

# **TOWARDS EFFECTIVE MANAGEMENT OF WATER RESOURCES IN LITHUANIA**

## **Executive Summary**

### **1. GENERAL INFORMATION**

Lithuania is the southernmost Baltic country with an area of 65,200 km<sup>2</sup> and number of population reaching 3.5 million. Geographical location of Lithuania is favorable with respect to surface and groundwater resources. There are 29,000 rivers with total length of 64 000 km. The Nemunas River basin occupies 74 % of the territory of the country (with also 74 % of total population). Number of lakes larger than 0.5 ha comprises 2850 with total area of 908 km<sup>2</sup>. Rainfall during the average year amounts to 748 mm. Surface water availability is 7.043 m<sup>3</sup>/cap/y.

In 2000 total amount of 3 578 million m<sup>3</sup> of water was withdrawn for power production, industrial and domestic purposes. 3 525 million m<sup>3</sup> of waste water was discharged into surface water bodies in 2000. Energy sector is responsible for the largest amount of discharged water (Ignalina NPP and Kruonis Hydro-accumulation PP). 80% of waste water was treated in biological treatment plants, 18% of waste water was only mechanically treated and 2% was discharged without purification.

### **2. PRESENT WATER MANAGEMENT SITUATION IN LITHUANIA.**

Political and administrative water management systems in Lithuania are modified, introducing the concept of IWRM and facilitating implementation of WFD requirements. In order to fulfill the goals foreseen in Lithuanian strategic water management documents all main water management elements are under revision and improvement right now. The water related legal system is being amended and institutions are re-organized. These strategic water management tasks also coincide with the requirements of the EU Water Framework Directive.

Crucial role is paid to the planning of significant investments into the water-related infrastructure.

The main economic instruments used for integration of economic and environmental decisions are: taxes on natural resources, charges on the discharge of pollutants into water, municipal charges for drinking water, sewage and sewerage treatment, fines for exceeding the established discharge limits.

Lithuania has elaborated corresponding action programmes on implementation of national environmental strategies, covering the water sector. Construction of wastewater treatment facilities and improvement of safe drinking water supply remains the highest priority for investments, particularly for funds from the State budget, and loans and subsidies received by the State. Few river basin master plans are now under preparation (related to the implementation of the Urban Wastewater Treatment Directive and grouping of investment projects to be eligible for ISPA financing).

Until the end of 2015 Lithuania have the intention to implement the main environmental infrastructure investment projects in the most costly sectors of water and waste management.

### **3. COUNTRY SPECIFIC CONDITIONS OF WATER RESOURCES MANAGEMENT**

The specifics of water resources in Lithuania are as follows:

- all Lithuanian rivers drain its waters to the Baltic Sea;
- Lithuania has abundant groundwater resources – about 20 deep groundwater aquifers and water from 350 000 shallow dug wells (unconfined water aquifers) are produced for drinking water supply;
- all drinking water consumed in Lithuania originates from groundwater sources and no surface water is used for drinking purposes;
- about 75% of Lithuanian population are connected to centralised water supply systems and close to 65% are connected to sewerage networks;
- rural water supply is based on shallow unconfined water aquifers (about 700 000 inhabitants rely on shallow groundwater wells) from those 37.5% do not comply with the national quality standards for nitrates (50mg/l);
- water supply and wastewater treatment systems are owned and managed by Municipal Water Companies;
- there are approximately 1330 individual supplies of drinking water exceeding 10 m<sup>3</sup>/day and 80 larger drinking water supplies extracting over 1000 m<sup>3</sup>/day
- Water supply and sanitation sector in Lithuania is unprofitable.
- Due to increase of water tariffs and installation of metering systems water consumption by inhabitants reached hygienic minimum (70 liters/person/day).
- As Lithuania does not use surface water for drinking water supply the upstream - downstream problems are not very important. For surface waters this problem becomes international, however because all Lithuanian rivers are transboundary ones.

#### **4. EXISTING LAWS AND LEGISLATION**

Main legal documents adopted by the Parliament are:

1. State strategy of environmental protection, 1996
2. Law on Environmental Protection. (with several amendments from 1992 to 2001).
3. Law on Environmental Monitoring. 1997 11 20 No. VIII-529
4. Law on Environmental Impact Assessment (with several amendments from 1996 to 2000)
5. Law on Water, 1997
6. Drinking Water Law, 2001
7. Law on Amendment of the Underground Law, 2001
8. 2. Code on violation of administrative legislation (with many amendments from 1984 to 2002)
9. Law on county management (with many amendments from 1994 up to 2002)
10. Law on local governments (with many amendments from 1994 up to 2002)

Each law is followed by the by-law documents and governmental/ministerial regulations. At the moment compliance of existing national legislation with EU requirements is being checked.

The Ministry of Environment is responsible for co-ordinating approximation activities in the water and environmental sector.

Implementation of the EU Water Framework Directive will require significant amendments to the Lithuanian Water Law (as currently available in draft form) and the promulgation of a number of regulations implementing the detailed provisions of the Directive.

For the proper integration of EU requirements into existing national legislation the Water Resources Management Strategy and amendment to the Law on Water are under development.

The majority of the fundamental requirements of water directives are at present recognised in the national laws. The general provisions laid down in the directives have been transposed into the Law on Environmental Protection (1992, 1996, 2000), Law on Water (1997), Law on the Marine Environment (1997), Law on Environmental Monitoring (1997), Drinking Water Law (2001), the Underground Law (1995) and others. The requirements of the Directive on bathing waters (76/160/EEC) were transposed into the Lithuanian hygiene norm on Beaches and Bathing Waters in 2000.

## 5. MINISTRIES INVOLVED IN WATER MANAGEMENT

Two institutional levels of environmental management, including water management, can be distinguished in Lithuania - state and local (municipal).

### 5.1 The Ministry of Environment

Ministry of Environment (MoE) is the main ministry responsible for water management in Lithuania. The main task of the MoE is to ensure healthy and clean environment, rational use, protection and restoration of natural resources, including forests and the underground in Republic of Lithuania, its territorial waters, continental shelf and economic zone.

Tasks of the Ministry of Environment are executed by the departments, services, inspections established under the Ministry and other institutions subordinated to the Ministry. The enforcement of environmental legislation and implementation of environmental policy at the regional level is the task of the eight Regional Departments of Environmental Protection, situated in the administrative centres of Lithuania.

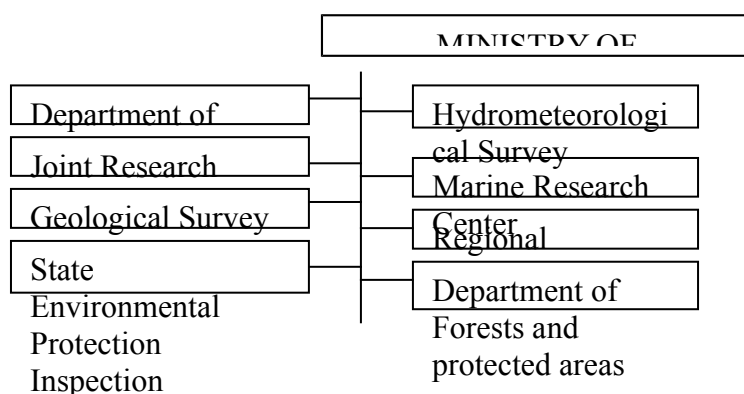


Figure 5.1. The structure of subordinated institutions of the Ministry of Environment in Lithuania.

### 5.2 Ministry of Health

The Ministry is responsible for the sanitary control and elaboration of standards of all drinking water and of recreational water bodies (bathing water).

The Ministry of Health Care has several subordinate institutions involved in water management: the State Nutrition Center (SNC), the State Public Health Centre (PHC) and the State Hygiene Inspection.

### **5.3 Ministry of Agriculture**

The Ministry of Agriculture has a very important impact on the quality of water by managing agricultural practices, preventing pollution from diffuse sources and maintenance of drainage network (80% of agricultural lands are drained). The Ministry regulates the rates of fertiliser and pesticides application in agriculture and makes recommendations concerning environmentally friendly agricultural practices

### **5.4 Ministry of Economy**

The Ministry of Economy (MEc) is also indirectly involved in water management. The ministry prepares long-term and short-term programmes for the development of the economy and for investments. The MEc co-ordinates foreign technical aid and priorities, analyses applications for investments including the financing of wastewater treatment plants and prepares proposals for the Government for the financing of these investments from the State budget.

### **5.5 The Ministry of Transport**

The Ministry of Transport is in charge of navigation, and therefore has also a role on river management.

### **5.6 Ministry of Interior**

The Ministry of Interior is not directly involved in water management but the institution subordinated to the Ministry named The Civil Security Department is in charge for the prevention of extreme ecological situations and elimination of accident's consequences.

In 2001 an independent water quality control institution – **Food quality inspection** was established at the State Veterinary Service, which is responsible for control of the drinking water quality in water supply enterprises and private wells.

The State Veterinary Service is responsible for government of Lithuania.

From the description above one can see that organisational structure of governmental level of water management in Lithuania is very complicated and needs to be optimized.

### **5.7. Water Management at Regional Level**

The Counties represent the higher State administration in Lithuania. The Counties among other functions implement State policy concerning physical planning, use and protection of land, and environmental protection. Within his legal powers, the Governor sets limits for the use of natural resources. In addition, the Governor controls the management of water bodies, and of protection strips and protection zones around water bodies.

At Regional level 10 Counties and 44 Districts share the responsibility of water management.

### **5.8. Regional Departments of Environmental Protection (RDEP).**

The most important institution at the Regional level in water management is the Regional Departments of Environmental Protection (under the Ministry of Environment). There are 8 of them in Lithuania and the main responsibilities are to analyse state of the environment in the region, enforce requirements to improve the environment and submit proposals on regulation of use of natural resources and improvement of environmental protection measures at the District level.

The organisation of the Regional Departments is based on administrative borders. The RDs are subdivided into agencies (total number 52), which have offices in the municipalities and are responsible for environmental protection at the local level.

The other regional offices, which are involved in water management, are:

- 3 Regional offices of the Hydrometeorological Service, which are responsible for the work of regional monitoring stations.
- Regional offices of State Public Health Centre (PHC) and the State Hygiene Inspection of the Ministry of Health Care and Food control inspections of the State Veterinary Service.

### **5.9. Water Management at Local Level**

Generally, the municipalities are responsible for environmental management in their territory, including water management, implementation of relevant laws and regulations and cooperating with related state and regional authorities. The municipalities are owners of the water supply and sewerage systems and are responsible for the supply of drinking water and waste water treatment, which is usually carried out by municipality-owned public companies (Water Supply Companies). The municipalities are setting their own prices for water services.

The institutions participating in water management neither in regional nor in local level cover river basins.

## **6. RIVER BASIN DISTRICTS**

Governmental Regulation on River Basin Districts (identifying RBDs, designating competent authority/ies) is planned to be prepared at the end of 2003. Most likely, existing authorities will perform river basin management, but function between different institutions will be revised.

The biggest river basin in Lithuania is Nemunas, which occupies 74% of whole Lithuanian territory. It originates in Beylorussia, flows through Lithuania to the border with Kaliningrad. The river becomes the shared border between Lithuania and Kaliningrad until it discharges to the Baltic Sea via the Curonian Lagoon (Baltic Province eco-region).

At this moment there are identified 6 main individual river basins in Lithuanian national legislation: Nemunas basin, Baltic Sea small tributaries basin, Prieglius basin, Venta basin, Musa – Nemunelis, (Lielupe) basin and Daugava basin.

## **7. ECONOMIC INSTRUMENTS IN WATER MANAGEMENT AND NEED FOR INVESTMENTS**

To meet demand for environmental financing, a combination of domestic and foreign sources has played and will play a role. Subsidies, pollution charges and user fees are the main economic instruments.

Domestic sources used in Lithuania include the following:

- State and municipal general revenues
- Pollution charges and fines
- User fees on municipal services
- Facility own resources
- Commercial capital (credits and equity)

It is acknowledged that the private sector is expected to finance their water investments out of existing cash balances, profits, or equity. The availability and utilisation of these private sources is strongly linked to overall economic performance and the scope and effectiveness of environmental compliance monitoring activities for regulated facilities.

Foreign financing sources are related to:

- activities of International Financing Institutions, and
- aid of various foreign countries to the environmental protection of Lithuania.

**7.1 The State budget** has been the main domestic source of funding for environmental protection needs so far. Beginning with 1999, the funds for municipalities to finance environmental activities are allocated out of the Privatization Fund and directly transferred to municipal budgets.

Up to now, state budget expenditures for environment have been focused almost exclusively on investments in wastewater systems. 98.6% of state budget expenditures in the environment sector have been earmarked for wastewater with the remaining 1.4% for solid waste.

**7.2. Taxes on state natural resources** is the most tangible source of the State budget revenue from “environmental sources”. Each legal or natural person who extracts water and needs to have a Permit for Use of Natural Resources (i.e. abstracts more than 10 m<sup>3</sup>/day of water or discharges >5 m<sup>3</sup>/day of waste water), needs to pay a tax to the state budget. It means that Water companies shall pay these taxes. The percentage of this payment in the costs of water supply is not considerable and constitutes less than 1%. The Ministry of Environment and the Ministry of Finance are responsible for enforcement of this legislation.

**7.3. Municipal budgets** is the second government source of funding for environmental investments. Environmental investments from the state budget (and state guaranteed foreign loans and grants) are channeled through municipal budgets. Financing of environmental investments from municipalities' own resources is unusual.

**7.4. Pollution charges and non-compliance fees (fines)** are the primary sources of revenue for the special budget environmental support programme, 60 municipal nature protection funds (which receive 70 % of all amount of pollution charges paid), and more recently, the Lithuanian Environmental Investment Fund (LEIF, which receives 20% of all amount of

pollution charges paid). Since 1997 income from these charges and fines is reducing mainly because of introduction of environmental measures and modern technologies.

At the moment the effectiveness of collection of natural resource tax and pollution charges on water equals to approximately 100%, as all potential payers of charges are also permit for the use of natural resources holders and therefore their payments are controlled.

**7.5. User fees.** A major source of revenue for municipal infrastructure investments is user fees on drinking water, sanitation services, and waste disposal.

At present, tariffs on cold water and sanitation services are, according to different sources, approximately 1%-2% of annual household expenditures. In addition, there is considerable variability in user fees across income groups and between small and medium-size towns and large cities and urban areas.

Assuming a current combined level of 2%, even doubling of user fees could be accommodated without exceeding the cap.

At the moment collection of water tariffs from population equals approximately to 95%. However, there is a much bigger delay in water use payments. It could reach in some months approximately 40%.

**7.6. Own company sources.** Out of own private companies' investments into environmental measures and operating and maintenance costs 60 - 80% is devoted to the wastewater treatment.

**7.7. Commercial capital and leasing markets.** Three potential sources of financing for environmental projects are capital that can be mobilized by the banking sector, through the stock market, and by leasing companies. None of these sources is expected to play a major role in the next two decades in direct water sector related financing.

Lithuanian banks are co-operating with the Lithuanian Environmental Investment Fund for provision of soft loans. More than 20 such loans are already provided to Lithuanian companies.

### **7.8 Opportunities for increasing domestic financing for water related investments.**

At the current time, slightly more than one-half of investments are financed by domestic sources.

Domestic capital markets will play a role in financing water projects in the future if their attractiveness in terms of interest rates, allowances for grace periods, and repayment period in comparison to foreign financing is similar.

In the private sector, own resources would be expected to play a major role, although private firms have received some foreign assistance to adopt clean technologies and access foreign technologies.

In the public sector, municipalities have limited capacity to generate surplus revenues (comparable to private sector profits). Municipal revenue raising opportunities are limited with user fees for water services.

**7.9. Cost recovery** in the water sector in Lithuania, as mentioned above, is not yet full. Though the new water legislation provides for the full cost recovery principle, municipalities are not able to fulfil yet this task.

As tariffs in some municipalities are different for industries, municipal companies and population, industry (and in less cases municipal companies) is still subsidising inhabitants in these areas. Nevertheless, the policy of water suppliers is to equalise tariffs for all users.

In order to better prepare for the implementation of the WFD, water companies need to start to develop improvement plans for water treatment, pumping stations, water quality improvements and pipe replacements or renovations.

**7.10. Foreign financing** is playing an important role as Lithuania prepares for accession and for several years after membership.

Among supporting programmes the following funds are most important:

Up to 2000 PHARE programme supported Lithuanian environmental sector with approximately 37 million Euros. 51% of this amount was devoted to investment projects mainly in the water sector.

From ISPA, SAPARD, and PHARE funds, Lithuania is able to receive approximately 100 million Euro each year.

Bilateral donors have provided about 30 million Euros in technical assistance support during the period up to 2000.

Denmark is the only country that has provided investment credits (31 million Euros in the form of investment credits) to Lithuanian water sector during this period.

The World Bank has provided loans for environmental projects in Klaipeda (7 million USD) and Siauliai (6.2 million USD). Both loans were used for wastewater projects..

A new Nordic Investment Bank credit line of approximately 20 million Euros was opened for earmarked financing recently for environmental projects, primarily, in water supply and treatment.

So far the EBRD has funded one project related to the environmental sector. This is Kaunas Environment project, which aims at the improving the quality of water and wastewater services in the city of Kaunas.

The financing provided by NEFCO for Lithuania amounts to 3 million USD to date. NEFCO provided a loan to co-finance the construction of the Kaunas wastewater treatment plant.

The Lithuanian Government has approved a credit line of 15 million Euros from the European Investment Bank for environmental purposes. Some ISPA projects are ready to be co-financed by the EIB.

8. Knowledge and capacity

## **9. ACCESS TO INFORMATION**



## 10 MONITORING

There are 86 sampling points in 30 monitoring stations that assess quality of groundwater on an annual basis; the MoE intends to extend this network to include 174 sampling points. There are currently 99 stations monitoring surface water quality. Further improvements in the existing monitoring system will take place by 2003, following the findings of an on-going Phare Twinning project. Monitoring of eutrophication in estuaries, coastal and marine waters is in full compliance with the EU directives. Samples are taken in the Curonian lagoon (13 sampling stations, 3-12 times/year) and in the Baltic Sea (17 sampling stations, 4-16 times per year). The eutrophic state of estuaries and coastal waters is reviewed annually and compiled in Annual Reports by the Marine Research Centre. A system for monitoring of freshwaters and ground waters has been put into place but is not yet in compliance with the EU requirements.

### 11. PUBLIC PARTICIPATION.

Public participation is rather new but fast progressing social issue in Lithuania.

The Lithuanian NGO's take an active part in the implementation of Aarhus Convention. They develop and implement projects, issue publications, organize meetings, etc.

With the aim to encourage the public to more actively take part in the environmental decision-making, implementation of the provisions of the Aarhus Convention, the Advisory Council consisting of 18 NGO's representatives was established under the Ministry of Environment.

Information on activities of the Ministry of Environment, adopted laws and laws under preparation, signed agreements, programs and projects under the implementation, the work of the Ministerial Collegium and the Advisory Council, on-going meetings as well as issued publications, etc. is presented in the Ministry's website (<http://www.am.lt>).

The Ministry of Environment constantly disseminates information on their activities to the public authorities, municipalities, mass-media, NGO's.

Since 2000 Lithuanian Water Partnership joined the public arena of water management organizing awareness raising campaigns and discussion on hot topics of water management sector.

## **TOWARDS EFFECTIVE MANAGEMENT OF WATER RESOURCES IN LITHUANIA**

### **1. INTRODUCTION**

Lithuania - one of the 10 CEE countries joined the Global Water Partnership in 1999. Since then continuing national discussions are carried out on what actions might be taken for implementation of Water Vision presented at the 2nd World Water Forum, The Hague, March, 2000.

One of the principal challenges in Lithuania, likewise in the whole CEE region, is to increase effectiveness of water governance. Existing and perspective range of political, social, economic and administrative water management systems in Lithuania, building the core of water governance, are analysed in this report.

Initial collection of information on the issue has been executed by the working group, established in July, 2002 and consisting of representatives from various departments and subordinated institutions of the Ministry of Environment (Water Division, Water Resources Department, Geological Survey), Ministry of Health and NGOs, see Attachment 1. The 1<sup>st</sup> draft report has been compiled by the working group using "Guidelines for national dialogues" prepared by Laszlo Somlyody and Janusz Kindler and was disseminated electronically to 65 members of the Water Club of Lithuania. Due to summer holiday, comments were received from ... members. The 2<sup>nd</sup> draft report was compiled, presented and discussed at the meeting of the Water Club, end of August, 2002. Most of comments sent by e-mail and expressed orally during the Water club meeting are included into report.

### **1. PRESENT WATER MANAGEMENT SITUATION IN LITHUANIA.**

Present political, social, economic and administrative systems of Lithuania are in transition from the inherited, and therefore still strong, previous central planning systems and a newly established democracy. Integration into the EU family is the main driving force for the

changes in the water management sector. Many of these alterations are occurring almost every day in our dynamic life. Often political-economical modifications are the main reason that legal enforcement mechanisms are not strong enough and many good programmes are not implemented.

## **2.1 General information**

Lithuania is the southernmost Baltic country with an area of 65,200 km<sup>2</sup> and number of population reaching 3.5 million. 65% of population live in urban areas, although historically Lithuania is an agricultural country. 28% of surface territory is occupied by arable lands, 11.5% by pastures, other 15% of total area is covered by urban territories. GDP in 2001 was 3039 USD per capita, growing approximately 5%/year (*source: Statistical yearbook, 2001*)

Geographical location of Lithuania is favorable with respect to surface and groundwater resources. There are 29,000 rivers with total length of 64 000 km but only 18 rivers are longer than 100 km. The Nemunas River basin occupies 74 % of the territory of the country (with also 74 % of total population). Number of lakes larger than 0.5 ha comprises 2850 with total area of 908 km<sup>2</sup>. Rainfall during the average year amounts to 748 mm. Renewable water resources of Lithuania reach 15.4 km<sup>3</sup>, beside that 10.8 km<sup>3</sup> of water are transit flows from Byelorussia, Poland and Russia. Surface water availability is 7.043 m<sup>3</sup>/cap/y. In 2000 total amount of 3 578 million m<sup>3</sup> of water was withdrawn for power production, industrial and domestic purposes. 93 percent or 3290 million m<sup>3</sup> was used for energy production (mainly for cooling of Ignalina Nuclear Power Plant). 242 million m<sup>3</sup> was used for industry, household, agriculture and fisheries. Industry consumed 21.5%, household use was 44.2%, agricultural sector – 0.7% and fisheries 33.1% of total water volume.

3 525 million m<sup>3</sup> of waste water was discharged into surface water bodies in 2000. Energy sector is responsible for the largest amount of discharged water (Ignalina NPP and Kruonis Hydro-accumulation PP). 168 million m<sup>3</sup> of waste water needed purification before discharging into surface water bodies. 80% of waste water was treated in biological treatment plants (of them 61% without elimination of nitrogen and phosphorus and 19% with elimination of N and P). 18% of waste water was only mechanically treated and 2% was discharged without purification. In 2000 about 86% of discharged waste water in Lithuania has failed to satisfy the EU environmental requirements. (*source: Environment: Annual Report of MoE, 2000*).

There are 33 polders constructed in the Nemunas delta, their area being 50.5 thousand ha. 18 polders are of winter type (they were constructed in order to prevent settlements and economic entities from floods). For different needs (e.g. land irrigation, hydropower, recreation, etc.) 1093 reservoirs were built, among them 414 bigger than 5 ha area.

The main economic instruments used for integration of economic and environmental decisions are: taxes on natural resources, charges on the discharge of pollutants into water, municipal charges for drinking water, sewage and sewerage treatment, fines for exceeding the established discharge limits.

## **2.2. Conditions for implementation of IWRM and the EU WFD**

All changes in political and administrative water management systems are directed towards optimisation of water governance in Lithuania, introducing the concept of IWRM and facilitating implementation of WFD requirements.

In order to fulfill the goals foreseen in Lithuanian strategic water management documents all main water management elements are under revision and improvement right now. The water related legal system is being amended and institutions are re-organized. Crucial role is paid to the planning of significant investments into the water-related infrastructure. In order to ensure an efficient use of available funding sources, Lithuania, as part of its accession to the EU process, has prepared prioritised financing strategies. These, among others, include investment projects for wastewater collection and treatment facilities according to river basins.

Long term implementation steps described in National Environment Strategy (NES) decreed in 1997 are to achieve sustainable development and preserve a clean and healthy natural environment (including water resources), maintain biological and landscape diversity and ensure optimal use of natural resources. The NES sets goals in the fields of water, air, soil, biota, lithosphere protection, waste management, and protection from physical pollution, landscape degradation and protection of the recreational environment. The NES proposed an integrated approach to water resources management.

These strategic water management tasks also coincide with the requirements of the EU Water Framework Directive. For integration into the EU family Lithuania has committed itself to transpose the requirements of related EU directives into national environmental legislation before the end of 2003. The problem of enforcement of legislation and implementation of prepared programmes will remain one of the most important, however

Until the end of 2015 Lithuania have the intention to implement the main environmental infrastructure investment projects in the most costly sectors of water and waste management, as well as, air protection, in order to ensure requirements for environmental quality in line with EU directives. The NES, Lithuania's Strategy for Approximation in the Environmental Sector, the Accession Partnership and other related documents form the basis for development of the National Program for the adoption of the *Acquis*.

Lithuania has elaborated corresponding action programmes on implementation of national environmental strategies, covering the water sector. Construction of wastewater treatment facilities and improvement of safe drinking water supply remains the highest priority for investments, particularly for funds from the State budget, and loans and subsidies received by the State. Few river basin master plans are now under preparation (related to the implementation of the Urban Wastewater Treatment Directive and grouping of investment projects to be eligible for ISPA financing).

### **3. MOST IMPORTANT COUNTRY SPECIFIC CONDITIONS OF WATER RESOURCES MANAGEMENT.**

The specifics of water resources in Lithuania are as follows:

- all the river basins are transboundary (bordering with Byelorussia, Latvia, Poland and Russia);
- all Lithuanian rivers drain its waters to the Baltic Sea;

- Lithuania has abundant groundwater resources – about 20 deep groundwater aquifers and water from 350 000 shallow dug wells (unconfined water aquifers) are produced for drinking water supply;
- all drinking water consumed in Lithuania originates from groundwater sources and no surface water is used for drinking purposes;
- about 75% of Lithuanian population are connected to centralised water supply systems and close to 65% are connected to sewerage networks;
- rural water supply is based on shallow unconfined water aquifers (about 700 000 inhabitants rely on shallow groundwater wells) from those 37.5% do not comply with the national quality standards for nitrates (50mg/l);
- sewerage systems are used in 874 Lithuanian cities, towns and villages, while they are still lacking in rural areas;
- water supply and wastewater treatment systems are owned and managed by Municipal Water Companies;
- the water tariff is uneven, comprises 1.6-2.7% of the net annual income, and is rising permanently.

Lithuania is probably the only country in Europe using exclusively groundwater resources for potable water supply. The supply of drinking water is provided by the municipalities, which are in most cases the owners of the water supply companies. Municipalities are also responsible for the extraction, delivery, treatment and monitoring of drinking water, and for the provision of information on drinking water quality to the public. There are approximately 1.330 individual supplies of drinking water exceeding 10 m<sup>3</sup>/day or serving more than 50 persons, and 80 larger drinking water supplies extracting over 1.000 m<sup>3</sup>/day or serving more than 5.000 persons.

A large part of Lithuanian population is concentrated in major towns therefore population density is much lower in regional territories and with very low ability of inhabitants to pay. This may cause difficulties to ensure repayment of investments related to water management in small settlements.

Water management in Lithuania has been and still is performed according to administrative borders not according river basins.

Specifics of water supply and waste water treatment sector are reflected in table 1:

Table 1. Statistical data about water supply and waste water treatment

No. No.	Basic statistic index	Unit	Results	
			1999 m.	2000 m.
<b>Water supply</b>				
1	Number of water supply systems	unit	400	<b>461</b>
2	Length of pipelines	km	5795,8	<b>6256,7</b>
3	Total amount of abstracted water:	thous .m <sup>3</sup>	144931	<b>133508</b>
3.1	- groundwater	Thous.m <sup>3</sup>	141881	<b>131004</b>
4	Total amount of sol water:	Thous.m <sup>3</sup>	101523	<b>92415</b>
4.1	-to inhabitants	Thous.m <sup>3</sup>	62304	<b>58590</b>
5	Total water losses	Thous.m <sup>3</sup>	41934	<b>39360</b>
5.1	- in pipeline system	Thous.m <sup>3</sup>	29618	<b>26535</b>
6	Total income for supplied water	Thous.Lt	135790	<b>129502</b>

6.1	- from inhabitants	Thous.Lt	78431	<b>79036</b>
7	Operational expenses	Thous.Lt	139554	<b>141166</b>
<b>Waste water treatment</b>				
8	Number of waste water treatment systems	unit	198	<b>236</b>
9	Length of pipelines	km	3945,3	<b>4215,0</b>
10	Total amount of removed (pasalintu) sewage	thous.m <sup>3</sup>	151374	<b>139771</b>
11	Total amount of sewage treated in treatment plants	thous.m <sup>3</sup>	127998	<b>134327</b>
11.1	- of them biologically treated	thous.m <sup>3</sup>	115462	<b>109806</b>
12	Total income for waste water treatment	thous.Lt	164337	<b>159550</b>
12.1	- from the inhabitants	thous.Lt	80084	<b>81452</b>
12.2	-for exceeding environmental standard requirements	thous.Lt	4592	<b>3019</b>
13.	Operational cost	thous.Lt	159169	<b>176299</b>
<b>Summary data</b>				
14	Bendros pajamos Total income	thous.Lt	333760	<b>315047</b>
15	Bendros sąnaudos Total expenses	thous.Lt	313965	<b>325664</b>
16	Pelnas prieš apmokestinimą Profit before taxes	thous.Lt	19083	<b>-13046</b>
17	Pagrindinės veiklos pelnas Main production profit	thous.Lt	2835	<b>-20221</b>
18	Grynasis pelnas Pure profit	thous.Lt	18865	<b>-13022</b>
<b>Indices of effectiveness of operations</b>				
19	Use of well field capacity	%	36,2	<b>31,3</b>
20	Water losses in pipelines	%	20,6	<b>20,1</b>
21	Vandentiekio tinklo apkrovimas	thous.m <sup>3</sup> /km	26,1	<b>22,2</b>
22	Water consumption by one inhabitant	l / day	85,4	<b>78,7</b>
23	Use of capacity of waste water treatment plants	%	28,4	<b>35,4</b>
24	Nuotakyno apkrovimas	thous.m <sup>3</sup> /km	45,8	<b>39,8</b>
25	Kapitalo rentabilumas	%	1,32	<b>-0,86</b>
26	Grynasis pelningumas	%	5,7	<b>-4,1</b>
27	Bendras mokumo (likvidumo) koeficientas		-	<b>-</b>
28	Average tariff of supplied water	Lt/m <sup>3</sup>	1,34	<b>1,40</b>
29	Patiekto vandens savikaina	Lt/m <sup>3</sup>	1,37	<b>1,53</b>
30	Vidutinis nuotekų šalinimo tarifas	Lt/m <sup>3</sup>	1,59	<b>1,71</b>
31	Pašalintų nuotekų savikaina	Lt/m <sup>3</sup>	1,54	<b>1,89</b>
32	Bendras vidutinis paslaugų tarifas	Lt/m <sup>3</sup>	2,93	<b>3,11</b>
33	Bendra paslaugų savikaina	Lt/m <sup>3</sup>	2,91	<b>3,42</b>
34	Pajamos iš vieno gyventojų	Lt/mėn	6,61	<b>6,56</b>
35	Vartotojų įsiskolinimas	%	7,1	<b>2,6</b>

Source: Biannual reports of indicators of water companies, Water Suppliers Association

One can see from the table that water supply and sanitation sector in Lithuania is unprofitable. Due to increase of water tariffs and installation of metering systems water consumption by inhabitants reached hygienic minimum.

Some complaints of water supply/waste water treatment sector companies are presented bellow:

- There is no unified water management legislative system created.
- The order of payment for cold water is controversial with the Civil Law
- The order of compensation for water is not satisfactory. Municipalities do not have financial means for compensation.
- WWT sector does not have economically, legally and politically based model of restructuring and management.

- Privatization of separate water management entities was started without proper preparation. It does not take into account development perspectives of infrastructure in the cities and settlements.
- Transfer of water management units is performed without considering existing norms without inventory and evaluation of assets.
- Many municipalities do not have plans for sustainable development of infrastructure. They issue permits for drilling of individual wells and disconnect from the centralized networks.
- Politicians from the municipalities have “frozen” water tariffs. Average tariff in 2000 was 3,11 Litass for 1 m<sup>3</sup> of cold water and waste water treatment and the prime cost was 3.42 Litass for m<sup>3</sup>. In 2000-2001 about 80% of water companies were loss making.
- The inconsistency between readings of inlet meters and sum of meters in apartments reaches 25-40%

According to the analysis made by the Geological survey of Lithuania 2.4% of all population consume water which exceeds the standard for fluorides. Hence, 97.6% of publicly supplied water does not violate quality standards according to the EU mandatory requirements. Approximately 60% of drinking water provided to Lithuanian population do not meet Lithuanian Hygiene Norm’s requirements for iron. Hence, 40% of publicly supplied water does not violate this parameter standard, which in the EU is of a non- mandatory character.

For the purposes of prevention of groundwater quality from pollution it should be appropriate to delegate functions of shallow groundwater protection to river basin establishments (RBE). These establishments shall implement the policy of MoE on protection of shallow aquifers and their potential impact to surface waters and related ecosystems. If financial flows will be directed to RBE it will be easier to plan and implement water protection measures. Of course RBE shall control implementation of other EU directives (e.g. Nitrate directive).

Lithuanian water supply and sanitation sector needs substantial modernization, structural reforms and large long-term investments in order to meet requirements established by the EU directives.

As Lithuania does not use surface water for drinking water supply the upstream - downstream problems are not very important. For surface waters this problem becomes international, however because all Lithuanian rivers are transboundary ones. The Nemunas arrives to Lithuania already polluted from Byelorussia and Northern Lithuanian rivers bring their waters (and pollutants) into the territory of Latvia. All-together polluted rivers from the territories of the Baltic countries bring their waters into the Baltic Sea – one of the most polluted inland seas of the world. About 80% of the Curonian lagoon and 45% of the Baltic Sea coastal waters are heavily polluted with nutrients, organic material and other human induced substances.

#### **4. EXISTING LAWS AND LEGISLATION**

Main legal documents adopted by the Parliament are:

12. Law on Amendment of the Underground Law, 2001
13. 2. Code on violation of administrative legislation (with many amendments from 1984 to 2002)
14. Law on county management (with many amendments from 1994 up to 2002)
15. Law on local governments (with many amendments from 1994 up to 2002)

16. State strategy of environmental protection, 1996
17. Law on Environmental Protection. (with several amendments from 1992 to 2001).
18. Law on Environmental Monitoring. 1997 11 20 No. VIII-529
19. Law on Environmental Impact Assessment (with several amendments from 1996 to 2000)
20. Law on Water, 1997
21. Drinking Water Law, 2001

Each law is followed by the by-law documents and governmental/ministerial regulations. At the moment compliance of existing national legislation with EU requirements is being checked. All environmental/water laws have been passed during the last decade but only the Law on Drinking Water and partly the Water Law follows the main new principles of the EU regulations. The EU approximation triggered changes and amendments of national legislation.

The EU approximation process in Lithuania has begun in 1997-98 with PHARE-financed projects, that resulted the integrated environmental approximation strategy, adopted in October 1998. This strategy formed the basis of all subsequent approximation work, assisted the MoE in completing gap analysis of Lithuanian water legislation as compared with EU requirements, as well as producing an institutional analysis, analysis of current monitoring practice and an implementation programme. New legal acts have been developed and amendments to the existing legislation have been adopted.

The National Programme for the Adoption at the Aquis (NPAA) has become the key document in planning and management of transposition of the EU requirements (1999). NPAA is updated and amended regularly. The Law Approximation Action Plan (LAAP) of the NPAA provides a list of legal acts to be drafted for full compliance with the EU requirements. It specifies each transposition measure envisaged and responsible institutions, as well as dates by which the legislation has to be drafted and adopted. The Ministry of Environment is responsible for co-ordinating approximation activities in the water and environmental sector. Lithuania has not requested a transitional period for WFD transposition therefore has to follow the EU deadlines for the transposition and implementation of WFD.

#### **4.1. Changes needed for the implementation of the EU WFD**

Implementation of the EU Water Framework Directive will require significant amendments to the Lithuanian Water Law (as currently available in draft form) and the promulgation of a number of regulations implementing the detailed provisions of the Directive.

For the proper integration of EU requirements into existing national legislation the Water Resources Management Strategy and amendment to the Law on Water are under development.

The majority of the fundamental requirements of water directives are at present recognised in the national laws. The general provisions laid down in the said directives have been transposed into the Law on Environmental Protection (1992, 1996, 2000), Law on Water (1997), Law on the Marine Environment (1997), Law on Environmental Monitoring (1997), Drinking Water Law (2001), the Underground Law (1995) and others. The technical provisions of the directives have been transposed into subordinate legislation.

Water pollution resulting from individual types of human activity is regulated by the following main legal acts: Waste Water Pollution Standards (1997), Environmental Rules for



the Design, Installation and Operation of Filtering Equipment for Domestic Waste Waters (1997); Procedure for Issuing Permits for the Use of Natural Resources and Determining the Limitations on the Use of Natural Resources and Standards for Permitted Levels of Environmental Pollution (1999), Environmental Requirements for the Handling of Manure and Effluents in Farms (1999), Code of Good Agricultural Practice (2000), Standards for the Use of Sewage Sludge (2001). The said legal acts transpose the requirements laid down in Directives 91/271/EEC and 91/676/EEC. Standards of Pollutants in Industrial Wastewater Drained into the Filter Fields were approved by an order of the Minister of the Environment in 2001 (directive 80/68/EEC).

The main legal act establishing the requirements for the quality of water intended for human consumption is the Lithuanian hygiene norm on the Quality of Drinking Water and on the Programmed Monitoring of the Quality of Drinking Water of 1998 (transposes the requirements of Directive 98/83/EC). The requirements of the Directive on bathing waters (76/160/EEC) were transposed into the Lithuanian hygiene norm on Beaches and Bathing Waters in 2000.

The practice of recording the use of water resources and monitoring the state of the environment is regulated by the State Monitoring Programme (1998), Regulations for the State Environmental Laboratory Control (1998), Procedure for Recording Pollutant Emissions into the Environment (1999), Procedure for Initial Recording and Monitoring of the Use of Water Resources and Pollutants Emitted with Effluents (2001).

#### **4.2. Implementation of main EU water directives**

Negotiation position of Lithuania reflects all main obligations Lithuania accepted for the implementation of EU water sector legislation. Directive-specific implementation plans are prepared for all main EU environmental directives. ISPA strategy presents main investment projects to be implemented before 2010, when all environmental *acquis* should be implemented in Lithuania.

The main obligations Lithuania adopted for the most “hot” directives are the following:

##### UWWTD:

All waters discharging into the catchment area of the Baltic Sea are treated as sensitive, i.e. the whole territory is identified as sensitive area. Lithuania has provided to the EU a plan with clearly defined stages for the application of the Directive, covering costs and financing strategies. The EU accepted the requested transitional period with the following intermediate targets:

- Collecting systems in line with Article 3 of Directive 91/271/EEC will be provided as from 31 December 2009 in all 84 agglomerations of a population equivalent above 2,000.
- Treatment in line with Article 5 of Directive 91/271/EEC will be provided from 31 December 2007 in 38 agglomerations with a population equivalent of more than 10 000, representing currently a total biodegradable load of about 2 484 500 population equivalents.
- As from 31 December 2009 treatment will be provided in 46 agglomerations with a population equivalent between 2,000 and 10,000, representing currently a total biodegradable load of about 199 300 population equivalents.

Directive 91/676/EEC on nitrate pollution from agricultural sources:

Lithuania is ready to establish an action programme in 2003 and to begin its implementation by the date of accession. All new livestock units will comply upon accession and all measures not requiring large investments will be made mandatory upon accession. Lithuania will implement the second action programme by 2008 ensuring progressive compliance for smaller farms. Lithuania will establish and apply action programmes in accordance with Nitrate Directive throughout all national territory.

Directives 80/778/EEC and 98/83/EC on the quality of water intended for human consumption:

Full implementation of Directive 98/83/EC will be ensured by the date of accession, taking into account the derogations possible under Article 9 of Directive 98/83/EC.

Directives on discharges of dangerous substances into surface water (Directive 76/464 and “daughter” Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC and 86/280, amended by 88/347/EEC and 90/415/EEC):

Lithuania will fully transpose the Directives in 2002, review water use permits accordingly, establish pollution reduction programmes upon accession for the entire territory and will implement the Directives upon accession.

With respect to groundwater corrections of Water law and appropriate by-laws reflecting river basin management principles and responsibilities for groundwater management should be made. There is a need to more clearly define groundwater quality characteristics, institutions responsible for preparation of reports to EU, etc. Legislative norms regulating abandonment of groundwater pollution sources are missing.

## **5 MINISTRIES INVOLVED IN WATER MANAGEMENT**

Two institutional levels of environmental management, including water management, can be distinguished in Lithuania - state and local (municipal). The state level comprises the *Parliament, Government (Cabinet of Ministers)* and ministries with subordinated institutions, including regional authorities.

### **5.1 The Ministry of Environment**

Ministry of Environment (MoE) is the main ministry responsible for water management in Lithuania.

The main task of the MoE is to ensure healthy and clean environment, rational use, protection and restoration of natural resources, including forests and the underground in Republic of Lithuania, its territorial waters, continental shelf and economic zone.

MoE:

- prepares draft laws, regulations and standards in water sector.
- performs state control and management of water resources.
- defines strategic actions of the government for the protection of surface and groundwater resources.
- prepares long-term national programmes of environmental quality and use of water resources, sets the order of their implementation and controls the course of their execution.
- implements laws on environmental monitoring, defines taxes on state natural resources and pollution taxes. Issues permits for use of natural resources, including water and permits for wastewater discharges.

- Forms a strategy of cleaner production and technology implementation in Lithuanian industrial branches.
- Organizes implementation of the strategy for approximation of Lithuanian environmental legislation with European Union environmental protection requirements.
- Organizes implementation of international conventions and agreements in the field of environmental quality.

Tasks of the Ministry of Environment are executed by the departments, services, inspections established under the Ministry and other institutions subordinated to the Ministry. The enforcement of environmental legislation and implementation of environmental policy at the regional level is the task of the eight Regional Departments of Environmental Protection, situated in the administrative centres of Lithuania.

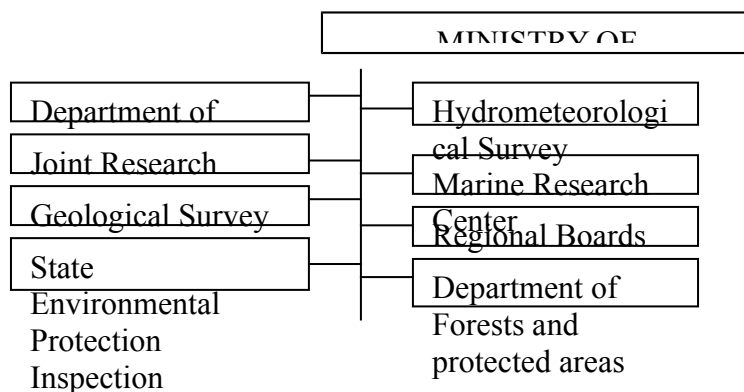


Figure 5.1. The structure of subordinated institutions of the Ministry of Environment in Lithuania.

**5.1.1 Geological Survey (under the Ministry of Environment)** has an important role of management of groundwater resources. The Geological Survey:

- organises investigations of groundwater resources and their protection conditions;
- prepares and provides investigation data for managerial purposes;
- performs state groundwater monitoring;
- prepares methodical instructions and recommendations for groundwater monitoring;
- ensures publicity and dissemination of information;
- participates in the preparation of laws, draws up by-law documents, provides methodical assistance for organisation of groundwater use and protection on the local level.

On the basis of conclusions of investigations the Ministry of Environment corrects the management structure of groundwater use and protection, improves national laws, issues by-law documents and norms. Particularly important function of the Ministry of Environment is control of implementation of groundwater protection actions at the national and local scales. Other ministries and departments activity of which is connected to certain aspects of groundwater use and protection base their decisions on results and conclusions of Geological Survey.

## 5.2 Ministry of Health Care

The Ministry of Health Care has an important role with respect to human health and water. The Ministry is responsible for the sanitary control and elaboration of standards of all drinking water and of recreational water bodies (bathing water).

The Ministry of Health Care has several subordinate institutions involved in water management: the State Nutrition Center (SNC), the State Public Health Centre (PHC) and the State Hygiene Inspection.

The Nutrition Centre is responsible for the development and adoption of laws and drinking water standards, coordination of drinking water quality surveillance, for the preparation of sampling and analysing methods, for the gathering monitoring data. The SNC has a laboratory and performs analyses of drinking water quality. Some functions are dedicated to the Institute of Hygiene (regulations on bathing water, creation of monitoring programs). The State Hygiene Inspection carries out assessment of compliance with the drinking and bathing water standards.

In 2001 an independent water quality control institution – Food quality inspection was established at the State Veterinary Service, which is responsible for control of the drinking water quality in water supply enterprises and private wells. The State Veterinary Service is responsible for government of Lithuania.

### **5.3 Ministry of Economy**

The Ministry of Economy (MEc) is also indirectly involved in water management. The ministry prepares long-term and short-term programmes for the development of the economy and for investments. The MEc co-ordinates foreign technical aid and priorities.

The ministry analyses applications for investments including the financing of wastewater treatment plants and prepares proposals for the Government for the financing of these investments from the State budget. The MEc supervises the projects financed from the State budget.

### **5.5 The Ministry of Transport**

The Ministry of Transport is in charge of navigation, and has also a role on river management. State enterprise “The Directorate of Water ways” is responsible for the regulation and surveillance of the inland waterways.

### **5.6 Ministry of Interior**

The Ministry of Interior is not directly involved in water management but the institution subordinated to the Ministry named The Civil Security Department is in charge for the prevention of extreme ecological situations and elimination of accident's consequences. On the regional level Centers of Management of Extreme Situations are established.

From the description above one can see that organisational structure of governmental level of water management in Lithuania is very complicated and needs to be optimized.

### **5.7. Water Management at Regional Level**

The Counties represent the higher State administration in Lithuania. The Government appoints the governor of the county. The Counties among other functions implement State policy concerning physical planning, use and protection of land, and environmental protection. The Counties supervise the implementation of Lithuanian laws and Government orders by the municipalities.

At Regional level 10 Counties and 44 Districts share the responsibility of water management.

According to the Law on Governing by the County (1994), the Governor of the county organises the preparation of the County development plans, and organises and updates the register on physical planning. He co-ordinates issues related to agriculture and controls the use of plant protection products. Within his legal powers, the Governor sets limits for the use of natural resources and controls how these limits are complied with and controls the activities in protected areas within the territory of the county. In addition, the Governor controls, within his legal powers, the management of water bodies, and of protection strips and protection zones around water bodies.

#### **5.8. Regional Departments of Environmental Protection (RDEP).**

The most important institution at the Regional level in water management is the Regional Departments of Environmental Protection (under the Ministry of Environment). There are 8 of them in Lithuania and the main responsibilities are to analyse state of the environment in the region, enforce requirements to improve the environment and submit proposals on regulation of use of natural resources and improvement of environmental protection measures at the District level.

With respect to Water Quality management, main tasks of RDEP are:

- control of the collection of information from the monitoring sites in rivers and point sources, including sampling and analysis of samples;
- issue or renewal of licenses for water abstraction and the discharge of effluents;
- control of the accuracy of calculation of tax payment of legal and natural persons on environmental pollution and applying of sanctions defined in the laws;
- control of economic entities and natural persons if they comply with the requirements of environmental protection and use of natural resources;
- monitor use of allocations from environmental protection funds of local municipal authorities;
- cooperate with the public on implementation of environmental goals, information of the public about changes in the status of the environment, and taking part in environmental education activities.

The organisation of the Regional Departments is based on administrative borders. The RDs are subdivided into agencies (total number 52), which have offices in the municipalities and are responsible for environmental protection at the local level.

The other regional offices, which are involved in water management, are:

- 3 Regional offices of the Hydrometeorological Service, which are responsible for the work of regional monitoring stations.

- Regional offices of State Public Health Centre (PHC) and the State Hygiene Inspection of the Ministry of Health Care and Food control inspections of the State Veterinary Service.

## **5.9. Water Management at Local Level**

The Municipalities are the territorial units of the State administration in Lithuania. Elections to the councils of the municipalities are organised every three years. The total number of municipalities in Lithuania is 56, which can be divided into district municipalities (45) and town municipalities (11). The municipalities have set up the Association of Municipalities, a non-governmental organisation. The NGO represents the municipalities in Parliament, Government and in international organisations.

Generally, the municipalities are responsible for environmental management in their territory, including water management, implementation of relevant laws and regulations and cooperating with related state and regional authorities. The municipalities are owners of the water supply and sewerage systems and are responsible for the supply of drinking water and waste water treatment, which is usually carried out by municipality-owned public companies (Water Supply Companies). The municipalities are setting their own prices for water services.

The Municipalities manage the Municipal Nature Protection Funds which are designed to finance the environmental programmes carried out by the municipalities.

Since 1995 the municipalities participate in water management by being responsible for drinking water supply and the collection and treatment of sewage and discharge of sewage effluents, setting prices for drinking water supply (cold), collection of sewage and by approving permits for the discharge of effluents to sewers. Prices for hot tap water are closely related to the prices for energy and are regulated by the Energy Commission of the Government.

The main part in the chain of practical implementation of groundwater use and protection actions are also local municipal institutions. On the results of their activities directly depends preservation of groundwater resources for future generations. The functions of these institutions should be, therefore, extended, power and liability increased. They have to be provided with all information necessary for practical decisions and receive methodical assistance when needed.

Water Supply and Wastewater treatment Companies companies have formed the “Water Suppliers Association”, a Non-Governmental Organization. This NGO co-ordinates the activities of the Water Services Companies and serves as a representative body at the national and international level.

The institutions participating in water management neither in regional nor in local level cover river basins.

## **5.10 Water Ownership**

The Constitution of Lithuania declares that the ownership of local waters, and lands and forests, belongs to the citizens of the Republic of Lithuania and to local administration.

Ownership problems of the state and citizens are regulated in many laws. The Law on Water deals with ownership problems and connections with other Laws.

In 1997 the Parliament of Lithuania accepted the new Law on restitution of property rights to a survived real estate for former owners. The Government approved a list on internal water bodies of the State significance. All lakes and reservoirs, the area of which is larger than 50 hectares, rivers, with the area of basins larger than 50 square km, and smaller water bodies that are important for fishery, recreation and other aspects, are ascribed to the list mentioned above. 798 lakes, 294 reservoirs and 649 rivers are ascribed to water bodies of the state significance. Areas of water bodies of the state significance are given in the table 5.1.

**Table 5.1. Areas of water bodies that belong to the State**

	Number	Area in thousand hectares
Lakes	798	72,56
Reservoirs	294	20,72
Rivers	649	28,99
Total	1741	122,27

Water bodies of the state significance are not returnable to a private property and are not privatised. Former owners can pretend to another water body, which belongs to the internal water fund of the state (methods of equivalent estimation are prepared).

The Law on Water assigned the following superficial water bodies as state waters:

- Curonian Lagoon;
- rivers having constant flow, area of which is not less than 25 square km, and which connect lakes ascribed to the internal water fund of the state;
- lakes, which are connected by rivers, ascribed to the internal water fund of the state, also lakes, ascribed to the same fund by the Government or the other authorised institution;
- potentially dangerous reservoirs with the area larger than 5 hectares, and the height of the head of water is larger than 3 metres;
- water bodies belonging to the internal waters of exceptional right of property of the state, that are not indicated in 1 – 4 paragraphs.
- all groundwater bodies belong to the state internal water fund and is an exceptional property of the state.

## **6. RIVER BASIN DISTRICTS**

Governmental Regulation on River Basin Districts (identifying RBDs, designating competent authority/ies) is planned to be prepared at the end of 2003. Most likely, existing authorities will perform river basin management, but function between different institutions will be revised.

The map presented in Figure 1 indicates the major river basin boundaries in the region of the Baltic States. The region is dominated by the Daugava River catchment (which originates in Belarus and discharges to the Baltic Sea in Latvia) and the Nemunas River catchment (which originates in Beylorussia and discharges to the Baltic Sea in Lithuania). Creation of national River Basin Districts (RBD) has started already.

The biggest basin in Lithuania is Nemunas, which occupies 74% of whole Lithuanian territory. It originates in Beylorussia, flows through Lithuania to the border with Kaliningrad. The river becomes the shared border between Lithuania and Kaliningrad until it discharges to the Baltic

Sea via the Curonian Lagoon (Baltic Province eco-region). Some parts of the basin fall into Poland and very small part (88 km<sup>2</sup>) into Latvian territory.

There are a number of small coastal river basins (1.9% of Lithuanian territory), which originates in Lithuania (Baltic Province eco-region) and discharge directly to the Baltic Sea or to transboundary with Kaliningrad District Curonian Lagoon. The draft proposal would be to join them to the Nemunas basin.

The river basin namely Prieglius (54 km<sup>2</sup>) in Lithuania consists of part of Vistytis lake, which is situated at Lithuanian-Polish-Kaliningrad District border and small low-flow streams discharging to the lake. The preliminary proposal would be to group the Vistytis lake system basin into the same river basin district as Nemunas Basin. But it will require confirmation with authorities managing the Kaliningrad region and with Poland.

At this moment there are identified 6 main individual river basins in Lithuanian national legislation: Nemunas basin , Baltic Sea small tributaries basin, Prieglius basin , Venta basin, Musa – Nemunelis, (Lielupe) basin and Daugava basin (fig.2).

In the eastern and northern part of Lithuania the cross-border rivers with Latvia (Daugava, Lielupe, Bartuva, Venta and Sventoji) originates in Lithuania (Baltic Province eco-region) and discharge into Latvia (Baltic Province eco-region) and subsequently to the Baltic Sea. Lithuania is interested to have a smaller number of River Basin Districts but it must be agreed between two countries. Latvia has produced draft Law on Water Management, which includes a proposal that the country is divided into 8 river basins distributed among 4 river basin districts, 3 of them (Daugava, Venta and Lielupe) being common with Lithuania. More detailed discussions between two countries about assignment of common international River Basin Districts will be continued at the meeting between Lithuanian-Latvian ministries in September 2002.

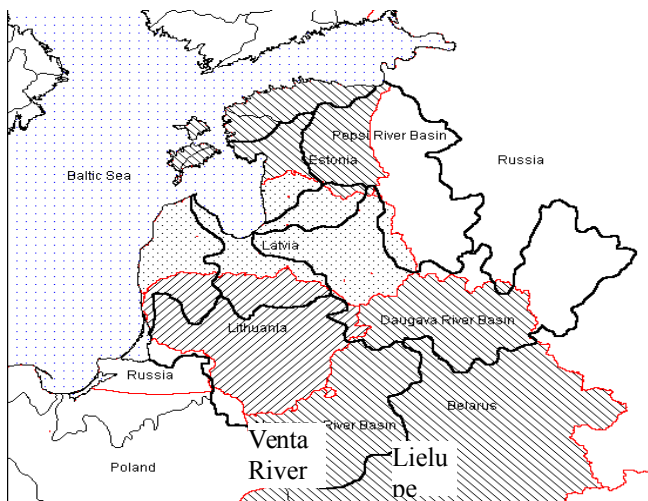




Figure 1. Map indicating major river basins in the Baltic States Region

According to current political and geographical situation most likely that 4 International River Basin Districts will be assigned in Lithuania: Nemunas, Daugava, Lielupe and Venta (figure 2).

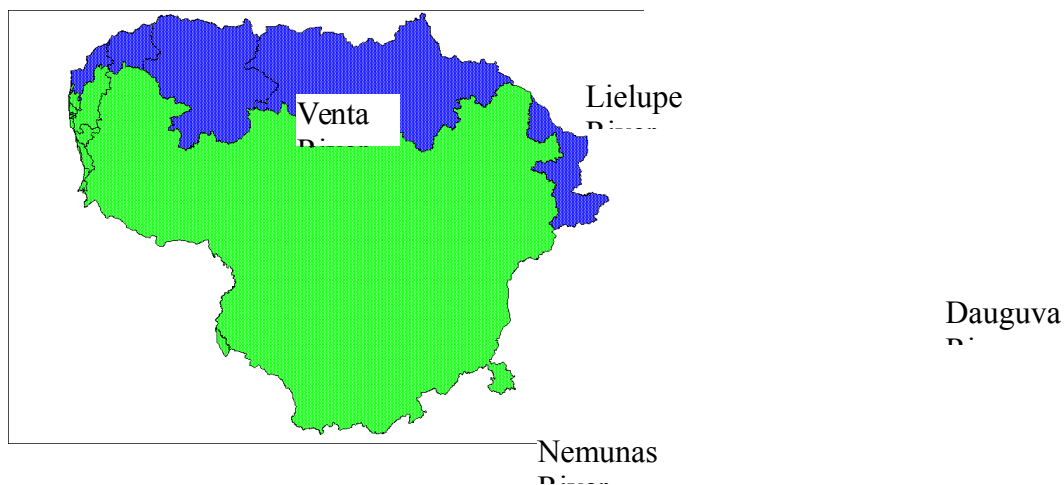


Figure 2. Map of proposed International River Basin Districts in Lithuania

### 6.1. Shared river basins. Present status of transboundary rivers

The largest shared river basin in Lithuania is Nemunas Basin. Despite the fact that two countries in the Nemunas basin are not the EU member countries (Byelorussia and Russia) the WFD requires to ensure that Nemunas is assigned to an international River Basin District. The appropriate coordination of water resources management with Poland, Byelorussia and the Kaliningrad region of Russia will be required in the international Nemunas River Basin. If the agreement on international Nemunas River Basin District management with Byelorussia and Russia is not reached management plan for national part of River Basin District will be developed. The trilateral project between Lithuania, the Russian Federation and Byelorussia initiated by Sweden EPA has started. The output of the first stage of the project will be the preparation of recommendations for creating an agreement between all neighbour countries on Nemunas water management.

For the three proposed Latvian-Lithuanian International River Basin districts (Daugava, Lielupe and Venta) the basin management plans are under preparation with a help of different international projects.

Under the Great Lakes/Baltic Sea Partnership program launched in 1999 and supported by the USA Environmental Protection Agency, Region V as well as Ohio River Valley Water Sanitation Commission (ORSANCO) the bilateral Latvian Lithuanian Lielupe River Watershed Management Demonstration Project has started in 2000. The objective of this project is to help Lithuania and Latvia to establish cooperation, to build capacity for common Lielupe river watershed management, to better protect water resources and to meet requirements of the EU Water Framework Directive. The Situation Analysis of Lielupe river watershed was elaborated and Action Plan for the further steps in basin management prepared.

## **7. EXISTING ENVIRONMENTAL FINANCING SYSTEM**

Construction of wastewater treatment plants and extension, as well as rehabilitation of sewerage systems remains the main priority for the grants received from the Lithuanian State budget and other sources, as well as for state guaranteed loans. The grouping of investment project packages according to 5 river basins is in the process currently. Studies for those river basins, which assess the impact of each activity in the river basin on the water quality, are to be finalised by the end of 2002.

The biggest amount of funds will be needed for the implementation of the Urban Wastewater Treatment Directive. According to the current investment plan approximately 90 projects should be implemented by the year 2010. The total amount of investment financing needed for those projects equals to approximately 300 million euros. Currently 26 priority investment projects are under preparation for the financing from the EU ISPA programme.

Drinking water improvement will be possible after the renovation of networks of drinking water supply. This task will require approximately 200 million euros and reflect the national priority, as the main reason of this renovation – too big concentrations of iron in the drinking water - is not considered in the EU legislation as a problem which needs to be solved mandatory. Another problem, which needs to be solved from both – national and EU point of view - is related to the reduction of fluorides in a few regions of Lithuania. This task does not require considerable amounts of investments. The overall sum needed equals to approximately 3 million Euros.

One of the most important tasks is to reduce surface and groundwater pollution by wastewater from agriculture sector, i.e. reduce non-point source pollution, rearrange financial mechanisms so that polluter/user pays principle is implemented.

The implementation of the EU Nitrates directive will have greatest impact on agriculture sector. According to preliminary calculations about 200 million euros are needed for new manure storages. Most of these costs should be covered by farmers. Part of the investments (up to 50%) can be financed by SAPARD programme funds and starting from 2004 – by other EU structural funds.

## **8. ECONOMIC INSTRUMENTS IN WATER MANAGEMENT AND NEED FOR INVESTMENTS**

To meet demand for environmental financing, a combination of domestic and foreign sources has played and will play a role. Subsidies, pollution charges and user fees are the main economic instruments at the same time, which dominate in the water sector. It needs to be emphasised that a very important feature of the use of economic instruments in water sector in Lithuania is that most of income from water pollution charges are earmarked to the water

sector. Such practice is more common in CEE countries than in most of EU or OECD countries.

Domestic sources used in Lithuania include the following:

- State and municipal general revenues
- Pollution charges and fines
- User fees on municipal services
- Facility own resources
- Commercial capital (credits and equity)

It is acknowledged that the private sector is expected to finance their water investments out of existing cash balances, profits, or equity. The availability and utilisation of these private sources is strongly linked to overall economic performance and the scope and effectiveness of environmental compliance monitoring activities for regulated facilities.

financing sources are related to:

- activities of International Financing Institutions, and
- aid of various foreign countries to the environmental protection of Lithuania.

**8.1 The State budget** has been the main domestic source of funding for environmental protection needs so far. Every year state budget resources for environmental protection are planned in accordance with and incorporated into the Law on the Approval of Financial Indicators of State and Municipal Budgets. This law also describes planned state budget subsidies for municipalities to finance environmental entities. Beginning with 1999, the funds for municipalities to finance environmental activities are allocated out of the Privatization Fund and directly transferred to municipal budgets.

Following the preparation of the budget pursuant to the Law on the Approval of Financial Indicators of State and Municipal Budgets, the Government of Lithuania approves the 3-year Public Investment Program (PIP), reflecting the planned budget expenditures for the current year and proposed budget for the next two years.

Table 8.1 State Budget revenue from environmental charges (including tax on state natural resources) and expenditure for environmental purposes (million Litass)

	1993	1994	1995	1996	1997	1998	1999	2000
Income from taxes on state natural resources and charges on pollution*	12.1	24.2	28.2	46.3	65.9	59.7	57.5	60.1
Environmental expenditures for investments	36.41	95.20	98.50	57.10	71.11	77.50	31.88	26
Environmental expenditure as a percentage of total State budget expenditure	1.9	3.2	2.2	1.06	1.1	1.0	0.5	0,43

Source: Ministry of Finance, Ministry of Economy

\* - Annual report of the Ministry of Environment;

Up to now, state budget expenditures for environment have been focused almost exclusively on investments in wastewater systems. 98.6% of state budget expenditures in the environment sector have been earmarked for wastewater with the remaining 1.4% for solid waste.

**8.2. Taxes on state natural resources** is the most tangible source of the State budget revenue from “environmental sources”. According to the Law on Taxes on State Natural Resources, each legal or natural person who extracts water and needs to have a Permit for Use of Natural Resources (i.e. abstracts more than 10 m<sup>3</sup>/day of water or discharges >5 m<sup>3</sup>/day of waste water), needs to pay a tax to the state budget. It means that Water companies shall pay these taxes, which, of course, constitute a part of costs and hence tariff. The percentage of this payment in the costs of water supply is not considerable and constitutes less than 1%. The Ministry of Environment and the Ministry of Finance are responsible for enforcement of this legislation.

**8.3. Municipal budgets** is the second government source of funding for environmental investments. Environmental investments from the state budget (and state guaranteed foreign loans and grants) are channeled through municipal budgets. Financing of environmental investments from municipalities' own resources is unusual.

Municipalities are not expected to be given the authority to levy environmental taxes or charges in the foreseeable future. However, municipalities benefit indirectly from environmental taxes and charges that accrue to municipal nature protection funds. In addition, since 1995, some municipalities have begun to allocate small amounts of their municipal budgets (exclusive of State budget subsidies) for water protection purposes.

**8.4. Pollution charges and non-compliance fees (fines)** are the primary sources of revenue for the special budget environmental support programme, 60 municipal nature protection funds (which receive 70 % of all amount of pollution charges paid), and more recently, the Lithuanian Environmental Investment Fund (LEIF, which receives 20% of all amount of pollution charges paid). Since 1997 income from these charges and fines is reducing mainly because of introduction of environmental measures and modern technologies.

Table 8.2. Overall income to environmental funds (million Litass)

	1993	1994	1995	1996	1997	1998	1999	2000
Charges on pollution	4.9	13.7	23.3	37.7	43.4	37.6	33.0	22.0
Fines	1.2	3.1	4.4	3.7	5.3	4.8	3.2	2.8
Total	6.1	16.8	27.7	41.4	48.7	41.5	36.2	24.8

Sources: Annual reports of the Ministry of Environment

At the moment the effectiveness of collection of natural resource tax and pollution charges on water equals to approximately 100%, as all potential payers of charges are also permit for the use of natural resources holders and therefore their payments are controlled. The Ministry of Finance and the Ministry of Environment are responsible for the collection of water

abstraction taxes and pollution charges. In addition, the Ministry of Environment checks whether taxes or charges paid are calculated by tax payers correctly.

**8.5. User fees.** A major source of revenue for municipal infrastructure investments is user fees on drinking water, sanitation services, and waste disposal. According to the Company Law on Financial Resources of Municipal Companies, a portion of user fees may be levied to provide service providers with a profit and to capitalize an amortization fund to finance depreciated equipment. Amortisation funds are not sufficient to finance new investments in water sector in most cases. Therefore, the costs of new investments to meet EU requirements would require municipalities to increase the present level of tariffs.

In determining the potential role of user fees as a source of financing of environmental investments, three factors come into play: 1) Current levels of user fees; 2) acceptable levels of user fee increases; and 3) potential impacts of higher user rates on demand for municipal services.

At present, tariffs on cold water and sanitation services are, according to different sources, approximately 1%-2% of annual household expenditures. In addition, there is considerable variability in user fees across income groups and between small and medium-size towns and large cities and urban areas.

Assuming a current combined level of 2%, even doubling of user fees could be accommodated without exceeding the cap.

The issue of how households and businesses respond to increases in tariffs is very important as well. Some evidence from recently implemented projects in Lithuania suggests that there may be a significant decline in the quantity of water and wastewater services demanded in response to an increase in tariffs. This issue is not yet fully taken into account when developing cost recovery plans for servicing loans. On the other hand, consumption has decreased to a hygiene minimum, so perhaps further decrease cannot be considerable.

Each municipality (water company) has a right to set different water and wastewater charges for all users. Those charges should be co-ordinated with the State Energy and Price Control Commission under the Government of Lithuania.

Usually all users of water are divided into three groups in Lithuania: 1) households, 2) municipal (communal) companies and 3) industries. The policy and tendency is that more and more water companies establish the same water tariff level for all users.

At the moment collection of water tariffs from population equals approximately to 95%. However, there is a much bigger delay in water use payments. It could reach in some months approximately 40%.

**8.6. Own company sources.** Out of own private companies' investments into environmental measures and operating and maintenance costs 60 - 80% is devoted to the wastewater treatment.

**8.7. Commercial capital and leasing markets.** Three potential sources of financing for environmental projects are capital that can be mobilized by the banking sector, through the stock market, and by leasing companies. None of these sources is expected to play a major

role in the next two decades in direct water sector related financing. This is a reflection of the nature of environmental financing and the attractive options that will be available to Lithuanian facilities through foreign donors and IFIs. However, as these financing sources mature and domestic capital markets become more competitive, there may be some important spill-over effects on environmental financing, particularly in the private sector where access to capital for non-environmental investments will allow enterprises to fund environmental investments out of profits and cash balances.

Lithuanian banks are co-operating with the Lithuanian Environmental Investment Fund for provision of soft loans. More than 20 such loans are already provided to Lithuanian companies.

In assessing *opportunities for increasing domestic financing* for water related investments, consideration should be given to sources that could play a role in covering the initial or up front costs of investment and to sources that could cover the repayment of credit.

At the current time, slightly more than one-half of investments are financed by domestic sources.

Whether state support for water sector related investment is increased in the future will depend on a variety of factors including the priority attached to the environment relative to other sectors, the overall strength of the economy and revenue generated from taxes, and the availability and cost of alternative financing for environmental investments.

Unless further changes are introduced in charge and fine rates, revenues currently designated for the nature protection funds will decrease with improving environmental performance of facilities.

Domestic capital markets will play a role in financing water projects in the future if their attractiveness in terms of interest rates, allowances for grace periods, and repayment period in comparison to foreign financing is similar. As many investments in water sector do not exhibit financial rates of return comparable to non-environmental investments, interest among banks in making loans to the sector may be limited.

In the private sector, own resources would be expected to play a major role, although private firms have received some foreign assistance to adopt clean technologies and access foreign technologies.

In the public sector, municipalities have limited capacity to generate surplus revenues (comparable to private sector profits). Municipal revenue raising opportunities are limited with user fees for water services. Generally, unless municipal environmental service providers have been able to build up a significant amortization fund for rehabilitation and renovation purposes, the magnitude of user fee revenues that could be devoted to capital projects over and above those needs for operations and maintenance is unlikely to support co-financing requirements for major infrastructure projects.

***8.8. Cost recovery*** in the water sector in Lithuania, as mentioned above, is not yet full.

Though the new water legislation provides for the full cost recovery principle, municipalities are not able to fulfil yet this task. As of today, municipalities themselves adopt the methodology for calculating tariffs, and therefore are responsible for cost recovery. Generally

there are no subsidies for the O&M costs of water supply or wastewater treatment. However, in some cases municipal councils may decide to make one-off payments to their water companies. Investments, as also described above, mainly into wastewater treatment are still subsidised by the State budget and foreign donors. Most of water companies are unprofitable (detrimental) now.

As tariffs in some municipalities are different for industries, municipal companies and population, industry (and in less cases municipal companies) is still subsidising inhabitants in these areas. Nevertheless, the policy of water suppliers is to equalise tariffs for all users.

In order to better prepare for the implementation of the WFD, water companies need to start to develop improvement plans for water treatment, pumping stations, water quality improvements and pipe replacements or renovations. They need also to start developing plans for the monitoring of sludge and soils and for the reporting requirements of sewage sludge to agricultural land. In particular appropriate sampling and analytical procedures need to be set up.

**8.9. Foreign financing** is playing an important role as Lithuania prepares for accession and for several years after membership. Over this time period, the relative importance of foreign sources will change, in part because of Lithuania's membership (limiting bilateral support from EU countries).

Up to 2000, PHARE programme supported Lithuanian environmental sector with approximately 37 million Euros. 51% of this amount was devoted to investment projects mainly in the water sector.

From ISPA, SAPARD, and PHARE funds, Lithuania is able to receive approximately 100 million Euro each year. At least one quarter of this sum is devoted to environmental protection investments and two thirds out of this sum is being prepared for water infrastructure related projects. If Lithuania is accepted for EU membership, it could potentially receive about four times the amount available between 2000 and 2006.

A number of donors have actively supported environmental activities in Lithuania. Bilateral donors have provided about 30 million Euros in technical assistance support during the period up to 2000.

Denmark is the only country that has provided investment credits (31 million Euros in the form of investment credits) to Lithuanian water sector during this period.

The World Bank has provided loans for environmental projects in Klaipeda (7 million USD) and Siauliai (6.2 million USD). Both loans were used for wastewater projects. In 1999, the World Bank and the European Commission signed a memorandum defining their respective commitments to co-finance the costs of projects for which ISPA assistance is provided.

A new Nordic Investment Bank credit line of approximately 20 million Euros was opened for earmarked financing recently for environmental projects, primarily, in water supply and treatment.

So far the EBRD has funded one project related to the environmental sector. This is Kaunas Environment project, which aims at the improving the quality of water and wastewater services in the city of Kaunas.

The financing provided by NEFCO for Lithuania amounts to 3 million USD to date. NEFCO provided a loan to co-finance the construction of the Kaunas wastewater treatment plant.

The Lithuanian Government has approved a credit line of 15 million Euros from the European Investment Bank for environmental purposes. Some ISPA projects are ready to be co-financed by the EIB.

***8.9.1. Foreign direct investment*** is one of the most important factors guaranteeing the successful development of Lithuania's economy. It is clearly understood that the country needs additional equity in order to support the economy growth. Thus, attracting investment is one of the key facets of Lithuania's economic strategy. It is clear that all new investments come with an appropriate environmental approach, therefore, an increase in new modern investments will translate into additional environmental financing.

***8.9.2. Opportunities for increasing foreign sources of financing***. The future level of foreign funding is more than adequate to support the investments that have been identified in the water sector in Lithuania. However, the important questions concern the nature of special conditions that may be tied to the use of these resources and the capacity of Lithuania to prepare projects and mobilise resources that may be required for co-financing and repayment of loans.

Lithuania has few projects that are large enough, therefore a creative packaging to develop acceptable projects is required. This creates problems in setting tariffs and servicing loans where several municipalities are implementing the "project."

## **8.10. Main principles for environmental investment financing**

The main directions for the investments into the public sector in Lithuania are determined by the EU requirements. The Ministry of Environment has adopted and agreed with the stakeholders the following general principle for the investment planning and financing:

- 50% of required investment amounts is requested from the EU support programmes (mainly ISPA up to 2006 and then – other structural funds);
- 20% of required resources is provided from the State budget or other state sources;
- 30% of the needed project investments is asked from the International Financial Institutions (IFIs).

It needs to be stressed that the above scheme is of a recommendable character. Depending on the assessed future impact of a concrete project on the tariffs for water services and population's affordability actual proportion between grants' part and a loan should be proposed.

Investment projects are identified and prioritised according to criteria that have been set by the Ministry of Environment. The following criteria is used for the preparation of investment projects pipelines:

- Projects should match environmental policy objectives of the EU and Lithuania;
- Projects should satisfy the main EU and Lithuanian environmental principles;
- Projects that are recognised as priorities in the National Programme of the Adoption of the Acquis and help to implement the requirements of "heavy – investment" directives;
- Projects implementation of which assure the reduction of pollution for the as possible biggest number of people;



- Projects implementation which provides for the best health effects;
- Projects that stimulate partnerships between central government and local authorities;
- Projects that are to be implemented in the environment sensitive areas and support the protection of bio-diversity;
- Projects that may help to achieve the gradual economic and social cohesion between Lithuania and the EU.

All feasibility studies for the investment projects in the water sector are approved by the Ministry of Environment of Lithuania provided the cost recovery principles are taken into consideration.

In addition to the mentioned principles, the following measures are considered to be necessary in further planning of water sector management and investment strategies:

Additional local sources: it is expected to better utilise funds of the Lithuanian Environmental Investment Fund for the achievement of integrated pollution prevention and control, as well as more orientate spendings of municipal nature protection funds towards implementation of EU requirements.

Attraction of private investments: Ministry of Environment supports privatisation of water companies under the certain conditions.

Enlargement of water companies: economies of scale should be used in the water sector of Lithuania, therefore, some expansion of water companies is considered to be one of nearest future tasks.

### **8.11. Potential financial sources. EU accession and investments in water supply sector**

In June 1995, Lithuania signed an Association Agreement with the European Union and has made a commitment to approximate its legal framework with the laws of the European Union by the end of 2003. The only Directive – Urban Waste Water Treatment Directive has the transitional period – until the end of the year 2009.

In 2001 Lithuania closed EU negotiations chapter on environment, therefore there are clear objectives and implementation deadlines for the water sector established. That is, in the areas with the population over 10,000 waste water will have to be collected and treated by 31 December, 2007, and in less densely populated areas (under 2000 inhabitants) by 31 December, 2009.

The environmental strategies developed from 1991 in water sector have a priority to decrease the impact of the pollution from the cities. Over 330 million Euro was spent during last ten years of 1991-2001 for waste water treatment. There were several years when the investments in water sector reached 3% of the State budget, and the investments into water sector contained 90% of total environmental sector investments. As a result waste water treatment during the ten year period improved from 25% to 95%. Nevertheless, full compliance with the EU Waste Water Directive will require another 300 million Euro. This includes about 90 new waste water treatment plants to be constructed.

Drinking water is another expensive issue. It has been estimated that full implementation of the Directive on water intended for human consumption will require additional 200 million Euro. Estimated costs related to the construction and renovation of the iron removal facilities

amount to 40 million Euro (iron removal facilities should be constructed in 64 cities and towns); and renovation of the water supply system 160 million Euro (995 km will have to be renovated which amounts to 21 per cent of the entire network).

In the process of the EU accession the priorities and directions in water sector remain the same, only the principles of the implementation are changing slightly. The international financial support is decreasing. Investments to water sector still makes 70% of the total amount for environmental protection. The State started implementation of “polluter pays” principle reducing the direct outside investments. The financing principles for the environmental sector during the year 2001- 2009 will be as follows: 50% subsidies from ISPA funds, 20% from the state budget and local funds, 30% - loans from the international financial institutions. It was calculated that 4% of mean income could be used for water taxes and 3% of GDP for environmental protection (including water protection).

### **Expected grants from the EU**

**ISPA:** It is possible to receive approximately 25 million euros for environmental sector from ISPA in Lithuania each year. In 2000-2002 14 investment projects have been prepared for ISPA financing. Implementation of all those projects will require 195 million Euros and ISPA part will amount to 100 million Euros.

**Cohesion fund:** According to preliminary estimations of the Ministry of Environment, Lithuania will receive approximately 80 – 100 million Euros each year.

**Structural fund:** According to preliminary estimations of the Ministry of Environment, Lithuania will receive approximately 30 million Euros each year from the Regional Development Fund.

**Others:** Implementation of some investment projects, financed by SAPARD, will improve water quality. Overall amount of SAPARD money received for agricultural measures will be approximately 30 million Litas each year. It is not yet estimated what part of it will be directly related to the improvement of water resources.

**National sources:** State budget commitment for financing environmental projects each year amounts to approximately 40 million Litas.

**Environmental fund, municipalities, counties:** Contributions from these funds in Lithuania are minimal. They are not considerable in comparison to all other sources.

**Private (including commercial credit:** It is expected that private capital should invest approximately the same amount of funds into environment related issues as is needed into the municipal infrastructure.

**Others:** There are no specific numbers available for each IFI. According to the financing rules applied in Lithuania and co-operation agreements with IFIs, at least 50 million Litas should be provided by international banks each year.

### **8.12. Closing the gap and affordability: scenario formulation**

The analysis made in the Lithuanian Environmental Financing Strategy and updated estimates of the demand and supply of funds indicates that the supply each year is adequate to implement environmental (not only water sector related) EU requirements. The estimated tariff burdens do not approach the level of 4-5% of household income that is considered to be an acceptable upper bound.

The State co-financing share represents only a small percentage of GDP (for water projects less than 0.1%).

With at least moderate economic growth and expected financial schemes as well as favourable loan conditions, implementation of water sector projects should not be a significant burden for Lithuania.

However, the administrative absorption capacity for the management of all possible projects may cause problems.

## **9. KNOWLEDGE, SKILLS AND CAPACITY**

## **10. ACCESS TO INFORMATION**

The Legal basis for the access to the environmental information in Lithuania consists of:

- Law on environmental protection, 1996; (with amendments related to environmental information, 2002).
- Order on public access to environmental information in the Republic of Lithuania, 1999.
- Law on ratification of the convention on access to information, public participation in decision-making and access to justice in environmental matters, 2001.
- Draft of the strategy on implementation of the Aarhus convention in Lithuania (under-preparation since middle of 2001)
- Regulation on possession of documentation, provision of the information under the public requests and visitor service in the Ministry of Environment, 2000
- Regulations on access to information in the institutions under sub-ordination of the Ministry of Environment
- Regulations in the other state and municipal institutions (approved by their administrations)

National and local authorities provide the information on environment they possess upon public requests according to the requirements of *the Order on Public Access to Environmental Information in the Republic of Lithuania*. *The Regulations on Environmental Monitoring Data Fund* sets the provision of the environmental data to the public. At the beginning of 2002 the Ministry of Environment updated the General Reference Book on Public Authorities Possessing Environmental Information according to the reference lists provided by different public authorities.

The Ministry of Environment publishes quarterly and annual reports on the state of the environment, issues quarterly Newsletter, leaflets "Ministry of Environment to the Public" with comprehensive explanation of the main adopted laws other publications. The Ministry of Environment has started preparation of the Draft Strategy on Implementation of the Aarhus Convention in Lithuania.

National and international projects on the improvement of information management at the Ministry of Environment, databases' inventory, enhancement of webpages on Internet as well as on the organization of training courses on public access to information and participation in

environmental decision-making for different target groups in accordance with the Aarhus Convention and related EU Directives currently are being developed and implemented, e.g. projects: “Assistance in the Implementation of the Aarhus Convention Requirements in Lithuania” (in co-operation with Danish EPA), “Long Term Assistance on Information and Reporting – Information Management Programme” (in co-operation with Danish EPA), “Training Seminar on Public Information with Focus on Mass-Media Relations” (in co-operation with Swedish EPA), etc.

## **11. PRESENT SITUATION IN MONITORING**

The practice of recording the use of water resources and monitoring the state of the environment is regulated by the State Monitoring Programme (1998), Regulations for the State Environmental Laboratory Control (1998), Procedure for Recording Pollutant Emissions into the Environment (1999), Procedure for Initial Recording and Monitoring of the Use of Water Resources and Pollutants Emitted with Effluents (2001).

### **3.2 Water Quality**

In Lithuania studies of the surface water quality are carried out following the Law on Environmental Monitoring and the National Environmental Programme approved by the Government. Also, EU directives and recommendations of the Helsinki Commission are taken into consideration.

According to the National Monitoring Programme, water quality is studied in 48 rivers in 103 places (Table 3.4) and 9 lakes. Regional Environmental Protection Departments of the Ministry of Environment and its Joint Research Centre carry out water quality investigations. Samples of river water are taken on a monthly basis above and below the last discharger of the waste water pipe, the mouth of the river, on the state border (in rivers crossing the state border of Lithuania), in rivers of agricultural impact and natural background. The water quality is assessed on the basis of more than 70 indicators: parameters characterising physical properties of water, gases dissolved in water, organic and bio-genetic substances, basic ions, heavy metals, oil products, detergents, phenols, as well as chlorine-organic pesticides, bacteriological and hydro-biological parameters, as well as comparative activity of artificial radio-nuclides.

A hydro-chemical analysis of water is conducted according to the investigation methods of the water quality approved by the Ministry of Environment, LST ISO and LST EN standards. The system of quality assurance and control consisting of internal and external control is being implemented, interlaboratory comparative tests are being carried out.

#### **1.4. Groundwater monitoring**

Groundwater monitoring system consists of state, municipal and monitoring of economic entities.

##### **1.4.1. State groundwater monitoring**

Regular groundwater monitoring called investigations of groundwater regime started in Lithuania in 1946. In the period of 1960-1975 the monitoring tasks have been differentiated and the following investigation directions formulated:

- ⇒ regional investigations of groundwater regime and balance;
- ⇒ regional evaluation of impact of land reclamation on groundwater regime and balance;
- ⇒ investigations for groundwater protection from contamination and deterioration.

All groundwater regime investigations in the country were financed from the national budget. From the financial point of view all these works were of a level of state groundwater monitoring. Only since 1975 investigations of groundwater regime in the well fields has been financed by the Agglomeration of water supply and waste water treatment companies of that time. Later other economical entities contributed with their financing to groundwater monitoring, these were first of all chemical industries that had obvious adverse impact on the environment. This was the start of groundwater monitoring of the level of economical entities.

After the re-establishment of independence the previously created groundwater monitoring system had to be adopted to a newly developed legal base. Already in the Environmental Protection and later in the Environmental Monitoring Laws 3 level monitoring system consisting of state, municipal and economical entities monitoring has been established. For the state monitoring network practically whole previous regional network for investigations of ambient groundwater regime and balance is being used. Totally state monitoring network consists of 34 basic monitoring stations in which full monitoring programme has to be carried out, i.e. groundwater levels periodically measured and water samples for chemical analysis collected. 14 additional monitoring stations are included into state monitoring network where long-term water level measurements will be continued. Apart from the state monitoring network there is a special targeted monitoring network fully financed from the state budget for execution of state and transboundary programmes. Such groundwater monitoring network is installed in the karst region and near the border with Poland, in so called "Jotvingiai belt".

#### 1.4.2. Municipal groundwater monitoring

Groundwater monitoring on the municipal level has only been started. The municipalities of some larger cities have prepared monitoring programmes and have on their territories smaller or larger amount of observations wells. Municipal monitoring programme was prepared and observations started first of all in Siauliai, later Panevezys, Taurage and Druskininkai joined them.

#### 1.4.3. Groundwater monitoring of economical entities (industrial units).

After the re-establishment of independence the legal background has been created for the groundwater monitoring of economic entities, economical activities where groundwater monitoring is obligatory, defined. As previously, most wide groundwater monitoring is being carried out in the well fields but some other industrial units also start groundwater monitoring. Beside small pollution sources groundwater monitoring during the last decade was carried out in former military base of Valciunsi and Zokniai air base, in Klaipeda harbour and Oil terminal.

Some information is collected in frame of existing data basis, but requirements for data basis, presently used methods of assessment, etc, are not based on RBD approach.

Water quality monitoring is provided according to State monitoring programme. Existing monitoring includes fraction of the international cooperation, but all programme is not based on River basin management and monitoring approach, as in the directive. To fill the gap between existing monitoring activities and European requirements Twinning project was started in 2001. During this project national monitoring network will be revised and new water monitoring programme proposed. For the full impact analysis water quality objectives in Lithuania is under the development, regulation will be developed by on going DANCEE project "Project to Assist the Republic of Lithuania to Transpose EU Requirements in the Water Sector".

## **12. PUBLIC PARTICIPATION. ROLE OF NGOS, CBOS**

Public participation is rather new but fast progressing social issue in Lithuania.

The Lithuanian NGO's take an active part in the implementation of Aarhus Convention. They develop and implement projects, issue publications, organize meetings, etc. The Lithuanian office of REC has implemented the following projects: "Early Implementation of Aarhus Convention in Lithuania", "School Agenda 21", has provided small grants to regional NGO's for their projects on implementation of Aarhus Convention with the assistance of Danish EPA. The Lithuanian Green Movement has organized a seminar "Information on Environment under Auspices of the Aarhus Convention" and has carried out other activities. ECAT-Lithuania assists municipalities in development and implementation of local agenda 21. Vilnius Nature Protection Society deals with projects on rising public awareness related to genetically modified organisms.

With the aim to encourage the public to more actively take part in the environmental decision-making, implementation of the provisions of the Aarhus Convention, the Advisory Council consisting of 18 NGO's representatives was established under the Ministry of Environment.

The Ministry of Environment has established the consulting desk. The specialists of the Ministry's institutions consult the members of the public about the specific issues of the environmental fields according to the schedule in advance.

The specialists of the Ministry of Environment and its subordinated institutions participate and organize meetings, seminars and workshops to discuss the specific issues related to the implementation of the requirements of the Convention and the relevant EU Directives, e.g. a round-table discussion on implementation of the Aarhus Convention with the representatives of NGOs organized by the Committee on Environmental Protection of the Parliament of the Republic of Lithuania, etc.

Information on activities of the Ministry of Environment, adopted laws and laws under preparation, signed agreements, programs and projects under the implementation, the work of the Ministerial Collegium and the Advisory Council, on-going meetings as well as issued publications, etc. is presented in the Ministry's website (<http://www.am.lt>).

The Ministry of Environment constantly disseminates information on their activities to the public authorities, municipalities, mass-media, NGO's.

Since 2000 Lithuanian Water Partnership joined the public arena of water management organizing awareness raising campaigns and discussion on hot topics of water management sector.

### **13.1. Estimation of society opinion**

Opinion of general public is very important in preparing Laws and other legal regulations. The project of the Law on Water has been discussed in some public organisations (Lithuanian Society of Hydropower, Lithuanian Engineers Union of land exploitation and hydrotechnics, Association of Engineering Ecology, Fund of Regeneration of the Nemunas, etc.), and their observations and suggestions were taken into account. Law on amendment to Water Law was distributed for comments to Lithuanian Water Partnership.

Public Council of Advisers in Environmental Protection formed from representatives of scientific offices and public organisations is created at the Ministry of Environment. Its opinion is very important and is valued in accepting essential decisions in environmental protection and use of natural resources.

Regular seminars in the usage of water supply and protection, and in supervision of hydrographical net, are arranged. Representatives from state institutions and from public organisations take part in them, various common decisions are accepted there. The Association of Lithuanian Institutions of Local Administrations, the Committee of Natural Problems of this institution and the Association of Clean Water arrange seminars on improvements of waste water cleaning equipment. Specialists from state institutions also participate in them. The co-operation between state institutions and society helps to clarify problems and accept better decisions for solving the problems.

#### **SUMMARY:**

1. Present political, social, economic and administrative systems of Lithuania are in transition from the inherited administrative system and a newly established democracy. Integration into the EU family is the main driving force for the changes in the water management sector.
2. Geographical location of Lithuania is favorable with respect to surface and groundwater resources
3. The main economic instruments used for integration of economic and environmental decisions are: taxes on natural resources, charges on the discharge of pollutants into water, municipal charges for drinking water, sewage and sewerage treatment fines for exceeding the established discharge limits. Legal enforcement mechanisms are not strong enough.
- 4.
4. Lithuanian water supply and sanitation sector needs substantial modernization, structural reforms and large long-term investments in order to meet requirements established by the EU directives.
5. Lithuania is probably the only country in Europe using exclusively groundwater resources for potable water supply. The supply of drinking water is provided by the municipalities, which are in most cases the owners of the water supply companies. Municipalities are also responsible for the extraction, delivery, treatment and monitoring of drinking water, and for the provision of information on drinking water quality to the public. There are approximately 1.330 individual supplies of drinking water exceeding 10 m<sup>3</sup>/day or serving more than 50

persons, and 80 larger drinking water supplies extracting over 1.000 m<sup>3</sup>/day or serving more than 5.000 persons.

6. Water supply and sanitation sector in Lithuania is unprofitable.

Due to increase of water tariffs and installation of metering systems water consumption by inhabitants reached hygienic minimum.

7. The majority of the fundamental requirements of water directives are at present recognised in the national laws.

8. There is no sufficient inter-sectoral dialogue

9. With respect to groundwater use the existing management system functions quite well, but it does not meet the requirements of WFD as it is managed by the administrative not river basin principles. Only groundwater is used for drinking water supply in Lithuania and only 1/3 of prospected groundwater resources are used today. Therefore there is no danger for groundwater over-extraction. Implementing WFD the decision should be made whether to create new institutions or leave existing institutional structure (MoE, GSL, municipalities, water utilities)

10. Organisational structure water management in Lithuania is very complicated and needs to be improved.

11. Domestic sources used in Lithuania include the following:

- State and municipal general revenues
- Pollution charges and fines
- User fees on municipal services
- Facility own resources
- Commercial capital (credits and equity)

12. Foreign financing sources are related to:

- activities of International Financing Institutions, and
- aid of various foreign countries to the environmental protection of Lithuania.

13. The main directions for the investments into the public sector in Lithuania are determined by the EU requirements. The Ministry of Environment has adopted and agreed with the stakeholders the following general principle for the investment planning and financing:

50% of required investment amounts is requested from the EU support programmes (mainly ISPA up to 2006 and then – other structural funds);

20% of required resources is provided from the State budget or other state sources;

30% of the needed project investments is asked from the International Financial Institutions (IFIs).