

**REPUBLIC OF ESTONIA**

**ISPA STRATEGY PAPER FOR THE ENVIRONMENT SECTOR**

**February 2002**

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## 1 INTRODUCTION<sup>1</sup>

Estonia, along with other Central and Eastern European countries, is in the first wave of candidate countries for EU membership. In preparation for the planned accession, Estonia continues to make progress in undertaking a range of measures to comply with the *acquis communautaire*. In addition to the ongoing EU Phare programme, Estonia is supported in its efforts by ISPA (Instrument for Structural Policies for Pre-Accession) which is managed by the EU Commission General Directorate of Regional Policy (DG-REGIO). ISPA, established by Regulation No. 1267/99 of 21 June 1999, covers the environment and transport sectors and is planned operate for seven years (2000-2006).

This document presents Estonia's ISPA strategy for the environment sector and presents a selection of ISPA projects in the air quality, waste management, wastewater and drinking water sectors.

In the environment sector, ISPA focuses on measures which will enable Estonia to comply with the EU Accession Partnership and with the priorities indicated in the National Programme for the Adoption of the *Acquis* (NPAA). In particular ISPA focuses on substantive approximation with the most costly directives:

- Urban Waste Water Directive,
- Drinking Water Directive,
- Large Combustion Plants Directive
- Air Quality Framework Directive
- Landfills Directive
- Several other directives related to solid waste management and recycling.

In Estonia, the investments required for achievement of the provision of the EU environment directives fall mainly in the realm of the public sector (in particular the municipalities) and therefore impose a heavy burden on public finances. The total estimated cost of full compliance with the environmental aspects of the *acquis* is estimated by experts to EUR 1.7 bn.(as of January 2001) According to Conference on Accession to the European Union (CONF-EE 13/01, chapter 22, Brussels 30 May 2001) full compliance has to be achieved by 2013.

ISPA Strategy below is making reference to the transitional periods, related to compliance with EU Directives, requested by Estonia in its Position Paper.

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<sup>1</sup> This strategy is based on the following documents: (a) Draft Estonian National Development Plan (NDP), (b) Estonian National Programme for Adoption of the Acquis (NPAA), (c) Estonian Accession Partnership, (d) Estonian Position Paper (ch.22), (e) Estonian National Environmental Action Plan (NEAP), (f) Estonian National Environmental Strategy (NES).

Highlights of the ISPA regulation include the following:

- All investments supported by ISPA must be economically efficient and of net benefit to society.
- Proposed projects should be large enough to have a significant impact on environmental protection
- In exceptional cases, projects with a total cost of less than EUR 5 million will be considered although the total cost of each project will in principle be not less than EUR 5 million
- ISPA support may take the form of non-repayable grants, loans or any other form of assistance
- Preferred ISPA beneficiaries include mainly public sector units, such as state enterprises acting for public utility, local communities and municipal enterprises registered under commercial law but totally owned by local communities
- The rate of ISPA support can be up to 75% of the total cost of expenditure by public bodies. In exceptional cases this figure can be 85%. The Commission may consider loans by International Financing Institutions to these governmental bodies to be equivalent to national public funds
- ISPA funds may not be combined with any other Pre-Accession Instruments. The combined assistance under ISPA and other Community aid for a measure should not exceed 90% of the total expenditure relating to that measure.
- In exceptional cases, ISPA may finance preliminary studies and technical support measures at 100% of the total cost (up to 2% of the total ISPA allocation), including:
  - Economic/financial feasibility studies
  - Environmental Impact Assessments
  - Reviews of design and project costing
  - Assistance in the preparation of tender documentation
  - Project management

## **2 BRIEF OVERVIEW OF STATE OF THE ENVIRONMENT**

### **General**

Estonia is the most northerly of the Baltic States, bordered by Russia to the east and Latvia to the south. It has a population of 1.446 million people. The capital, Tallinn, with approximately 412,000 inhabitants, is a large Baltic Sea port. Other major towns are Tartu, Narva, Kohtla-Järve and Pärnu.

Estonia covers an area of 45,227 km<sup>2</sup>. The country is relatively flat, and the highest point, Suur Munamägi, reaches 318 metres. Mean annual precipitation is 500 to 700 mm. In addition to two major lakes, Lake Peipsi (3,555 km<sup>2</sup>, shared with Russia) and Võrtsjärv (266 km<sup>2</sup>), there are over 1,400 lakes which cover 6 per cent of the territory.

Extensive mineral resources include oil-shale, phosphorite and limestone. About 30 per cent of the land is arable, the principal agricultural outputs being dairy products, meat and cereals. Forests cover 40 per cent of the territory while peatlands cover about 22 per cent (partly coinciding with forest areas). The Baltic Sea offers significant fisheries potential, but pollution and local eutrophication are causing increasing problems.

The most serious environmental problems in Estonia are air and water pollution, concentrated in the Tallinn region and the North-East part of the country. They are mainly caused by the oil-shale burning

power plants, chemical plants and cement factories, and by municipal sewage pollution and agricultural runoff.

### Air Quality

In 2000 emissions to air from stationary sources in Estonia included: 91,492 t SO<sub>2</sub>; 15,342 t nitrogen oxides (NO<sub>x</sub>); 59,486 t particulates (solids); and 7,559 t volatile organic compounds (VOCs). As can be seen from Table 2.1, there has been a general downward trend in air pollution from stationary sources since 1992 (with the exception of nitrogen oxides and carbon monoxide).

Decrease of SO<sub>2</sub> emissions took place mainly due to the decrease of load of large power stations (North-East Estonia) as well as reduction of amounts of heavy fuel oil used for combustion in boilers.

Decrease of particulates emissions was the result of new purification equipment in the enterprise of cement production and in the two largest (Baltic and Estonian) Power Plants.

The increase in SO<sub>2</sub> and NO<sub>x</sub> between 1995-6 was due to increased energy production by the Baltic, Kohtla-Järve, Ahtme and Iru Power Plants and the increasing sulphur content of the fuels used in the Baltic Power Plant.

Year	NO <sub>x</sub>	SO <sub>2</sub>	CO	Solids	VOCs
1992	14,954	179,217	32,460	240,777	11,177
1993	12,055	144,979	27,822	189,022	5,695
1994	14,576	141,081	31,835	161,492	4,754
1995	14,855	110,327	27,246	113,144	6,539
1996	16,262	117,245	29,409	98,930	5,646
1997	15,554	110,964	26,726	78,278	6,321
1998	14,912	100,856	26,378	69,851	5,743
1999	14,456	94,603	20,926	70,463	5,048
2000	15,342	91,492	19,424	59,486	7,559

Source: Estonian Environment Information Centre

In 2000 the main polluters of SO<sub>2</sub> and particulates – 92,4% and 88,2% correspondingly - were large enterprises of energy and heat production, building materials and oil-shale chemistry. Most of these enterprises are located in North-East Estonia.

### Water Resources & Water Supply

There are over 7,000 water courses in Estonia, but only 420 rivers are longer than 10 km and only 10 longer than 100 km (the longest is Võhandu River – 162 km). The majority of Estonian rivers are small and therefore sensitive to pollution.

Estonian rivers are divided into four watersheds:

- (a) Narva–Peipsi basin,
- (b) Gulf of Finland basin,

- (c) Gulf of Riga basin,
- (d) islands.

The annual runoff of rivers is 270–290mm<sup>3</sup> (11.7 km<sup>3</sup>) and this is directed as follows:

- 23% runs to the Gulf of Finland,
- 43.6% to the Gulf of Riga,
- 33% to the Narva–Peipsi basin and
- 0.3% to Latvia and Russia.

The majority of Estonian water bodies (rivers, lakes, and coastal sea) are shallow and sensitive to pollution. As a result of human activities, nutrient inputs to water bodies have increased considerably and eutrophication is one of the priority problems. Discharges from sewage treatment plants and factories, leaching of agrochemicals applied to the soil in the past, leakage of chemicals from waste dumps and atmospheric deposition as a result of emissions from traffic and power generation have contributed to the nutrient enrichment of the aquatic ecosystem.

Water is abstracted for:

- \_ cooling water for energy generation,
- \_ public supply,
- \_ industrial production,
- \_ agricultural activities, and
- \_ mining activities.

Water is abstracted from rivers and lakes and from different groundwater layers. A decrease in the level of industrial production has resulted in the decrease of water use. In addition, increased water prices and more accurate measurement of usage have encouraged industry and domestic users to save water.

A total of 1,271 million m<sup>3</sup> of water were pumped from water bodies and groundwater during 2000, 56% less than in 1992. Total abstraction of water in Estonia is relatively high due to the use of cooling water (surface water) in energy production, and water for mining and fish-farming. In 2000 cooling water accounted for 88% of total water consumption (1,185 million m<sup>3</sup>).

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).

Surface water is purified and disinfected before use. Groundwater is generally used without treatment.

The main threats to water quality are major point sources (towns with population equivalent greater than 2000 and settlements in groundwater vulnerable areas including karst areas, inadequate landfill sites, industrial plants, particularly in the north-east) and diffuse sources (agriculture and atmospheric deposition).

As a consequence to intensive industrial and agricultural activity, the quality of Estonia's groundwater has decreased considerably due to pollution of the upper aquifers by nitrates (NO<sub>3</sub>). The

natural NO<sub>3</sub> concentration in Estonian groundwater should be 1–3 mg/l, but in reality about half of Estonia has a concentration of at least 10–30 mg/l. Aquifers are the most affected in South Estonia (Silur Ordovician). Groundwater is also threatened by pesticides, past pollution, deterioration of sewage treatment systems, etc. In North-East Estonia (an oil shale mining area), serious problems are caused by sulphate (SO<sub>4</sub>) contamination. Mining results in a lowering of the water table and an increase of SO<sub>4</sub> concentration in groundwater up to 500 mg/l (compared with normal levels of 20 mg/l).

In the short term, the remaining point sources of pollution (inadequate waste dumps, historic pollution sites, etc.) need to be remediated.

Another source of water pollution is oil shale extraction and burning in the northern part of the country, which leads to SO<sub>x</sub> emissions and acid deposition. Mining waters (approx. 200 million m<sup>3</sup> annually) are treated only mechanically, also pumping out huge amounts from ordovician groundwater causes depression of ground-water level and quicker transportation of pollution by rainwater to the ground.

Ground and surface water pollution due to the over-use and environmentally damaging application of agricultural additives has also been a serious problem. However, this has eased temporarily due to increased fertiliser prices but is likely to return with overall economic growth. Other serious environmental damage has been caused in the past by the activities of the former Soviet army, and by the excessive exploitation of mineral resources.

### Wastewater

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 (Table 2.2). New wastewater treatment plants in Tallinn, Tartu, Haapsalu, Rapla, Tapa and in several smaller settlements were constructed between 1992 and 2000.

	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>BOD7</b>	18,080	11,250	5,710	4,480	4,174	3,838	3,122	2,308	2,051
<b>P<sub>tot</sub></b>	673	445	353	321	304	303	279	256	230
<b>N<sub>tot</sub></b>	5,635	4,240	3,610	3,500	3,200	3,173	2,976	2,739	2,810
<b>Sulphate</b>	102,061	107,550	87,840	92,940	64,650	85,225	85,724	93,722	83,032
<b>Chlorides</b>	14,588	12,830	13,880	14,000	10,550	12,011	8,432	7,082	6,281

Source: Review of Estonian water management in 1999 and 2000. Based on reports on water management. Estonian Environment Information Centre, 2000.

In 2000, the total discharge of wastewater was 1,495 million m<sup>3</sup>. However, cooling water from energy production, which does not require treatment, accounted for 75% of the total. Of the 327 million m<sup>3</sup> of wastewater that did require treatment, 8 million m<sup>3</sup> (2.6%) (Table 2.3) was discharged untreated.

	1992	1993	1994	1995	1996	1997	1998	1999	2000
<b>Wastewater Requiring Treatment – of which:</b>	453	393	378	396	316	349	327	312	282
• <b>Not Treated</b>	26	23	19	18	15	10	8	6.8	7.5
• <b>Mechanical Treatment</b>	203	188	186	203	138	184	172	171	152
• <b>Mechanical-Chemical Treatment</b>	113	82	1	1	1	1	1	0.7	0
• <b>Biological Treatment</b>	112	86	87	89	85	82	73	64	58
• <b>Biological-Chemical Treatment</b>		13	84	85	77	72	73	69	64

Source: Review of Estonian water management in 1999 and 2000. Based on reports on water management. Estonian Information Environment Centre, 2000.

The situation regarding the discharge of untreated wastewater is serious in North-East Estonia where the cities of Kohtla-Järve and Narva are the two main sources of wastewater pollution.

## **Waste**

Total waste generation in Estonia has been steadily declining since 1992 (Table 2.4). However, the trend is still unstable with a dramatic increase in domestic and other waste production in 1994-1996. This was due to rapid economic growth during this period which led to an increase in consumer consumption and an increase in the generation of domestic or municipal waste.

<b>Year</b>	<b>Total*</b>	<b>Animal / Vegetable Origin</b>	<b>Inorganic Waste</b>	<b>Chemicals and Chemical Products</b>	<b>Other Waste</b>	<b>Domestic Waste</b>
1992	15 230	1 139	12 866	920	...	306
1993	14 512	575	12 366	1 263	...	309
1994	14 159	629	11 553	1 284	...	694
1995	14 613	1 443	10 955	1 266	416	533
1996	15 191	942	11 899	1 325	460	565
1997	14 918	821	11 923	1 383	198	593
1998	13 488	959	10 773	1 003	196	557
1999	11 347	845	8 903	644	386	569

Source: Estonian Statistical Yearbook (2000)

Packaging waste played a substantial role in this growth of domestic waste generation, due to the introduction of new packaging materials at the Estonian market. It is no surprise therefore that reduction of generation of packaging waste, and promotion of its re-use and recovery, are among the main targets in relation to municipal waste. One of the economic incentives designed to regulate the above-mentioned processes is the taxation of non-recovered packaging with excise tax. The Packaging Act which establishes the schemes of taxation was approved by Estonian Parliament at the end of 1996. The Act was designed to have a strong impact on the amount of waste generation through the reuse, recycling and return of waste.

The degree of hazardousness should also be considered when examining the production of waste in Estonia. Five classifications have been developed ranging from I to IV (and inert) with I being the most hazardous. As can be seen in Table 2.5 there has been a disturbing upward trend in the generation of Class I and II waste between 1994 and 1997.

<b>Hazardousness</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
<b>I</b>	33	78	44	75	37	52
<b>II</b>	10,126	11,837	9,988	22,470	14,892	6,664
<b>III</b>	1,508,822	1,452,476	1,531,796	1,581,429	1,225,274	614,467
<b>IV</b>	5,956,595	5,808,963	6,137,042	5,756,856	5,031,456	5,238,338
<b>Inert</b>	6,342,741	6,132,619	7,007,854	7,037,266	6,712,560	4,988,468
<b>Total</b>	13,818,317	13,405,973	14,686,724	14,398,096	12,984,219	10,847,989

Source: State of the Environment Report (2000)

Since “European waste classifier” has been introduced in Estonia since 1999, “Estonian waste classifier”(hazardous waste divided into 4 categories) is not valid any more. For proper comparison the data for 1999 and 2000 are given according to both standards (Table 2.5a and 2.5b).

	<b>1999</b>	<b>2000</b>
<b>Common waste</b>	5,229,017	5,650,099
<b>Hazardous Waste</b>	5,618,972	5,965,750
<b>Total</b>	10,847,989	11,615,849

The main (around 95% of total) sources of waste in Estonia are oil shale mining, oil shale chemistry and power production. Most wastes emerging from the production of oil shale energy and chemical industry belong to the III and IV hazard classes due their high alkalinity.

Other industries generate only 2,6% of wastes and domestic waste accounts for only 3.5% of total waste produced.

### 3. KEY FEATURES OF ENVIRONMENTAL POLICY

#### General

The principles of Estonia's environmental policy are enshrined in a number of laws on nature management and conservation, etc. These include the Act on Sustainable Development (1995, considered to be unique in Europe), Act on Protected Natural Objects (1994), Act on Pollution Charges, Act on Environmental Impact Assessment and Environmental Auditing (2000), Water Act, etc.

Increased pressure on the environment has heightened the importance of the development of a logical and implementable environmental policy. These considerations led to the development in Estonia of two basic environmental policy tools :

- National Environmental Strategy (NES - adopted by Parliament in March, 1997) and
- the National Environmental Action Plan (NEAP - adopted by Government in May, 1998, revised 2001 June).

Adoption of the NES by Parliament and NEAP by Government ensures that Estonia's environmental policy tools are implemented through executive action programmes. Thus, the Government's development policy is considered to be environmentally sustainable and environmental restrictions have to be considered in the economic sphere.

Estonia's environmental strategy (NES) specifies 10 priority goals of environmental management and protection and defines the main short-term and medium-term tasks to be achieved by 2000 and 2010 respectively.

#### **Estonia – Ten Environmental Policy Goals (NES)**

1. Promote Environmental Awareness
2. Promote Clean Technology
3. Reduce Energy Sector Pollution
4. Improve Air Quality
5. Waste – Generate Less, Improve Treatment
6. Clean-Up Past Pollution
7. Improve Groundwater Protection & Use
8. Protect Surface Waters & Coastal Seas
9. Preserve Landscapes & Biodiversity
10. Improve Quality of Built Environment

The relevant Policy Goals and Tasks, taken from the National Environmental Strategy (NES) have been considered in the selection and development of Estonia's ISPA project pipeline for the environment (2000-2006). One of the main considerations in the establishment of the ISPA project pipeline is the potential of each project to contribute to these goals.

The action plan (NEAP), using the NES as a basis, develops a detailed series of costed actions to address the priority goals identified in the NES. The NES therefore forms Estonia's strategy for implementation of its policy of protection and improvement of the natural environment, while the

NEAP forms the key planning tool. At the same time, several instruments, such as research and development, economic instruments are recommended to achieve these goals.

The NES and NEAP are influenced by EU accession needs and are in line with the priorities, specified in Estonia's Accession Partnership Agreement. In addition, the National Plan for Adoption of the *Acquis* (NPAA) 2000 takes the NES and NEAP priorities into account and focuses mainly on transposition of the legislation and the administrative structures as 01.01.2003. NPAA also addresses adoption and implementation of the cost-intensive directives, where Estonia has requested transition periods up to 2013 and plans concrete actions year by year to comply with these directives.

Accession Partnership Agreement, adopted by EU Council in 13 November 2001 specifies priority areas between Estonia and European Union, to be tackled within accession. For environment sector, AP specifies following:

- \_ complete transposition of the *acquis*, with particular emphasis on water quality and waste management,
- \_ continued implementation of the *acquis*, in particular as regards waste landfill (establish waste management plans and find sustainable solutions to the handling of wastes from extraction, incineration and refining of oil shale), discharge of dangerous substances in the aquatic environment (establish pollution reduction programmes) and nitrate pollution from agricultural sources; strengthen efforts to meet microbiological parameters for water intended for human consumption,
- \_ continued strengthening of administrative capacity, in particular at regional and local level,
- \_ continue to integrate environmental protection requirements into the definition and implementation of all other sectoral policies with a view to promoting sustainable development.

ISPA Environment Strategy is focusing at the same areas specified by AP and all the projects looking for ISPA co-financing are addressing of those.

ISPA Environment Strategy is also in conformity with the National Programme for Adoption of the *Acquis* (NPAA 2000).

### **Environmental Legislation**

As part of the accession process, Estonia is undertaking a range of measures to comply with the *acquis communautaire*. The process of legal harmonisation, an integral part of the accession process, is under way. As agreed in the negotiations of the Accession Partnership Agreement the transition period concerning a number of EU Directives for various reasons. In most cases the transition is necessary due to a heavy financial burden. These directives are:

- Volatile Organic Compounds (VOC) Directive (94/63/EEC): transition period until 2004 and 2006 for the construction of petrol vapour regeneration systems taking into account the throughput of stations and terminals;
- Urban Waste Water Directive (91/27/EEC): transition period until 2010 for the renovation / construction of sewerage systems and wastewater treatment facilities for smaller agglomerations;
- Drinking Water Directive (80/778/EEC): transition period until 2013 for the renovation / construction of water supply systems and water treatment facilities;

As regards planning and implementation of ISPA, and indeed other, infrastructure projects, the following legal acts are considered relevant:

### **Environmental Impact Assessment (EIA)**

All ISPA projects are subject to an initial Environmental Assessment and, if necessary, full EIA. The EU EIA Directive is going to be fully approximated into Estonian legislation after approval of the Act on Environmental Impact Assessment and Environmental Auditing Environment Impact Assessments (enforced from 01.01.2001) for both, ISPA transport and environment projects are carried out following the Estonian legislation and the following EU legislation:

- Council Directives 85/337/EEC of 27 June 1985 (On Assessment of the Effects of Certain Public and Private Projects on the Environment)
- Council Directive 97/11/EC of 3 March 1997, Amending Directive 85/337/EEC.

### **Protection of Vulnerable zones or Sensitive Areas**

Requirements of the directives aiming at the safeguarding bio-diversity will be followed as Estonia is currently transposing the requirements of European Union's nature conservation directives into Estonian legislation and carrying out inventories necessary for selecting the sites, setting up the database and drawing up maps for Natura 2000. As projects for 2000-2003, are mostly aiming rehabilitation of existing infrastructure no reverse effect to sensitive areas is foreseen prior full transposition of the relevant acquis.

Also sensitive areas as indicated in the Urban wastewater Directive 91/271/EEC will be safeguarded from additional load of nutrients and more stringent treatment techniques will be applied according to the HELCOM recommendations at waste-water treatment projects.

Vulnerable zone according to the Nitrate directive will be designated in the Pandivere and Adavere region. There are main water nitrate pollution caused by agricultural activities. There is planned to develop water protection project to minimize point and non-point agricultural nitrate pollution. In the Pandivere and Adavere region will be renovated and constructed appropriate manure and slurry storages. Project is also important to protect Pandivere river basin sub-district ground and surface water.

### **Air Quality**

For protection of ambient air quality NPAA 2000 foresees the adoption and implementation of the *Programme on Reducing Pollutant Emissions From Large Combustion Plants* (based on LCP Directive 86/609/EEC replaced by 2001/80 EC). The total cost of the programme is more than 200 mil. EUR. The major part of this sum (81.5%) is meant for carrying out technological changes and technical refurbishment.

On realisation of this Programme the emissions of pollutants into ambient air would decrease as follows:

- solid particles-39,597 t/year, i.e. 56.2% from all large combustion plants in Estonia;
- sulphur oxide-23,121 t/year, i.e. 23.1%;
- nitrogen oxide-1,358 t/year, i.e. 10.7%.

Estonia is making efforts to improve air quality and to meet the requirements of the important EU Directives in this regard:

- Air Quality Framework (96/62/EC and its daughter directives, 1999/30/EC, 2000/69/EC)
- Large Combustion Plants (86/609/EEC replaced by 2001/80/EC)
- National Emission Ceilings for Certain atmospheric pollutants (2001/81/EC)
- Promotion of Electricity produced from renewable energy sources in the internal electricity market (2001/77/EC)
- Integrated Pollution Prevention And Control (96/61/EC)
- Air Pollution From Industrial Plants (84/360/EEC)
- Transboundary Air Pollution (Geneva Convention) and its protocols
- VOC emissions from storage and transport of petrol (94/63/EEC)
- VOC emissions from the use of organic solvents in certain activities and installations (99/13/EC)
- Liquid Fuel Quality (93/12/EC, 98/70/EC, 1999/32/EC)
- Lead content of petrol (85/210/EEC)
- Non-road mobile machinery (97/68/EC)
- Sound level exhaust gases emissions from motor vehicles (70/157/EEC, 70/220/EEC, 72/306/EEC, 88/77/EEC, 97/24/EC)

In the Position Paper, Estonia has stated that the country is ready to transpose relevant legislation concerning air quality by 01.01.2003. Exception is made for Volatile Organic Compounds (VOC) Directive (94/63/EEC) where transition periods until 2006 for the construction of petrol vapour regeneration systems taking into account the throughput of stations and terminals are required. As regards Directive 94/63/EC on the control of volatile organic compound emissions resulting from the storage of petrol and its distribution from terminals to service stations, mostly owned by private sector. Financing of related projects is expected to be done by the owners. There are about 305 petrol stations and 9 terminals in Estonia. Majority of petrol stations are in compliance with the Directive.

The process of transpositioning of above mentioned EU Directives was enabled by Twinning Project on Air Quality Management: Issues for EU Accession (Project ES98/IB-EN-01(a) Air Accession). The project was commenced on 1<sup>st</sup> of October 1999 and terminated on 30<sup>th</sup> of September 2001. The project was divided into two parts as follows:

During the first year, the project focused on

- assessing the need to revise the legislation related to air protection
- proposing necessary amendments in the legislation
- assessing the need to strengthen the administration in air protection sector.

In its second year, the project concentrated on proposing the necessary measures to be taken, in particular in the sector of administration and training.

As the result of the above mentioned Twinning Project a new project for Air Quality Management System was proposed and financing from PHARE 2002 applied.

The goals of Air Quality Management System Project are implementation of Air Quality Framework Directive and its daughter Directives:

- improvement of Air Quality Monitoring and Meteorological System
- improvement of different meteorological, emission and imission databases
- creating of the Air Quality Model
- public information and information for decision makers and supervisors on air quality.

## **Water**

In the Position Paper Estonia sees major problems with compliance to the acquis in water sector. Due to the needs for significant investments into the infrastructure, transition periods are required for the following directives:

- Urban Waste Water Directive (91/27/EEC): transition period until 2010 for the renovation / construction of sewerage systems and waste water treatment facilities;
- **Directive on Nitrate Pollution from Agricultural Sources (91/676/EEC): transition period until 2008 to apply the necessary protection measures;**
- Drinking Water Directive (80/778/EEC): transition period until 2013 for the renovation / construction of water supply systems and water treatment facilities;

For Water Protection NPAA 2000 foresees application of the River Basin Management Approach, which include establishment of management structures, development of management plans and relevant investment programmes for improvement of water quality.

In the Water Act there is enacted that Estonia organises water management according to the river basin management approach. Government of Estonia established one river basin district and 9 sub river basin districts in the country . There is commitment to prepare one river basin management plan for Estonia and 9 plans for sub-districts. Guidelines on water management plans have been prepared. There is plan to establish water management information system to analyse pollution flows and water bodies and groundwater status. The overall objective is to achieve good ground and surface water ecological status. The sub river basin management plans will be composed by 2005 and for Estonia 2008. Information (pollution sources information, water bodies and groundwater bodies information etc) about water management plans will be used for preparation sub river basin management projects. There is plan to compose for each sub river basin at least one ISPA project to minimise pollution loads and to provide good quality drinking water for local people. River basin management plans will be used to apply project implementation assistance from EU structural funds in future.

Long term water management plans is very important instrument for Estonian sustainable water use and protection.

Within the framework of the Environmental Protection Programme of the Ministry of Environment, a sub-programme "Protection of Water Resources 2000" has been developed. The cost of the sub-programme is approx. 38.35 MEUR and it will be financed from the state budget (appr. 4.5 MEUR) and from the means of the Environmental Investment Centre (EIC), i.e. from revenues from use of the environment (appr. 2.65 MEUR). The rest will be covered from the budgets of local municipalities, enterprises' own equity, and by foreign assistance and loans. The sub-programme focuses on implementation of the EU directives regulating the protection and use of water resources.

One of the objectives set by the sub-programme is to increase the number of people supplied with drinking water meeting the established quality requirements by 100,000. In order to achieve this objective, investments are needed for replacement of old pipes and construction of water treatment plants. Another objective of the sub-programme is to decrease the pollution load of organic substances by 100 – 120 tonnes. For meeting this objective, new waste water treatment plants will be constructed, and the existing wastewater treatment plants and waste water collectors reconstructed.

The sub-programme will also provide a framework for the financing of a new water protection framework aimed at implementing the EU directives, drafting of water protection requirements and provisions, national inspection monitoring, and other activities and research work necessary for implementation of the directives.

Same kind annual investment programmes for river basins and for major cities are and will be developed in the future and number of projects looking for ISPA co-financing are specifically addressing the water quality.

All possible financing sources (Phare, IFI-s, bilateral donors) in addition to State budget, EIC and local financing through tariffs have been considered for investments in environmental infrastructure.

The NES and corresponding action programme for implementation provide the basis for a new approach towards more efficient water resource use and water management. The government goals for water protection are to:

- reduce surface water pollution from municipal waste water,
- reduce pollution with industrial and agro-industrial waste water,
- reduce groundwater pollution,
- reduce non-point source pollution of water bodies,
- reduce pollution with surface (storm water) run-off,
- reduce the pollution load flowing into the sea,
- prevent sea water pollution from oil product transport,
- reduce the polluted water inflow from other countries.

The objectives of water resources protection are to:

- protect freshwater resources from overuse while extracting water from water intake sites,
- prevent further changes in the natural hydrographic network structure.

Construction of wastewater treatment facilities remains the highest priority for investments, particularly for funds from the State budget, and loans and subsidies received by the State. It is also necessary to implement measures for the reduction of non-point source pollution of ground and surface waters, to gradually restructure the financial mechanism for the wastewater sector by the introduction of the polluter/consumer pays principle, and to develop the necessary water protection laws.

Estonia takes into account under ISPA projects preparation European Common Position (Conf-EE-13/01) .

According to the European Union Common Position (Conf-EE 13/01) on urban waste water treatment directive (91/271/EEC):

- collecting systems according to the article 3 will be provided from 31 December 2009 in agglomerations of a population equivalent above 10 000;
- collecting systems according to the article 3 will be provided from 31 December 2009 in agglomerations of a population equivalent between 2000 and 10 000;
- waste water treatment will be provided from 31 December 2002 in all agglomerations with population equivalent more than 10 000 ;
- waste water treatment will be provided from 31 December 2002 in all agglomerations with population equivalent more than 2000;

There are planned transitional measures to implement drinking water directive (98/83/EC):

- chemical parameters (fluoride, boron) must be in correspondence 31.12.2003;
- indicator parameters must be in correspondence settlements with 2000 or more inhabitants 2008 and settlements less than 2000 inhabitants 2013.

The vulnerable zones nitrate pollution reduction programmes must be implemented in 31. December 2008 to implement nitrate pollution directive from agricultural sources (91/676/EEC).

### **Waste Management**

For Waste management one of the most important tasks in NPAA2000 was to draw up the National Waste Management Programme “Estonian Waste Management Programme” based on EU directives 75/442/EEC and 91/689/EEC. This programme establishes a basis for working out systematic solutions in the field of organisation and improvement of waste management, in order to create an adequate countrywide network of waste management facilities and ensure the high environmental and health protection level of waste management. The programme has been completed and is expected to be approved by the Estonian Parliament in March 2002. The Waste Management Programme includes:

- description of the existing situation in waste management, main types and volumes of waste recycled and disposed of;
- assessment of the quantity of natural resources necessary for waste management, impact of waste management on the state of the environment;
- planned objectives, such as decrease of the quantity and hazardous nature of waste, recycling of waste, environmentally safe disposal of waste and optimisation of waste shipments;
- means and measures for realisation of the objectives, such as the choice of waste management methods, network of waste management sites and facilities (including their location), special measures for the management of hazardous waste and other important types of waste, environmental and health protection measures and technological means for ensuring implementation of such measures; estimated cost of implementation of the measures;
- transboundary optimisation of waste management and international co-operation in the field of waste management.

National Waste Management Programme provides specific solutions for the respective territorial

units. Development of municipal waste management programmes is connected with the drawing up of municipal development plans. Thus, waste management programmes of all municipalities should by now be completed or at least underway.

Hazardous waste management system (HWMS) in Estonia is in the stage of establishment. HWMS include:

- Three transfer/reloading stations in Tallinn (operational), Pärnu and Tartu;
- One Hazardous Waste Complex (transfer/reloading station and secure landfill) in Vaivara county (operational since Oct.2001);
- Temporary storage in Vaivara of hazardous waste which we are not able to manage in Estonia in the near future (pesticides and other hazardous waste);
- Incineration plant and special physical-chemical equipment for management of hazardous waste (in the stage of preparation, application for ISPA assistance will be presented to EU Commission appr. In August 2002);
- Hazardous waste collection stations (36 operational and 10 more will be added in 2002) in municipalities.

Construction of the hazardous waste landfill in Vaivara was completed in 1999 and it is operational since April 2000. The HWMS to date is still in initial stage due to the lack of financial resources.

All the planned efforts are followed by the investment programmes, where ISPA performs significant role in co-financing and ISPA pipeline includes several bigger projects both in municipal waste management as well hazardous wastes management.

The NES goals for the solid waste sector are to:

- reduce pollution by industrial and hazardous wastes,
- reduce pollution by municipal solid wastes,
- reduce pollution by out-of-date pesticides,
- reduce pollution by radioactive wastes.

NES goals for the waste management sector were reinforced in the Draft National Waste Management Strategy and Action Programme (approved by the Government in May 1999), as follows:

- waste collection services must be gradually expanded until they cover the entire population. Collection equipment and vehicles must be renewed to ensure compliance with the environmental, technical, economic and hygiene requirements for the waste management systems, and for the convenience of users;
- an integrated waste disposal network must be established, i.e. adequate facilities must be provided for safe disposal of all types of waste in the nearest facility;
- only waste disposal facilities with the servicing area covering up to one or several regions are environmentally and economically feasible. Transfer stations should be established at towns and settlements while container bring-banks and stations should be established at villages located further away from big landfills;
- landfill will remain the main type of waste disposal facility but all new landfills must be established in accordance with the requirements of the Estonian environmental standards and EU directives regulating waste management;

- waste incineration for energy generation has a priority over landfill disposal. The possibility for such waste incineration for energy generation in large cities shall be considered upon detailed assessment of both environmental and economic factors;
- funds required for the modernisation of the waste collection system, the establishment of new landfills, the closing down and recultivation of old waste disposal facilities shall primarily be collected from waste holders following the “polluter pays” principle.

In years 2001-2009 approximately 7 new landfills for non-hazardous waste will be constructed, and the old landfills for municipal waste will be closed with accordance to the requirements laid down in Article 13 of the Directive 1999/31/EC. Timetable of implementation of Article 14c of Directive 1999/31/EC:

- 2001 Adoption of the National Waste Management Plan by Riigikogu in March-April 2002 (the Estonian Parliament). This Plan will form basis for implementing specific measures aimed at construction of new landfills, close and modernise the existing landfills, collection and reloading stations for recycling of household waste.
- 2001 - 2002 Classification of the existing landfills in compliance with the Article 4 of the Directive.
- 2001 - 2002 Preparation of conditioning plans for the existing landfills and taking a definite decision by the competent authorities about necessary measures for closing or modernising the existing landfills. In September 2001 enforced Estonian Landfill Decree.
- 2001 - 2009 Establishing of 5 or 6 new regional landfills and 1 landfill for isolated settlements:
- 1) for Tallinn in Jõelähtme - the first phase (ready to start deposition) will be built by the year 2004 and the second phase by the year 2010, serving an area of 500,000 people;
  - 2) Uikala landfill in North-Eastern part of Estonia - the first phase has been operational since January 2002, the second by the year 2008, in the first phase serving an area of 90,000 people and in the second phase of 165,000 people;
  - 3) Paikuse landfill in Pärnu County - the first phase will be built by the year 2004, serving an area of 100,000 people;
  - 4) Landfill for the South-Eastern part of Estonia - the first phase will be built by the year 2004, serving an area of 150,000 people;
  - 5) Landfill for the North-Western part of Estonia - will be built by the year 2006, serving an area of 120,000 people;
  - 6) Torma landfill in Jõgeva County - local landfill for some isolated settlements, built in 2001, serving an area of 20,000 people.
- 2001 - 2013 Closure and updating the existing landfills:
- 1) After enforcement of Estonian Landfill Decree 14 of the existing municipal waste landfills has been closed according to the requirements of Article 13 of the Directive in 2001. According to existing action plans closing of the 48 existing landfills have been budgeted in 2002. According to the Estonian Waste Act the detailed implementation plans will be drafted during 2002 in the Waste

Management Plans of local authorities and counties. The most important municipal waste landfill is Pääsküla landfill in Tallinn. Preparations for closing this landfill are under way and the main closure procedure will start after finishing the first phase of the new landfill. The cost of closing of this landfill will be approximately 8.295 MEUR;

- 2) closure and modernisation of industrial waste landfills, particularly the landfills for oil-shale waste. A detailed implementation plan will be prepared in 2002.

## 4. BRIEF OVERVIEW OF ENVIRONMENTAL INFRASTRUCTURE

### General

Gaps between Estonia and EU are mostly related to the quality and coverage of the municipal services to be provided to the people by environmental infrastructure as well as to quality of drinking and bathing waters and ambient air.

Estonian population lacks central municipal services compared as to EU. For example approximately 77% of the population is connected to the wastewater treatment system, while only 58% of treatment plants are working satisfactory and approximately 77% of the population is connected to the central water supply systems ( in the bigger settlements, 80-95% of the population is connected).

ISPA Environment Strategy aims at significant reduction of these gaps and all environment infrastructure projects selected for ISPA co-financing are contributing towards implementation of the acquis.

There have been signed Financial Memorandums for 5 ISPA projects (Annex II).

### Air Quality

The main problems in the air sector in Estonia are connected with energy production (Table 2.2). High amounts of SO<sub>2</sub> come from the energy sector (95% of electricity is produced by two oil-shale based thermal power-plants in North-East Estonia). The reconstruction of the energy sector requires considerable investment.

**Table 2.2: Main Sources of Air Pollution, 2000 (thousand tons) (+/- compared with 1995)**

Entity	Solid	+/-	SO <sub>2</sub>	+/-	NO <sub>x</sub>	+/-	CO	+/-	VOC	+/-
<b>Estonian Power Plant</b>	25.8	-8.2	41.5	-0.3	5.7	-0.4	8.1	-0.4	1.1	0.7
<b>Baltic Power Plant</b>	21.5	-12.8	27.3	-5.2	3.1	-0.4	0	0	0	0
<b>Kunda-Nordic Cement Ltd</b>	0.5	-34.1	0.8	-1.9	1.5	1	0.7	0.7	0	0
<b>Viru Keemia Grupp Ltd<sup>1</sup></b>	0.1	0	6.1	1.4	0.01	-0,1	0.2	-0.1	1.1	-2.5
<b>Kohtla-Järve Power Plant</b>	0.1	-0.2	3.6	1	0.2	0	0	0	0	0
<b>Kiviõli Keemiatööstuse Ltd.</b>	0.4	-0.1	1.9	-0.9	0.03	0	0.4	-0.8	0.04	-0.2
<b>Ahtme Power Plant</b>	0.3	-0.7	2	-0.5	0.2	0	0	0	0	0
<b>Sillamäe Power Plant</b>	0.7	-0.9	1.4	-0.3	0.1	-0.2	0.2	-0.8	0	0
<b>Iru Power Plant</b>	0	0	0	-2	1.1	0.8	0.05	0.05	0	0

Source: Estonian Environment Information Centre

<sup>1</sup> – including Viru Energia Ltd

The dominant emissions are SO<sub>2</sub> and particulates (solids) from oil-shale combustion plants. The two biggest oil-shale power plants produce more than 75,2% and 79,5% of total emissions respectively. A significant decrease in the production of electricity from the large oil-shale burning power plants

in Narva has taken place in recent years, mainly due to a decrease in export to the Russian Federation and Latvia, and to decrease in domestic demand.

The percentage contribution by the oil-shale power plants to other emissions - such as NO<sub>x</sub>, CO and hydrocarbons (C<sub>x</sub>H<sub>y</sub>) - is smaller and decreasing because of the rapidly increasing emissions from the transport sector.

Approximately 75% of the main air pollutants come from North-East Estonia, in particular from the Baltic and Estonian Thermal Power Plants (oil-shale burning), Kunda Nordic Cement Plant and several smaller power plants, oil-shale processing and chemical industries.

Enterprises that have large combustion plants and have to fulfil the above obligations, can roughly be divided into three groups:

- power plants (at Narva, Kohtla-Järve and Iru);
- large boiler houses ensuring for regional production of heat in towns (in Tallinn, Tartu, Pärnu, Kunda);
- industrial combined heat and power plants (at Sillamäe, Kehra).

Implementation of EU Directive on Large Combustion Plants and the Regulation of the Minister of Environment of 26 October 1998 No. 60 is performed through on *Establishment of the Limit Values for Emissions of Pollutants from Large Combustion Plants per Capacity Unit of Gases*.

In conformity with the draft Governmental Order on the *Approval of National Programme on Reduction of Emissions of Pollutants from Large Combustion Plants*, the main financing sources are the enterprises.

Estimated cost 2000-2003 for achieving the compliance is 140,6 mil. EUR. That would lay significant pressure on state budget as well as municipal budgets, as most of the involved enterprises are owned by the state or municipalities. However, in order to ensure successful meeting of taken obligations, ISPA assistance would also be needed.

Regarding air protection, the responsibility of carrying out monitoring and research is laid on Environmental Research Centre (EERC). The EERC is responsible for providing relevant information to other institutions, supervising the work of other environmental laboratories and assure an accreditation and certification system of the latter. The EERC has four laboratories in Tallinn and one in Rapla. With regard to air pollution control, it operates two air pollution monitoring stations in Tallinn and three background measuring stations in other areas of Estonia (Vilsandi, Palmse and Saarejärve). In addition to EERC, the three regional Environmental Laboratories (EL) – South-Estonian EL (in Tartu), Virumaa EL (in Jõhvi) and Pärnu EL – are involved in monitoring activities. There are also monitoring stations run by local governments and installations, in Muuga, Kunda 3 stations, Kohtla-Järva and Narva.

## **Water**

Estonia's water supply systems are, in general, unsatisfactory. This is evident in the large extent of water losses (due to leakage), approximately 30-35%.

There are 23 water treatment plants in Estonia, most of which are inefficient and worn out. However, there are exceptions, mainly treatment plants which have been recently reconstructed (e.g. Tallinn, Kuressaare, Tartu). Currently, there is a need for water treatment plants to be built or reconstructed

in more than 20 towns and settlements. Approximately 77% 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 centralised water supply systems. However, Estonia faces a number of serious problems in the quality of its drinking water supplies and the water supply systems are, in general, unsatisfactory.

The total length of the water supply network of Estonia is about 3,100 km (25% of the network covers Tallinn). Most pipes are normally made of steel and cast iron and need reconstruction. Due to poor network conditions, leakage is high, in some places (north-east Estonia) up to 60 per cent. 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 a 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.

Approximately 1,700 wells and water bodies used for communal water supply come under the supervision of the Health Protection Services. Of this total, 173 wells (10%) do not meet health protection requirements. Over 2,400 private water supply sources have been registered, of which 31% do not meet health protection requirements.

In 1994, there were three incidences of contagious drinking water related diseases in Estonia. In 1995, this figure had fallen to one incident and by 1996, to zero.

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 Ministry of the Environment has developed a plan for improvement of water and wastewater facilities<sup>2</sup>. According to the plan, approximately EUR 268 million should be invested in water supply systems between 2000 and 2013.

The plan gives priority to the following issues in 67 larger settlements:

- reconstruction of 500 km of water supply pipelines
- renovation of 900 km of water supply pipelines
- renovation and/or reconstruction of 60 pump stations
- reconstruction of 50 treatment plants or water treatment equipment
- renovation of 130 bored wells

Three main problems affect drinking water in Estonia:

- (a) in several areas the quality of raw water abstracted from surface and/or groundwater sources for drinking water does not achieve Estonian drinking water standards (which are based on EU standards);
- (b) pollution of groundwater with either oil products or nitrates; and
- (c) decline of water supply systems and a lack of drinking water treatment in several places.

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<sup>2</sup> Global Water Partnership, Ministry of Environment, Estonia (1999)

## **Wastewater**

In Estonia, industrial and domestic wastewater is usually treated together in municipal wastewater treatment plants.

The total length of sewerage in Estonia is approximately 3,280 km. At the end of 1997 there were 959 wastewater treatment plants in Estonia: 929 of them were small (less than 200 m<sup>3</sup>/d), 13 medium (200-2000 m<sup>3</sup>/d) and 17 large (more than 2000 m<sup>3</sup>/d). About 130 wastewater treatment plants are not operating any more due to decreased agricultural and industrial production. In percentage terms, approximately 77% of the population is connected to the wastewater treatment system, but only 58% of treatment plants are working satisfactory.

The Ministry of Environment is currently preparing Directive specific implementation plans. For the water sector investment needs for public sector from 2000 until 2010 are up to 320 MEUR. Overview of financial flows for the 2000-2006 in connection with ISPA co-financed investment projects is given in Annex 2.

## **Waste**

According to the Landfill Register, Estonia has over 450 active and closed landfills (domestic, industrial and agricultural). A total of 263 (1999) landfills are registered to receive municipal waste and of this total 57 landfills (incl. 7 industrial) are in operation. One of the goals will be reduction of landfills to 10-15. This involves the closure of many existing landfills and the stabilisation of closed landfill sites as well construction of the regional landfills meeting the EU requirements. After enforcement of Estonian Landfill Decree in September 2001 there were 14 landfills closed in 2001 and the closure of 48 landfills is budgeted to 2002.

In 2000 two new landfills started to operate - a landfill for non-hazardous waste in Järva County and the Vaivara landfill for hazardous waste. In autumn 2001 Uikala landfill will start to operate. All these landfills comply fully with the requirements of the Directive 1999/31/EC.

Hazardous wastes management system is currently being established in Estonia in line with EU Directives, covering collection, sorting, transportation and treatment of hazardous wastes. Still there is need for upgrading the system and especially final treatment and safe depositing in the future, in order to receive increasing volumes of hazardous wastes when system will be fully operational.

Waste from oil shale electric power stations and shale oil production makes up more than 90% of total amount of hazardous wastes generated in Estonia.

Estonia has requested a transitional period until July 16, 2009 for implementing the requirements of Article 14 d) i) of the Directive 99/31/EC. This request concerns in particular the application of Article 5 (3) a) and b) in regard to oil shale ash only, in order to develop and implement new methods of disposal of oil shale ash derived from the generation of energy.

The biggest energy producer in Estonia is AS Narva Elektriijaamad (NEJ) generating power from oil shale. NEJ has started to upgrade its technologies and equipment for combustion of oil shale, purification of flue gases, ash removal and landfilling. In the future the landfill can be evaluated as landfill for non-hazardous or even inert waste, with no liquid component and hazardous properties listed in Article 5 (3) b) of the landfill Directive.

## 5.FINANCING OF ENVIRONMENTAL PROJECTS

### Introduction

Domestic funds for environmental protection in Estonia come from four main sources:

- the State Budget
- local budgets (finances allocated to and raised by the municipalities);
- the Environmental Investment Centre and
- private capital.

Main instrument for planning investments in public sector is the Public Investment Program (PIP) which is co-ordinated by the Ministry of Finance. PIP's project pipeline for the first eight projects (environment) proposed for ISPA are tied into the new National Development Plan, which covers the period 2001-2004. Development of the NDP for 2003-2006 is being initiated.

As mentioned earlier as regards Directive 94/63/EC on the control of volatile organic compound emissions resulting from the storage of petrol and its distribution from terminals to service stations, mostly owned by private sector. Financing of related projects will be done by the owners.

According to lately released information, the air projects (mainly Energy sector) can rely on ISPA financing only for up to 40% of project's environmental cost. Very low rate of assistance may cause withdrawal of many air projects, as they are not economically viable any more. Although there are possibilities to combine the financing from different sources (joint implementation, trade of CO<sub>2</sub> quotes, grants, etc.), but administration of projects with too many donors is very complex and not reasonable.

Estonia's Environment Fund was overhauled in 1999-2000, and Environmental Investment Centre (EIC) as the successor was established in June 2000. EIC continues the work of former Environmental Fund: raises funds from fees for the use of natural resources and fines for pollution. Revenues raised by the EIC are earmarked for environmental protection projects (mainly infrastructure, also ISPA).

From June 2001 EIC has been acting as an Implementing Agency for ISPA Environmental Projects and is responsible for following tasks:

- Prepares and organises tender documentation and implementation,
- Prepares the contract, payment orders,
- Makes payment to the Contractor,
- Verifies the works (with assistance of Employer's Representative, or Site Engineer, or an independent audit)
- Verifies reports and sends to PAO for endorsement

Beginning from February 2002 the EIC will be also acting as an on-lending agency providing loans for municipalities for co-financing ISPA Environmental projects. There has been achieved agreements with Ministry of Finance and International Financial Institutions (IFI) for on-lending state guaranteed loans of 6 MEUR of Nordic Investment Bank and 12 MEUR European Investment Bank to Estonian municipalities in order to guarantee the obligation of co-financing. The above-

mentioned sums cover only the co-financing of first ISPA loans, afterwards there will be concluded new agreements with IFIs for additional sums.

The total cost of the project pipeline for potential ISPA funding is EUR 390 million. However, the estimated needs for the environment, over the same period (2000-2006), amounts to EUR 863 million. This implies a financing gap for accession of EUR 613 million (for 2000-2006 only).

When looking at donor support to the entire environmental sector in Estonia (not just infrastructure), it is remarkable to note that donors have contributed a total of EUR 63.4 million over the nine-year period 1991-2000 (see Table 5.1). However, as recent studies of the costs of approximation in the environment sector have shown, a lot more money is needed from a variety of sources.

<b>Environmental Sub-Sector</b>	<b>EEK</b>	<b>EUR</b>	<b>Number of Projects</b>
<b>Water Resource Protection and Management</b>	157,463,423	10,093,809	34
<b>Water Supply and Wastewater</b>	390,777,000	24,976,160	60
<b>Waste Management</b>	91,275,038	5,850,963	32
<b>Air Protection</b>	73,623,000	4,705,548	12
<b>Forestry Development</b>	21,223,000	1,356,449	3
<b>Fishery Development</b>	6,896,240	442,066	4
<b>Environmental Policy and Administrative Management</b>	102,571,119	6,575,071	33
<b>Biodiversity</b>	38327,690	2,456,903	9
<b>Environmental Education/Training</b>	95,580,000	6,108,910	33
<b>Approximation of Laws</b>	15,027,774	963,318	3
<b>Other</b>	53,446,000	3,415,953	26
<b>Total</b>	<b>1,046,210,284</b>	<b>157,782,150</b>	<b>216</b>

Source: Foreign Assistance Database, August 2001.

### **National Development Plan**

The National Development Plan (NDP) for 2001-2004 shows the commitment of Estonian funds for a range of environmental projects including the first projects on the ISPA pipeline. (Table 5.2).

<b>Category</b>	<b>EUR million</b>
<b>Public (State)</b>	20,949
<b>Public (Local)</b>	0,909
<b>Private</b>	3,963
<b>Phare</b>	9,963
<b>ISPA (estimated)</b>	59,348
<b>Foreign Aid</b>	1,145
<b>Loans</b>	1,259
<b>Total</b>	<b>97,535</b>

By virtue of their inclusion in the NDP the Public (State) funds are essentially guaranteed for the accepted ISPA environment projects.

## **6.RATIONALE FOR SELECTION OF PROJECTS FOR ISPA**

### **General**

The criteria for selecting priority areas for investment is as follows:

- projects which comply with EU environmental policy objectives:
  - preserving, protecting and improving the quality of the environment,
  - protecting human health,
  - prudent and rational utilisation of natural resources.
- projects which comply with EU environmental principles:
  - precautionary principle,
  - preventive action,
  - damage rectified at source,
  - polluter pays.
  
- projects which are a priority in the National Programme for the Adoption of the *Acquis* (NPAA) and will help the country to comply with the most investment-intensive Directives,
- projects designed to comply with EU technical specifications and quality standards and will operate within an adequate legal and administrative framework,
- projects which can demonstrate quantitative reductions in pollution for a maximum number of people (thus producing an effect of scale),
- projects which best serve the protection of human health,
- projects which will support the implementation of the National Environmental Strategy in those areas where it is compatible with the Accession Partnership, NPAA and the provisions of the ISPA regulation,
- projects which have the potential to stimulate strong partnership between central government and regional and local authorities,
- projects situated in environmentally sensitive areas, supporting the protection of ecosystems of extraordinary value from the point of view of nature protection and biodiversity,
- projects which have the best potential to contribute to gradual achievement of economic and social cohesion of Estonia with the EU (showing the highest net economic and social benefits).
- projects which meet the ISPA threshold of EUR 5 million capital costs.

### **Estonian Planning and Development Considerations**

Projects should:

- comply with the environmental policy goals and tasks of the National Environmental Strategy (as listed in Chapter 3 of this document)

- form priorities under the National Environmental Action Plan
- be coherent and part of the National Programme on Reduction of Emissions of Pollutants from Large Combustion Plants
- be coherent and part of the Global water Partnership of 1999
- have positive impacts on the maximum number of people (economies of scale)
- require ISPA support (cannot be implemented without ISPA due to a lack of state and private funds and lack of ability to repay larger loans)
- improve human health
- encourage co-operation between central government and regional and local authorities
- protect environmentally sensitive areas and meet the requirements stipulated by Urban Wastewater Directive (91/271/EEC) and HELCOM recommendations
- be well timed and ready for effective development and implementation (management capacity) at the appropriate stage

### **EU Accession Considerations**

Projects should:

- have a measurable impact on Estonia's efforts to achieve "substantive approximation"
- conform with Accession Partnership criteria
- form an investment-intensive priority under the National Programme for the Adoption of the *Acquis* (NPAA)
- address EU Directives where Estonia has requested transitions
- comply with EU environmental policy objectives (preserving / protecting environmental quality, protecting human health, encouraging sustainable development)
- be coherent and part of Directive-specific implementation programmes (like forthcoming National Waste Management Plan 2000-2006, derived from the Waste Directive etc.)
- comply with EU environmental principles (polluter pays principle, precautionary principle, preventive action)
- contribute to Estonian economic and social cohesion with the EU

Of particular interest will be projects proposed by several municipalities or by authorities connected with coherent environmental systems, such as river basins. This should allow creating larger, more complex and coherent projects, with a higher budget – easier for handling and supervising.

### **Environmental goals for 2000-2006**

Priority from the beginning of this period will be given to water supply and wastewater treatment projects and solid waste management projects. In addition to the investment projects in water and waste sectors, from year 2002 priority will be given also to the air sector investment projects. Investment projects to be implemented will be closely connected with the Investment projects to address mobile source pollution will also be considered.

ISPA grants for projects will reach up to 75% of the share of public resources. Supplementary investment from public sources will be available in the form of grants from national budget, municipal budgets and environmental funds, foreign grants and loans for environmental protection.

***Air protection:***

- transposition of EU air quality requirements,
- development of air quality improvement plans,
- modernisation of air quality monitoring network,
- launch of priority investment projects,
- development and start of implementation of VOC reduction programmes,
- development and start of implementation mobile source emission reduction programmes.

***Water supply and wastewater sectors:***

- transposition of EU requirements (table 6.1),
- development of implementation programmes,
- development of detailed plan for each municipality for the implementation of the requirement in water sector,
- preparation of feasibility studies for the upgrading of the water supply, sewage systems and sewage treatment plants,
- launch of construction/extension of priority water treatment and supply systems, sewage treatment works and sewerage systems,
- establishment of river basin management institutions, implement institutional strengthening programmes,
- development and implementation of water quality monitoring programmes,
- development of information management and reporting capacities.

***Waste Management:***

In the solid waste sector, investment projects for waste management will be planned taking into consideration goals set in the *acqui*.

- complete transposition in waste management sector,
- strengthening of waste management institutional capacities,
- development of national and municipal waste management plans,
- launch of construction of priority regional landfills,
- closure of old landfill sites according to foreseen programmes,
- extension of waste recovery and recycling capacities.

**7.PRIORITY PROJECTS FOR ISPA FUNDING****General**

As described above, Estonia has a number of environmental problems in water and waste management sectors, which require urgent solution. Related investment projects are different in both size and potential impacts on the quality of the environment. However, there are also smaller municipalities with environmental problems to be solved. Despite their more local impacts, they still affect the environmental quality targets, in particular surface water quality.

Past environmental and investment policies, the size of the country and municipalities have resulted in the situation that Estonia has a number of large-scale investment projects as well as a considerable quantity of smaller projects. Therefore, in order to address environmental quality problems in a comprehensive way, it will be necessary to implement a number of smaller projects, which alone will not meet the 5 million Euro ISPA threshold. Ignoring of smaller projects will cause inability to achieve environmental goals in wholeness and will reduce effectiveness of other projects in the region.

In general, when selecting projects for ISPA financing, priority will be given to large-scale environmental investment projects. Projects will be grouped only when:

- it is technically and economically feasible to connect implementation of several components/projects (e.g. wastewater and drinking water projects are implemented as one project in the same municipality),
- it is necessary for achieving environmental quality goals (e.g. wastewater treatment projects in the same river basin),
- it is necessary to complete set of measures, allowing the system to operate (e.g. close of old landfill, construction of new landfill and development of collection and transporting system).

### **Pipeline Development**

The ISPA project pipeline, shown in Annex II, is a logical progression in the work of the Estonian Ministry of Environment over the last five years, in consultation with other Ministries, local and County Government, public bodies and public representatives. This planning effort resulted in the production and adoption of the National Environment Strategy (NES) and National Environmental Action Plan. In addition, the pipeline was developed in line with the Accession Partnership and Estonia's position on EU Membership (Position Paper).

All public priority investments are covered by the Public Investment Programme (PIP) which includes projects to be financed from the State Budget, loans and grants taken on behalf of the State, foreign loans guaranteed by the State and earmarked funds in Municipal Budgets. ISPA projects form integral part of Estonian PIP.

A basic criterion for selection of the projects is that the project will achieve full compliance with relevant EU Directives at its final phase. A project, which does not fully comply with environmental *acquis*, will not be assisted by ISPA.

The pipeline projects were chosen using the following criteria:

### **Air quality**

#### Criteria for project selection in air quality sector:

- health effects,
- environmental effects,
- large agglomerations,

- implementation of air quality improvement plans in areas where the permissible air quality standards are exceeded,
- implementation of the ‘polluter pays’ principle.

Priority projects:

- Introducing more efficient, less fuel consuming and less polluting technologies;
- Reduction of SO<sub>x</sub> and use of environmentally friendly fuels;
- Energy efficiency projects, that enable to reduce pollution load in large settlements.

Annex I lists priority projects for investment in the air sectors which have been selected in relation the above criterias and priorities.

## **Water supply and wastewater**

Criteria for priority setting in the water supply and wastewater sectors:

- health effects,
- environmental effects
- large agglomerations,
- discharges in sensitive areas,
- discharges in vulnerable areas,
- the potential effect on the sources of drinking water,
- service improvements for water utility consumers,
- connection of new consumers,
- implementation of polluter pays principle,
- considerable economic effect,
- competitiveness of industries.

Priority projects:

- Connection of household consumers to water and waste water networks in bigger settlements for ensuring the quality of water and protect water bodies;
- Reconstruction and building of new waste water treatment plants and collectors to decrease the figures of wastewater treatment indicators;
- Reconstruction water networks for decreasing of leakages for rational use of water;
- Ensuring biological and if necessary chemical treatment of wastewater contaminating the environment;
- Renovation and construction of manure and slurry storages implementation environmentally friendly fertilization technologies in nitrate vulnerable zones;
- Treatment of past pollution near aquifers.

Annex I lists priority projects for investment in the wastewater and drinking water supply sectors which have been selected in relation the above criterias and priorities.

## **Waste Management**

### Criteria for project selection in solid waste management sector:

- health effects,
- environmental effects
- availability of regional and municipal waste management plans,
- implementation of waste management policy principles,
- regional waste management facilities,
- regional landfills in accordance with the EU requirements,
- protection of sensitive areas,
- implementation of polluter pays principle.

### Priority projects:

- Construction of new regional landfills;
- Closure or updating of existing landfills;
- Increase of recycling of waste to 30-40%;
- Building of hazardous waste complex (transfer/reloading station and secure landfill), collection and reloading stations and incineration plant (incl. special physical-chemical equipment for management of hazardous waste);
- New technologies of handling and dumping of oil-shale ash.

Annex I lists priority investment projects in the solid waste management sector which have been selected in accordance with the above criteria.