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## **Water Services in Finland: Competition for Non-Core Operations – Not for Monopolies**

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## 1. INTRODUCTION

### 1.1 Geography

Finland is the easternmost of the Nordic countries, situated between the 60<sup>th</sup> and 70<sup>th</sup> degrees of latitude. The neighbouring countries are Norway (mutual land boundary 736 km), Sweden (614 km) and Russia (1,340 km). By area Finland is the seventh largest country in Europe covering 338,000 km<sup>2</sup>, of which about 10 % (32,000 km<sup>2</sup>) is water (188,000 lakes, 180,000 islands, of which 98,000 in lakes).

The maximum length of the country is 1,157 km and the maximum width 542 km. The terrain is mostly low, the highest mountain is only 1,200 m. Due to the influence of the Gulf Stream and the Baltic Sea, the climate in Finland is in many respects more favourable than in most other regions located between the 60th and 70th latitudes. During the coldest months the mean daily temperatures (1971-2000) have been -4.9 degrees centigrade in Helsinki in February and -14.1 degrees centigrade in Sodankylä (Lapland) in January. During the warmest months the mean daily temperatures have been 17.2 degrees centigrade in Helsinki in July and 14.3 degrees centigrade in Sodankylä in July.

Finland is the most forested country in Europe, and uniquely rich in wetland habitats. This abundance is reflected in Finland's flora and fauna. Many of Finland's plants are indeed characteristic species of bogs, fens, waterside habitats or inland waters.

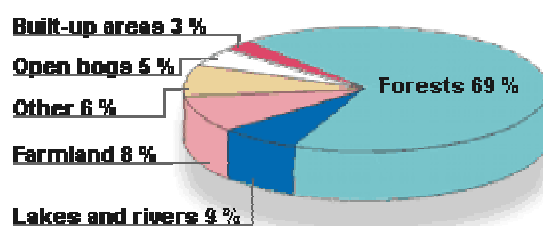


Figure 1. Categories of surface area in Finland. The category "other" includes Lapland's treeless arctic fells, for instance (Ministry for Foreign Affairs 2002).

The population of Finland was 5,206,000 at the end of 2002. Population density was thus only 15 persons/km<sup>2</sup>. Sixty-five per cent live in towns or urban areas and 35 % in rural areas. About 1,000,000 people live in the Helsinki Metropolitan area consisting of Helsinki, the capital city, Espoo, Vantaa and Kauniainen. Finnish cities with a population of over 100,000 include Helsinki (560,000), Espoo (220,000), Tampere (200,000), Vantaa (182,000), Turku (175,000) and Oulu (125,000). The smallest municipalities on offshore islands have fewer than 200 residents.

During the period 1961-1990, the Finnish territory received a mean annual precipitation of 660 mm, which is among the lowest in Europe. Of this amount, 341 mm evaporated, while 318 mm flowed into the seas or over the national borders. The precipitation amount of 318 mm corresponds to a mean discharge of 3,400 m<sup>3</sup>/s. (Ministry of the Environment 1999a).

There are 74 main river basins larger than 200 km<sup>2</sup>. In the most recent river basin boundary inventory, these main basins were divided into sub-basins of three hierarchical levels. The total length of all rivers is estimated to be around 20,000 km.

### 1.2 Administrative and political structure

The Republic of Finland is a Western democracy with a President elected for a 6-year term, and a 200-member, unicameral Parliament elected every four years. Under the Constitution of Finland, which entered into force on 1.3.2000, executive power is vested in the President and the Council of State (i.e.

the Government) composed of a Prime Minister and a sufficient number of ministers (presently not more than 18) who must enjoy the confidence of Parliament. This principle is reflected in other provisions of the Constitution concerning the President's functions and powers dealing with legislation, decrees, appointment of public officials, and so on. The number of issues falling within the scope of the President's executive powers has increased strongly after the 1919 Constitution was drafted. However, in recent years executive power has been increasingly transferred to the Council of State. EU membership has also contributed to this trend.

Parliament consists of one chamber with 200 members chosen for four years by a direct and proportional election. Based on the last election (2003) results, 75 of the 200 MPs are women and eight of the 18 ministerial posts are held by women. The Prime Minister is elected by Parliament and thereafter formally appointed to office by the President of the Republic. The President appoints the other ministers in accordance with a proposal from the Prime Minister. The President of the Republic is elected by direct popular vote.

The State Provincial Offices act as the joint regional authorities for seven different ministries, promoting the national and regional objectives of the central government (Figure 2). They are active within the administration of the following domains: social and health care, education and culture, police administration, rescue services, traffic administration, consumer, competition and foodstuff administration, veterinary services and animal protection, judicial administration and sports and youth affairs (State Provincial Offices of Finland 2003).

The State Provincial Offices support and evaluate the implementation of local services within their territory. The basic services universally available to each Finnish citizen are primarily produced by municipalities, but the State Provincial Offices monitor and evaluate the manner in which municipalities fulfil their tasks. The State Provincial Offices also oversee monitoring and inspection activity within their territories and grant various licences and permits.



Figure 2. The Provinces of Finland (<http://194.89.205.3/eng/prov/index.html>).

Finland's Regional Councils are statutory joint municipal authorities operating according to the principles of local self-government. The Councils operate as regional development and planning authorities and are thus the units in charge of regional planning and looking after regional interests. On

the basis of municipal democracy they articulate common regional needs and work to promote the material and cultural well-being of their regions. Regional Councils have also other tasks besides the statutory responsibilities. They act as centres of development for the regions. They also pursue the interests of the region, its municipalities, inhabitants and businesses and carry out research, planning and analyses. The Regional Council is also the organisation for cooperation between the various influences within the region (Regional Councils in Finland 2003).

The Finnish local authorities (444, consisting of 113 urban and 331 rural municipalities as 1 January 2004) provide basic public services for their residents, most importantly those related to education, social welfare and health, and the technical infrastructure. Local authorities run the country's comprehensive school system, upper secondary schools, vocational institutes, polytechnic institutions, and libraries, as well as provide adult education, art classes, and cultural and recreational services. Child day care, welfare for the aged and the disabled and a wide range of other social services are among the other responsibilities of local authorities. They provide preventive and primary health care services, specialist medical care and dental care, and also promote a healthy living environment. Supervision of land use and construction in their area is another responsibility of the local authorities. Their responsibilities include water and energy supply, waste management, street and road maintenance and environmental protection. Local authorities seek to promote commerce and employment. Many of the services are provided jointly with other local authorities. For example, hospitals and many schools and polytechnic institutions are run by joint municipal authorities (Association of Finnish Local and Regional Authorities 2004).

Local self-government is safeguarded in the Finnish constitution. Every four years, residents elect a local council, which is the decision-making authority in local affairs. The municipal board, appointed by the council, is responsible for the practical running of local administration and its finances. The council elects a municipal manager, who is subject to the board. Municipal committees are not obligatory, but in practice almost every local authority has committees made up of elected officials, which handle local affairs related to education, social welfare and health, the environment and other community concerns

Finland became a member of the European Union in 1995, and was the only Nordic country to join the European Economic and Monetary Union at its initiation in January 1999.

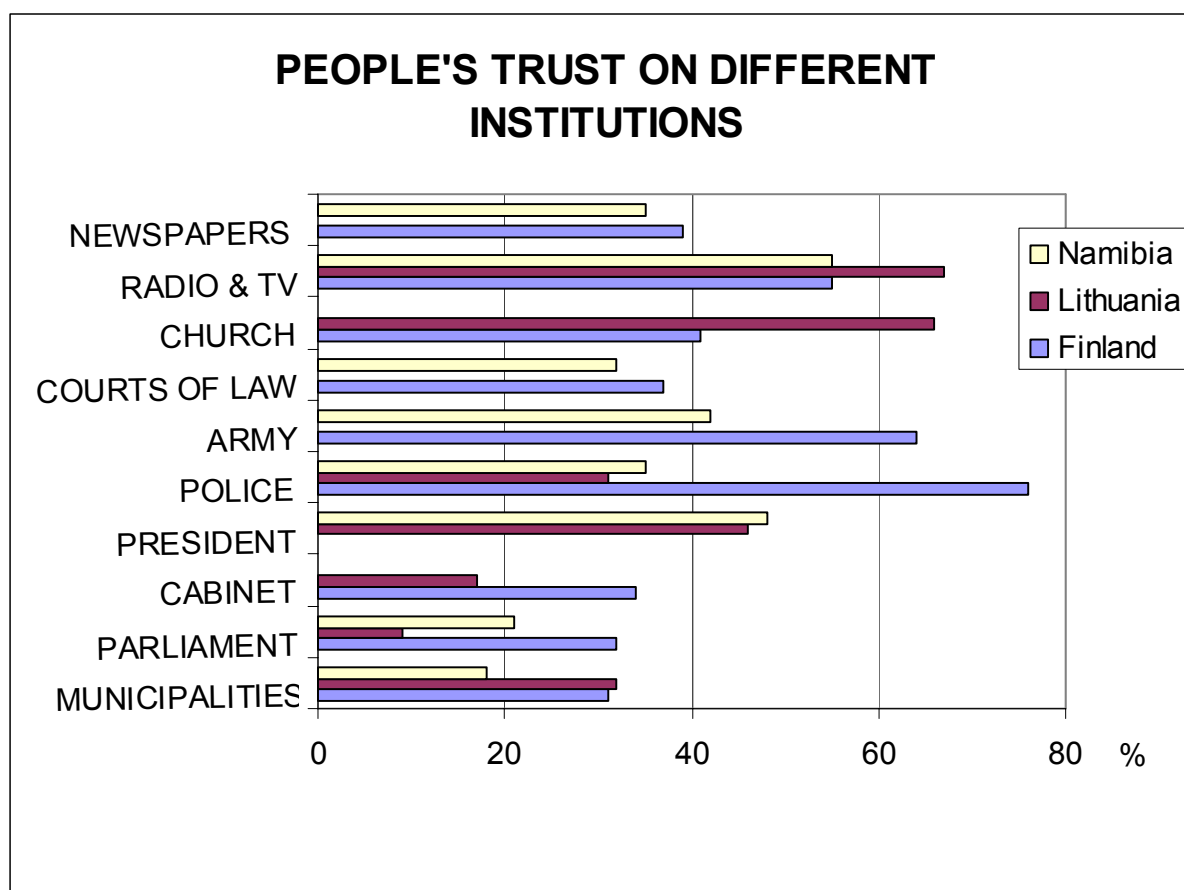


Figure 3. People's trust on different institutions in Finland, Lithuania and Namibia (University of Tampere 2001, Lietuvos rytas 2001, Keulder 2002).

Finland is a welfare state where people obey law and order as shown by the high ranking of the police and army in Figure 3. People's trust on political and administrative institutions (cabinet, parliament and municipalities) does not seem especially strong, even though clearly higher than in the other two countries shown in the figure.

### 1.3 Development of municipal structure

In Finland local level administration developed and was originally based on (religious) parishes. However, by the mid-1800s it was found that a parish meeting chaired by vicar was not enough to take care of the ever increasing practical administrative tasks. (Ryynänen 1974) The Act on the administration of rural municipalities was passed in 1865 and a corresponding act for townships in 1873. These two acts created the foundation for modern municipal administration in Finland as they listed the tasks of the municipalities. Such tasks were for instance: establishment of primary schools, certain health care tasks, taking care of the poor, construction and maintenance of certain public buildings and fire fighting arrangements. (Ryynänen 1974) These acts enabled municipalities to collect taxes; in fact local taxation had existed already before these acts came into force.

The Act of 1898 gave fairly accurate guidelines for municipalities' cooperation. Cooperation was necessary because there was no regional level self-administration in Finland.

In 1948 the regulations for towns and rural municipalities were brought together in a single act. In practice, this did not make a big difference because the previous acts for towns and rural municipalities were fairly similar. (Ryynänen 1974)

Since then legislation related to municipalities has been renewed every now and then, but no radical changes have been made to the main principles.

Health care has been to a great extent the responsibility of municipalities. During the last few decades neighbouring municipalities have established area health centres, which can be better equipped than separate small local units separately in each municipality. Health care and social care constitute the biggest expenses for the municipalities each taking up about a quarter of a municipality's budget (Moisio & Uusitalo 2003).

The Act of 1898 requested that municipalities establish and run schools for primary education so that no pupil has to walk a distance to school, under normal circumstances, that exceeds 5 kilometres. Schools are still run by municipalities, with only a few private schools operating, and this kind of public comprehensive school system seems to produce good fruit, because Finland has won top positions in international comparisons of school children's literacy skills. (OECD 2003). On a higher scientific level Finnish public educational establishments have also produced convincing results: much of the development work for Nokia mobile phones has been done at Finnish technical universities.

In fire fighting the compulsory tasks for rural municipalities were understandably less stringent than those for towns. But the Fire Act of 1933 stated that even rural municipalities had to have a fire fighting committee and a fire chief (not necessarily a full-time one). A permanently employed fire brigade became compulsory if the population of a town exceeded 8,000 people. (Ryynänen 1974)

The first municipal companies were established in the 1880s. The biggest towns established water and electricity companies. Some municipal grain mill and saw mill companies were also established. (Katko 1997, Ryynänen 1974)

The tasks of municipalities have increased dramatically since Finland gained her independence in 1917. This is partly due to the legislation putting new requirements on municipalities, and partly due to municipalities' own initiatives. The big changes in the 1970s, in particular - the creation of a comprehensive school system and new health care legislation - have increased municipalities' expenses. (Ryynänen 1974) These specially mandated tasks were partly financed by the state through a grant system that was tied to expenditures. To some extent this development of the Nordic welfare state actually limited local self-government. But since the 1980s the development has been towards decentralisation and more freedom to municipalities in deciding how they organise and implement the tasks assigned to them (Kettunen 1999). The state grants system was changed from ear-marked specific grants to block grants (Prättälä 1999) The new Local Government Act of 1995 essentially became a document of changes already implemented (Ståhlberg 1999). The sources of income for municipalities indicate the importance of local self-government: municipalities collect 84 % of their income via municipal taxation, user fees etc., and only 16% is received as state subsidies.

## **2. EVOLUTION OF WATER AND SEWERAGE SERVICES IN FINLAND**

### **2.1 Variety of organisational forms**

The first urban and rural water supply system in Finland started operations in the 1870s. Traditionally, municipalities have been the owners of the water and sewerage undertakings, and their own organisations have also operated them. All users have had water meters, and they have paid according to the volume of water used. Sewerage and wastewater treatment was until the 1960s often run separately from water supply and financed via municipal taxes. In 1974 national legislation established a wastewater fee, which was expected to cover the costs of sewerage and wastewater treatment. Since then water and wastewater services have been combined also administratively under the same municipal organisation. The national government has never given any subsidies to the development or operation of water and wastewater services in urban areas except for some intermunicipal cooperation schemes; the responsibility has laid entirely with the municipalities.

In rural areas a great deal of water and wastewater services have been constructed and are operated by cooperatives or different types of loose consumer organisations. Until the 1950s there was no

government support for such schemes. Central government support has never been more than a little over 10 % of sector investments (Katko & Pietilä 1996).

About 90 per cent of the population is covered by (public) water distribution systems, and over 80 per cent is covered by sewerage systems. The coverage of public water services in densely populated areas is almost 100 per cent.

In addition to municipal water undertakings, which cover about 90 per cent of public water supply, there is a large number of other forms of organisations, mainly small, operating water and wastewater services. In practice, Finnish water and sewerage undertakings can be classified into four main categories based on the organisational form:

1. Partnerships
2. Cooperatives
3. Municipal undertakings
4. Sharehold companies.

According to a recent survey (Muukkonen et al 2003) covering undertakings which provide services to more than fifty people, by number the largest group is cooperatives, close to 1,000 (in 2001), serving sparsely populated areas and countryside communities. Partnerships, a total of 420, are mainly small and serve sparsely populated areas within municipalities. Cooperatives and partnerships usually provide water supply services, whereas sewerage services are provided by municipal undertakings. The number of municipal undertakings, which provide by volume the bulk of the services, is 460. The number of municipalities in Finland is 444 (in 2004), and in practice there is a municipal water undertaking in almost every municipality. The number of sharehold companies is 160. Most of them are small and owned by the consumers, but there are also some large joint-stock companies owned by neighbouring municipalities. Majority of these companies are bulk water suppliers. During the last few decades municipal cooperation has slowly increased, so that in 2001 there were 30 supramunicipal water or sewerage systems.

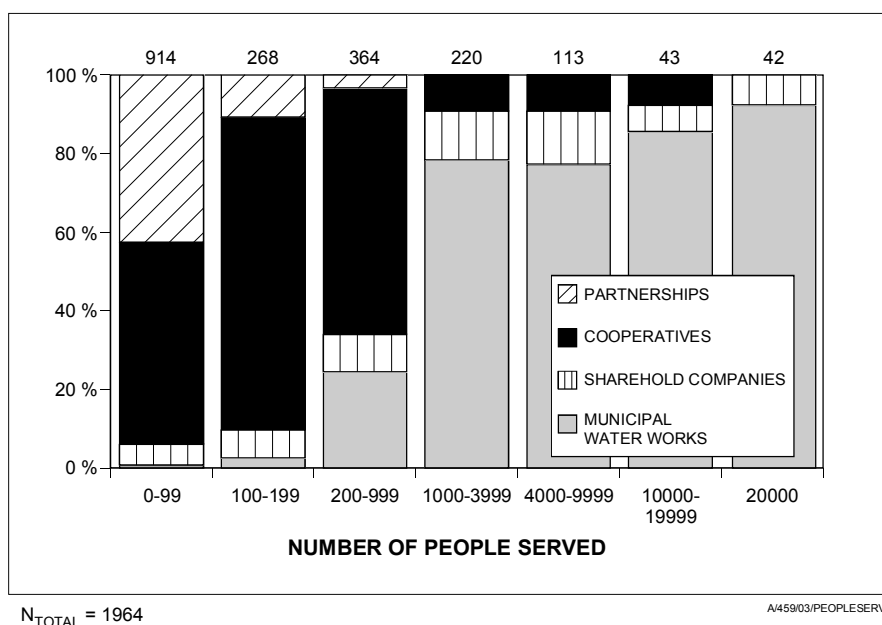


Figure 4. Organisational distribution of water undertakings in Finland according to size in 2001 (Muukkonen et al 2003).

In international comparison Finnish water undertakings are small. About 60 per cent of the water distributed is groundwater or artificial groundwater. The technical and economic performance of Finnish water and sewerage systems is on average good.

Finland has been one of the top-ranked countries in the world in water management. According to the newly developed international Water Poverty Index (WPI), Finland is the highest ranking country with a WPI of 77.9 points. Due to the long distances in sparsely populated areas and the abundance of water, the percentage of public water services coverage is rather low compared to many other European countries. Yet, the amount of inhabitants served by public water services has continuously increased in Finland.

Finland is in a lucky situation with water supply compared to most other countries in the world: water resources are plentiful, the population is relatively small and the area of the country is large. Already centuries ago people had decent water sources available; lake and river water was mainly of good quality and hand-dug wells were widely used even in towns.

When towns and cities grew the quality of water in wells got worse and piped water supply systems started to be built from the end of the 1800s. Development was gradual and in the outskirts of the cities people still used their own wells without any serious problems. Thus normally there was no urgent or sudden pressure to extend the water supply systems to cover the entire city or town. The networks were expanded in line with economic resources and political will. It should be remembered that from the beginning the users have paid for water according to the volume used, and that municipal water undertakings were able to cover all their operating expenses and in most cases also capital investments with water fees.

In rural areas people were used to helping themselves. It was a tradition to work together for a common interest to improve the service level or living conditions. Municipalities in rural areas were poor and could not finance all the activities people wished to have. There are examples where people built a school building to get a school in their village. It went like this: someone gave a suitable piece of land for the school, forest owners gave timber, wealthier villagers donated some money for the necessary purchases, and people worked together on the construction site. Professionals like carpenters, etc. also worked voluntarily. Then the municipality took over the school and started paying the salaries of the teachers.

Similarly in rural areas, if the quality of water in the wells or watercourse was not good enough or the quantity not sufficient, people got together and planned and built a common water supply system that drew water from a better and more reliable source.

## **2.2 Water use**

Until the end of the 1980s the total annual water abstraction by public water undertakings was increasing in Finland, as the public water undertakings had to meet the demand of a growing number of inhabitants. Since the beginning of the 1990s total water abstraction has been quite constant even though the number of inhabitants served by water undertakings has continued to increase. The peak of specific water consumption, 335 litres/person/day (as a national average of urban utilities), was observed in 1972 (Figure 5). In the 1990s specific water consumption decreased by 10 % being 240 litres/person/day in 2001.

Unaccounted-for-water, including leakages, has recently been around 15 %. This figure has slightly dropped in the last decades. Fifteen per cent may sound high for a developed country like Finland, but one should bear in mind the special geographical and climatic circumstances of Finland. Extensive leakage detection does not necessarily pay in Finland, because a) water resources are in general plentiful, and most of the water supplied is relatively clean groundwater, which often does not need any, or just modest treatment, and hence the production cost and consequently the cost of water lost through leaks is low, and b) due to cold climate water pipes have to be laid at a minimum depth of two meters which means that excavation and repair works are expensive and it does not pay economically to repair minor leaks.

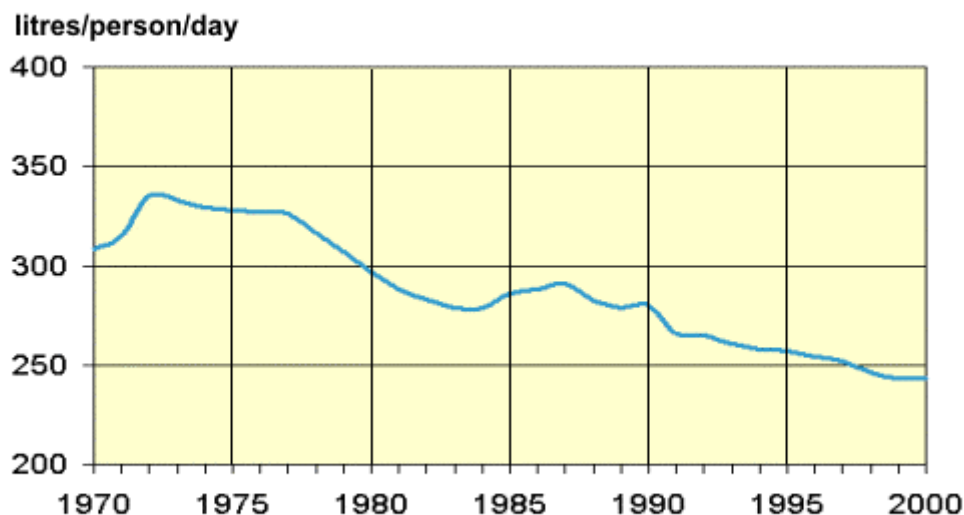


Figure 5. Specific water consumption, 1970-2000.

There are many reasons for the decrease in specific water consumption. In the early 1970s the introduction of the wastewater charge doubled the price of water services. The worldwide energy crisis in the mid-1970s, and the principles of sustainable development introduced in the late 1980s, have also changed water use habits. In 1994, the introduction of the value-added tax (22 %) on water services substantially increased the price of water services. Domestic water consumption has been reduced by effective facility management and technical developments in plumbing and household appliances, such as low-flow taps, toilets and shower-heads, and washing machines. In the 1980s household water consumption was about 160 l/p/d while in 1997 the corresponding figure was about 145 l/p/d (Finnish Environment Institute 2002a and b; FIWA 2002).

Household water consumption accounts for almost 60 % of the water distributed by public water undertakings. Household water consumption varies according to the type and age of the building, for instance, and the way water consumption is metered and invoiced. In rental flats people generally use more water than people in owner-occupied flats, or in single-family houses which have individual water meters and direct invoicing. Water used by commercial, institutional and recreational facilities has accounted for almost 15 % of the total amount of water distributed by public water undertakings.

The amount of water supplied by public water undertakings to industries has decreased considerably. In the early 1970s industrial water consumption was 20 % of the total amount of water supplied by public water undertakings. Since then, industries have implemented new, more efficient water processes and some enterprises have their own water supply. In Finland, large water-using industries such as pulp and paper mills have their own supply and are not dependent on public water supply, but the textile, food and beverage industries, for instance, usually take their water from public networks. At present industry uses about 10 % of the total amount of water distributed by public water undertakings.

### 2.3 Wastewater treatment

Wastewater treatment started in larger towns in the beginning of the 20<sup>th</sup> century. The first wastewater treatment plants were built in Helsinki in the 1910s. The first activated sludge plant for municipal wastewater was constructed in the 1930s. Since then the activated sludge process has been developed to suit the Finnish conditions. Removal of nutrients started in Finland in the 1970s. During the peak period of treatment plant construction in the early 1970s, simultaneous precipitation was introduced in activated sludge treatment plants. In the 1980s it became the most widely used process. In addition, several plants using only chemical precipitation were constructed in the 1970s, but all the presently remaining ones will be converted to utilising biological-chemical methods by the year 2005.

In 2001, wastewater treatment plants treated the wastewaters of over four million people (81 % of the total population). Wastewaters are mainly collected by sanitary sewers (separate systems). Combined sewers are in use only in limited areas in some city centres. There is no separate treatment for stormwater. Yet, during snow melting and rain storms, leakages and infiltration may affect the operation of treatment plants. Practically all wastewaters receive effective treatment in Finland. In 2001, 96 % of the wastewaters received biological-chemical treatment and the rest were treated chemically (Figure 6). Phosphorus removal was carried out at every treatment plant. (Finnish Environment Institute 2002a and b; FIWA 2002).

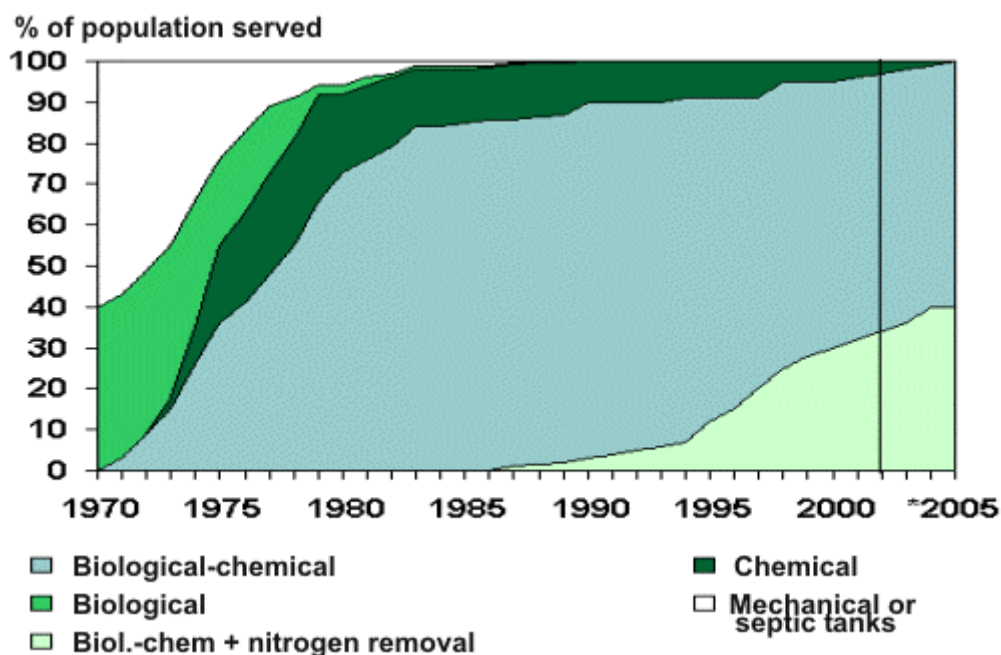


Figure 6. Development of municipal wastewater treatment in 1970-2001 and estimated development in 2001-2005.

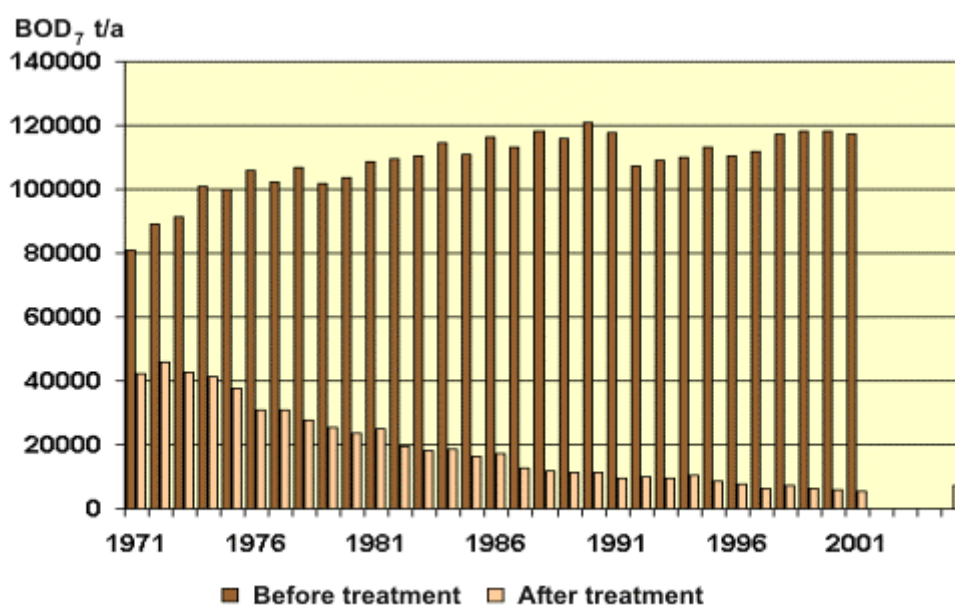


Figure 7. BOD<sub>7</sub> loads before and after treatment in municipal sewage undertakings, 1971-2001.

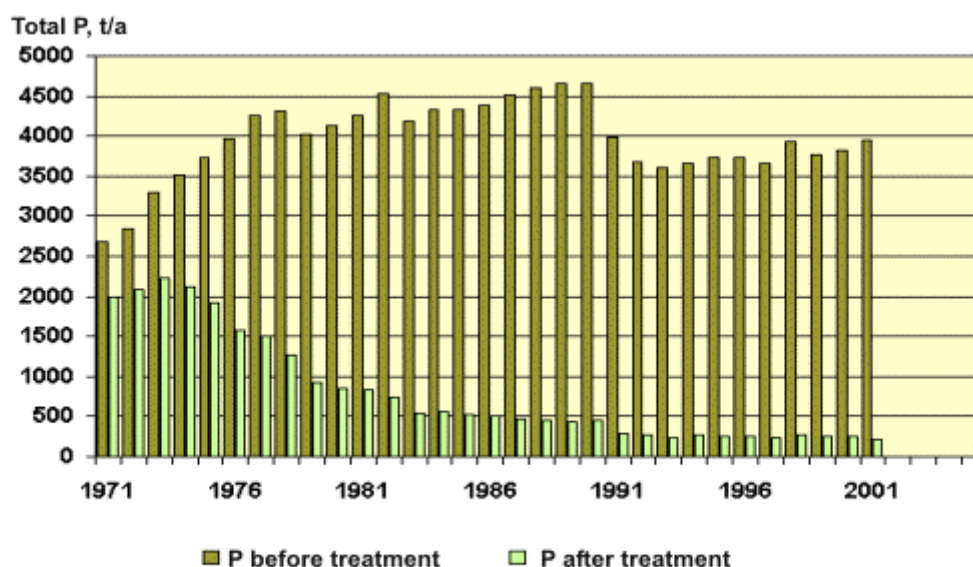


Figure 8. Phosphorus loads before and after treatment in municipal sewage undertakings, 1971-2001.

As a result of the increasing amount of wastewater collected and treated, the quantity of sludge produced in wastewater treatment plants was increasing until the late 1980s. More efficient water treatment processes with nutrient removal have also resulted in increasing sludge. Sludge composting is becoming increasingly popular. In 2001, almost 70 % of the sludge was composted.

### 3. THE ROLE OF MUNICIPALITIES (LOCAL GOVERNMENT) IN UNIVERSAL ACCESS TO WATER SERVICES

#### 3.1 Role of municipalities

In Finland local authorities provide about two thirds of all public services and the State (the central government) about one third. The model for providing basic services is built on the responsibility and autonomy of the local governments. The autonomy of municipalities is based on their right to levy taxes and impose user service charges. Municipalities have constitutional autonomy and the possibility to design their administration and service production according to what their democratically elected government considers best. At the same time they have statutory obligations to provide basic services in health care, social services and education for their population. In Finland the role of regional or county level administration in the provision of basic services to the citizens is very small compared with most other countries. There is no elected council at the regional level like e.g. in Sweden. In the provision of water services regional level administration has practically no role. The regional council's role is to enhance regional and other cooperation between municipalities in water services development and operation. Regional Environment Centres have responsibilities related to water resources planning and management, environmental monitoring and permits, but nothing to do with the service provision. Their role is to promote the implementation of the Water Services Act, for example with respect to supramunicipal planning and cooperation in water services, and the development of water services in areas outside the coverage of centralised systems.

The municipality is responsible for the overall development of water services within its jurisdiction. In practice, this means that the municipality has to make water services development plans to cope with municipality development. The municipality has to make the development plans in cooperation with the water and sewerage undertakings within its territory as well as neighbouring municipalities. Furthermore, municipalities are responsible for organising water and sewerage services in their

jurisdiction when these are required for health reasons, for environmental protection or because of a relatively large number of inhabitants.

The role of central government (State) has always been rather minimal in the development of water and sewerage services in Finland. The first central government subsidised systems for rural areas were built in the 1950s. No government subsidies have been available for the development of water infrastructure in urban areas. Instead, the systems have been financed entirely by the municipalities mainly via user fees.

### 3.2 Why different organisational forms for water services?

To put it briefly, water services in Finland are arranged via three different arrangements based on population density:

- in population centres municipal water utilities take care of both water supply and wastewater services
- in rural areas user cooperatives or partnerships take care of water supply while wastewater is either treated individually by households or lead to municipal sewerage system
- in sparsely populated areas people have their own wells or boreholes and individual wastewater treatment facilities.

Additionally there are various forms of supramunicipal cooperation in particular for bulk water supply and wastewater treatment (Hukka & Katko 2003).

The above is a simplification of the situation as there are also several other arrangements and exceptions from this general practice. Also, there are no strict rules or criteria on when to adopt one form of arrangement or another. Normally municipal utilities are much larger than cooperatives, but there is great variation in their sizes: there are municipal utilities serving less than 200 people and, on the other hand, a few cooperatives for more than 10,000 people, but even the largest cooperatives supply less than 3,000 m<sup>3</sup>/day (Lapinlampi & Raassina 2002).

Thus in smaller communities municipal utilities or cooperatives take care of water supply. Whichever form is selected depends mainly on the local situation, circumstances and preferences. Often people living in rural areas wish that the municipal utility would expand its network to their area, but due to long distances the cost of extension per connection would be so high that the utility is not keen to invest and the people are not willing to pay the real connection costs in full. Thus, using a local water source and establishing cooperation or partnership among the users while utilising self-help or on-site systems in the construction may prove to be a cheaper solution which people are willing to pay for.

According to statistics, the water charges of cooperatives seem to be somewhat lower than those of municipal utilities, but it may be misleading to draw any firm conclusions. Water charges vary a lot from one undertaking to another. Partly this can be explained by the difference in physical conditions such as the quality of raw water and hence the need for water treatment, distance to the water source, the length of supply line per connection and how easy or difficult it is to excavate trenches for supply lines due to the soil type. Cooperatives may also have lower standards for water quality, materials and construction work. The water utilities of some of the largest cities are very profitable, and some of the profit is diverted to the general expenses of the municipality. But anyhow, cooperatives often have lower maintenance and administrative costs because a lot of the work is done on a self-help basis as unpaid work. Thus smaller units seem to have some benefits compared to the larger ones, which is contrary to the classical assumption of economies of scale.

### 3.3 Ownership and operation

The municipality as the owner of the water and sewerage undertaking can choose freely how the ownership and the management of the undertaking will be organised, i.e. basically the owners as well as the operators of the core activities in the undertaking can be both municipalities/municipal organisations, private associations, and privately or publicly or jointly owned joint-stock companies. The owner can decide how the production/procurement of non-core activities, goods and services will be organised in accordance with the existing rules and regulations. The owner may also partly or completely delegate the decision-making concerning production and procurement of non-core activities, goods and services to the operator.

The operators of municipally owned water and wastewater systems can, in principle, be supramunicipal or municipal organisations, private associations, and privately or publicly or jointly owned joint-stock companies. Traditionally, most of the operators have been municipal undertakings, there have been only a few odd private sector operators, having focus mainly on treatment plant operations, and no radical changes are expected in the future.

## 4. RECENT DEVELOPMENTS IN WATER SECTOR LEGISLATION AND INSTITUTIONAL ARRANGEMENTS

### 4.1 Legal framework of water and sewerage services

#### 4.1.1 EU directives

EU directives are put into effect by the Finnish legislation. Thus, directives as such are not directly binding on a Finnish citizen, only on the State of Finland. The EU has issued directives on the quality requirements for domestic and wastewaters and water bodies. The most important European Union regulations governing Finnish water supply and sewerage services are the EU Water Framework Directive (2000/60/EC), the EU Drinking Water Directive (98/83/EEC), the EU Urban Wastewater Treatment Directive (91/271/EEC and its amendment 98/15/EEC), the EU Directive on Integrated Pollution Prevention and Control (IPPC 96/61/EC), and the EU Directives on Public Procurement (92/50/EEC, 93/36/EEC and 93/38/EEC) (European Union 2002; Ministry of the Environment 2002). The regulations of EU directives (such as the WFD, wastewater directive, IPPC, and the procurement directives) have been included in the Finnish national legislation. Incorporated into the national legislation these directives become binding for water undertakings.

Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishes a framework for Community action in the field of water policy. This EU Water Framework Directive stipulates the goals, minimum requirements and an action plan for water pollution control and sustainable use of water resources. The directive standardises the planning, monitoring and classification practices concerning water throughout the European Union. The key aim of the directive is to bring about a sound ecological and chemical state of surface waters, a sound quantitative and chemical state of ground waters as well as the best possible ecological state of heavily altered and built waters.

Key elements of the EU Water Framework Directive include:

- The protection of all waters — rivers, lakes, coastal waters and groundwaters.
- The setting of ambitious objectives to ensure that all waters meet "good status" by 2015.
- The requirement for cross-border cooperation between countries and all involved parties.
- Ensuring the active participation of all stakeholders, including NGOs and local communities, in water management activities.
- Requiring water pricing policies and ensuring that the polluter pays.
- Balancing the interests of the environment with those who depend on it.

The new framework directive will change prevailing Finnish legislation on water use and protection and environmental administration and its application. Regulations concerning environmental degradation are provided in the new Environment Protection Act (Finnish Environment Institute 2003).

#### 4.1.2 National legislation

Finnish regulations and laws related to water and sewerage services can be categorised into four main groups: water services legislation, health protection legislation, water and environmental protection legislation, and other related legislation. Table 1 summarises the current national and European Union legislation according to this categorisation (modified and updated from Vehmaskoski et al 2002 by the authors).

Table 1. Key legislation governing water services in Finland.

FIELD OF APPLICATION	LAW / ACT	NO. OF ACT
<b>WATER SERVICES</b>	Water Services Act  Act and Decree on Assistance for the Community Water Supply Measures  EU Urban Wastewater Treatment Directive	Act 119/2001  Act 56/1980, Amendment Act 123/2001; Decree 97/1995 91/271/EEC, Amendment 98/15/EEC
<b>HEALTH PROTECTION</b>	Health Protection Act	Act 763/1993, Amendment Act 120/2001
	Decree of the Ministry of Social Affairs and Health Relating to the Quality and Monitoring of Water Intended for Human Consumption EU Drinking Water Directive	Decree 461/2000  98/83/EEC
<b>WATER AND ENVIRONMENT PROTECTION AND LAND USE</b>	Water Act  Government Decree on Treating Domestic Wastewater in Areas outside Sewer Networks Environmental Protection Act  Environmental Protection Decree Act on Environmental Permit Authorities Land Use and Building Act  Act on Environmental Impact Assessment Decree on Environmental Impact Assessment EU Water Framework Directive	Act 264/1961, Amendment Act 121/2001  Decree 542/2003  Act 86/2000  Decree 169/2000 Act 87/2000  Act 132/1999, Amendment Act 22/2001 Act 468/1994  Decree 268/1999  2000/60/EC

	EU Directive on Integrated Pollution Prevention and Control (IPPC)	96/61/EC
	EU Urban Wastewater Treatment Directive	91/271/EEC, amendment 98/15/EEC
<b>OTHERS</b>	Local Government Act	Act 365/1995
	Consumer Protection Act	Act 38/1978
	Competition Restriction Act	Act 480/1992
	Public Procurement Act	Act 1505/1992
	EU Directives on public procurement	92/50/EEC, 93/36/EEC, 93/38/EEC
	Cooperatives Act	Act 1488/2001

### Water Act 1961

The Water Act (264/1961) was passed in 1961 and has been revised several times thereafter. The act aims to control strictly altering and damming of water bodies. Any activities likely to damage water bodies are subject to a permit. Applications for permits are processed individually and permits are granted on terms laid down separately case by case. The Water Act is currently being amended, and the draft is expected to be ready by the end of 2004 (Ministry of Justice 2000). The rules and regulations concerning water resources pollution prevention have already been transferred to the Environmental Protection Act (86/2000). The Ministry of Justice established a committee 22 March 2000, whose task is to assess the required changes in water legislation, and make proposals for amendments to the Water Act (264/1961). The committee should especially consider the following:

- The changes in water resources management and use;
- The latest international water legislation principles and the latest European Union legislation and policy instruments;
- The possibilities to unify the permit procedures for water resources management projects, and the preconditions required for modifying the existing water resources management permits;
- The allocation of the investment and operating costs of water resources management projects, and the updating of the regulation of legal entities under the water legislation;
- The need of updating the structure and norms of the Water Act;
- The need of updating the processing fees with regard to water resources management; and
- To otherwise amend the regulation of water resources management on the basis of the possible needs caused by changes in society and the economy.

### Health Protection Act 1994

The Health Protection Act (763/1994) includes provisions on the quality of domestic water and its monitoring as well as several provisions on water and sewerage undertakings. In 2000 a new Act, based on EU directive 98/83/EU, on the quality standards and inspection of domestic (drinking) water was brought into force by the Ministry of Social Affairs and Health. It supersedes earlier statutes on the quality of domestic water and its monitoring as spelled out in the Health Protection Act. The Act requires that water and sewerage undertakings and health protection authorities provide more information (Finnish Environment Institute 2003).

### Land Use and Building Act 1999

The key aims of the Land Use and Building Act (132/1999) are to create a sustainable basis for the development of communities, to improve public participation in area development, to delegate decision-making to local authorities, and to improve building quality.

The land use planning system includes the regional and municipal levels. National land use goals have been set by the Council of State. These goals comprise, e.g. the main infrastructure networks of natural and built-up areas of national importance. The Act emphasizes the significance of environmental issues. Its general aim is to organise the use and building of areas so that preconditions for a good living environment are created and ecologically, economically, socially and culturally sustainable development is promoted. The Act makes it easier to consider the conditions for organising water services when granting new building permits and planning land use. In particular, provisions related to the need to plan the use of areas, the content of municipal building regulations, and the conditions for granting a building permit are central from the standpoint of water and sanitation.

The Act has increased municipalities' independence in decision making concerning planning, and municipal plans will no longer be approved by higher authorities. Regional administration will safeguard the achievement of national goals and provide assistance to local authorities. Also, public participation in planning processes is strengthened at the local level from the very beginning (Finnish Environment Institute 2003, Finlex 2004b).

### Environmental Protection Act 2000

In March 2000 a new Environmental Protection Act (86/2000) came into force harmonising and consolidating the laws protecting the environment. The legislative reform changed 24 laws and compiled separate statutes into a general law which governs activities which pollute soil, waters and air. The new Environment Protection Act replaced the Air Protection, the Noise Abatement and the Environmental Procedure Acts. The Environmental Protection Act implements the European Union directive on Integrated Pollution Prevention and Control (IPPC), which obliges EU member states to integrate the control of emissions caused by industry (Ministry of the Environment 2001, Finlex 2004c).

The stipulations on environmental protection are now combined in the Environmental Protection Act. It is a general act on the prevention of pollution, which is applied to all activities that cause or may cause environmental damage. The principles of the Environmental Protection Act are:

- the prevention or the restriction of damage according to the minimum caution and precaution principle
- the application of the best available technology (BAT)
- the best practice from the perspective of the environment (BEP)
- the polluter pays – principle.

Municipalities are obligated to chart the need for protection of waters and the environment. They issue environmental protection orders for the construction and maintenance of wastewater systems. Inhabitants may be required to be connected to the public sewer system if it is technically and economically feasible. Presently, a building has to be connected to a sewer line if the distance to the pipe is less than 20 metres. In future, the health authority may order a building that lies even further away to be connected to the sewer line if its wastewaters constitute a health or an environmental hazard.

## Water Services Act 2001

The bill for a Water Services Act<sup>1</sup> was submitted to Parliament on 16 June 2000 and was enacted into law on 1<sup>st</sup> March, 2001. The new Water Services Act (119/2001), which is based on the EU Water Framework Directive (2000/60/EC), contains provisions on the development of water services as well as organisation of water services and rates. The Act supersedes the Act on Public Water and Sewerage Systems and the Act on Wastewater Rates. The Water and Sewerage Services Act also incorporates provisions on the minimum standard of consumer protection.

The Act clarifies the liabilities of the municipality. It sets a general obligation to municipalities for the provision, i.e. overall development and organising, of water and sewerage services aimed at supplying a sufficient amount of domestic water of a good hygienic standard at a reasonable cost as well as proper sanitation from the viewpoint of environmental protection. The Act applies to water supply and sewerage services for human settlements and comparable business and leisure activities. The key change is the harmonisation of the contractual and payment systems on the basis of civil law.

The key principle is that the charges should cover all investments and operating costs. Yet, subsidies for water services from the municipality, the State and the EU are still possible in accordance with the Water Act (on the basis of the EU Water Framework Directive). The Act also stipulates that charges may include “a reasonable rate of return.” The properties in the operating area of the water and sewerage undertakings as a rule should be connected to its networks. This guarantees the operational and economic conditions it needs to produce services for the operating area.

The Water Services Act also stipulates the conditions for the termination of connection contract and discontinuation of water services.

The municipality is responsible for the overall development of water services within its jurisdiction. In practice, this means that the municipality has to make water services development plans to cope with municipality development. In accordance with the Water Services Act, the plans have to be maintained up-to-date thus being not a one-time exercise. The municipality has to make the development plans in cooperation with the water and sewerage undertakings within its territory and neighbouring municipalities. The municipality has also to participate in regional water services planning (Ministry of Agriculture and Forestry 2001 and 2002).

Furthermore, municipalities are responsible for organising water and sewerage services in their jurisdiction when these are required for health reasons or for environmental protection or because of a relatively large number of inhabitants (Water Services Act 119/2001). Municipalities also issue the environmental permits which are not under the jurisdiction of the Regional Environment Centre or the Environmental Permit Authority, monitor the state of the environment and control activities affecting the environment. The municipal council makes decisions concerning the general bases for charges for municipal and other services (Association of Finnish Local Authorities 2004; Finlex 2004a).

The water and sewerage undertaking (WSU) is responsible for water services management (production of the services, i.e. the construction of water services infrastructure and the operational management — operations and maintenance — of water services infrastructure) within its water services area, and in accordance with the needs of municipality development. The municipality approves the WSU's water services area, or if the water services area covers two or more municipalities, each municipality approves its respective water services area. The WSU is also responsible for the collection and conveyance of storm water and drainage water from the foundations of buildings. The Water Services Act is applied to all water and sewerage undertakings, which take care of the water services management of a community regardless of the ownership or management model.

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<sup>1</sup> Covers both water supply and sewerage services as well as storm water and drainage water from foundations of properties.

Within the WSU's water services area, each property owner or occupant is responsible for water services within his property.

The Water Services Act does not stipulate in detail the roles and responsibilities of the different regulatory authorities; thus their powers are general and based on the statutory powers of the respective authority (the Regional Environment Centre, the municipal health protection authority and the municipal environmental protection authority. The Consumer Ombudsman, however, controls compliance with the law on the general supply conditions in respect of consumer protection (Ministry of Agriculture and Forestry 2001 and 2002).

The key aims behind the establishment of the new Water Services Act were (Ministry of Agriculture and Forestry 2002):

1. To clarify the responsibilities of the municipality and the water and sewerage undertakings in relation to water services (acquisition of water, i.e. the conveyance, treatment and delivery of water to be used as household water; and sewerage, i.e. the disposal and treatment of wastewater, storm water and drainage water from foundations of buildings).
2. To improve the protection of the water services consumer.
3. To consider the possible incorporation of water and sewerage undertakings.
4. To ensure that the charges are reasonable and equitable for all water services users, and the bases of the charges are transparent.
5. To prohibit the abuse of their dominant (monopoly) position by the water and sewerage undertakings and to prevent the use of water services charges as a "hidden tax."
6. To separate the accounting of the municipal water and sewerage undertaking from the accounting of the municipality.
7. To make sure that the water undertaking notifies the customer well before any modifications to the contract of how and when the charges and other conditions will change and what is the reason for the modification.
8. To secure the availability and quality of water services, and reasonable and equitable charges of water services regardless of the mode of ownership or management model.
9. To unify the contractual conditions and charges for water services.
10. To harmonise the charges so that they all are based on law.
11. To ensure that the municipality makes viable water services development plans in cooperation with the water and sewerage undertakings and other (neighbouring) municipalities, and participates in regional planning of water services.

#### Government Decree on Treating Domestic Wastewater in Areas outside Sewer Networks 2003

The objective of this decree (542/2003) is to reduce the untreated effluent from households and facilities located outside the common sewerage systems of water and sewerage undertakings, and to reduce environmental pollution, especially to comply with the national water protection targets. The central message of the decree is that by 2014 all non-sewered households must have a proper wastewater treatment system; the septic tanks currently widely used will no longer suffice. (Finnish Environment Institute 2003).

## **4.2 Institutional framework of water and sewerage services**

### **4.2.1 Administrative structure**

The authorities in Finland responsible for the water supply and sewerage services (water services) sector can be classified into central, regional and local ones. Water resources management at the central (state) level is the responsibility of the Ministry of Agriculture and Forestry (MAF) and the

Ministry of the Environment (MOE). These ministries are in charge of water and environmental policy and strategy development, and legislation. Under these ministries operates the Finnish Environment Institute (FEI) as a national advisory body.

Other national level key authorities with regard to water services are the Ministry of Social Affairs and Health (MOSAH) and the Ministry of Trade and Industry (MTI). MOSAH gives the guidelines for drinking water quality, and MTI, through the Finnish Competition Authority, currently regulates economic activities and competition in the water and sewerage services sector.

At the regional level water and sewerage undertakings are regulated and monitored by regional environment centres (13) which are also responsible for regional planning, monitoring and guidance in water issues within their area. The regional environment centres also oversee the implementation of the national policy and strategy for the water services sector. In issues related to general administration and water protection due to waste water disposal, regional environment centres and FEI are responsible to the Ministry of the Environment, but in issues related to water resource management and water services they are responsible to the Ministry of Agriculture and Forestry.

At the local level, municipalities (444) are responsible for the provision, i.e. overall development and organising of water and sewerage services, in their jurisdiction in accordance with the Water Services Act. The water and sewerage undertakings (approx. 2,000, including both water and sewerage undertakings) are responsible for the production of water services, i.e. construction of the water infrastructure, and its operation and maintenance (operational management). The water and sewerage undertakings also are in charge of the collection and conveyance of storm water and drainage water from building foundations.

The water and sewerage undertakings are monitored and controlled by municipal health protection and environment protection authorities, and by the regional environment centre. (Vehmaskoski et al 2002). The water and sewerage undertakings can also be considered monopolies (Rasinmäki 1997, pp. 288-289). Monopolies as such are not prohibited in the European Union, but the abuse of dominance or monopoly position is prohibited. Figure 9 illustrates the current administrative framework in Finland.

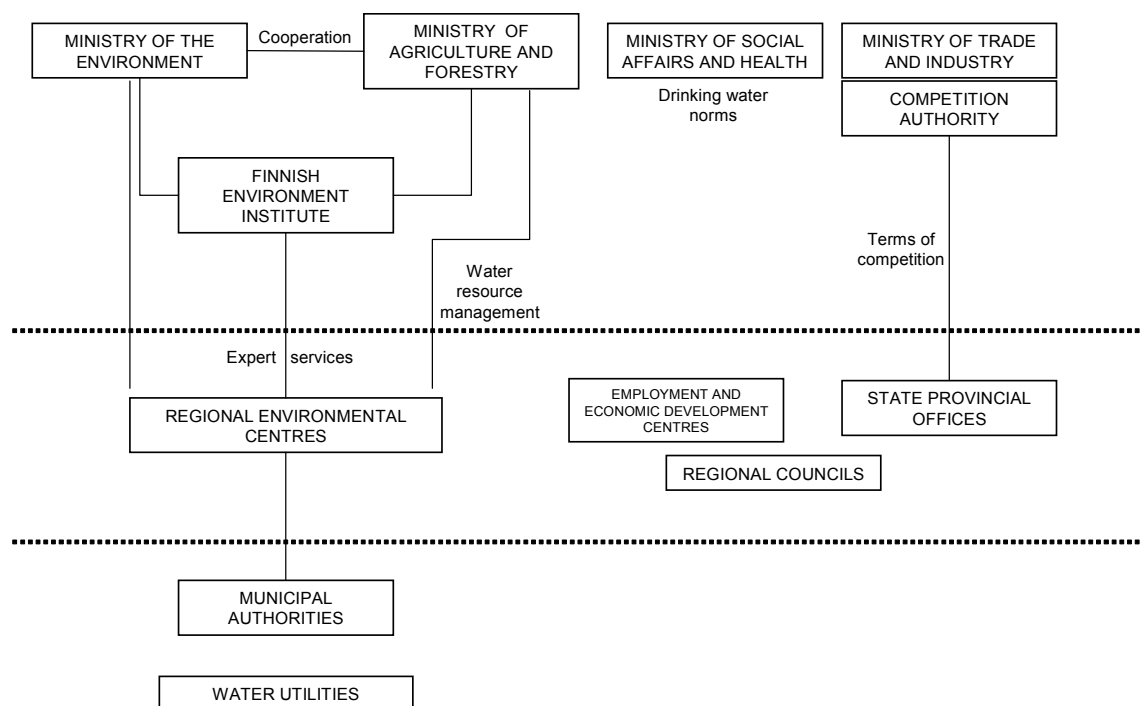


Figure 9. Central, regional and local level water administration in Finland (modified from Vehmaskoski et al 2002 by the authors).

### Regional Environmental Centre (REC)

The Regional Environmental Centre (13) is the state's regional administration authority under the Ministry for the Environment and the Ministry of Agriculture and Forestry. Each centre is a participative and guiding organ entrusted with the task of ensuring the preconditions for sustainable development in its region. The REC deals with emissions, planning and building, protection of nature and landscapes, conservation of the cultural environment and use and management of water resources. Through the RECs, FEI studies and monitors the state of the environment and strives to promote environmental awareness among all actors in each region.

The responsibilities of the REC cover water and sewerage services, flood prevention, drainage and irrigation, restoration of watercourses used for timber-floating, multipurpose regulation of river systems, environmental permits of regional significance (see also: Environmental Permit Authorities), permit holders' obligations, maintenance of hydraulic structures, dam safety, combating sudden flood and ice jams, ditching procedures, investment activities for integrated water resources management and other water resources management issues (Ministry of Agriculture and Forestry 2003).

### State Provincial Office

The State Provincial Office (6) is the state's general administrative authority (Figure 2). It also performs duties in the areas of judicial administration, rescue services, police administration, educational and cultural administration, sports and youth work, agricultural and forest management, transport, consumer protection, competition and food administration, and social affairs and health. The State Provincial Office promotes regional cooperation and strives to advance well-being, due process and justice, equality and enforcement of citizens' basic rights. It also monitors and evaluates how well municipalities perform their duties in the execution of environmental health affairs. In addition, it supervises, inspects and grants certain permits. (State Provincial Offices of Finland 2003).

### Finnish Regional Council

The Finnish Regional Council (19) functions as a federation of municipalities in regional development policy and land use planning. A statutory duty of federations of municipalities is to supervise preparation, updating and development of the regional land use plan which guides municipal and other land use planning. Transportation, technical service, agriculture and use of shores have been areas of planning. The Regional Council enhances regional and other cooperation between municipalities. The Regional Council is also a key actor in the EU's regional development programmes (Regional Councils in Finland 2003).

### Employment and Economic Development Centre

The Employment and Economic Development Centre (15) provides a comprehensive range of advisory, counselling and development services for businesses, entrepreneurs, and private individuals. The Ministry of Trade and Industry, the Ministry of Agriculture and Forestry, and the Ministry of Labour have combined their regional forces in the Employment and Economic Development Centres (T&E Centre). The Centres also promote and develop farming and rural enterprise activities and fisheries.

The duty of the Employment and Economic Development Centre is to influence and participate in regional development in general. The rural development programme also considers water supply and sewerage matters. Furthermore, the Centre advises on issues concerning water rights, appropriations for fisheries, regional planning and the management of watercourses. The Employment and Economic Development Centre is a significant specialist and contributor of EU funding. Each Centre also develops EU co-operation in its own area (Employment and Economic Development Centre 2004).

### Finnish Competition Authority

The Finnish Competition Authority (FCA) operates under the Ministry of Trade and Industry. Its object is to protect sound and effective economic competition and to increase economic efficiency by promoting competition and abolishing competition restraints. The Authority focuses on major restraints of trade from the viewpoint of the efficiency of the national economy. The FCA protects sound and effective economic competition by intervening with competition restraints violating the Act on Competition Restrictions, the Competition Act, and by general advocacy.

The FCA also investigates major restrictive practices, which are harmful to sound economic competition. Furthermore, the FCA promotes competition, e.g. by making initiatives to adjust the rules, regulations and administrative orders that prevent the functioning of the markets and issues statements about draft bills involving the economy. The FCA also provides guidance to business undertakings and other major interest groups about effective competition. The FCA's task is also to participate in EU and international cooperation in its field of operations (Finnish Competition Authority 2004).

### Consumer Agency and Consumer Ombudsman

The Consumer Agency and Consumer Ombudsman function in the administrative sector of the Ministry of Trade and Industry. The task of the Consumer Agency and Consumer Ombudsman is to ensure the consumers' economic, health and judicial position, to implement consumer policy, and to improve consumer's chances of participating in public decision making and the markets. The Director General of the Consumer Agency serves as the Consumer Ombudsman. She/he monitors compliance with legislation concerning the protection of consumers' rights. The Consumer Ombudsman controls compliance with the law on the general supply conditions for water services (water, wastewater, storm water and drainage) in respect of consumer protection (Consumer Agency and Consumer Ombudsman 2004).

### Environmental Permit Authority

The Environmental Permit Authority (3) is an independent authority which makes decisions on the most important environmental permits and activities having major environmental impacts taking place under the Water Act and the Environmental Protection Act, or which have been initiated or promoted by a regional environment centre. The environmental permit authorities also deal with most water pollution compensation claims. They also hold the power of decision over environmental permits for key enterprises. Other significant permits are processed by Regional Environmental Centres. Less important permits fall within the jurisdiction of municipalities (Ministry of Agriculture and Forestry 2003).

### Vaasa Administrative Court

The jurisdiction of the Vaasa Administrative Court (VAC) covers the appeals concerning the decisions of the Environmental Permit Authorities, the Regional Environment Centres, and the municipal environmental protection authorities made in accordance with the Water Act and with the Environmental Protection Act. The jurisdiction of the VAC is nationwide, but excludes the Province of Åland. Matters falling under the Water Act and the Environmental Protection Act go before a panel of four judges in the Vaasa Administrative Court. The panel generally has a member specialised in technology and natural sciences (Vaasa Administrative Court 2003).

### Supreme Administrative Court

According to the Constitution of Finland, justice in administrative matters is in the final instance administered by the Supreme Administrative Court. The Constitution requires all exercise of public powers to be based on law. The general right to appeal against administrative decisions is primarily regulated by the Administrative Judicial Procedure Act. The Supreme Administrative Court is the highest court of appeal in all environmental cases to which decisions of lower courts and certain

administrative authorities can be appealed. Besides taxation, other large groups of issues are building and planning, the environment and water, transportation and roadways, municipal law and social welfare law. In addition to administering justice, the Supreme Administrative Court also oversees the administration of justice by lower authorities in the field of administrative law.

In matters under the Environment Act, in addition to its legally trained jurist members, the court is composed of two expert members from the fields under discussion. Figure 10 shows the relationship of the Supreme Administrative Court to other branches of administration (Supreme Administrative Court 2004).

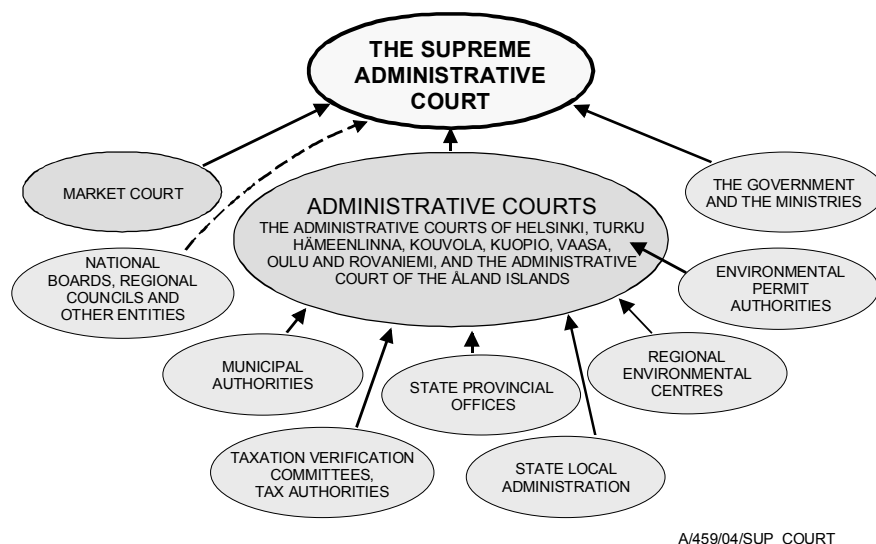


Figure 10. Relationship of Supreme Administrative Court to other branches of administration in Finland (Supreme Administrative Court 2004, modified by the authors).

The owner or occupier of a property is responsible for the property's water services in accordance with the Water Act. The owner or occupier of a property to be connected to the network of a water and sewerage undertaking is responsible for the water services equipment of the property up to the connection point. Equipment must be designed, located and constructed to be compatible with that of the water and sewerage undertaking. The water services equipment of the property must be maintained and used in a way which causes no risk or inconvenience to the user of the water and sewerage undertaking equipment, or health, or the environment.

The consumer protection rules are stipulated in the Water Act, in the Consumer Protection Act (38/1978), and in the Insurance Contracts Act (543/1994).

#### 4.2.2 Policy and strategy framework

In Finland, the Constitution stipulates self-government for municipalities and guarantees them a great deal of independence. As basic administrative units, municipalities have traditionally also had the legal duty to provide welfare services. The State ensures that municipalities are able to meet their obligations. Municipalities may be allotted new functions only by passing legislation to that effect. The influence of a municipality on the lives of its inhabitants is quite remarkable since they are currently providing nearly two thirds of public services. Even though most municipal responsibilities are statutory, municipal self-government has been constantly increased (OECD 2001a).

The management of municipalities must be based on self-government of the citizens. Additionally, Finland has acceded to the European Charter of Local Self-Government according to which the principle of self-government is to be recognised in domestic legislation, and if possible also in the Constitution. This contract shall direct the development of the municipal-state relations towards increasing self-government, responsibility and independence from the state. Thus municipal administration is implemented by those whom it serves, i.e. the residents themselves (OECD 2001a).

The national level policies and legislation related to water services are aimed at safeguarding the well-functioning water and sewerage undertakings, and at improving the institutional framework and preconditions for their operations. Water services are considered commodities beneficial to the public or common interest, and therefore their availability must be guaranteed in all circumstances by legislation. The goal is that water services availability and quality, or the reasonability and equitability of charges, cannot depend on the ownership and management model of the water and sewerage undertakings. Therefore, also the taxation with regard to water services must not depend on the ownership or management model.

The formulation of Finnish national policies and legislation is based on EU policy and strategy and the aforesaid goal. Therefore, they form a so-called “enabling institutional framework”, i.e. they consider all the forms of ownership and organisational models for operational management of water and sewerage undertakings equal. The legislation defines the responsibilities of the municipalities, water and sewerage undertakings, regulatory (control) authorities and property owners and occupants, but does not stipulate the ownership or organisational model of the water and sewerage undertakings. Water and sewerage undertakings and utilities are not public authorities, but (public) service producers, whose operations and charges have to be based on the Water Act and other relevant legislation.

In Finland, customer orientation has been a basic tenet of public management reform throughout the 1980s and 1990s. This line has been followed in many projects designed to improve service capacity and the services themselves (OECD 2001b). Each resident of a municipality has the right to take the initiative in municipal affairs. The Local Government Act obliges municipal councils to make sure that the municipality's inhabitants have real possibilities to participate and influence the running of the municipality's affairs (OECD 2001a).

#### Water Resources Management Strategy

The Ministry of Agriculture and Forestry has prepared the Water Resources Management Strategy (WRMS) in collaboration with the Ministry for the Environment, the Ministry of Social Affairs and Health, and the Finnish Environment Institute and the Regional Environment Centres. The Water Resources Management Strategy aims at implementing the Strategy for the Sustainable Use of Renewable Natural Resources in Finland of 1997. The WRMS was approved in 1999, and it guides the management of water resources in the administrative sector of the Ministry of Agriculture and Forestry. The WRMS covers the water services of the municipalities and the use and management of water courses (Ministry of Agriculture and Forestry 2000).

The WRMS stipulates the key actions in accordance with which the objectives are set and can be met through Management by Results. The overall objective of the WRMS is to make the use of water resources socially, economically and ecologically sustainable. The vision consists of:

- Versatile use of water resources.
- Consideration of needs, rights and responsibilities.
- Socially, economically and ecologically sustainable use of water resources.
- Making users of water resources satisfied with water services.
- Usability and state of water courses.
- Functioning of water services.
- Management of water resources.
- Safety of hydraulic structures.

The key objectives of the WRMS are the following:

1. That water authorities are effective, equitable and reliable.

2. That cooperation between stakeholders functions well and serves society's objectives.
3. That water services meet the needs of domestic and commercial and recreational activities.
4. That the usability and state of water resources are good.
5. That the benefits of water courses regulation and other projects materialise and damage is small, the management of water resources is viable and the property in question is safeguarded.
6. That measures against floods and flood prevention are effective and reliable, dams are safe, and drainage is properly done.
7. That research and development is internationally valid and the results can be applied into practice.
8. Finland develops and maintains close cooperation in international water affairs and has a proactive approach.
9. There are adequate resources and capacities for integrated water resources management and skilled personnel who recognise the needs of water users.

#### Water Protection Targets for 2005

Finland's third programme of targets for water protection (Council of State 19.3.1998) sets out the relevant guidelines for planners, policy-makers and those monitoring water protection schemes up to 2005. The programme stipulates that the Ministry of the Environment together with the representatives of various sectors must prepare a programme of action, incorporating the details of jointly agreed measures and action to be taken on water protection in general and on specific pollutants, in order to meet the targets set. The targets are the following (Ministry of the Environment 1999b):

- The state of the Baltic Sea and inland waters will no longer be allowed to deteriorate due to human activity. Any health risks or other hazards related to deteriorated water quality must be eliminated.
- The aquatic environment must be healthy and safe, and water quality must be appropriate for drinking water supply as well as other activities such as fishing, tourism and recreational use.
- The preservation of the biodiversity and other special natural features of marine and other aquatic, coastal and shoreline ecosystems must be ensured.
- The quality and abundance of groundwater aquifers must be preserved at least at today's levels in general, and improved where they have declined due to human activity.
- The quality of aquifer water significant for water supply must continue to correspond to its natural quality, or be restored to safe levels in areas where it has deteriorated.
- The preservation of the biodiversity and other natural features of important habitats dependent on groundwater reserves must be ensured.

#### **4.2.3 Financing, water rates and sewerage charges**

##### Investments

In 2001, the total investment in water services was 280 million USD corresponding to some 60 USD per capita. Of the total, 47 % was invested in water supply, 40 % in sewerage systems and 13 % in wastewater treatment plants. Figure 11 shows the total investments for public water services from 1970-2001 (Finnish Environment Institute 2002a).

Public water undertakings in Finland do not have major problems with getting financing. Cash-flow financing is stable and undertakings can get credit (loans) with reasonable terms. The cost of investment financing is determined by the nature of operations, not the fact whether the borrower is

the municipality or the water undertaking, which can get the loan directly. In practice, municipalities can get loans on slightly better conditions and at a lower interest rate than private enterprises. If municipal utilities are given adequate financial autonomy they can easily arrange their own investment financing.

In Finland the state gives some subsidies for water services investments. This government support has now been directed mostly to investments in smaller municipalities and in important supramunicipal systems (regional or inter-municipal). The present total share of all forms of government support to water services is well under 10 % of the total annual investments. No governmental subsidies are available for operations and maintenance, i.e. for operating expenditures (Kulo and Santala 1998).

The operating cost of services, i.e. the capital costs (interest and depreciation) and the operating expenditures (fixed and variable costs), are presently covered by direct customer charges. Earlier local taxes were also used for financing the construction of water and sewage undertakings. Even though water undertakings seldom have problems with the availability of water, all the water sold is metered when delivered to the customers. Usually multi-storey buildings have only one meter; dwelling-based metering is rarely used. Single-family houses, on the other hand, always have their own meter. Both water and wastewater charges are based on water consumption. Most water and sewage undertakings also have connection charges. The same is true for cooperatives and other associations. The most recent trend is that the water undertakings are introducing also a fixed fee that is independent of consumption.

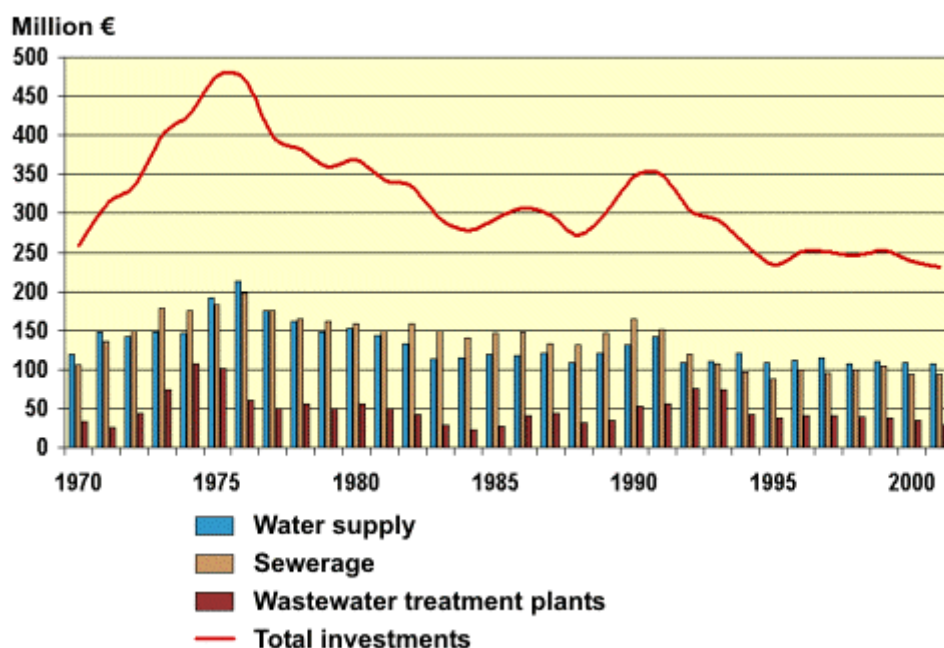


Figure 11. Total investments in public water services, 1970-2001. (1 EUR = 1.22 USD, 14 September 2004)

#### Cost recovery

In principle, the municipal water undertakings in Finland aim at Full Financial Cost Recovery (FFCR). In accordance with the new Water Services Act, charges should cover all capital investments on water services as well as operating expenditures in the long run. Charges may include only a reasonable rate of return on capital investments. The charges have to be reasonable and equitable. The requirements of water demand management, special water use, or exceptional wastewater quality or quantity can be considered when setting the charges. The charges may also be such that they enhance viable use of water and reduction of the quantity of wastewater, and that they prevent the discharge of harmful substances into sewers (Ministry of Agriculture and Forestry 2001).

Water services can, however, be subsidised by the municipality, the state, and the European Union. In accordance with the Local Government Act (365/1995), the municipal council decides and approves the strategic operational and economic objectives of the public utility. In practice, this means that municipal councils no longer necessarily decide and approve water and sewage charges as earlier. All municipal water undertakings should (gradually) become autonomous municipal public utility companies. Then, their board of directors can set the charges, although the final decision on the charges and/or the final approval is left to the municipal council.

The council can delegate its decision-making power entirely to the board of the utility in accordance with the Local Government Act. In joint-stock companies – whether municipality-owned or private – the board decides the charges. In all types of privately owned undertakings, including water cooperatives, the board decides and approves the charges. The charges of all water and sewerage undertakings are now based on civil law. Thus, the charges of public utility companies, joint-stock companies and cooperatives are all equally binding.

### Water and wastewater charges

The guidelines and recommendations for water and wastewater charges were recently renewed (FIWA 2001). The guidelines aim at harmonising the principles of charging and tariff structures, but certainly not the tariff levels. These guidelines include a proposal on how the regulations of the Water Services Act are to be applied in practice. These guidelines are an internal tool for the undertaking and municipality, and therefore they are not distributed to the customers. Instead, the revised tariff and service charge schedules are distributed to customers when new service agreements are made or agreements are amended. Undertakings that are joint-stock companies or cooperatives have the flexibility to define their tariff structures, but in practice they follow the same principles as municipal undertakings.

The new Water Services Act enables undertakings to renew their tariff structures to better comply with their actual cost structure. The undertaking has to collect a service charge, which is based on the quantity of water used and the quantity and quality of wastewater discharged (volumetric charge). In addition, the undertaking can charge a connection fee, a basic charge, and other charges for its services. These basically non-volumetric charges can be different in different areas within the undertaking's water services area, if deemed necessary, for example, to allocate costs appropriately or to implement the "polluter pays" principle. The specific use of the property may also be considered, when defining the connection charge. This also enables the undertaking to charge separately for stormwater and foundation drainage (Ministry of Agriculture and Forestry 2002).

Although the volumetric charge, in principle, could vary in different areas, undertakings, in practice, apply uniform service charges based on the quantity of water distributed. The other charges include, e.g. the water meter inspection fee, the meter reading fee (in case the customer has not submitted the meter reading to the undertaking in time), construction charges for service lines and maintenance charges for blocked customers' sewers. The new Water Services Act also allows undertakings to collect fixed charges on sewerage services. Earlier sewerage charges were mainly volumetric, and were based directly on the quantity of water used. According to the recommendations, fixed charges should not usually exceed one third of the total amount of fixed and volumetric charges. Undertakings can also justify fixed charges, if they do not intend to apply connection charges.

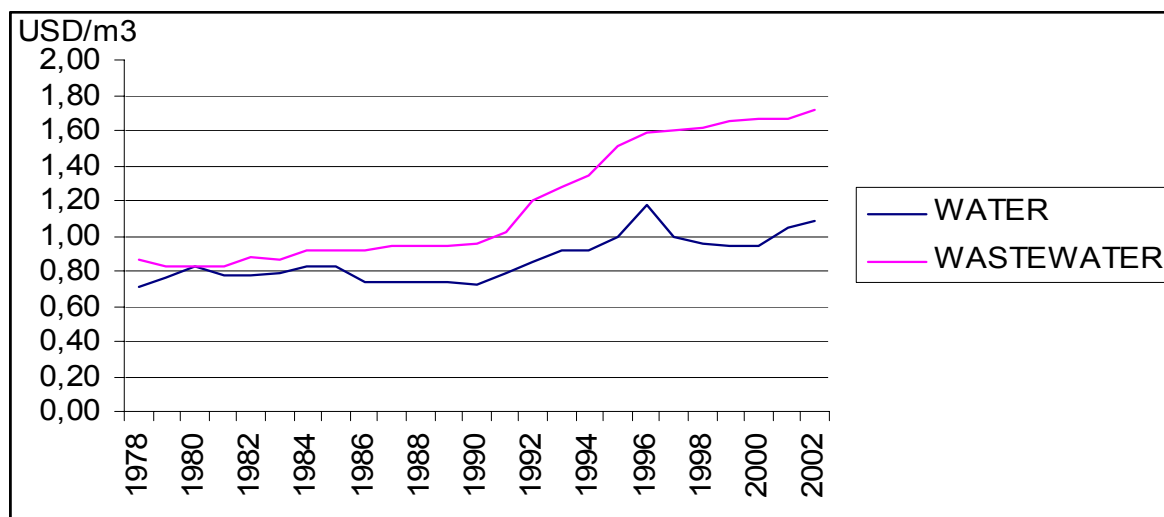
The revision of the pricing structure in Finland was justified also as it corrects the previous discrepancy in the cost recovery practice. In most water undertakings the bulk of the revenue (over 90 per cent) used to come from variable income (revenue based on volumetric charges according to water use) and only a small portion (less than 10 per cent) from other (fixed) sources. On the other hand, the actual cost structure of water undertakings is practically just the opposite. The majority of the costs (80-90 per cent) are fixed and fairly independent of the volume of services rendered, such as interest and depreciation, and personnel and administration expenditures. The recent amendments aim at increasing the share of revenue from fixed charges to 25-35 per cent of all water services revenue.

According to Kiuru et al (2001), the water and sewerage undertakings of all the largest urban municipalities, and some of other old towns, have been economically either extremely profitable or at least very profitable. The cash flows from the undertakings to the owner municipalities have been large. On the other hand, some undertakings of older towns, and nearly all undertakings of new towns and large rural municipalities, have clearly been less profitable, and the cash flows to the owner municipalities have been low. In general, the undertakings of small rural municipalities have been clearly unprofitable, and the municipalities have provided them quite considerable financial support.

It is noteworthy that the charges of extremely profitable large undertakings have not been considerably lower than those of very small unprofitable undertakings. This means that the tariffs have not always been based on full cost recovery but on the need to subsidise other public sector activities or to finance activities of the municipal central administration. Some larger undertakings have provided their owner municipalities a rate of return as high as 9-10 % on capital and 30-50 % of the annual turnover in the survey year 1998 (Kiuru et al 2001).

According to the Water Services Act, all municipal water and sewerage undertakings should have adopted commercial accounting principles by the end of 2001. That would make them autonomous public-service enterprises, i.e. public utilities. In practice the transition period seems to become longer. Water utilities should clearly separate their economy from the general municipal economy. The utilities should use capitalised costs based on original purchase values as the book value of their fixed assets, as stated in the bookkeeping act and decree. They should also prepare annually their own financial statement and balance sheet.

According to recently published data (FIWA 2004), in the beginning of 2004 the average volumetric water charge was 1.23 USD/m<sup>3</sup> and wastewater charge 1.80 USD/m<sup>3</sup>. In addition to these volumetric charges, a small fixed water charge is also collected. Earlier it was typically called a meter rent, which in 2004 was about 50 USD/year for one-family houses. In the past it was not possible to collect a fixed charge for wastewater services, only a volumetric charge was allowed. In 2004 most water undertakings did still not charge any fixed wastewater fee, but those that did commonly collected around 50 USD/year from each one-family house. Fixed charges are clearly smaller per household for people living in blocks of flats. The charges include a VAT of 22 per cent.



Note: Fees include VAT 22% since 1994

Figure 12. Volumetric water and wastewater fees in Finland (at 2001 price level)

In Finland stormwater collection and disposal has typically been the responsibility of the water and wastewater undertaking even before the Water Services Act of 2001. The costs of these activities are in most cases covered by wastewater charges. Only ten or so undertakings did charge a separate stormwater fee in 2004, but the trend is that in the future a separate stormwater charge will be introduced more commonly.

Properties wishing to get connected to a public water, wastewater or stormwater network have to pay a connection fee. Typically there is a separate connection fee for water supply and wastewater services. In most cases there is no separate stormwater connection fee, but the costs of stormwater connection are included in the wastewater connection fee. In principle, the connection fee(s) is intended to cover the investments costs from connecting a new property to the network. There are no strict rules on how connection fees should be determined, but the Finnish Water and Waste Water Association has issued guidelines and recommendations for calculating the fees (FIWA 2001). The guidelines aim at harmonising the principles of charging and tariff structures, but certainly not tariff levels.

The average connection charge for a one-family house was 1,300 USD for water and sewerage each, and for a multi-storey residential building 12,000 USD each.

Water charges in Finland are in general reasonable, and account for only a small portion of overall living costs. Non-payment of water bills is extremely rare, and consumer debts (mainly delayed payments) are far below 1 % of water undertakings' annual income. There are no actual "social tariffs" in use in Finland where domestic use water tariffs are progressive or based on increasing-block rates. Basically, all domestic customers served by the same undertaking pay an equal volumetric charge per m<sup>3</sup> of water used, independent of the quantity. Block rates may be applied to commercial and industrial customers in some cases.

#### 4.2.4 Regulatory framework

In general, the technical and environmental regulation is currently adequate, but economic regulation may need strengthening due to the apparent unwillingness of the Competition Authority to act fully in accordance with the regulations. There is not yet proper price regulation in Finland. Currently the Competition Authority can manage the regulation of charges. Yet, if public-private partnerships increase or private operators start getting considerably more operational management contracts, and the capacity and competence of the Competition Authority is found inadequate, there might be a need to establish a specific economic regulatory agency for water services like in the energy sector.

The Energy Market Authority is an expert body subordinate to the Ministry of Trade and Industry. It started operating as the Electricity Market Authority on 1 June 1995, but the name was changed to the Energy Market Authority on 1 August 2000. The goal of The Energy Market Authority is to promote healthy and efficient competition in the electricity and natural gas markets, and to secure reasonable and equitable service principles in electric and gas network operations (Energy Market Authority 2002).

In the past, more economic regulation of water services would have required keeping profits – i.e. the rate of return on capital – of the largest water undertakings at a more reasonable level. The new water services legislation, for its part, will address this issue.

Local authorities monitor regularly the quality of drinking water and report the results to the regional health authorities. In 1996, a survey of all water undertakings serving more than 50 people indicated that both the microbiological and chemical quality of drinking water is good on average. The problems that were detected are mostly caused by natural soil conditions, bad condition of the distribution network, or pollution of the water source. These problems occur mainly at small treatment plants and affect only a small fraction of the population connected to public water supply.

Based on health criteria, the water from private wells is usually of fairly good quality. Yet, in some areas there are problems such as high concentrations of iron, manganese, fluoride, radon or arsenic. These problems arise mainly from geographical and geological circumstances as well as the poor condition of wells. Bacterial and nitrate contents have reduced the hygienic quality of the water because of local pollution. Due to Finnish soil conditions, the quality of the water in private wells does

not usually meet all the standards set for the technical and aesthetic quality of drinking water. Besides the quality problems with private wells, there have been some occasional quantity problems too.

#### 4.2.5 Participation mechanisms

The Constitution of Finland stipulates that in Finland all power is vested in the people, who are represented by the Parliament. Democracy entails the right of the individual to participate in and influence the development of society and his or her living conditions. The exercise of public powers shall be based on an Act. In all public activity, the law shall be strictly observed. In accordance with the Local Government Act (365/1995), the municipal council has to see to it that inhabitants and users of the services have the possibility to participate in and influence the activities of the municipality.

In practice, many municipal water and sewerage undertakings have actively counselled the inhabitants living outside their water services area about how to establish and organise water services associations, their management, and the planning, construction and operation and maintenance of undertakings. In accordance with the Water Services Act (119/2001), the municipality must make sure that appropriate measures are taken to establish a water and sewerage undertaking to meet local needs, to expand the water services area, or to otherwise secure the availability of sufficient water services. Before taking the measures, the municipality must reserve an opportunity for property owners and occupants in the area to be heard. A municipality approves the water services area of the water and sewerage undertaking operating within its territory and, when necessary, redefines an approved water services area on the suggestion of the undertaking or, if the undertaking has made no such suggestion, after hearing the undertaking. Before the approval or redefinition of the water services area, a statement on the matter must be requested from the control authority, and an opportunity must be reserved for property owners and occupants in the area to be heard.

In accordance with the Local Government Act (365/1995), the municipal council has to see to it that inhabitants and users of services have the possibility to participate in and influence the activities of the municipality. Participation and influencing can be enhanced particularly:

- 1) by nominating representatives of service users to municipal bodies;
- 2) by notifying about municipal matters and by organising hearings;
- 3) by finding out the inhabitants' opinions before decision-making;
- 4) by arranging cooperation in municipal duties management;
- 5) by assisting inhabitants' spontaneous action regarding the management, preparation and planning of activities; and
- 6) by arranging municipal referendums.

Municipalities can also nominate representatives of service users to the board of directors of an undertaking; normally they have nominated members only on political grounds.

Inhabitants also have the right to present initiatives to the municipality concerning its activities in accordance with the Local Government Act. The municipality has to notify inhabitants about matters under preparation in the municipality, on related plans, on decisions made, and on subsequent impacts. The municipality has to prepare, if deemed necessary, briefs concerning municipal services, economy, environmental protection and land use. Inhabitants also have to be informed about how they can bring questions and opinions to the attention of municipal officials and decision makers.

In accordance with the Environmental Protection Act (86/2000), the permit authority shall request an opinion on the permit application from the regional environment authority and the municipal environmental protection committee in municipalities where the activity referred to in the application may have an environmental impact. Regional environmental permit authorities shall request an opinion from the regional environmental centre in whose area the activity referred to in the application may have an environmental impact. In addition, the permit authority must also request an opinion from other authorities charged with protecting the public interest, and any other opinions needed in

considering the permit application. Regional environmental permit authorities and regional environmental centres shall request an opinion from the local authority where the activity referred to in the application is located and, if needed, from other local authorities whose territory will be affected.

The permit authority may also procure other necessary opinions and statements relating to the permit application. Before passing a decision on a permit, the permit authority shall provide those whose rights or interests might be concerned (stakeholders) with an opportunity to lodge a complaint regarding the matter. Persons other than stakeholders shall be provided with an opportunity to state their opinion.

In accordance with the Water Services Act (119/2001), the municipality must make sure that appropriate measures are taken to establish a water and sewerage undertaking to meet local needs, to expand the water services area, or to otherwise secure the availability of sufficient water services. Before taking the measures, the municipality must reserve an opportunity for property owners and occupants in the area to be heard. A municipality will approve the water services area of the water and sewerage undertaking operating within its territory and, when necessary, redefine an approved water services area on the suggestion of the undertaking or, if the undertaking has made no such suggestion, after hearing the undertaking. Before the approval or redefinition of the water services area, a statement on the matter must be requested from the control authority, and an opportunity must be reserved for property owners and occupants in the area to be heard.

Furthermore, the Water Services Act stipulates that a water and sewerage undertaking must notify the customer well before: i) any modifications to the general conditions of the water services contract; ii) how and when charges and other conditions will change; and iii) what is the reason for the modification.

Land Use and Building Act (132/1999), Act on Environmental Impact Assessment (468/1994) and Decree on Environmental Impact Assessment (268/1999) all set requirements and stress the importance of public participation in planning and decision making.

## **5. FINNISH EXPERIENCES OF EXTENSIVE PUBLIC-PRIVATE COOPERATION THROUGH OUTSOURCING OF GOODS AND SERVICES**

Finland has long and extensive experience from public-private cooperation in the water supply and sewerage sector, although perhaps not of the type that it is too often erroneously understood to be (i.e. private finance initiative). Outsourcing of the services – especially non-core services – of public water undertakings in Finland is very extensive. Outsourced services can be as much as 60-80 per cent of the undertaking's turnover (cash flow) in many public undertakings. Outsourcing is based on competitive bidding. Nearly 100 per cent of the expenditure on capital investment goes to private companies based on competitive bidding.

The new Water Services Act allows delegation of water service production also to private operators, if the municipality so desires. The earlier legislation did not prevent the use of private operators either. Yet, such operators are still scarce in the Finnish water market. In industrial water supply private operators have had service or management contracts for a number of years, but in municipal (urban) water services private operation contracts are only emerging. Recently a few private operator companies including a public utility, Helsinki Water, have started offering their operational management services, but experiences from private operators are still very limited. There are only 2-3 Finnish private operators offering actual operator services to public water undertakings, mainly on wastewater treatment.

According to a recent study (Metsälä 2001), the cash flow from water undertakings to private sector services varies between 21-65 per cent, the average being 40 per cent. In actual operation and maintenance of undertaking operations, private sector services have mainly been used in pumping stations and sludge treatment. The most commonly outsourced services are (Vehmaskoski et al 2002):

- Detailed design
- Construction
- Wastewater sludge treatment
- Equipment and material supply
- Repair workshop services
- Laboratory services
- Other non-core services (such as transportation, machinery leasing, ADP services, office and real estate services, etc.).

The first, and until now the only, actual private operator contract was made in July 2002 for rehabilitation and operation of a municipal-industrial wastewater treatment plant in Haapavesi town. The Valio Oy Dairy and Haapavesi town awarded a 12-year contract to a project company, with majority private shareholding, to rehabilitate and operate the treatment plant. A joint venture of Kemwater Services Ltd and YIT Environment is the majority shareholder and Haapavesi town the minority shareholder. The value of the rehabilitation is about EUR 2 million.

## **6. IMPLICATIONS OF THE FINNISH EXPERIENCES FOR DEVELOPING COUNTRIES AND TRANSITION ECONOMIES**

### **6.1 Rural areas: cooperatives and water associations**

Finland's experiences of rural water supply development can be utilised in developing and transition economies. The first rural water supply systems in Finland were constructed already in the early 1870s through collective private efforts. The positive experiences of the Finnish consumer-managed water cooperatives provide good lessons for developing countries, as documented by Katko (1992). In recent years, many new cooperatives have been established – many of them also for sewerage in addition to water distribution.

### **6.2 Regulation: regulation at various levels**

Finland has a well working control, supervision and regulatory system in water and sewerage services, based largely on “self-regulation” at the local government and regional levels. Often the recent attempts to develop regulatory systems in developing countries seem to concentrate only on the central government level. Finland's experiences from a decentralised regulatory system could provide useful lessons for developing and transition economies.

### **6.3 Role of municipalities**

Finland has good experiences from autonomous and incorporated municipal water utilities. Adequately reformed and autonomous public enterprises could in most cases be a more viable option than privatised utilities also in developing and transition economies. Outsourcing of various non-core services to the private sector – as is extensively done in Finland – could be a potential form of gradually building the capacity of the private sector. Most developing and transition economies do not have substantial current private operator potential, but often have a lot of private enterprises that could provide various services to public water utilities. Finland's promising experiences from regional co-operation between municipalities and water utilities – without necessarily merging smaller ones into large ones – could also be explored more with a view to their application in developing countries.

In accordance with the Local Government Act 365/1995, the municipality takes care of the duties, which it considers relevant for self-governance, or which are stipulated in legislation. The new duties and responsibilities cannot be given to the municipalities, or the existing duties and powers cannot be taken away from the municipalities except by amending legislation accordingly (Finlex 2004a). This

means that the traditional public ownership or operational management responsibilities cannot be transferred from the municipality, for example by the State or Province, if the appropriate laws are not amended.

In the future, the pressure to change current practices might come from the general demands for public sector reform – whether justified or not in the case of the water services sector – to further promote its efficiency especially at the local level in Finland by opening public services production for competition.

#### **6.4 Role of the association of water supply undertakers**

Finland has a relatively large number of water utilities and undertakers in relation to its population. They have established the Finnish Water and Waste Water Works Association (FIWA), which is an important stakeholder in the sector. It arranges a lot of training for the water utilities and looks after the interests of utilities and water co-operatives. Developing countries often lack this kind of an umbrella organisation, which is important for capacity building and professional networking.

The members of FIWA produce by volume about 85 per cent of all the water services in Finland. The main duties of FIWA are: to promote the common interests of its members, to prepare technical and administrative guidelines for its members. FIWA is the representative of Finland in IWA (International Water Association) and EUREAU (European Union of National Associations of Water Suppliers and Waste Water Services). It also works with entities of the government, makes proposals and gives statements. In addition, FIWA participates in the preparation of, for instance, EU directives as a member of aforesaid international organisations (FIWA 2003).

#### **6.5 Association of Finnish Local and Regional Authorities**

The Association of Finnish Local and Regional Authorities is made up of all urban and rural municipalities (444) and the regional councils (19) in Finland. The Association's goal is to create preconditions for basic municipal services, functioning democracy and a good living environment for the inhabitants. The Association promotes the interests of local and joint authorities and engages in development work. The Association seeks to influence legislation related to local government, provides local authorities with guidance and information, offers opportunities for co-operation in networks, engages in research, produces studies and reports and provides current information about the local government sector (Association of Finnish Local and Regional Authorities 2004).

The Association's service areas comprise municipal finance, legal matters, social and healthcare services, education and culture, infrastructure, community and environmental concerns, regional and economic development, local government development and research, the Information Society, communications and international affairs.

#### **6.6 Legal framework: experiences from the Water Services Act**

Finnish legislation and other institutional arrangements factually separate the essential roles of policy making, licensing, supervision, regulation, water resources management, and service production and provision. In addition, separate laws govern water rights and water resource management issues (Water Act) and service provision and production (Water Services Act). The Finnish Water Services Act is a good example of the fact that water legislation can be fairly lenient with the aim of providing an enabling environment, as long as enforcement and compliance are adequately ensured.

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