

FRESHWATER COUNTRY PROFILE

Estonia

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Environmental protection in Estonia is coordinated by Estonian Ministry of the Environment. The scope of matters that Estonian Ministry of the Environment has to regulate is ample. It is responsible for regulating the questions concerning the protection of nature and environment, solving the tasks concerning the land-use (with keeping the national land cadastre), including coordination of the elaboration of regional plans; managing the use, protection and accounting of the natural resources, as well as surveillance over the use of environmentally hazardous compounds. Through its various programmes, the Ministry of the Environment organizes environmental monitoring, meteorological and geological surveys. It arranges the environmental impact assessments of the projects of national importance and coordinates international relations in environmental matters. The Ministry of the Environment formulates national policies in its field of activities and prepares respective legal acts. The Ministry of the Environment is led by the Minister of Environment. The chief executive of the Ministry is the Secretary General who is in charge of managing the work of the departments of the Ministry and coordinating the activities of the institutions governed by the Ministry.

Management of freshwater resources and protection of the sea is one of the main tasks for the Ministry of the Environment. Water policy is coordinated by water department. The primary goal of the water department is to ensure the good condition and sustainable exploitation of Estonia's groundwater layers and bodies of water including the sea. The said goals are achieved through:

1. Reduction of the pollution load.
2. Implementation of pollution prevention measures through enforcement of necessary legal provisions.
3. Reduction of water exploitation and leakage through the system of special use permits and special use of water fees.
4. Limiting in some areas the use of wastewater disposal into specific water bodies or soil.
5. Implementing specific rehabilitation projects to rigidly safeguard continuous sustainable use of publicly used water bodies.
6. Ensuring the issue of such special use permits as to clarify specific goals and measures for minimizing the impact of special use.
7. Preparation and implementation of plans and programs for long-term sustainable management of groundwater layers and water bodies.
8. Ensuring development of public water supply and sewage networks by creating suitable legal options for the local governing bodies and their undertakings.
9. Participation in the work of bodies and organizations supervising the implementation of international agreements and conventions.
10. Development of legal acts enabling continuous sustainable use of water resources

The water department prepares special use permits for most specialized uses of seawater including dredging, soil outlet, pound pisciculture, etc., but not for discharging wastewater into the sea. Permits for water users and wastewater disposal into the sea are issued by the environmental service of the relevant county.

The water department coordinates work of the groundwater commission seeking to establish groundwater resources (incl. mineral water resources), conducting necessary research and assessment. The water department is also in charge of the groundwater research licensing commission whose task is to certify groundwater research projects. In cooperation with the county environmental services, the water department guides the development of water management programmes and water protection and use programmes.

Estonian water policy is based on the national Water Act which specifies the main legal obligations and regulation areas for the water protection and use. The national water policy follows the EU water policy.

According to the Water Act measures for the water protection and use will be planned in the river basin management plan which will be established for each river basin district and for each river basin sub-district. The river basin management plan itself as well as its objectives, tasks and obligations must be followed municipalities' public water supply and sewerages development plans and when drafting general or detailed plans.

According to the regulation established by the Government of the Republic there are 3 river basin districts and 8 river basin sub-districts in Estonia.

The river basin districts in Estonia are:

- East-Estonian river basin district (International RBD for Lake Peipsi and river Narva shared with Russia)
- West-Estonian river basin district
- Koiva river basin district (International RBD for river Koiva shared with Latvia)

River basin sub-districts in Estonia are:

- Harju sub-district
- Läänesaarte sub-district
- Matsalu sub-district
- Pandivere sub-district
- Peipsi sub-district
- Pärnu sub-district
- Viru sub-district
- Võrtsjärve sub-district

Under the Ministry of the Environment there are fifteen county environmental services which implement national environmental policy in the counties. Each service has specialists who deal with water issues.

Estonia has adopted a number of legal acts, strategies, action plans and other documents supporting sustainable development and shaping the relevant legal space and public attitudes. Along its way towards implementing the principles of sustainable development into everyday life, Estonia has consistently followed the internationally accepted principles and provisions of the European Union acquis.

Programmes and Projects

A. Integrated Water Resources Development and Management

For ensuring integrated water resources management and development, water management in Estonia is based on river basin approach. According to the Water Act measures for the water protection and use will be planned in the river basin management plan which will be established for each river basin district and for each river basin sub-district. River basin management plan is important and central administrative management tool. So far there are approved Pärnu and Pandivere sub-district water management plans. Pärnu sub-district water management plan gives overview of sub-district, human impact, protected areas, environmental goals, measures, economical analyse, institutional management scheme and monitoring. Pandivere sub-district

water management plan covers following themes: overview of Pandivere sub-district, human impact on groundwater and surface water, protected areas, monitoring, environmental goals, analyse of water use, measures, public participation and information.

B. Water Resources Assessment

Water resources assessment is carried out through national environmental monitoring programme. Groundwater monitoring, monitoring of inland water bodies and coastal sea monitoring are part of national monitoring programme.

The main objective of the groundwater monitoring is to survey the state of natural groundwater resources (water supply, chemical composition, etc.) and to monitor the changes (groundwater quality, water table, water supply) caused by human activities (direct and indirect consumption of groundwater, pollution, etc.); the aim is to obtain the information necessary for decision making on national level and for international cooperation.

Monitoring of inland water bodies ensures monitoring of the compliance of surface water quality with international requirements and with the requirements set out in Estonian legislation. It gives annual reviews of the hydrological, hydrochemical and hydrobiological status of rivers and lakes.

The general objective of sea monitoring is to determine the impact of human activities on the marine environment and biota of the Baltic Sea, and to determine the range of influence of these activities in the context of natural changes, including qualitative and quantitative assessment of the effectiveness of the measures applied.

According to national environmental monitoring programme water quality of inland water bodies and coastal sea has improved during the last decade. Unsatisfactory is quality of North-Estonian Rivers that flow into Gulf of Finland (for example Keila, Vääna and Purtse rivers). Also unsatisfactory is quality of many small rivers that are sensitive to pollution.

C. Protection of Water Resources, Water Quality and Aquatic Ecosystems

Principles of water protection are stated in Water Act. The purpose of the Water Act is to guarantee the purity of inland and transboundary water bodies and groundwater, and ecological balance in water bodies. According to Water Act the use of water and water bodies is either public or special. Public use of a water bodies is the use of a water body by anyone without any constructions or technical equipment which could affect the condition of the water body. Special use of water is the use of water with technical equipment, constructions or substances which could affect the condition of a water body or aquifer. The public uses of a water body are water abstraction, bathing, water sports, moving on water or ice. The list of water bodies for public use is approved by the Government of the Republic. For the special use of water, a user shall hold a permit with a specified term and, in the case of using the land of another, also the permission of the landowner. 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 m³ per day;
- groundwater is abstracted more than 5 m³/d;
- 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 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.

Protection measures of water resources, water quality and aquatic ecosystems are in water management plans. So far there are approved Pärnu and Pandivere sub-district water management plans. Measures for drinking water protection in Pärnu sub-basin district cost total 814 million EEK. This includes studies and surveys, modernization of drinking water supply system, building new pipelines and drinking water treatment plants etc. Measures for surface water protection in Pärnu sub-basin district cost total 791 million EEK. This includes studies and surveys, reducing negative effect of sewage to water bodies, building and renovation of wastewater treatment plants, elimination of past pollution etc. Measures for groundwater protection will cost total 300 million EEK. It includes elimination of past pollution, studies and surveys, modernisation of fertilizer management. According to Pandivere sub-district water management plan, measures for ensuring population with drinking water that corresponds to quality requirements, is total 97 million EEK. Total cost for ensuring good status of groundwater is 245 million EEK. For water bodies protection is necessary 81 million EEK in this region.

It is planned to carry out project “Technical assistance for improvement of ecological quality of watercourses”. It will be financed from Cohesion Fund and state budget. The main aim of the project is the improvement of the ecological status of Estonian inland water bodies in order to prevent their further deterioration and maintain and improve the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems. The project will also enable to provide economic benefits by contributing towards the protection of fish populations (including coastal fish populations).

Each year large investments are made for water protection. Financing comes from state budget and it is allocated to projects by Environmental Investment Centre (EIC). EIC allocates also ERDF and Cohesion Fund finances.

D. Drinking Water Supply and Sanitation

Estonia's drinking water supply is based on:

- Groundwater (all rural settlements and most towns - 65% of population),
- Surface water (two large towns - 35% of population).

Approximately 75% of the population is connected to the central water supply systems in Estonia. In the bigger settlements, 80-95% of the population is connected to centralized water supply systems. However, Estonia faces a number of problems in the quality of its drinking water supplies. Most pipes are normally made of steel and iron and need reconstruction. Due to poor network conditions, leakage is high. Large parts of the distribution system are dilapidated and losses from leakage lead to excessive abstractions in order to maintain supply. These abstractions in turn can lead to lowering of the water table and to deterioration in groundwater quality. In the coastal area, they can give rise to saline intrusion. This situation contributes to the unsustainable use of water resources in some areas. In order to transpose the water quality

indicators to the EU requirements, considerable investments are necessary for renovation and reconstruction of drinking water systems in Estonia.

The water pollution load in Estonia has been decreasing since 1992 due to a decrease in discharges (related to reduction of industrial output) and an increase in treatment efficiency. About 77 % of the Estonian population is connected to a public sewerage system, but significant efforts are still needed to develop municipal wastewater infrastructure in rural areas. The wastewater transmission systems are generally old and need rehabilitation or replacement. The pipelines are made of steel or iron and are heavily corroded. Consequently, wastewater leakage rates into the soil and storm water infiltration rates into the sewerage are both high.

E. Water and Sustainable Urban Development

National Environmental Strategy underlines following major problems in water sector: irrational use of water bodies, water pollution, eutrophication and declining of quality and reproduction of aquatic fauna, including fish resources.

During last decade significant changes have taken place in Estonia. Economic decline, changes in industrial activities and an amount of domestic water used, organized policy of water tariffs and pollution charges, increased investments to water protection; all have brought about the diminishment of the pressure exerted to aquatic environment.

Consumption of water began to decrease at the beginning of 90's when many industries stopped their business activities due to new economic conditions. Economic interest started to play a significant role: enterprises became interested in minimizing expenses spent on water consumption and therefore started to modernize technologies to economize the use of water. Water was saved also with the view of minimizing charges for special use of water and pollution charges.

Water extraction for domestic, industrial and agricultural use has been decreased approximately three times during the last decade. Water resources are surface water or groundwater, marine water to a smaller extent.

Compared to other European countries water use for domestic purposes in Estonia is relatively moderate.

Rises in water/wastewater tariffs due to increased expenses for water production and wastewater treatment, investments and economical-political decisions forced people to use water more economically, contributed to the extensive application of water meters and upgrade of pipes and sanitary installations.

Status of rivers, lakes, gulfs and groundwater depends on natural conditions of water catchment area and human activity. Water bodies in Estonia are affected generally by nutrients oriented from diffuse pollution source of everyday life, food industry and light industry. Water bodies in North and North-East Estonia are also affected by big industries.

Majority of wastewater that needs treatment is treated mechanically, biologically and biologic-chemically. Mining water is treated mechanically; the rest is treated biologically or biologic-chemically. Rapid decline of pollution load at the beginning of 90's was resulted from the diminishment of industrial production. For instance, production of cellulose, phosphorus

fertilizers and nitrogen fertilizers stopped and the production of food industries decreased. Further decline of pollution load has been achieved through application of modernized production technologies and wastewater treatment plants, and upgrading of wastewater treatment plants. In addition, starting from 1993 both, chemical and biological removal of nutrients has gradually been applied as a part of wastewater treatment after biological treatment.

In addition, the collapse of collective farm system has had a positive impact on the water quality of water bodies as agricultural production has lulled. As a result of that the consumption of fertilizers and thus pollution load from farms decreased. The consumption of fertilizers was highest in 1960-1988. Starting from 1990 the consumption of fertilizers has decreased rapidly. For instance, in 2000 82 kg of mineral fertilizers were used per one hectare of fertilized soil that is more than twice less than at the beginning of 90's. At the same time the amount of domestic animals has declined three times. Quickening of agricultural activities will however bring about the increase of the impact on aquatic environment. In order to produce agricultural products without a significant threat to the environment it is necessary to organize the treatment, storage and the use as a fertilizer of manure, improve the technology of cereal production, observe the consumption of fertilizers and pesticides and to modernize the equipment used in agriculture.

When organizing water management the principle water user and polluter pays for his/her action is followed. To promote sustainable water use the charges for the special use of water are applied and to control pollution, pollution charges are applied. The rate of pollution charges has been increasing during the last decade and is generally higher than in other Baltic Countries.

Compared to other European countries the pollution charges set in Estonia are considerably lower, however, the income of population is also lower.

Investments for upgrading and expanding water supply and sewerage system and for building new treatment plants have been financed from different sources: state budget, environmental investment centre (EIC), local budgets, and means of water utilities, foreign loan and foreign grant.

The outputs of the investments are decreased volume of water used and also decreased pollution load. As a consequence, the status of rivers, lakes, seas and groundwater has been improving. For assessing the status of Estonian rivers 60 monitoring stations measure the content of BOD₇, N_{tot} and P_{tot} each year in Estonian rivers.

F. Water for Sustainable Food Production and Rural Development

Agriculture has traditionally been a well-developed branch of economy in Estonia. During the early 90-s ecological problems in this field had increased: deterioration of soils due to out-of-date agricultural technologies, water pollution due to pesticides and motor fuels, difficulties in the environmentally sound use of slurry from large pig farms, etc. After Estonia regained its independence, economic conditions significantly changed, exports decreased and goods were produced mainly for the domestic market.

While population engaged in agriculture previously formed 12% (or, according to the broader definition of this group of workers – 18%) of the total population, to date this percentage has decreased to 6-7%. At the same time, the decline in agricultural output has had also some positive effects: it has eased the load on the environment, the use of pesticides and artificial

fertilizers characteristic of large-scale farming has fallen, etc. At the end of the 1990-ies the situation started to gradually improve. Several support measures have been launched (support to dairy cow breeding, etc.), concentration of production has restarted, producers applying more efficient and up-to-date management techniques are being singled out, several agricultural quotas for the EU markets have been fixed for Estonia, etc. However, as it is not clear how the EU common agricultural policy (CAP) will extend to accession countries, the future prospects of Estonia's agriculture are largely still vague. In 2000 the Government adopted the National Agricultural Strategy, and the programme for implementation of the EU acquis for 2000–2003 has been approved. Another important step was the launching of the EU SAPARD aid programme in 2001. The Organic Agriculture Act was adopted in 1997 and amended in 2001. A state-run organic certification system has been created. Development and implementation of agri-ecological measures started in 1998 and intensified in 2000–2001, with support from the EU Phare programme. Four groups of measures are financed from the state budget: support to organic farming, breeding of endangered native cattle breeds, management of semi-natural habitats, and growing of traditional crop varieties. In addition to overall state aid, two similar pilot projects in three rural regions receive separate funding. Thanks to the above support measures, the area of land engaged in organic farming has rapidly increased in recent years, currently constituting ca 1% of the total agricultural land (and a further increase is expected). Training of the relevant consultants is underway.

G. Impacts of Climate Change on Water Resources

Estonia has acceded to the UN Framework Convention on Climate Change, country ratified the convention in 1994. Estonia is located in the humid zone where precipitation usually exceeds evaporation. However, due to very high variability of precipitation drought periods as well as excessive wet periods occur. Water resources are sensitive to climate changes and studies on this topic are of great importance. Possible climate warming can cause significant changes in the hydrological regime and water resources. A lot of studies have been carried out on this subject.

Status

In Estonia, there are a great number of environmental problems to be solved. The Estonian National Environmental Strategy, NES, identifies environmental problems, and establishes short-term and long-term objectives and activities addressing those problems by sector. Main water related problems are:

- past pollution caused by industrial, agricultural and military activities which poses a threat to ground and surface water quality;
- pollution and eutrophication of surface water bodies, deterioration of aquatic ecosystems, including a decrease in reproduction and deterioration of the quality of fish stock;

Estonian rivers are relatively waterless and with low tilting, which makes their energy potential moderate. Therefore, there are no opportunities for large and medium-size hydrounits to be built on the rivers.

In general, water quality of surface water, groundwater and coastal water shows positive trend.

Capacity-Building, Education, Training and Awareness-Raising

There are organized training courses and seminars to drinking water producers and waste water treatment plants operators.

Information is disseminated and shared at the domestic and international level (Including government publications, forums, etc.) via proceedings, CD-ROMs and Web site of the Statistical Office of Estonia as well as via other sources (projects reports, proceedings of the Ministry of Environment and Ministry of Economic Affairs, etc.).

Information is available to assist both, decision-makers on surveys and statistics, national and cultural resource inventories.

Research and Technologies

Research of new drinking water and wastewater treatment technologies is carried out by Tallinn University of Technology and Tartu University

Financing

Approximately EUR 320 million should be invested in sewage systems between 2000 and 2010. EUR 268 million should be invested in water supply systems between 2000 and 2013.

Ministry of the Environment has initiated an annual program for water protection which is financed by EIC that is state established foundation which gets its financial means from revenues from use of the environment. Annually approx. 150 million EEK is allocated to program for water protection.

Majority of the finances comes from Cohesion Fund (previously ISPA). During the programming period of 2000-2006 approx. 2,9 billion EEK from ISPA and CF is planned to be used for water sector.

In time period of 2000-2004 approx. 2,9 billion EEK has been invested for upgrading and expanding water supply and sewerage system and for building new treatment plants. The investments have been financed from different sources: state budget, environmental investment centre (EIC), local budgets, and means of water utilities, foreign loan and foreign grant.

Starting from 2004 Estonia has opportunity to take part in the EU Regional Policy and to receive structural assistance from EU Structural Funds. ERDF (European Regional Development Fund) is one of four European Union's regional policy funds, which supports economic and infrastructure development, thereby development of environmental infrastructure. Estonia has drafted Estonian National Development Plan for the Implementation of the EU Structural Funds - Single Programming Document 2004-2006 (hereafter referred to as SPD) which is a strategic basis for using EU assistance including ERDF. According to the SPD approx. 60 million EEK ERDF financial means will be used for water protection and use (restoration of water bodies, mitigation of the impact of pollution, improvements of the biological status of water bodies, etc) in 2004-2006.

Cooperation

Estonia was the first of the newly independent Baltic states that acceded to the Baltic Sea Convention (signed originally in 1974) revised in 1992. Estonian scientists have regularly participated in the technical activities of the Helsinki Commission (HELCOM) since 1974. Estonia has cooperated in fulfilling its responsibilities regarding joint decisions made in the Convention.

Estonia is a party to the Helsinki (1992) Convention on the Protection and Use of Transboundary Watercourses and International Lakes (ratified on May 3rd, 1995) and good cooperation with Russia on water protection and management is ongoing.

Estonia participates in EU working groups and other activities.