida-Viru counties: Kose-Risti ACP, a boiler plant in Kose, Miinisadam (Mine Harbour), the harbour at Süsta street, the Tapa train depot, Ahtme 86 ACP and Narva ACP. The clean-up of the Tapa locomotive depot, Viruvere and Põltsamaa ACPs should be completed in 2013. The clean-up of the Kopli freight yard, Tallinn-Väike locomotive depot and the residual pollution objects in Umbsaare and Holstre-Nõmme is expected to be completed in 2014.

Further reading:

- Ministry of the Environment website. General information about financed projects. *[www] http://www.envir.ee/1119*
- The owners of objects containing residual pollution and local authorities can contact the water department of the Ministry of the Environment and in regional environmental authorities to see the documents related to the completed works; the studies on former military objects are available at the Environmental Research Centre at Marja 4, Tallinn..