EUREAU Statistics Overview on Water and Wastewater in Europe 2008

Country Profiles and European Statistics

European Federation of National Associations of Water & Wastewater Services
www.eureau.org

Brussels
June 2009

Preface

Water is the most basic need for humans. And not only for humans! Well functioning water services therefore are essential and are an important indicator of citizens' welfare and well being. Drinking water and wastewater services are a central part of the water cycle management, as they are greatly influenced by both the availability and the quality of water resources.

In a time of increasing awareness with regard to the environment, climate change and management of natural resources, water and sanitation issues will appear more and more on the political agenda of the European Union in the coming years. In order to develop effective and implementable water policy, basic and reliable facts and figures are indispensable. EUREAU's Statistics Overview on Water and Wastewater in Europe aims at presenting general information about European water and sanitation services in our continent. EUREAU is an important stakeholder that wishes to play an active role in de development of European water policy. By providing statistical information on the water services in its member countries, EUREAU takes its responsibility to ensure that its recommendations on European water policy are based on reliable information. Furthermore, EUREAU is committed to support decision makers by making the information available to ensure that they can access relevant data.

This Overview is divided in three major chapters.

The first chapter is an introduction, with general information on historical development of water supply and wastewater services, on EUREAU interests, structure and mission, and on EUREAU member countries' population, area, GNP, atmospheric precipitation, water availability and water uses.

In the second chapter, a concise overview of the national context and basic statistics of the water and wastewater sectors in each EUREAU member country is presented. Institutional, legislative, economic aspects as well as water resources and water services management aspects are covered, outlining the diversity of organisational structures in these sectors across EUREAU member countries.

In the third chapter, the Overview presents a table with EUREAU totals, as well as a series of graphics with a comparison of water resources, water uses and water & wastewater services among EUREAU member countries in the EU and the EFTA.

Also, for those who wish to find more, a comprehensive list of useful references is provided, both national and international. The data included for each country were provided by the respective local National Association(s) and the accuracy of these data remains their responsibility.

It is the intention of EUREAU to update this Overview regularly, in order to base EUREAU positions on, and provide policy makers with data as accurate and updated as possible.

Acknowledgments

We want to express our warmest thanks and appreciations to Mrs Marianne AUDETTE-CHAPDELAINE for her significant contribution to this Overview as she is the main author of chapters 2 & 3.

Also, sincere thanks are due to the EUREAU Working group on Statistic for having initiated this work.

Our grateful thanks go also to Peter GEUDENS as well as to Daniel VILLESSOT, EUREAU Past President, Fernando PORTA, Dominique OLIVIER and Jeanne GOLAY, members of the *ad hoc* Task Force on Water Statistics.

Finally, we want to express our appreciation to Grégory MATHIEU and Louise HOOGENHOUT, of the EUREAU Headquarters in Brussels, for their appreciated cooperation in this project.

Andreas N. ANGELAKIS
President

Pierre-Yves MONETTE
Secretary General

TABLE OF CONTENTS

Introduction

Historical Development of Water Supply and Wastewater Services in Europe

Unlike preceding civilizations such as those in Mesopotamia and Egypt, which were based on the exploitation of water of the large rivers like the Tigris, the Euphrates and the Nile, civilizations and cultures that flourished in the Southern European countries have been characterized by limited and often inadequate natural water resources. This has been reflected in several myths concerning the ancient Europeans such as Greek hero Hercules and the control of water, the most characteristic being his struggle with the river god Acheloos. After many centuries, the symbolic character of the myth becomes again vivid: wisdom in management seems to be the solution of the global ever-growing water resources problems, formerly promised by engineering development (Koutsoyiannis *et al.*, 2008).

Humans have spent most of their history as hunting and food gathering beings. Only in the last 9.000 to 10.000 years they have discovered how to grow crops and tame animals. Such revolution probably first took place in the hills to the north of Mesopotamia. From there the agricultural revolution spread to the Nile and Indus Valleys. During this agricultural revolution, permanent villages replaced a wandering existence. About 6.000 to 7.000 years ago, farming villages of the Near East and Middle East became cities. During the Neolithic age (*ca.* 5700-3200 B.C.), the first successful efforts to control the flow of water were driven by agricultural needs (irrigation) and were implemented in Mesopotamia and Egypt. Remains of these prehistoric irrigation canals still exist. Urban hydraulic systems are dated at a later stage, in the Bronze Age (*ca.* 3200-1100 B.C.).

Starting from the Bronze Age, hydraulic technologies were developed further in Greece during several stages of the Greek civilization. New more advanced water technologies were also invented there, with a peak in the Hellenistic period. The Romans, who's Empire replaced the Greek rule in most parts of this area, inherited the technologies and developed them further also changing their application scale from small to large and implementing them to almost every city. The Greek and Roman water technologies are not only a cultural heritage but are the underpinning of modern achievements in water engineering and management (Angelakis *et al.*, 2005 and Koutsoyiannis *et al.*, 2008). The durability of some of the constructions that operated up to modern times, as well as the support of the technologies and their scientific background by written documents enabled these technologies to pass to modern societies despite regressions that have occurred through the centuries (i.e., in the Dark Ages).

The achievements of these periods for supporting the hygienic and the functional requirements of palaces and cities were highly advanced. They would only be paralleled by modern urban water systems developed in Europe and North America only in the second half

of the 19th century.

The periods of great migrations resulted in a loss of knowledge of water supply and hygiene and far into the Middle Age, degradation in this area could be recorded. Most people had access to a barrel or just a pothole in the courtyard, but no sewer pipes.

Only after cholera had raged through Europe several times in the middle of the 1800s was sewerage work initiated in several larger cities. In the mid-1800s the industrial revolution grew leading to larger manufacturing companies and urbanization. The poor hygiene was now acknowledged as a threat to public health – and not least to the labour force – and only then the sanitary conditions were taken seriously.

From the end of the century the process of constructing sewerage pipes was speeded up. At the same time it became common to get water installed, making it possible to switch from the latrine barrel to a proper wc. Around the turn of the century, the first interest in wastewater cleaning was initiated in Europe. In Denmark the first sewer works were constructed as septic tanks and approximately at the same time in England, USA and a bit later in Germany, sewage treatment plants working with addition of air/oxygen were designed.

But not until the 1960's – a period characterised by a general prosperity in society – was an incipient environmental awareness developed and were more wastewater treatment plants built as a result of increasing evidence of pollution. Not until the late 1980's can one talk about a proper environmental awareness in the public society. At that time, the wastewater treatment plants were significantly improved and issues like water consumption were brought into focus. Water saving campaigns were launched in most of Europe resulting in significant reductions in consumption through the 1990's.

The recent years can be characterised by rapid development and new challenges for water supplies, sewerage systems and waste water treatment plants. The development has, to a great extent, been pushed by the development in advanced water treatment technology.

Population, climate changes, urbanization and ever-rising health and environmental standards are creating new imperatives for the sector. Readily accessible fresh water supplies are limited and have been fully allocated in some areas. In megacities, water and wastewater treatment processes become more energy intensive due to limitation of fresh water resources and space and to more stringent requirements (desalination, membrane bio-reactors). Focus is set on sustainability and new strategies are discussed to reduce carbon footprint by optimisations of energy use in water and wastewater utilities, managing competing interests for water resources, and introducing emerging technologies for energy-production tied to water and wastewater management.

Where some areas struggle with water scarcity, others have to adapt to more extreme rainfalls. But the adaptation of the existing sewer systems to the rain patterns of the future is not an easy task due to the uncertainties of the actual effect of the climate changes. Strategies of "security by diversity" are discussed in relation to both management of water scarcity and extreme rain events.

Never before have the challenges to water professionals been greater.

A WORD ABOUT EUREAU

EUREAU, a non-profit association base in Brussels, is the European Federation of National Associations of Water and Wastewater Services from the European Union (EU) and the European Free Trade Association (EFTA) countries.

Founded in 1975, the EUREAU membership has more than doubled in the last ten years. Furthermore EUREAU has merged with European Wastewater Group to become today the only Organization representing the water and waste water operators in Europe, gathering more than 10.000 water and wastewater utilities across Europe providing collectively sustainable water and sanitation services to more than 400 million Europeans!

EUREAU Members reflect the full diversity of the European water services sector and represent both public and private operators. As a platform for any water related issue, EUREAU represents a unique pool of technical, scientific and managerial knowledge and practical experience in water services.

Representing 85% of the water and wastewater operators from all EU & EFTA countries but three, EUREAU will make all necessary efforts to welcome the two last EU Member States (Slovenia and Latvia) and the last EFTA Member State (Liechtenstein) not being with EUREAU at the time being. Moreover, EUREAU is in contact with the national Associations in the other EU candidate countries (Turkey, FYROM, Serbia and Montenegro) for the same purpose: to defend together the quality and the sustainability of the water in Europe.

Visit our web site: www.eureau.org

THE EUREAU MEMBERS

EUREAU members are the national Water and Wastewater Associations of: (a) 25 EU countries as full Members; (b) 3 EFTA countries as full Members; (c) one EU candidate country (Croatia) as observer member (see fig. 1).

Figure 1 Countries of EUREAU Members.

The EUREAU Members per country are described in Annex I. The population, area & GNP in EUREAU member countries are shown in Table 1 (next page).

Table 1 Population, area & GNP in EUREAU member countries.

Countries	Population(inh.)	Area (km²)	GNP	GNP/inh.
Austria	8.3	83,870	270.836	32.600
Belgium	10.6	30,528	334.917	31.500
Bulgaria	7.6	110,919	28.898	3.800
Croatia	4.4	56,540	37.488	8.600
Cyprus	0.8	9,251	15.667	20.000
Czech Rep.	10.3	78,866	127.142	12.300
Denmark	5.4	43,098	226.544	29.500
Estonia	1.3	45,227	15.270	11.400
Finland	5.3	338,145	179.734	34.000
France	63.7	543,965	1.892.243	29.800
Germany	82.2	337,027	2.422.900	29.500
Greece	11.2	131,957	228.180	20.400
Hungary	10	93,030	101.130	10.100
Iceland	0.3	103,000	14.599	46.900
Ireland	4.4	70,182	190.602	43700
Italy	59.6	301,338	1.535.540	25.900
Latvia	2.2	64,589	19.936	8.800
Lithuania	3.3	65,300	28.422	8.400
Luxemburg	0.48	2,586	36.277	75.600
Malta	0.4	316	5.415	13.200
Netherlands	16.4	41,864	567.066	34.600
Norway	4.7	312,685	284.053	60.400
Poland	38.1	342,220	270.836	8.100
Portugal	10.6	92,345	163.082	15.400
Romania	21.5	237,500	121.430	5.600
Slovakia	5.4	49,033	54.856	10.200
Slovenia	2	20,273	34.470	17.100
Spain	45.2	505,988	1.050.595	23.400
Sweden	9.1	449,964	330.963	36.200
Switzerland	7.5	41,285	311.768	41.500
UK	61.1	242,514	2.047.289	33.700
EU-27	496.48			
EUREAU	509.18			

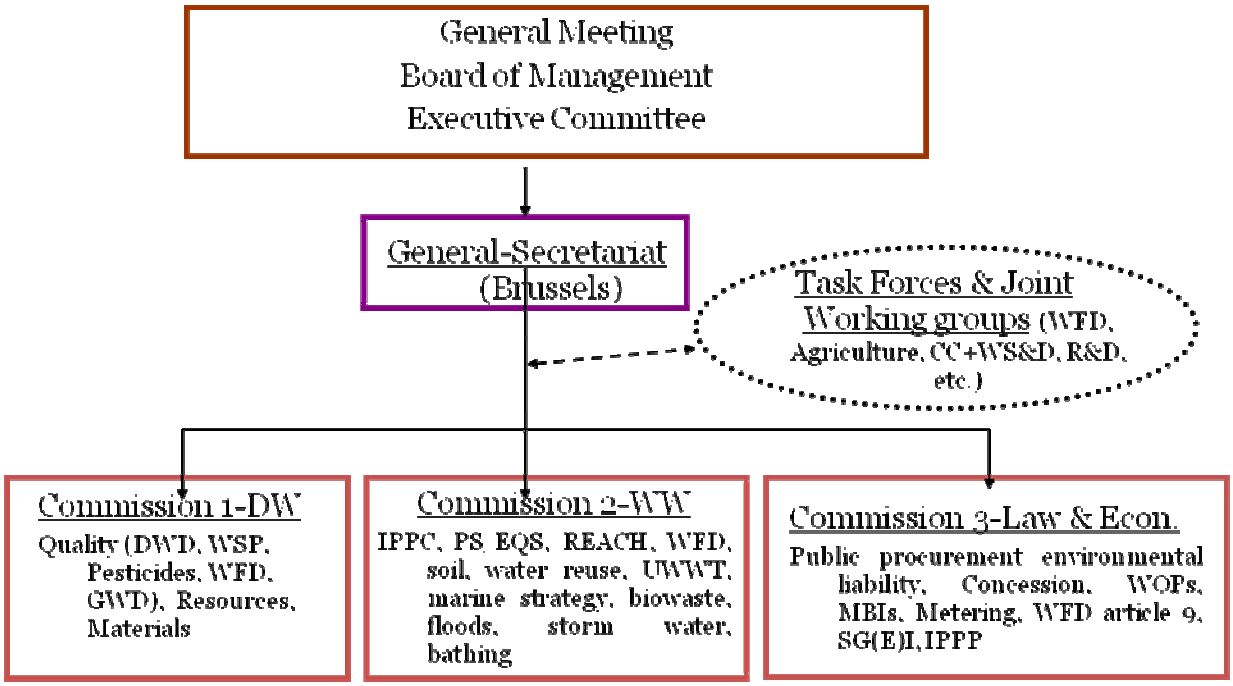
Eurostat 2007

THE EUREAU STRUCTURE

The EUREAU structure is briefly presented in Graphic 1.

Next to the EUREAU decisional bodies the three EUREAU Commissions play a central role, gathering more than hundred prominent water and waste water experts across Europe. Moreover, the main EUREAU Task Forces (TFs) or Joined Working groups (JWGs) are the WFD CIS TF, the Agriculture TF, the Climate changes & Water scarcity and drought TF, the Research & Development JWG, the Priority Substances & REACH JWG and the smart metering JWG. Also the major Working Groups (WGs) under the three Commissions are:

(a) WGs under Commission 1: Environment, Chemistry, Microbiology, Risks
(b) WGs under Commission 2: WFD & UWWD, Water reuse, Trade effluents, Sewage sludge/biosolids, Bathing & Storm waters.
(c) WGs under Commission 3: Legal aspects, Economic & Finance, & Management Issues.



Graphic 1 The EUREAU structure.

EUREAU's MISSIONS

In summary EUREAU missions are the followings:
(a) To promote the common interests of its members;
(b) To develop positions to defend the general interests of the water sector in EU;
(c) To promote and study all scientific, technical, economic, administrative and legal issues concerning water and waste water services in a way which represents the interests of its Members;
(d) To make the appropriate international and national bodies and the general public aware of the relevant issues.

WATER RESOURCES IN EUREAU MEMBER COUNTRIES

EUREAU is characterized by a severe water imbalance, particularly during the summer months, due to low atmospheric precipitation and, at the same time, increased demands for irrigation, potable water use due to tourism, and industry. The climate is sub-humid in south-eastern EUREAU member countries with humid winters and dry and warm summers with an average precipitation ranging from 400 mm/yr (in Malta) to 850 mm/yr (in France and Belgium). In the central and north-western EUREAU member countries the climate is subject to a temperate climate from the coastal regions. Towards the Ardennes the climate becomes more continental, with colder winters and warmer summers. Atmospheric precipitation is evenly distributed throughout the year. Snowfalls are also frequent. The average daily temperatures range between 4 degrees in winter and 22 degrees in the summer, with an average precipitation ranging from 850 mm/yr (in central Europe) to 1250 mm/yr (in Scotland and northern Scandinavian countries). However, there are regions between the EU countries with annual atmospheric precipitation less than 400mm/yr (i.e. Murcia in Spain and Aegean islands in Greece) as well as regions with precipitation above 1250 mm/yr (i.e. northern Finland). Such great climatic differences are due to the complex vertical and horizontal distribution of the mountainous areas and the extent of coastal areas.

Despite the relatively high precipitation in the south-eastern regions, drinking water constitutes a relatively small portion of water availability due to unequal temporal and regional distribution and high evapo-transpiration rates. About 45% of total precipitation occurs during the period from December to January. It is estimated that about 65% of the annual precipitation occurring in the plains is lost by evapo-transpiration, 10% as surface runoff to the sea, and only 25% for groundwater recharge. In addition, in these regions transport of water from water-rich areas to water deficient ones cannot be practiced, due to both environmental constrains and the high cost of transportation, across the mountainous terrain. Average annual atmospheric precipitation and water uses in EUREAU member countries are shown in Table 2.

Independently from the precise history of the climate change, there is no doubt that it will have a big impact on water resources. However, climate changes increase the risk of flooding and the intensity of extreme weather events (Fig. 2) and decrease water availability in many water-scarce regions (Fig. 3). These impacts will directly or indirectly affect both water and wastewater services and /or operators. Managing water resources under changing hydrological conditions possess a new challenge to European water and wastewater sector and particularly to water operators. Europeans have an increasing interest in water and

climate. The impact of climate on water resources (quantity and quality) is and will be considerable. EUREAU is expecting to see a holistic development of river basin management plants (RBMPs) and a coherent implementation of the WFD (2000/60/EC) in the two major European water basins of Danube and Rhine in which more than 50% of the EU citizens are living (Fig 2). To efficiently and effectively face water scarcity and drought in Europe, a holistic approach, combining demand management and the development of water resources, mainly alternative sources (i.e. drainage, rainwater, sea, brackish, and grey waters and treated wastewater effluent) should be considered.

Table 2 Average annual atmospheric precipitation and water uses in EUREAU member countries[1].

Country	Total water use (Mm^3/yr)	Agr. water use (Mm^3/yr)	Agr. water use (as % of total water use)	Year of irrigation	Annual rain fall (mm/yr)	Comments
Austria	2,100	21	0.99	1998	1,110	
Belgium	-	-	-	-	847	
Bulgaria						
Croatia						
Cyprus	240	170	71	1994	498	
Czech Rep	2,600	55	2.1	1998	677	
Denmark	1,300	540	42	1998	703	
Estonia	160	8	4.9	1995	626	
Finland	2,500	66	2.7	1998	537	
France	40,000	3,900	10	1998	867	
Germany	35,557	6,859.5			700	
Greece	8,184.3		83		874	
Hungary	7,600	2,500	32	1998	589	
Iceland						
Ireland	1,100	0.2	0.018	-	1,118	
Italy	44,000	20,000	45	1998	832	
Latvia	290	36	12	1995	641	
Lithuania	270	18	6.6	1995	656	
Luxemburg	-	-	-	-	934	
Malta	60	14	25	1990	383	
Netherlands	7,900	2,700	34	1998	778	
Poland	16,000	1,400	8.3	1998	600	
Norway						
Portugal	11,000	8,800	78	1998	855	
Romania						
Slovakia	-	-	-	1998	824	
Slovenia	-	-	-	1998	1,162	
Spain	36,993	24,000	65	1998	636	
Sweden	3,000	260	8.9	1998	624	
Switzerland	4,510	120	16.0	2000		
UK	9,500	280	2.9	1998	1,220	
EU 25	241,000	123,0	51.0			
EUREAU 31						

[1] Adapted from FAO (2003); EUREAU, 2004 and Hochstrat *et al.* (2005).

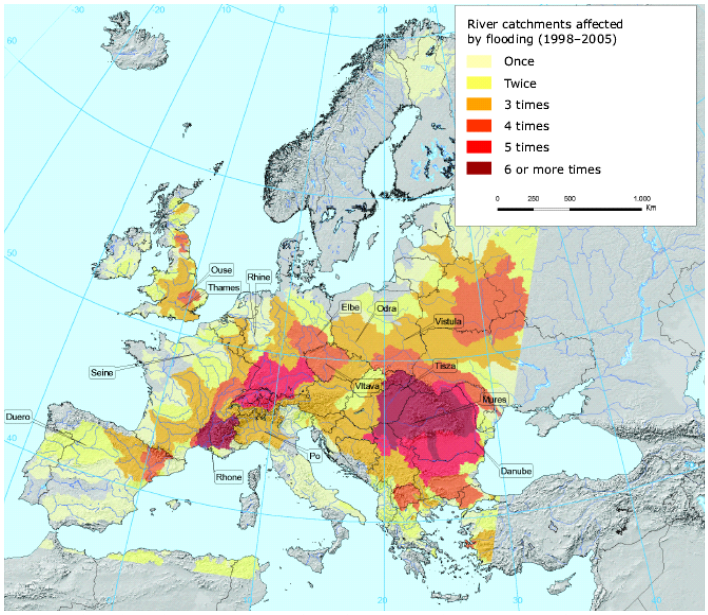


Figure 2 The two major water basins in Europe Flood events in Europe between 1998-2005 (EU EEA, 2007).

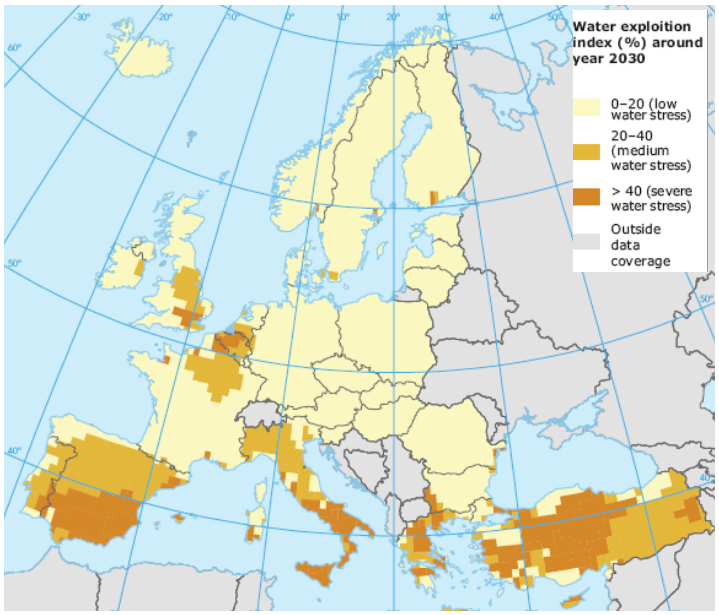


Figure 3 Regions in Europe under water stress (EU EEA, 2007).

Aim of the EUREAU Statistics Overview on Water & Wastewater in Europe

EUREAU's Secretariat in collaboration with our members, have prepared a statistic survey on EUREAU member countries, being a unique source of facts and figures, which should be of high interest not only for EUREAU and its Members but also for the European Commission, for the European Parliament, for the European Environment Agency, and others. The water and wastewater sectors are facing serious problems due notably to the climate change, water scarcity and droughts, violent weather phenomena, floods, use of pesticides or agriculture policy. Water and wastewater statistics are necessary for describing the existing situation in order to make projections. Thus statistical data included in this report should be regularly updated and collated with issues, such as climate change and water scarcity and droughts, in order to develop tools for dealing with these problems.

Methodology Followed

The EUREAU statistics project was coordinated by the EUREAU Secretariat in Brussels, and implemented in close collaboration with EUREAU's member associations in 29 countries, as well as with a team of experts from across Europe. This publication is the result of many months of research and data collection, evaluation and analyses. The data was first obtained by a survey sent to EUREAU member Associations in 2006. Between October 2007 and April 2008, this information was completed and updated by the EUREAU Secretariat using various national and international sources of information as well as a second survey to EUREAU members. From all the information gathered, basic statistics were applied in order to assess water and wastewater sector profiles for each EUREAU country. In the first part the institutional and organizational profile of each member country is presented in the context of its water and wastewater services, thus setting an important interpretation framework. These are followed by basic statistics on water resources and on drinking water and wastewater services.

Between April and June 2008, the country profiles were revised, corrected and approved by EUREAU's member associations in each country. This Overview does not take into account Latvia and Slovenia, as these countries did not have a EUREAU member association. However, when data for these countries becomes publicly available, they are included in the general European charts. EFTA countries (Norway, Switzerland and Iceland) are fully included.

National data presented in this Overview, in some cases was extrapolated from EUREAU member associations' data, based on population served. Extreme care should be taken when applying or interpreting the data. The figures come from a wide spectrum of sources and were measured using various approaches, with few formal standards across countries. Thus, these data can be measured, estimated, modeled or extrapolated using different methods. The data also come from different years, making direct comparisons difficult.

Relevant Terminology

Terms related to categories of stakeholders, water and wastewater, infrastructure, and economic and finances are following:

Term	Definition	Reference
Categories of Stakeholders	Organizations which perform day-to-day processes and activities necessary for the provision of the service. The operator's mission is fixed by the responsible body. The responsible body may appoint one or several operators for given water utility. For example, distinct operators for drinking water and wastewater services. A given operator may run several utilities within contracts or licences awarded by different responsible bodies. An operator may sub-contract some of its operations to third-party contractors, if allowed by the responsible body. The operator(s) may be legally distinct or not from the responsible body. Examples where responsible body and operator are not legally distinct: a technical department in a municipality, a specific division of a regional authority. Examples of legally distinct entities: a public body, a private corporate company, a small contractor, an NGO, a cooperative. Operators can be owned by public and/or private bodies/organizations.	ISO def 2.23
Relevant authority	Public bodies entitled to set general policies, plans or requirements, or to check the compliance with these rules, concerning all the water utilities included in its area of jurisdiction. *Examples*: National, regional or local governments, public agencies, regulators.	ISO def 2.36
Responsible body	Body which has the overall legal responsibility for providing drinking water or wastewater services for a given geographic area. The responsible body may operate directly the water utility with its own means through an internal operator (direct or internal management or "in house") or entrust one or several operators for the operations ("outsourced" or contracted management). The responsible body acts within a framework of law and governance established by the relevant authorities; it generally establishes the specific strategy and policies adapted to the characteristics of its area of responsibility and the general organization of the relevant water utility. In most cases in EU, responsible bodies are public bodies, but, for example for small settlements in rural areas, cooperatives of real estate owners may	ISO def 2.42

	be legally in charge of supplying drinking water. *Examples*: A local or municipal government (i.e. for a village, town or city), a regional government, or a national or federal government through a specified agency, or a private company.	
Drinking water and wastewater services	Drinking water and wastewater services (water services) include water abstraction, production, and supply, as well as wastewater collection and treatment, through a permanent and collective infrastructure network. It excludes self-supplied households, self-supplied industries and irrigation systems.	EUREAU 2008
Water utility	The whole set of organizations processes activities, means and resources necessary for abstracting, treating, distributing or supplying drinking water and/or for collecting, treating and disposing of wastewater and for providing the associated services. Some key features for a water utility are: (a) its mission: to provide drinking water services or wastewater services or both, (b) its physical area of responsibility and the population within this area, (c) its responsible body, (d) its general organization with the function of operator being carried out by the responsible body, or by legally distinct operator(s), and (e) its type of physical systems used for providing the services, with various degrees of centralization. In other words, "water service" may be used as synonym for "water utility".	ISO def 2.53

Water and wastewater

Actual external inflow of surface & ground waters	Total volume of actual flow of rivers and groundwater, coming from neighbouring countries.	United Nations Statistics Division, 2007
Fresh groundwater	Freshwater which is being held in, and can usually be recovered from, or via, an underground formation. All permanent and temporary deposits of water, both artificially charged and naturally, in the subsoil, of sufficient quality for at least seasonal use. This category includes phreatic water-bearing strata, as well as deep strata under pressure or not, contained in porous or fracture soils.	United Nations Statistics Division, 2007
Fresh surface water	Freshwater which flows over, or rests on, the surface of a land mass; natural watercourses such as rivers, streams, brooks, lakes, etc., as well as artificial	United Nations Statistics

	watercourses such as irrigation, industrial and navigation canals, drainage systems and artificial reservoirs. Sea-water, and transitional waters, such as brackish swamps, lagoons and estuarine areas are not considered fresh surface water.	Division, 2007
Internal flow	Total volume of river run-off and ground water generated in natural conditions, exclusively by precipitation within the country. The internal flow is equal to precipitation less actual evapo-transpiration and can be calculated or measured.	United Nations Statistics Division, 2007
Atmospheric precipitation	Total volume of atmospheric wet deposition (rain, snow, hail, dew, etc) falling on the territory of the country over one year, in millions of cubic meters.	UN Statistics Div. 2007
Total renewable fresh water resources	Internal flow + Actual external inflow of surface and groundwater. This does not represent the volume of water that can be freely exploited by the country for its own needs; countries downstream may rely on a regular inflow in the same rivers, lakes and aquifers to meet their needs. Equally, if the flow of water is seriously reduced, the ecological balance of the water body may be disrupted, affecting the fishermen & others' livelihood, and potentially creating health risks.	United Nations Statistics Division, 2007
Index Water exploitation	Total freshwater abstraction over long term average of total renewable freshwater resources.	

Infrastructure

Length of drink. water network	Total length in km of transport & distribution pipes. Service pipes (house connections) are not included.	
Length of wastewater network	Total length in km of collectors and sewers. Separate storm water sewers are included, but service pipes (house connections) are excluded.	
Number of wastewater treat. plants	Total number of wastewater treatment plants connected to the sewer system. This excludes for example private industrial wastewater treatment.	

Economics and finance

Investments	Total cost of the investments in tangible assets regarding water services, e.g. expenditures for plant & equipment, buildings & vehicles. Includes capitalized costs of self-constructed tangible assets: (a) Investments for new assets and reinforcement of existing assets; (b) Investments for asset replacement and renovation of existing assets (maintaining approximately the same functionality of existing infrastructure).	IWA

Water Sector Profile per Country

Austria

1. EUREAU member information

EUREAU has 2 member organizations in Austria:

- The Austrian Association for Gas and Water (ÖVGW) is a non-profit organization that was founded in 1881. It represents the Austrian gas and water supply industries and their associated sectors. Its core concern is ensuring that research and development in matters of gas and water supply remain at the cutting edge of science and technology. Both individual persons and legal entities can be ÖVGW members. ÖVGW counts among its members 210 water supply companies, representing the main part of Austrian water suppliers in terms of supplied people, and 240 companies that produce or distribute other relevant products.
- The Austrian Water, Wastewater and Waste Association (ÖWAV) is an independent non-profit organization. Its members include the construction and building industries, the Federal State, provinces and municipalities, the flood protection organizations, engineers, lawyers, interest groups, academic institutions and water supply, wastewater and waste federations.

2. Legislation and control measures

- The *Austrian Waters Act* of 1959 is the basis of water sector legislation and the *Federal Act on Water Affairs* constitutes the basis of all water administration. Austria also adopted the *Drinking Water Ordinance* (304/2001), based on the European Union drinking water guideline 98/83/EG.
- There is no national system for tariff regulation.

3. Institutions responsible for water resources management

- The relevant authority for water resources, including legislation and inspection, is the Ministry of Agriculture, Forestry, Environment and Water Management and its different agencies and departments.
- The Ministry of Health and Women and the Ministry for Transport, Innovation and Technology also have responsibilities regarding water resources.
- The local water authorities have the responsibility for issuing permits for the provision of water supply services.
- The Water Quality Surveillance Services monitor waste water discharges and river water quality.

4. Drinking water and wastewater services management

Austria is a Federal Republic with 9 provinces (*Länder*), each with a provincial assembly. The relevant authorities for drinking water quality are the Ministry of Agriculture, Forestry, Environment and Water Management and the Ministry of Health and Women.

The responsible bodies are the municipalities, and operators can be either municipalities or private undertakings. About 150 municipalities formed associations to provide regional water supply and sewerage services. These Regional Water Associations are responsible for construction, management, operation and maintenance of facilities including financial provisions. Sewage treatment is mainly provided by municipalities or by associations of local municipalities, and about half of all communities belong to a Waste Water Association.

In the cases of small rural villages, operators are often non-profit cooperatives organized by the users. These co-operatives are legally anchored in the *Austrian Waters Act* and have the same legal duties as other operators. They can group from 3 household-connections up to sometimes 2000. Most of them are very small, which explains the high number of drinking water operators.

Drinking water supply is derived from groundwater and springwater, and minimal treatment is usually needed, although there are some problems with nitrates and pesticides. Long distance water supply pipelines are under consideration in some areas. Furthermore, most industries have their own licensed groundwater sources and have secondary treatment for wastewater effluent.

5. Water services pricing

Federal and provincial governments provide subsidies or loans to municipalities for drinking water and waste water services, an example being the *Water Management Fund* at the federal level. Many water utilities also charge water tariffs, although these are fixed locally and vary greatly throughout Austria.

The average cost for connecting a household to drinking water services is about 1,600 €. The average price of 150 m^3/yr (average 3-person household) is 190 €, and the average price for 200 m^3/yr (4-person household) is about 250 €.

6. General statistics

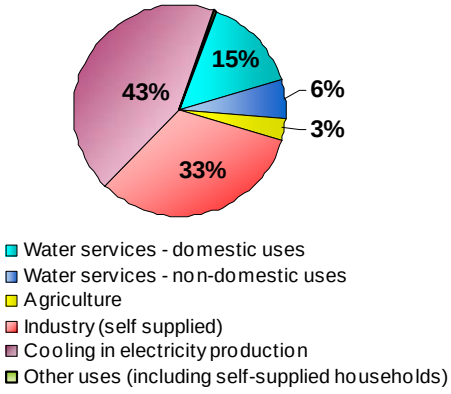
Country population (M inhabitants)	8.3
Population density (inh./km²)	101
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	129

Population served by EUREAU members	DW	WW
	69%	89%

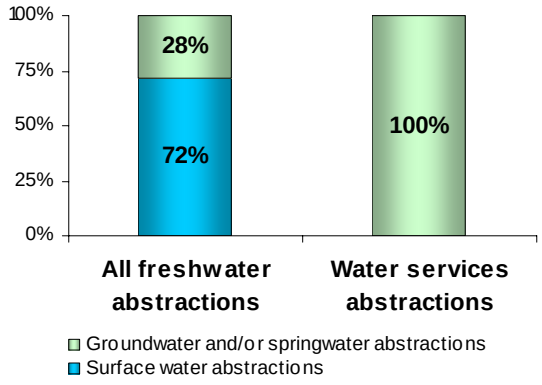
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	3,816
Per capita freshwater abstractions (L/inh.d)	1,260
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	5%

Uses of abstracted freshwater[1]



Sources of abstracted freshwater[2]



8. Drinking water and wastewater services[3]

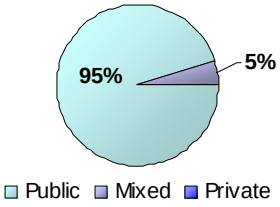
Population served by water services (% of total population)	DW	WW collection	WW treatment
	89%	90%	90%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	384	189	573
Per capita water delivered (L/inh.d)	143	70	214

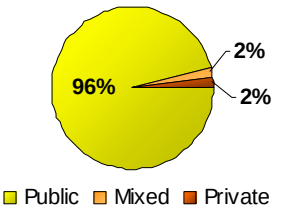
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	-	-	-
Turnover (latest year available, M €/yr)	500	-	-
Investments (latest year available, M €/yr)	89	477	566
Length of network (km)	70,000	80,000	
Number of wastewater treatment plants			1,500
Wastewater treatment capacity (Mpe)			20

Operators	Multi-service	DW	WW	Total
Number of operators[4]	-	6,000	1,500	7,500

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] Water uses data is from 1999 (Pacific Institute, 2006).
[2] Sources of water (all abstractions) are from 2002 (UN Statistics).
[3] Data provided by EUREAU member association is from 2006.
[4] A few hundred drinking water operators are actually multi-service operators, but the exact figure is not known.

Belgium

1. EUREAU member information

The Belgian Federation for the Water Sector (Belgaqua, former Anseau) was created in 1948. The organization first represented drinking water production and distribution companies. Since 1998, the wastewater sector is also included in Belgaqua. The association brings together all 3 regional associations representing the Water Sector in Belgium: AQUABRU for the Region of Brussels-Capital, AQUAWAL for the Walloon Region and SVW for the Flemish Region. These 3 regional associations gather 23 drinking water production and supply companies and/or services as well as the 9 urban wastewater treatment services of the Flemish, Walloon and Brussels-Capital Regions.

2. Legislation and control measures

- The July 2002 Decree prohibits the involvement of private sector investors in inter-communal companies.
- There is no national system for tariff regulation in Belgium. Tariffs are set by water supply companies and must be approved by the federal government (Ministry of Economic Affairs).

3. Institutions responsible for water resources management

Following major constitutional changes in 1980, 1988 and 1993, many responsibilities, including water, were transferred to the regional governments, which are the relevant authorities regarding water resources.

4. Drinking water and wastewater services management

Belgium's 3 regions are the relevant authorities regarding water services and drinking water quality. The country's 589 municipalities (*communes*) are the responsible bodies for drinking water and wastewater services.

Drinking water services operators are most often Inter-Municipal Companies (IMC) whose shareholders are municipalities, provinces and/or regions. IMCs are public law companies that can bring together not only municipalities and provinces but also other IMCs. They can be responsible for water production and/or distribution. Water distribution is sometimes done by the IMC in its own name, but it can also be done by the IMC in the name of each different commune, which can fix different prices and conditions. Services can also be provided directly by the municipality or by independent municipal services (*régie*).

Wastewater services, sewerage, treatment and sludge disposal utilities are either IMC or owned and operated by the regional governments. These regional companies are established as commercial companies under the administration of the Regional Government. Brussels is an exception as it used a build-operate-transfer (BOT) structure for part of major wastewater treatment works projects.

- Flanders: water supply is provided by 7 IMCs and 5 local water companies (each owned by a unique municipality). In addition, the Flemish Regional Water Company (VWM), which is owned by the regional government, is contracted by municipalities to provide water supply services. Wastewater services are provided by the company Aquafin, which is owned by the regional government.
- In the Walloon region, water services are supplied by municipalities, either directly or through an IMC. The regional government also owns a bulk water supply company (SWDE) which offers services to some municipalities. Walloon wastewater services are provided by 7 IMCs.
- In Brussels, there are two different IMCs. Vivaqua (ex-*Compagnie intercommunale bruxelloise des Eaux, CIBE*) is responsible for water production and brings together 34 jurisdictions (communes and regions). It is also a service provider to municipalities and other IMCs. The water distribution IMC (*Intercommunale bruxelloise de distribution d'eau,* IBDE), owned and managed by 19 communes, recently merged with the wastewater IMC (*Intercommunale bruxelloise pour l'assainissement,* IBrA). IBDE is now responsible for both drinking water distribution and wastewater management. In October 2006, the *Société Bruxelloise de Gestion de l'Eau* (SBGE) was created by the Brussels-Capital Region in order to provide waste water collection and treatment services to operators, mainly IBDE. SBGE owns some infrastructure and plays an important role in managing funds and financing. This recent reorganization of the sector in Belgium was mostly driven by the need to comply with the European Water Framework Directive.

5. Water services pricing

The rules for water pricing are legally fixed by Decrees of the Regions. The tariffs cover the whole water cycle: supply and wastewater collection and treatment. In the three regions, the tariffs for drinking water supply include a fixed connection fee and increasing blocks variable charge for water saving and social solidarity principles.

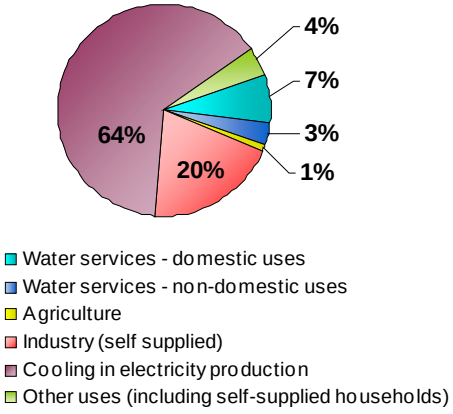
6. General statistics

			DW	WW
Country population (M inhabitants)	10.6			
Population density (inh./km²)	346	Population served by EUREAU members	99%	72%
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	123			

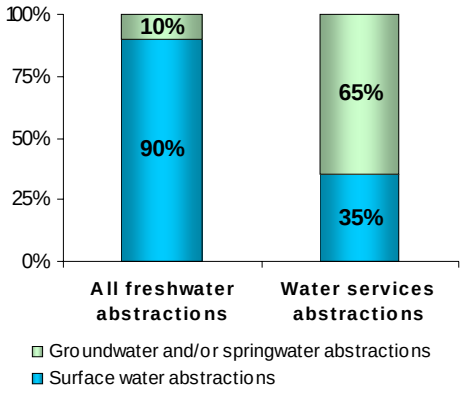
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	6,749
Per capita freshwater abstractions (L/inh.d)	1,747
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	32%

Uses of abstracted freshwater[1]



Sources of abstracted freshwater



8. Drinking water and wastewater services[2]

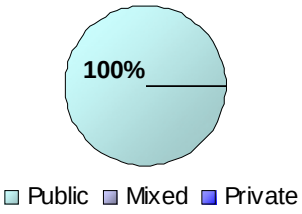
Population served by water services (% of total population)	DW	WW collection	WW treatment
	100%	76%	72%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	406	183	589
Per capita water delivered (L/inh.d)	105	47	153

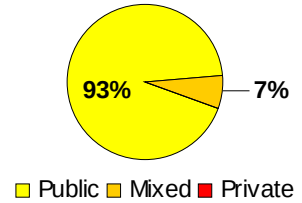
Water services management	DW	WW	Total
Number of employees (full-time equivalent)[3]	7,258	1,500	8,758
Turnover (latest year available, M €/yr)	1,440	465	1,905
Investments (latest year available, M €/yr)	285	340	625
Length of network (km)	101,025	57,000	
Number of wastewater treatment plants			553
Wastewater treatment capacity (Mpe)			28

Operators	Multi-service	DW	WW	Total
Number of operators	8	55	10	73

Drinking water operators ownership (% of population served)



Wastewater operators ownership (% of population served)



[1] Water uses data is from 2002 (Eurostat and General Directorate for Statistics and Economic information, Environmental data, 2008, www.statbel.fgov.be/figures/d64_fr.asp#5).
[2] Data provided by EUREAU member is from 2007.
[3] Number of employees for wastewater is estimated.

Bulgaria

1. EUREAU member information

The Bulgarian Water Association (BWA) was established in December 2005 in Sofia. It is a non-profit and non-governmental body. BWA members are corporations and experts involved in the water supply and sewerage field. They include regional and local companies dealing with water supply and sewerage, engineering, construction and assembly, manufacturing, and export and import, as well as scientific and educational institutes.

2. Legislation and control measures

Main legislation consists of the *Law on Water* (1999) and 14 sub-legislative resolutions and assignments, as well as the *Law for Territory Development*.

3. Institutions responsible for water resources management

The Ministry of Environment and Waters is the relevant authority for water resources management. Through its Water Directorate, the Ministry supervises the work of the River Basin Directorates, which administer the country's 4 river basin districts. The Ministry of Agriculture is the relevant authority for regulation related to irrigation and drainage assets.

4. Drinking water and wastewater services management

Relevant authorities in the field of water services are the Ministry of Regional Development and Public Works, the Ministry of Health, and the Ministry of Finance.

The responsible bodies for drinking water and wastewater in Bulgaria are the 264 municipalities, including the Municipality of Sofia, 29 District Centers, Towns and Municipalities, as well as other middle sized and small municipalities.

Operators consist mostly of 29 Regional Water Companies (RWC), which are responsible for providing water supply and sewerage services to about 74 percent of the population, in the District Centers, Towns and Municipalities. Of the 29 RWC, 13 are fully state-owned and 16 are jointly owned by the state (51%) and by municipalities (49%).

The remaining 26% of the population is served by 21 municipally-owned water and wastewater operators, with the exception of Sofia where there is a 25-year concession agreement with Sofiyska Voda AD. Since 2003, 75% of the shares of Sofiyska Voda belong to United Utilities and to the European Bank for Reconstruction and Development (EBRD). The Municipality of Sofia holds the other 25% of the shares and remains owner of the assets.

5. Water services pricing

The water services prices vary significantly depending on whether both water supply and wastewater collection are performed and if wastewater treatment is available. Another significant factor is the energy used for water supply, which is different for gravity and for pumping supply systems. In this respect the water services prices in Bulgaria vary from 0.19 to 1.00 € between the different water companies. There are no donations from the State or other local sources of financing for water services.

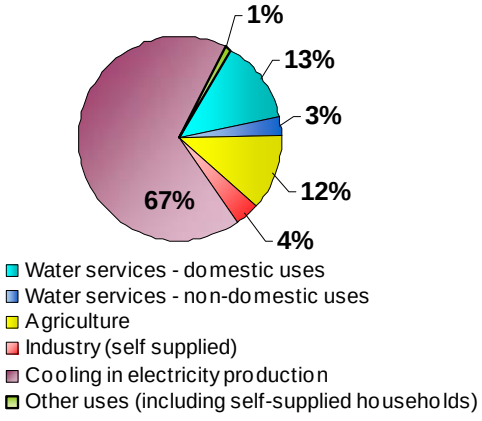
6. General statistics

			DW	WW
Country population (M inhabitants)	7.7			
Population density (inh./km²)	69	Population served by EUREAU members	79%	37%
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	37			

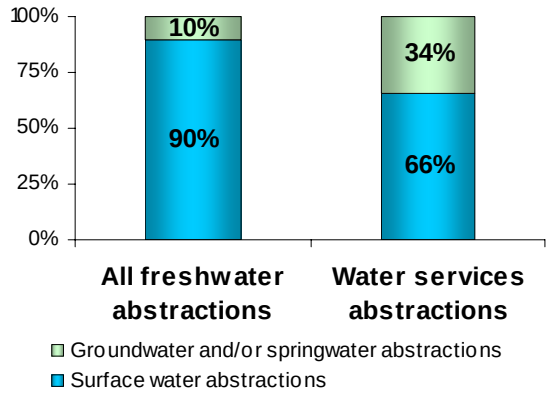
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	6,017
Per capita freshwater abstractions (L/inh.d)	2,147
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	28%

Uses of abstracted freshwater



Sources of abstracted freshwater



8. Drinking water and wastewater services[1]

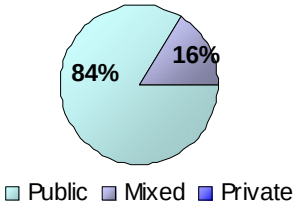
Population served by water services (% of total population)	DW	WW collection	WW treatment
	99%	46%	36%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	316	69	385
Per capita water delivered (L/inh.d)	114	25	139

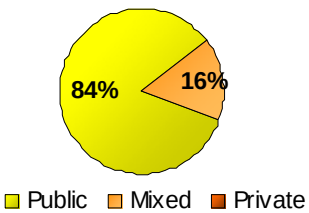
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	6,400	9,600	16,000
Turnover (latest year available, M €/yr)	-	-	-
Investments (latest year available, M €/yr)	37	65	102
Length of network (km)	70,620	8,244	
Number of wastewater treatment plants			63
Wastewater treatment capacity (Mpe)			5

Operators	Multi-service	DW	WW	Total
Number of operators	53	3	0	56

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] Data provided by EUREAU member is from 2005.

Croatia

1. EUREAU member information

The Croatian Water and Wastewater Association has 69 members in the Croatian water industry, most of them being municipal water companies.

2. Legislation and control measures

Main legislation includes the *Water Act* (NN 107/95) and its corresponding bylaws, the *Municipal Services Act* (1995), and the *Water Management Financing Act* (NN 107/95).

3. Institutions responsible for water resources management

The Ministry of Environment and Physical Development is responsible for the general policy of environmental protection. The State Water Directorate is the relevant authority for all activities related to water management. It plans, monitors and coordinates the development of the water management system. Its agency Hrvatske vode passes administrative and other acts and brings decisions on issues important for water management. These include preparation of basic water management plans, maintenance of infrastructure, flood and pollution control, etc. Hrvatske vode is responsible for conducting integrated management of Croatian water resources for the country's 4 river basin districts and operates though five water management departments.

4. Drinking water and wastewater services management

Croatia is divided into 21 counties, one of which being the capital, Zagreb. The counties are further divided into 121 towns and 416 municipalities.

The Ministry of Public Works is the relevant authority for the application of instruments and measures of the economic policy in the improvement of municipal services. The government agency Hrvatske vode determines the fees for all raw water abstraction, including by drinking water utilities.

At the local level, the 21 counties and the metropolitan administration of the City of Zagreb are the responsible bodies for providing water and wastewater services.

Operators are water companies providing water and wastewater services. Water companies are mainly located in larger urban areas. They were either founded by the local authorities or have emerged in the process of transformation of former state enterprises in 1995. Water companies can have different organisational models:

- A company founded by one or more local government bodies;
- A public institution founded by a local government unit;
- A service plant, established by one or several local government units;
- A legal entity or person, subject to concession agreement.

The majority of these are limited liability companies in which local authorities hold at least 51% of the shares. Private ownership cannot exceed 49%. Some major infrastructure works, like Zagreb's first wastewater treatment plant (2001), have been built following long term concession agreements (build, operate, and transfer contracts).

5. Water services pricing

Operators determine the price and the methods of payment for water services. There are no administrative or legal limitations on the price. In practice, however, the price is controlled by the company's shareholders, mostly local governments. The EBRD provides funding for major infrastructure projects in Croatia.

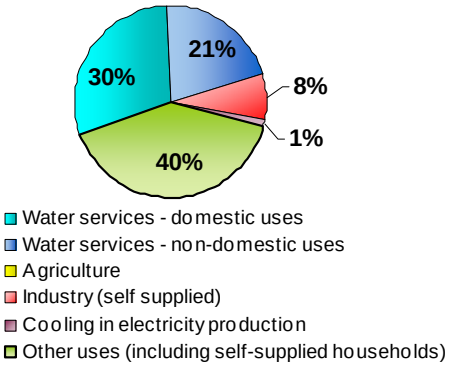
6. General statistics

			DW	WW
Country population (M inhabitants)	4.4			
Population density (inh./km²)	79	Population served by EUREAU members	68%	68%
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	50			

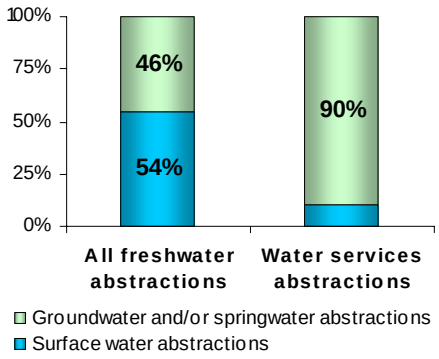
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	619
Per capita freshwater abstractions (L/inh.d)	382
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	1%

Uses of abstracted freshwater[1]



Sources of abstracted freshwater



8. Drinking water and wastewater services

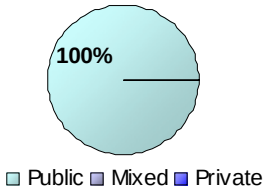
Population served by water services (% of total population)[2]	DW	WW collection	WW treatment
	83%	74%	15%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	183	128	311
Per capita water delivered (L/inh.d)	136	95	231

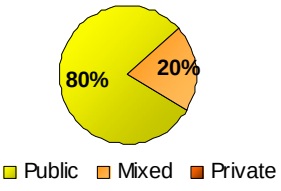
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	-	-	-
Turnover (latest year available, M €/yr)	-	-	-
Investments (latest year available, M €/yr)	-	-	-
Length of network (km)	-	-	
Number of wastewater treatment plants			-
Wastewater treatment capacity (Mpe)			-

Operators	Multi-service	DW	WW	Total
Number of operators	-	-	-	130

Drinking water operators ownership
(% of population served)



Wastewater operators ownership[3]
(% of population served)



[1] Water uses (% of total freshwater water abstracted) data is from 1996 (Earth Trends Country profiles 2003, http://earthtrends.wri.org/pdf_library/country_profiles/wat_cou_191.pdf).

[2] Population supplied by water services figures for wastewater collection and drinking water are from 2004 (WHO-UNICEF Joint Monitoring Program for Water Supply and Sanitation, 2008, www.wssinfo.org). Population served by wastewater treatment services (% of total population) was found in: OSTOJIC, Željko and Mojca LUKŠIC (2001). *Water Pricing in Croatia. Current Policies and Trends*, Regional Environmental Center for Central and Eastern Europe, Zagreb, February, 43p.

[3] Wastewater services operators ownership is an estimation based on the population of the City of Zagreb, where operations are done under a concession agreement (www.ebrd.com).

Cyprus

1. EUREAU member information

The Water Board of Nicosia is responsible for water distribution to end users in the Capital City, the largest agglomeration of Cyprus. It is a semi-governmental organization established in 1951.

Other water sector representation in Cyprus
There are 2 other Water Boards (Larnaka and Limassol), as well as the Union of Cyprus Municipalities and Communities. In the field of wastewater there are 6 urban Sewerage Boards[1] and various rural Sewerage Boards.[2]

2. Legislation and control measures

- The relevant authorities for water resource management are the Ministry of Agriculture, Natural Resources and the Environment (MANRE), the Ministries of Interior and Finance, and the Planning Bureau. The Water Development Department (WDD) implements the Water and the Wastewater and Re-use policies of the MANRE.
- Important laws include the *Water Pollution and soil protection control Law* (69/91 2002), the *Water protection and management Law* (13(I)/2004), the *Water quality control for human consumption Law* (87(I)/2001), the *Government Waterworks Law*, the *Water Supply (Municipal & Other Areas) Law* (Cap 350), and the *Sewerage and Drainage Law* (1/1971(I) 2007).

3. Institutions responsible for water resources management

Executive powers are divided between the MANRE and the Ministry of Interior.

- The MANRE has technical responsibility for water resources policy, assessment and monitoring, and for development of water resources, through the WDD. WDD's main objective is the development and management of water resources. Its responsibilities include data management, study, design, construction, operation and maintenance of water works, and protection of water resources from pollution. WDD has four regional offices.
- The Ministry of Interior, through the District Administration, plays a key role in the implementation and enforcement of water and wastewater related laws, including groundwater permits. Ministry of Interior representatives act as chairmen of Municipal Water Boards, rural Sewerage Boards, Village Water Commissions, Water Works Committees and Irrigation Divisions.

4. Drinking water and wastewater services management

Cyprus is divided into six districts headed by a District Officer appointed by the Government. There are two types of local authorities, Municipalities (urban and tourist centers) and Communities (rural areas), governed by separate laws. Municipalities and Communities are the responsible bodies for water services.

Most of the water demand is met through inter-basin water transfers involving large water works. Two desalination plants are in operation, Dhekelia (1997) and Larnaca (2001), with the aim to eliminate the Municipalities' dependency on rainfall for drinking water. Water distribution to end users is operated by Town Water Boards, Municipal Authorities and Community Boards. They are supplied in bulk water by the WDD, which is responsible for the construction, operation, administration and management of all Government Water Supply Systems (GWSS).

WDD is the responsible body for implementing the wastewater policy through its Wastewater and Re-use Division (WRD). WRD undertakes the studies, design, tendering and construction of the wastewater works in the rural areas, and plays a consultation role in operation and maintenance. The main operators in the field of sewerage collection, wastewater treatment and drainage are the 6 Urban Sewerage Boards.

5. Water services pricing

Municipal Authorities and Community Boards determine domestic charges, while Town Water Boards charges must be approved by the Parliament. Charges are periodically revised by the Council of Ministers in order to cover the financial cost of services. The current financial cost of domestic water, calculated by the WDD, is 0.92 €/m³. The existing domestic water charges have been set by the Council of Ministers in 2004.[3] The Sewerage Boards impose sewer tariffs based on a percentage of the local land value and a fixed rate on water consumption.[4] Treated urban wastewater is managed by the WDD, which sells recycled water to various users.[5]

[1] These are Nicosia, Larnaka, Limassol, Paphos, Paralimni and Ayia Napa.
[2] Agrós, Platres, Kyperounta, Pelendri, Palechori, Lythrodondas and others.
[3] For Nicosia, Limassol, Larnaca and Famagusta Water Supply Systems the charge is 0.77 €/m³ and for Paphos it is 0.56 €/m³.
[4] The tariff of the Sewerage Boards ranges from 350-450 €/household/year for urban areas to 200-300 €/household/year for rural areas.
[5] Treated wastewater is sold at different rates, ranging from 0.08 € /m3 for irrigation to 0.21 € /m3 for golf courses and amenities.

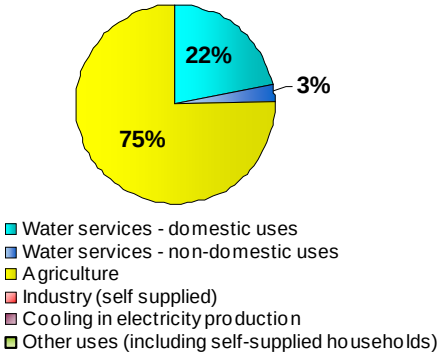
6. General statistics

			DW	WW
Country population (M inhabitants)	0.8			
Population density (inh./km²)	82	Population served by EUREAU members	65%	30%
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	93			

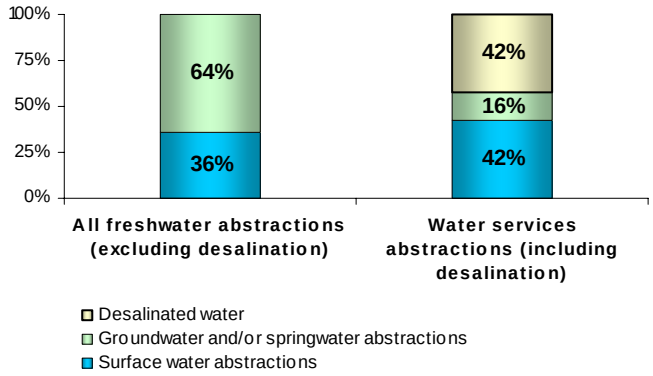
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	222
Per capita freshwater abstractions (L/inh.d)	799
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	28%

Uses of abstracted freshwater[1]



Sources of abstracted water



8. Drinking water and wastewater services[2]

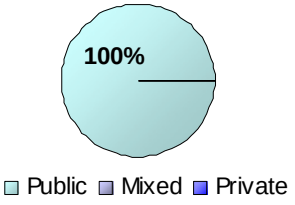
Population served by water services (% of total population)	DW	WW collection	WW treatment
	75%	66%	29%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)[3]	75	11	86
Per capita water delivered (L/inh.d)	269	40	310

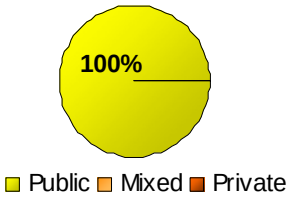
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	461	393	854
Turnover (latest year available, M €/yr)	31	36	67
Investments (latest year available, M €/yr)	-	-	-
Length of network (km)	3,600	2,650	
Number of wastewater treatment plants			10
Wastewater treatment capacity (Mpe)			0.1

Operators	Multi-service	DW	WW	Total
Number of operators[4]	0	357	14	371

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] Figures for uses of abstracted freshwater are for 2005 (Eurostat). These figures do not include desalinated water.
[2] Data provided by EUREAU member is from 2006. Association data applies only to the three major towns: Nicosia, Lemesos Larnaca, and national data were mostly extrapolated from association data.
[3] In 2007, 74 Mm³ of water were produced by the Government Water Supply Systems, of which 71 Mm³ were sold in bulk to Local Authorities. Water produced from municipal and communal projects is estimated at 12 Mm³, the total drinking water production being around 86 Mm³ (Water Development Department).
[4] There are 6 main urban drinking water operators consisting of 3 Water Boards and 3 Municipalities, as well as 351 rural drinking water operators consisting of 11 Municipalities and 340 Communities. For wastewater, there are 6 urban operators and 8 rural operators.

Czech Republic

1. EUREAU member information

The Water Supply and Sewerage Association of the Czech Republic (SOVAK CR) is a voluntary, non-governmental interest association, which was established in 1989. SOVAK CR is comprised of 118 regular members and 125 associated members. Regular members are the water services operators, which ensure supply of drinking water and treatment of wastewater.

Other water sector representation in the Czech Republic
The Czech Water Association has about 140 individual members and 15 corporate members from the Czech Republic and abroad.

2. Legislation and control measures

- Relevant authorities for the water sector are the Ministry of Agriculture and the Ministry of Environment.
- Main legislation include the Large Privatisation Act (1991), the Amendment to Small Businesses Act (1996), the Act on Water Supply Systems and Sewage and Drainage Systems, and the Water Act (254/2001).

3. Institutions responsible for water resources management

Czech Republic's main river basins are divided into 5 river basin districts: Vitava, Ohre, Labe, Odra and Morava. These districts are administered by the River Basin Boards, State companies established in 1965. River Basin Boards manage 80% of the country's large water reservoirs and supply drinking water or sell abstraction rights to water utilities.

4. Drinking water and wastewater services management

Municipalities are the responsible bodies for drinking water and wastewater services.

The operators are almost everywhere a private company, following an extensive privatisation process supported by the European Bank for Reconstruction and Development (EBRD) and the World Bank Group in the 1990s. During this process, the National Property Fund of the Czech Republic (FNM) was charged with the temporary task of exercising the State's ownership rights until the transfer to private companies was complete.

There are different forms of organisation:
- Municipally-owned and operated companies (23 companies representing 3 % of the market).
- Limited companies working as operators on the basis of contracts with the municipalities.
- Shareholder companies, which have operation contracts and rent the infrastructure.
- Mixed shareholder companies which own the infrastructure and operate the services.

There are no restrictions on foreign companies buying shares in Czech water companies and there is no legal distinction between foreign and Czech companies. Many water concession contracts include clauses under which public authorities guarantee the profitability of the operator for the duration of the contract.

5. Water services pricing

Prices are fixed by the municipalities in agreement with restrictions of the Ministry of Agriculture and of the Ministry of Environment.

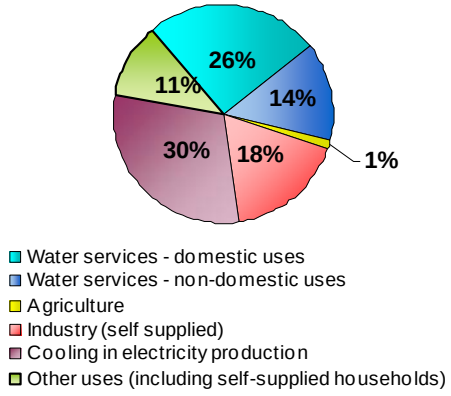
6. General statistics

			DW	WW
Country population (M inhabitants)	10.3			
Population density (inh./km²)	130	Population served by EUREAU members	87%	78%
GDP (PPP) / inh. (EU 27 = 100, 2006)	79			

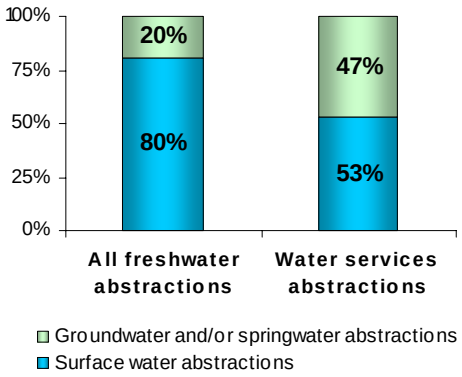
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	1,745
Per capita freshwater abstractions (L/inh.d)	465
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)[1]	11%

Uses of abstracted freshwater



Sources of abstracted freshwater



8. Drinking water and wastewater services[2]

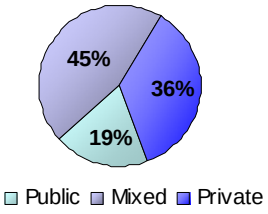
Population served by water services (% of total population)	DW	WW collection	WW treatment
	92%	80%	74%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	337	191	528
Per capita water delivered (L/inh.d)	97	55	152

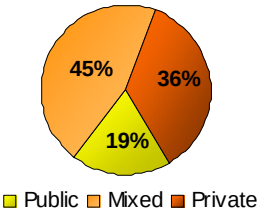
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	-	-	22,200
Turnover (latest year available, M €/yr)	-	-	885
Investments (latest year available, M €/yr)	-	-	-
Length of network (km)	69,435	36,629	
Number of wastewater treatment plants			2,017
Wastewater treatment capacity (Mpe)			13.60

Operators	Multi-service	DW	WW	Total
Number of operators	1,390	0	0	1,390

Drinking water operators ownership[3]
(% of population served)



Wastewater operators ownership
(% of population served)



[1] Total renewable fresh water resources only include surface water. Groundwater is excluded (United Nations Statistics division, 2007).
[2] Data provided by EUREAU member is from 2006.
[3] Data for ownership of operators is from EUREAU member (2008). See also LOBINA, Emanuele (2001), *Water privatisation and restructuring in Central and Eastern Europe*, 33 p.

Denmark

1. EUREAU member information

The Danish Water and Waste Water Association (DANVA) is Denmark's national association of water and sewerage suppliers. It was formed in 2002 as a merger of the Danish Water Supply Association and the Danish Wastewater Association. DANVA's 127 members mainly include large municipal and private utilities, local authorities, suppliers to the water and sewerage industry, advisors and institutions, employees within the water supply and wastewater sector, as well as private persons with interest in the sector.

2. Legislation and control measures

- The roles and responsibilities of public bodies are defined in the *Water Supply Act* of 1978 and its amendments. A *Consolidated Act* (130/1999) for water suppliers was enacted in 1999.
- The wastewater works are regulated by the *Environmental Protection Act* of 1991 (Consolidated Act 763/2001) and by the *Act Concerning Payment Rules for Wastewater Systems* from 1987 (Consolidated Act 716/2001).

3. Institutions responsible for water resources management

- The municipalities are responsible for use and protection of water resources in the regions, including extraction permits (normally requested by water supply utilities), and for monitoring water quality, including authorization to discharge wastewater.
- Denmark relies on groundwater for its drinking water supply. The country is now facing a growing stress on groundwater resources, caused by nitrates and pesticides coming from intensive farming practices. In 1990, efforts began through the *Nationwide Monitoring Programme on Pesticides* to monitor systematically the groundwater quality.

4. Drinking water and wastewater services management

In 2007, a local government reform merged 271 municipalities into 98 municipalities, and 13 counties into five regions. These 98 municipalities are now the responsible bodies for water and wastewater services. They are responsible for the planning, administration and supervision of all water operators, water supply and waste water infrastructure, and they ensure compliance with laws and regulations. Local authorities may also operate directly the water and waste water services.

The Danish water supply is highly decentralized, and both water and wastewater services are operated following full cost recovery principle. Therefore, water prices vary greatly from one supplier to another.

Utilities can be either private or public. In Denmark, private utilities are owned by consumer cooperatives, and public utilities are owned by municipalities. Private cooperatives supply mostly villages, whereas public operators supply the more densely populated areas. In spite of the high number of utilities, most drinking water is delivered by only a few of them.

Water treatment plants that are connected to public networks are owned and operated by the local authorities.

5. Water services pricing

There is a green tax on drinking water and a green tax on wastewater, depending on the volume of water consumed and on the degree of treatment. The green tax on water has put an economic incentive on the utilities to make an effort to reduce water lossed.

A large number of meters have been installed in houses since 1998. For drinking water services, users usually pay a connection charge as well as a variable fee and a fixed fee. For the wastewater treatment a variable wastewater fee is paid, and in some local authorities also a fixed fee, since its introduction in 2001.

Users normally receive one overall bill for drinking water, wastewater, green taxes and VAT. The payment system on both drinking water and wastewater is based on a break-even principle, which means that the tariffs cover the expenses. Therefore the water prices vary from one operator to another.

In 2002, drinking water represented 21% of the total price paid by users, wastewater represented 44%, and the Danish State received 35%.

6. General statistics

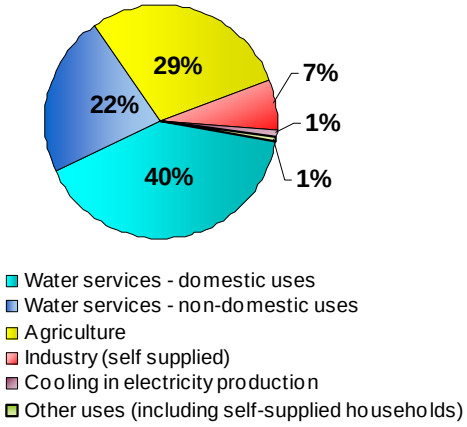
Country population (M inhabitants)	5.4
Population density (inh./km²)	126
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	126

	DW	WW
Population served by EUREAU members	85%	85%

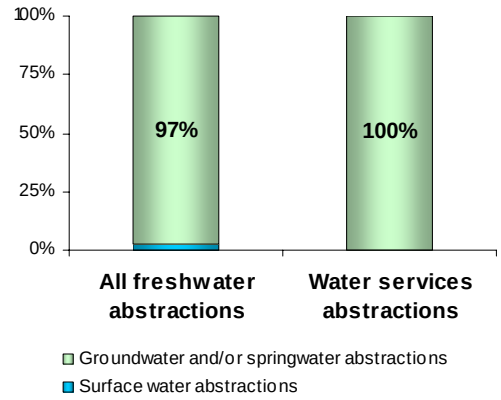
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	676
Per capita freshwater abstractions (L/inh.d)	341
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	4%

Uses of abstracted freshwater



Sources of abstracted freshwater



8. Drinking water and wastewater services[1]

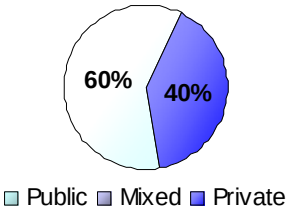
Population served by water services (% of total population)	DW	WW collection	WW treatment
	96%	90%	90%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	235	129	364
Per capita water delivered (L/inh.d)	124	68	191

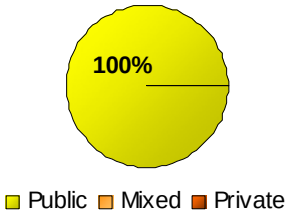
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	1,819	1,535	3,354
Turnover (latest year available, M €/yr)	269	816	1,085
Investments (latest year available, M €/yr)	131	459	590
Length of network (km)	41,000	57,000	
Number of wastewater treatment plants			1,291
Wastewater treatment capacity (Mpe)			12

Operators	Multi-service	DW	WW	Total
Number of operators	0	2,619	271	2,890

Drinking water operators ownership[2]
(% of population served)



Wastewater operators ownership
(% of population served)



[1] Data provided by EUREAU member is from 2006.
[2] Denmark private operators are consumer cooperatives and not-profit companies.

Estonia

1. EUREAU member information

The Estonian Water Works Association (EVEL), established in 1995, represents around 30 water companies providing both drinking water and wastewater services. The Association is also open to companies in the water industry, such as consulting and design offices, suppliers, and producers of specialized equipment and materials. There are around 200 other companies in Estonia directly or indirectly related to the water supply and sewage water industry.

Other water sector representation in Estonia
The Estonian Water Association (EWA) comprises mainly experts related to water resources management and to water and wastewater services.

2. Legislation and control measures

- Main legislation include the Commercial Code (1995), the Competition Act (2001), the Public Water and Sewerage Act (1999) and the Water Act (1994), which has been amended 13 times between 1994 and 2003.
- The County Health Protection Services of the Ministry of Social Affairs ensures drinking water quality.

3. Institutions responsible for water resources management

Estonian environmental and water management policies are guided by the National Environmental Strategy and the National Environmental Action Plan (NEAP), which formulates the main policy goals and action plans.

The relevant authority is the Ministry of Environment. The State is the owner of groundwater and regulates water management, including water use and pollution permits. At the local level, the Ministry's Environmental County Departments are responsible for management of resources and oversee environmental protection requirements. Estonia has 3 river basin districts.

4. Drinking water and wastewater services management

As local governments, municipalities are the responsible bodies for drinking water and wastewater services. They prepare regional 12-year development plans for water services, they select and appoint operators, and they fix the price of services and the rules for connection fees.

Before 1990, water utilities were owned by the State. In the 1990s, ownership was transferred to municipal companies, following a decision to privatise all state-owned companies. Municipal utilities were then converted to public limited companies.

The water companies are the service operators, from water abstraction to wastewater treatment. Some of the companies provide only water supply services, but others are responsible for water and heating services. Some production companies (agricultural, industrial) also provide water supply services. Overall, there are more than 200 companies directly of indirectly related to the water supply and sewerage industry.

Water companies can be owned by public or private organisations. For example, the capital city Tallinn still owns 34.7% of the shares of the local water company.

5. Water services pricing

Operations are financed by service charges and connection fees. In exceptional cases, the local or the central governments grants subsidies.

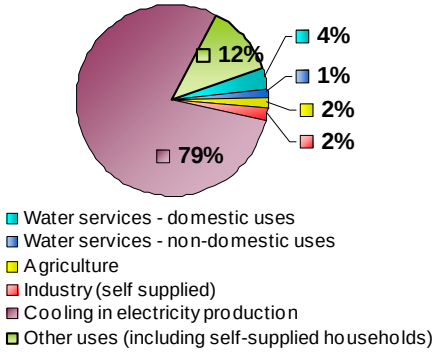
6. General statistics

			DW	WW
Country population (M inhabitants)	1.3			
Population density (inh./km²)	31	Population served by EUREAU members	55%	53%
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	68			

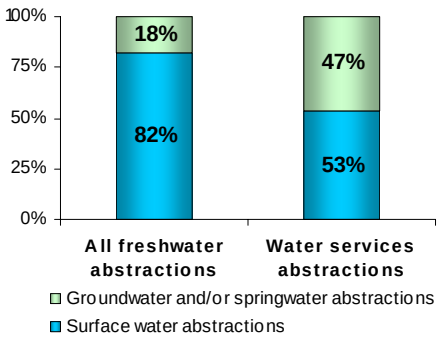
7. Water resources and use

Total freshwater abstractions (Mm³/yr)[1]	1,584
Per capita freshwater abstractions (L/inh.d)[2]	3,239
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)[3]	7.5%

Uses of abstracted freshwater[4]



Sources of abstracted freshwater



8. Drinking water and wastewater services[5]

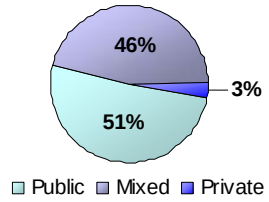
Population served by water services (% of total population)	DW	WW collection	WW treatment
	78%	73%	72%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	49	17	66
Per capita water delivered (L/inh.d)	128	45	173

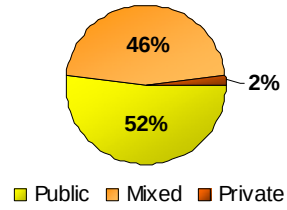
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	-	-	1,500
Turnover (latest year available, M €/yr)	36	37	73
Investments (latest year available, M €/yr)	18	26	44
Length of network (km)	3,200	2,600	
Number of wastewater treatment plants			900
Wastewater treatment capacity (Mpe)			1

Operators	Multi-service	DW	WW	Total
Number of operators	200	20	10	230

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] In Estonia, total water abstraction includes a majority of abstractions for energy production in thermal power plants. Most of the abstracted water is used as cooling water in the two Narva Power Plants, in North-East Estonia. The plants are situated consecutively along the Narva River and thus, the downstream plant uses the water discharged back to the river by the upstream plant.
[2] Without considering water used for cooling, per capita freshwater abstractions are 689 L/inh.d (251m³/person/year).
[3] Without considering water used for cooling, Estonia's water exploitation index is 1.6%.
[4] Other uses include 223 million m³ abstracted for mining and 6 million m³ abstracted seawater for fish rearing (2005). If we remove volumes of water used for cooling in Narva River plants, water services count for 28% of water abstractions.
[5] Data provided by EUREAU member is from 2005. Estonia does not have comprehensive governmental statistics on water management, and the figures are mostly estimated based on extrapolation.

Finland

1. EUREAU member information

The Finnish Water and Waste Water Works Association (FIWA) is a nationwide organization whose members represent around 85% of the Finnish water services. FIWA members include both municipal water works and consumer-owned cooperatives.

2. Legislation and control measures

- The controlling role of the authorities is based on the *Water Services Act* (119/2001), the *Environmental Protection Act* (86/2000), the *Environmental Protection Decree* (169/2000) and the *Health Protection Act* (1994).
- The Regional Environment Centers steered by the Ministry of Agriculture and Forestry and by the Ministry of the Environment, are the relevant authorities in environmental matters relating to water and waste water.
- Municipal authorities control all operators, including user-owned cooperatives. There is no overall system for regulating water services and prices. The Competition Authority can review water service tariffs and the Consumer Agency and Consumer Ombudsman can represent the interests of a private person's complaints of service with water utilities, under the Consumer Protection Act.

3. Institutions responsible for water resources management

- The Ministry of Agriculture and Forestry is the relevant authority for water resources use and management.
- The Ministry of the Environment is the relevant authority for the protection and the general administration of watercourses and lakes.
- In their respective fields of action, both ministries steer the Finnish Environment Institute as well as Finland's 13 Regional Environment Centers (REC). The REC are responsible for issuing permits of regional significance.

4. Drinking water and wastewater services management

In Finland, responsible bodies for drinking water and wastewater services are municipalities. Operators are in almost all cases municipally-owned utilities. In addition, there is a growing number (around 1,000 in 2007) of small-scale user-owned cooperative water companies, mostly in sparsely populated areas.

Local water utilities are responsible for water services in the operational geographical area defined by municipal authorities. Their responsibilities usually cover the whole chain of abstraction, production and distribution to end users. The *Water Services Act* harmonizes regulation of the water supply and sewerage and the related contract procedures and payment systems between the water utility and their customers. All contracts and charges relating to water supply are governed by private law.

In the wastewater sector, local operators are responsible for waste water collection and treatment. Many of them are also responsible for rain water collection.

Additionally, there are two concession contracts between a municipality and a private operator.

5. Water services pricing

The costs of water services are covered by charges. According to the *Water Services Act*, the charges should on the long run cover investments and operational and maintenance costs. They may also include a reasonable rate of return on capital investment.

Generally, the tariff applied by a utility consists of a consumption fee, a fixed fee, a connection fee and other fees for water and waste water services. The consumption fee is based on the amount of water used by a property and the amount of wastewater to be disposed of. The quality of waste water is taken into account in pricing in case that it differs from normal waste water coming from households. All the water delivered to a customer is metered at the property or, exceptionally, estimated.

According to the *Water Services Act*, the consumption fee is obligatory. The fixed fee and the connection fee are in general use because the majority of the costs of water services are fixed and do not depend on the quantity of water delivered or the amount of wastewater collected.

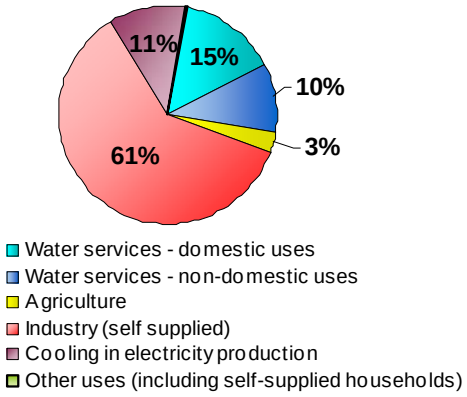
6. General statistics

			DW	WW
Country population (M inhabitants)	5.3			
Population density (inh./km²)	17	Population served by EUREAU members	76%	69%
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	116			

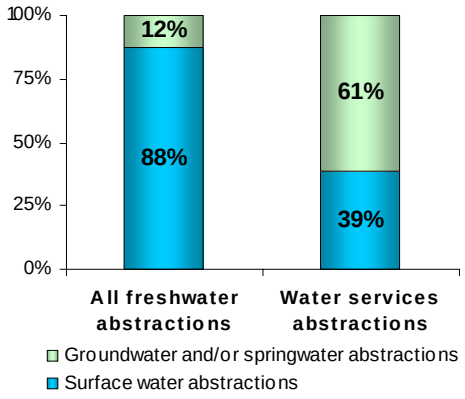
7. Water resources and use

Total freshwater abstractions (Mm³/yr)[1]	1,634
Per capita freshwater abstractions (L/inh.d)	848
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	1.5%

Uses of abstracted freshwater[2]



Sources of abstracted freshwater[3]



8. Drinking water and wastewater services[4]

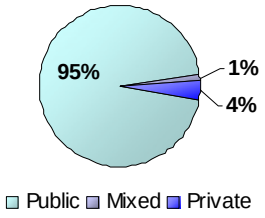
Population served by water services (% of total population)	DW	WW collection	WW treatment
	90%	81%	81%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	240	160	400
Per capita water delivered (L/inh.d)	138	92	231

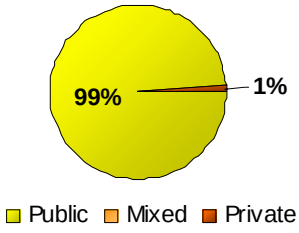
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	-	-	5,000
Turnover (latest year available, M €/yr)	-	-	800
Investments (latest year available, M €/yr)	-	-	-
Length of network (km)	83,000	40,769	
Number of wastewater treatment plants			530
Wastewater treatment capacity (Mpe)			7

Operators	Multi-service	DW	WW	Total
Number of operators	600	700	10	1,310

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] Estimated from Eurostat 2005 figures.
[2] Based on Eurostat 2005 figures, which are estimated values.
[3] UN Statistics Division 2001 and EuroStat 2005.
[4] Data provided by EUREAU member is from 2000 to 2006.

France

1. EUREAU member information

EUREAU French member is the professional Federation of water companies (FP2E), ex-SPDE. It was founded in 1938 and brings together almost all French private water companies operating drinking water and wastewater utilities in France (Alteau, Veolia Eau, Lyonnaise des Eaux, Saede, Saur France, Société des Eaux de Fin d'Oise, Sogedo).

Other water sector representation in France

- The public responsible bodies for water services are represented through the Association of French Mayors and through the National Federation of local authorities with contracted or direct management of public utilities (energy, water and other urban public services).
- Small independent private operators have their own federation (FDEI).
- The Association of Water and Environment Companies and Industries (UIE) represents experts, unions and companies of the water sector.

2. Legislation and control measures

French legislation sets an important framework for the organization and management of water utilities and for contracting such management to external operators. Since 1993, a set of important laws (1993-122, 1995-101 and 2002-276, among others) fix mandatory provisions regarding in-house or contracted management. Municipal governments are legally responsible for providing public water services, under control of national bodies, such as the Ministry in charge of health and ecology, and of the State government representatives *(Préfets*) at the "*Départements*" level. However, there is no independent regulator.

3. Institutions responsible for water resources management

- Ministry in charge of ecology.
- For each of the six river basin districts (WFD art 3.21): river basin committees (40% local governments, 40% users, and 20% State government), water agencies (1/3 of board members for each of the 3 categories), and a river basin coordinator (*Préfet*).
- Local water commissions (*CLE*) for a number of smaller river basins.

4. Drinking water and wastewater services management

France is divided into 22 regions and subdivided into 96 departments. The country has around 36 000 "*communes*" (municipalities), the smallest administrative divisions, which are responsible for water and wastewater services. Their responsibilities include water extraction and distribution, customer service and wastewater collection and treatment. In 2004, *communes* representing 66% of the population had transferred their responsibility for drinking water or wastewater services to one of the various existing forms of inter-communal public cooperation entities, water specific or not. In spite of such cooperation, France counts with more than 34 000 "organizing authorities" (responsible bodies) for DW and WW services.

The water utilities may be directly managed by these responsible bodies through in-house or municipal company (*régie)* systems. Often, they are managed within public-private partnerships (PPP) between the responsible body and an operator. In almost all cases the operator is a private company, in which case its mission is defined by an outsourcing or "delegation of public services" contract (*délégation de services publics - DSP*). Very few public-private joint ventures (*sociétés d'économie mixte -SEM*) exist in France.

Drinking water and wastewater utilities are always the object of separate contracts, if any, and may be operated by different organizations. In case of PPPs for DPS, tendering procedures are set up by laws and controlled by State representatives (*Préfets*). When a responsible body contracts out its water services to a private operator, it remains the owner of the assets, and respective responsibilities for infrastructure renewal and new investments are fixed by the contract. The most common forms of DPS in France are the lease contracts (*affermage*) and the concession contracts. In the latter, the operator bears the financial charge of the investments.

5. Water services pricing

The operator is paid by charging directly end users. The structure of the tariffs and the prices are fixed by the contract. Amendments to the contract are possible under legal and contracted conditions.

6. General statistics

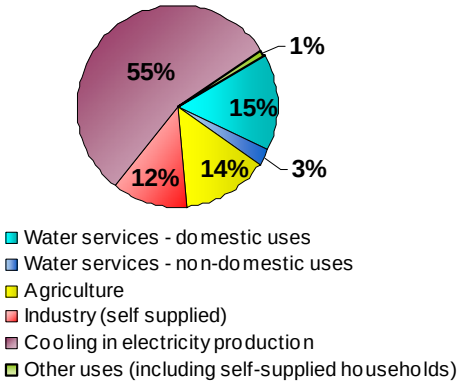
Country population (M inhabitants)	63.4
Population density (inh./km²)	99
GDP (PPP) / inh. (EU 27 = 100, 2006)	113

Population served by EUREAU members	DW	WW
	73%	51%

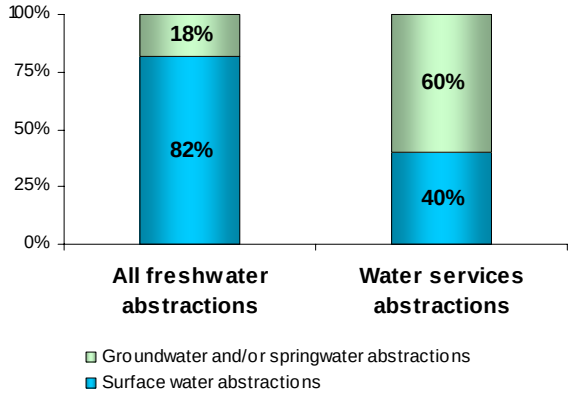
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	33,500
Per capita freshwater abstractions (L/inh.d)	1,448
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)[1]	18%

Uses of abstracted freshwater



Sources of abstracted freshwater[2]



8. Drinking water and wastewater services[3]

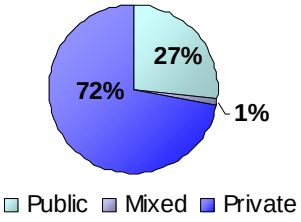
Population served by water services (% of total population)	DW	WW collection	WW treatment
	99%	81%	79%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	3,870	630	4,500
Per capita water delivered (L/inh.d)	169	28	196

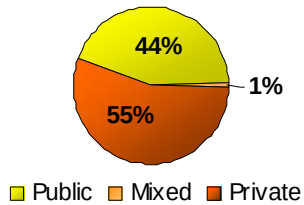
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	-	-	58,000
Turnover (latest year available, M €/yr)[4]	5,723	3,977	9,700
Investments (latest year available, M €/yr)	1,611	3,511	5,122
Length of network (km)	878,000	249,880	
Number of wastewater treatment plants			17,302
Wastewater treatment capacity (Mpe)			89

Operators	Multi-service	DW	WW	Total
Number of operators[5]	20,013	0	0	20,013

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] Data for actual external inflow of surface and ground waters, total renewable fresh water resources, and total renewable fresh water resources per capita exclude underground flows. The Rhine is also excluded (United Nations Statistics division, 2007).
[2] Total water abstracted, total water delivered and wastewater treatment figures are for 2004 (IFEN).
[3] Data provided by EUREAU member is from 2007.
[4] Including taxes, the total water services billed to end users amounts to 11,8 billion € for 2006 (BIPE&FP2E, 2008).
[5] Number of operators represents 13 private water services companies (of which 3 serve 70% of the country's population for drinking water) and an estimate of the number of public "régies" based on the other 20 000 existing water services (BIPE & FP2E, 2006, p.4)

Germany

1. EUREAU member information

EUREAU has two member associations in Germany:

- The German Association of Energy and Water Industries – BDEW – was created in 2007 from the merger of the VDEW, BGW, VDN and VRE. It counts approximately 1100 member companies in the water sector and 1,800 member companies overall.
- The German Technical and Scientific Association for Gas and Water – Deutsche Vereinigung des Gas – und Wasserfaches - DFGW – is an independent non-profit association working in various technical, economic, environmental, and managerial aspects of water and gas. It has more than 3,000 utilities and companies as members in the water and gas sectors.

Other water sector representation in Germany

The sector is also represented by further associations such as the German Association for Water, Wastewater and Waste (DWA), the Association of Local Utilities (VKU), the Association of Drinking Water from Reservoirs (ATT) and the German Alliance of Water Management Associations (DBVW).

2. Legislation and control measures

- Health and environmental laws are generally passed at Federal level. Some Federal laws apply throughout Germany (drinking water); others have to be implemented by the Federal States (water resources protection).
- Main legislation includes the regional *Municipal Laws*, the *Water Ordinance (AVBWasserV 1980)*, the *Ordinance on Waste Water* (*Abwasserverordnung* 1997) and the *Drinking Water Ordinance*.

3. Institutions responsible for water resources management

The relevant authority for water resources is the Federal Environment Agency (Umweltbundesamt –UBA), the scientific environmental authority under the jurisdiction of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Bundesumweltministerium –BMU).

4. Drinking water and wastewater services management

Germany's 16 Federal States (*Länder*) have a high degree of autonomy, including legislative powers. Water sector organization corresponds to the federal and Länder levels of administration: Supreme Water Authority (ministry), Upper Water Authority (region), and Lower Water Authority (municipality). Local administrations are the responsible bodies for water supply and sewerage services. According to the German Constitution, municipalities fulfill this obligation autonomously and independently, and are assured a monopoly on water supply services.

Water services operators are Water Companies organized under public or private law. In all cases, capital ownership is at least partly help by a municipality. There are many different organizational forms for drinking water services: direct municipal management; semi-autonomous municipal agencies (independent management and accounting); municipal companies (municipally-owned private-law limited liability or stock companies); delegation, concessions, build-operate-transfer contracts to the private sector; and institutionalized public-private partnerships (limited liability or joint stock companies involving a private partner and a local authority/municipality).

Local authority/municipality can choose to cooperate with other municipalities in purpose-oriented associations under public law or as Water and Soil associations. In most large cities, services are provided by municipal companies operated under contract. Wastewater services are almost all operated by public entities, which can be special-purpose associations, state-run utilities, municipal utilities or public bodies. Operators can be private companies.

5. Water services pricing

Water services pricing is subject to strict statutory regulation. The public water supply and wastewater disposal utilities are subject to the *Municipal Charges Acts* of the Federal States as well as to municipal supervision. As far as private supply utilities charge their services directly to the consumers, they are subject to the supervision of the antitrust agencies. Operators are legally bound to comply with the cost recovery principle, including costs of resource preservation and refinancing of facilities. Prices include a fixed and a variable charge, calculated by taking into account the cost structure.

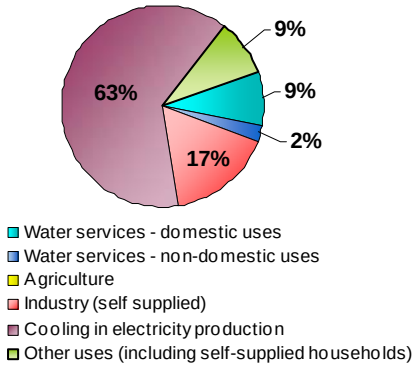
6. General statistics

			DW	WW
Country population (M inhabitants)	82.2			
Population density (inh./km²)	231	Population served by EUREAU members[1]	80%	55%
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	114			

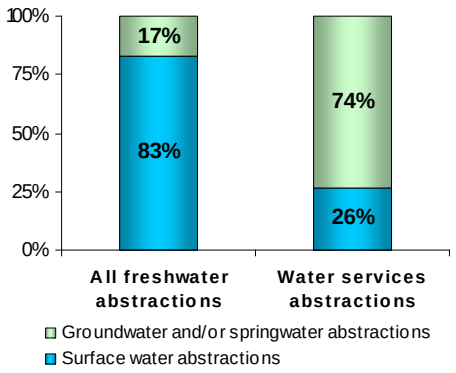
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	35,557
Per capita freshwater abstractions (L/inh.d)	1,185
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	19%

Uses of abstracted freshwater



Sources of abstracted freshwater



8. Drinking water and wastewater services[2]

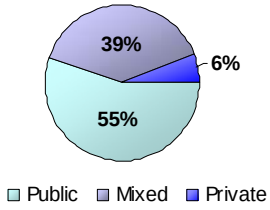
Population served by water services (% of total population)	DW	WW collection	WW treatment
	99%	96%	94%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	3,703	957	4,660
Per capita water delivered (L/inh.d)	126	29	155

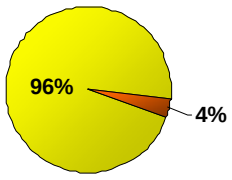
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	-	-	100,000
Turnover (latest year available, M €/yr)	-	-	-
Investments (latest year available, M €/yr)	2,100	3,800	5,900
Investments (long term average, M €/yr)[3]	2,500	-	-
Length of network (km)	500,000	514,884	
Number of wastewater treatment plants			9,994
Wastewater treatment capacity (Mpe)			155

Operators	Multi-service	DW	WW	Total
Number of operators	0	6,383	6,909	-

Drinking water operators ownership (% of population served)



Wastewater operators ownership (% of population served)



[1] Population served by EUREAU members is a provisional estimated figure.
[2] Data provided by EUREAU member is from 2004 to 2006.
[3] Total investments (long term annual average, million €) represent 39 billion € invested in water abstractions, storage, transport, production and distribution, as well as in metering instruments, for the period 1990-2005. (BDEW 2007, www.bdew.de, www.dvgw.de)

Greece

1. EUREAU member information

The Hellenic Union of Municipal Enterprises for Water Supply and Sewerage (EDEYA) counts 174 municipal companies (DEYA) members, among the country's 220 DEYA. DEYA serve 40% of the Greek population.

Other water sector representation in Greece
Mixed companies (EYDAP in Athens and EYATH in Thessaloniki) serve 45% of the Greek population. The remaining 15% of the population is served directly by municipalities that own technical departments for water supply and sewerage.

2. Legislation and control measures

- Main legislation includes the *Law for the establishment and operation of DEYAs* (1069/80) as well as the legislation for the companies in Athens and Thessaloniki (law 2744/1999 for EYDAP and law 2937/2001 for EYATH). It also includes the Municipal Code and the Law 3199/2003 on water resources Management.
- There is no national system for price and service regulation in the country, which depends on each municipality.

3. Institutions responsible for water resources management

- The Ministry of Environment, Planning and Public Works (MoEPPW) is the relevant authority for water resource management, through the Central Water Agency, the National Water Committee, the National Water Council, the Regional Water Councils and the Regional Water Agencies.
- Greek territory is divided in 14 River Basin Districts (RBD).

4. Drinking water and wastewater services management

Greece is divided into 13 regions, 54 prefectures and 1,033 municipalities (formerly more than 6,000). The Ministry of the Interior is the relevant authority for DEYAs and Municipalities, except for Athens and Thessaloniki where it is the Ministry of Environment, Planning and Public Works (MoEPPW). The Ministry of Public Health is the relevant authority for water quality control and Municipalities are the responsible bodies for water services.

Organizational models are varied:
- Operators in Athens (EYDAP) and Thessaloniki (EYATH) manage water and wastewater services under a 20-year concession contract. These operators are State-owned corporations. In 2000 and 2001 respectively, EYDAP and EYATH were partly floated and listed on the Athens stock exchange. The majority of shares remain under the government's control.
- Municipalities with mainly more than 10,000 inhabitants are managed by public utility corporations, which are municipally-owned private companies (DEYA).
- A few municipalities operate directly water utilities.

5. Water services pricing

Subsidies from the Ministry of the Interior are available under Law 1069/80 (minimum of 35% of investment costs to each company). Heavy direct subsidies of up to 100% have been granted for major works such as treatment plants operated by EYATH and EYDAP, but not for water supply or sewerage networks.

Each DEYA sets the charges, which are then approved by the City Municipal Council. EYDAP and EYATH set charges which must be approved by the State. Water companies are partly subsidized by the State.

The basic elements included in water tariffs (points calculated for the cost assessment) are: (a) personnel's remuneration and expenditure, (b) third parties' remuneration and expenditure, (c) third parties' allowances, (d) taxes and duties, (e) miscellaneous expenditure, (f) interests and related expenditure, (g) depreciation of capital assets, and (h) anticipation for investments.

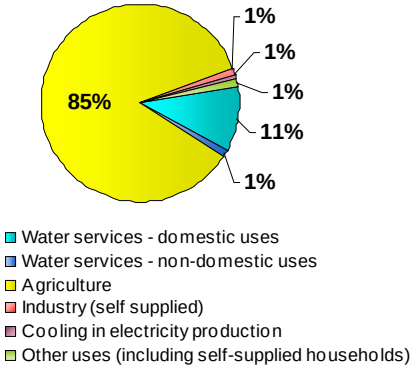
6. General statistics

			DW	WW
Country population (M inhabitants)	11.2			
Population density (inh./km²)	85	Population served by EUREAU members	38%	25%
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	97			

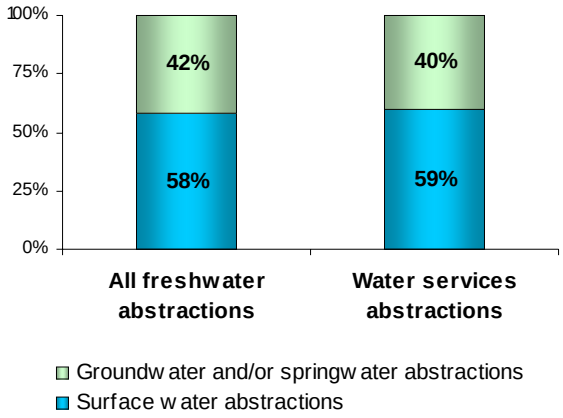
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	8 304
Per capita freshwater abstractions (L/inh.d)	2 037
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	11,78%

Uses of abstracted freshwater



Sources of abstracted freshwater[1]



8. Drinking water and wastewater services[2]

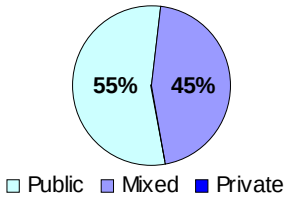
Population served by water services (% of total population)	DW	WW collection	WW treatment
	98%	75%	70%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)[3]	869,6	87	956,6
Per capita water delivered (L/inh.d)	218	22	239

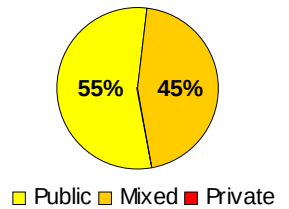
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	6,300	4,600	10,900
Turnover (latest year available, M €/yr)	1,557	1,086	2,643
Investments (latest year available, M €/yr)	302	44	346
Length of network (km)	-	-	
Number of wastewater treatment plants			400
Wastewater treatment capacity (Mpe)			7

Operators	Multi-service	DW	WW	Total
Number of operators	1,033	0	0	1,033

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] About 1% of drinking water abstractions come from desalinated water.
[2] Data provided by EUREAU member is from 2001 to 2007.
[3] Water delivered by water services figure is for 2001.

Hungary

1. EUREAU member information

The Hungarian Water Utility Association (Maviz) was established in 1990 as an independent professional body representing the interests of the industry and offering trade and engineering services. The association has 100 public water utilities as members, assuring 95 % of the public water services of the country. Moreover, 100 other members represent water industry and trade organisations.

Other water sector representation in Hungary
The Hungarian Sewerage Technology Association also represents water sector interests.

2. Legislation and control measures

- Main legislation includes the *Act on Waters* (1964), the *Act on Local Governments* (1990), the *Act on Waste*, the *Act on Water Management* (1995) and the *Act on Environment Protection* (1995).
- The State Audit Office (SAO) examines how municipalities fulfill their legal obligations related to public services. Environmental and technical aspects of water management are controlled, but not economic and financial ones.

3. Institutions responsible for water resources management

The Hungarian institutional framework for water management has undergone various restructuring measures since environment matters first fell under ministerial governance in 1988, following the merger of the National Water Bureau and of the National Environment and Nature Protection Office. In 1990, water was separated from environment and was transferred to the Ministry of Transport, Communication and Water and its 12 Regional water authorities. In 1998, housing, construction and regional development duties were transferred to the Ministry of Agriculture and Rural Development, and the Ministry of Environment Protection was established.

In 2002, water was transferred to the Ministry of Environment and Water (MEW). The MEW abolished the National Water Authority in 2004, replacing it by 2 institutions: the General Inspectorate for Environment, Nature Protection and Water and the National General Directorate for Environment, Nature Protection and Water (OKTVF). The 12 regional water authorities were renamed Directorates for environment and water. In 2005, OKTVF was replaced by the National Water Center and Archives (VKK). At present, the MEW is the relevant authority for environment, nature protection and water. The Ministry's field institutions include the 12 water authorities and the National Environment and Water Authority (OVF, also called the Central bureau of water and environment). Responsibility for the 12 water boards is shared between VKK's Water Directorate and the MEW.

4. Drinking water and wastewater services management

There are 19 administrative districts, or counties (*megye*), in Hungary. Budapest is an independent administration, itself divided into 23 districts. The responsible bodies for water supply and wastewater treatment are the country's 3,200 municipalities.

Operators are publicly-owned Water Companies. Until 1992, there were only 33 Companies, of which 28 were municipally-owned "Councils" and 5 were State-owned. In most cases, they managed both water supply and sanitation. In 1990, responsibilities and ownership for the 28 Councils were transferred to each local government (municipalities). In this vast decentralisation process, some independent legal entities were established, such as limited liability companies, joint ventures and corporations. Some privatisation was introduced by concession agreements or public-private partnerships. The five biggest water companies remain state-owned.

In this process, municipalities did not always have the necessary resources for monitoring needs, controlling results, or guaranteeing funding. The legislative framework and the State aid schemes were unclear. Some confusion still exists regarding asset ownership.

Sanitation became a compulsory municipal duty only in 2001. The National Program for Implementing Household Wastewater Disposal and Cleaning was passed in 2002 in order to meet the water quality protection requirements of the European Union.

5. Water services pricing

Water services and investments are now funded through user charges, national funds and EU funds. Prices for water supply and sewerage services are set by a ministerial and a municipal decree.

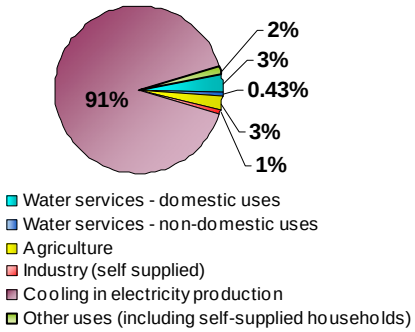
6. General statistics

			DW	WW
Country population (M inhabitants)	10.1			
Population density (inh./km²)	109	Population served by EUREAU members	94%	62%
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	65			

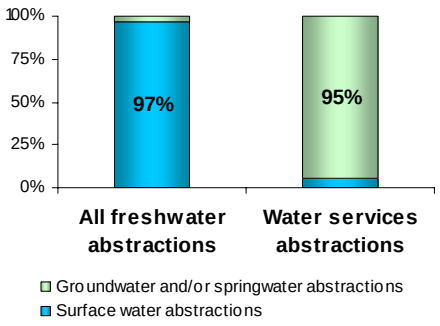
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	21,033
Per capita freshwater abstractions (L/inh.d)	5,725
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)[1]	18%

Uses of abstracted freshwater[2]



Sources of abstracted freshwater



8. Drinking water and wastewater services[3]

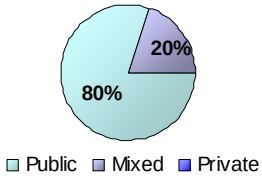
Population served by water services (% of total population)[4]	DW	WW collection	WW treatment
	98%	67%	55%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	486	60	546
Per capita water delivered (L/inh.d)	135	17	152

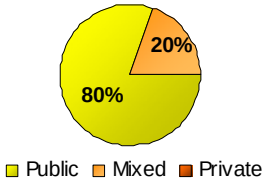
Water services management	DW	WW	Total
Number of employees (full-time equivalent)[5]	14,285	6,715	21,000
Turnover (latest year available, M €/yr)	321	268	589
Investments (latest year available, M €/yr)[6]	-	250	-
Length of network (km)	62,622	35,800	
Number of wastewater treatment plants			600
Wastewater treatment capacity (Mpe)			12

Operators	Multi-service	DW	WW	Total
Number of operators	315	15	20	350

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] About 95% of the surface water in Hungary comes from other countries; the quantity and the quality of water resources greatly depend on the interventions in the upstream countries. (Aquamedia, www.aquamedia.at/downloads/download_271.doc)
[2] Water uses figures are mostly from 2002. (Eurostat, 2008)
[3] Data provided by EUREAU member is from 2005.
[4] There was a significant progress in the rate of population connected to urban waste water treatment systems in Hungary. In 1990, less than 40% of the population was connected to any kind of waste water treatment. The figure for 2005 is 60.6%, with 21.2% of the population being connected to advanced treatment. (Hungarian statistical office, 2008)
[5] Wastewater collection and treatment number of employees is a 2006 figure representing the "number of employees in connection with the production of goods and services for end-of-pipe pollution abatement purposes" for the activities of "wastewater treatment" and "municipal liquid waste removal, treatment and disposal". (Hungarian statistical office, 2008)
[6] Wastewater collection and treatment investments is estimated based on local government spending from 1996 to 2002, which amounts to 1.75 million € for setting up sewage networks and plants. Of this amount, 51.9% came from the central government. (State Audit Office of Hungary, 2008, www.asz.hu)

Iceland

1. EUREAU member information

The Icelandic Energy and Utilities Association, Samorka, represents district heating, electricity, water and sewage service companies. It has 36 members.

2. Legislation and control measures

Main legislation includes the *Water Act* (15/1923), the *Food Act* (93/1995) and Regulation on food safety control (522/1994), the *Act on Financial Support to Municipalities for Sewage Control* (53/1995), the *Act on Research and use of Natural Resource* (57/1998), the *Act on Public Health and Pollution Control* (7/1998), the Regulation on Sewage Systems and Sewage (798/1999), the Drinking Water Regulation (536/2001), the *Water Supply Act* (32/2004) and the Regulation on Water Supply (401/2005).

3. Institutions responsible for water resources management

The Icelandic Ministry for the Environment formulates and enforces the Icelandic government policy for environmental affairs. The Ministry supervises the affairs related to resources protection, pollution prevention and environmental monitoring and surveillance of natural waters. The Ministry of Industry is responsible for management of the use of the resource.

4. Drinking water and wastewater services management

The relevant authority of water supply is the Ministry of Social Affairs, which oversees the affairs of the municipalities. The relevant authority for sewage is the Ministry of Environment. The relevant authority for drinking water quality is since January 1st, 2008 the Ministry of Fisheries and Agriculture. This is managed by a new institution, the Icelandic Food and Veterinary Authority MAST. Water for consumption is classified as food in the *Food Act* since 1995. MAST is responsible at a national level for ensuring that water for consumption complies with the Drinking Water Regulation. At the local level, Local Health Inspection Board and Health Inspectors on their behalf are responsible for water surveillance. In the Food Act water supply were classified as food processing companies and as such obligated to have an intern control to safeguard the water, HACCP or similar. This came into effect in December 1995. In 2007, 68% of the population gets water from a water supply that has implemented HACCP or a Water Safety Plan.

The country's 79 municipalities are the responsible bodies for drinking water supply and wastewater collection, for which they have a monopoly. Since 1991, municipalities have the obligation to secure service in densely populated areas, which are defined in the *Act for Landplaning and Buildings* (73/1997) as clusters of houses where at least 50 people are living and where distance between houses is less than 200 metres.

Water services operators are mostly municipally-owned. The private sector is very little involved in water service, but since 2004, private companies are authorized to own up to 49% of a municipal water company. Consumer owned cooperatives are common in the rural areas.

Legislation requires treatment of sewage, one and two steps, depending on size and receiver. At the end of 2007, 12 communities had sewage treatment plants in operation and four more were in the process of building plants.

5. Water services pricing

Water services operators are non-profit companies, but they can recover their costs by charging users.

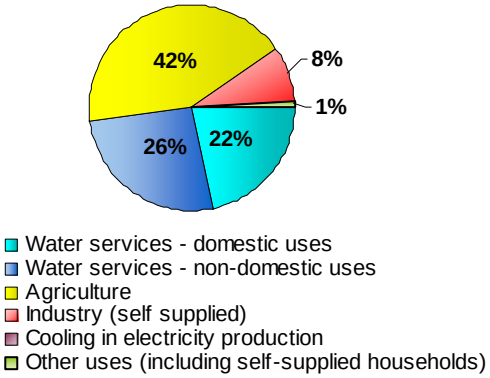
6. General information

			DW	WW
Country population (M inhabitants)	0.3			
Population density (inh./km²)	3	Population served by EUREAU members	83%	50%
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	136			

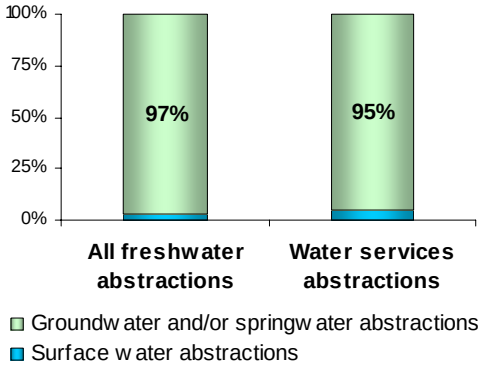
7. Water resources and use

Total freshwater abstractions (Mm³/yr)[1]	165
Per capita freshwater abstractions (L/inh.d)	1,469
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	0%

Uses of abstracted freshwater



Sources of abstracted freshwater[2]



8. Drinking water and wastewater services[3]

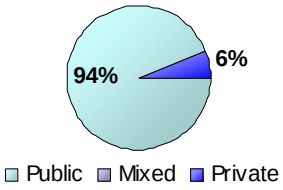
Population served by water services (% of total population)	DW	WW collection	WW treatment
	95%	90%	69%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	30	37	67
Per capita water delivered (L/inh.d)	283	345	628

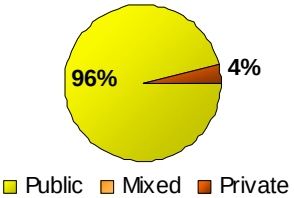
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	-	-	-
Turnover (latest year available, M €/yr)	43	42	85
Investments (latest year available, M €/yr)	-	-	-
Length of network (km)	2,696	-	
Number of wastewater treatment plants			23
Wastewater treatment capacity (Mpe)			-

Operators[4]	Multi-service	DW	WW	Total
Number of operators	52	62	73	187

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] Total freshwater abstractions include the domestic use of geothermal water. Data is for 2003 (United Nations Statistics division, 2007).
[2] Surface freshwater abstractions and fresh groundwater abstractions include the domestic use of geothermal water. Data is for 2003 (United Nations Statistics division, 2007).
[3] Data provided by EUREAU member is from 2006 and 2007.
[4] 62 municipal water services serve 95% of the population. The remaining 5% are served by private consumer-owned supplies.

Ireland

1. EUREAU member information

The County and City Manager's Association represents Ireland's County and City Managers (CCM). Every County and City council in Ireland has a chief executive, the CCM, who is employed to manage their local authority. Some counties in Ireland share a County Manager. CCM perform the executive functions of the County or City Council. He supervises, coordinates, manages and pays the employees and officers of the Council. He also makes contracts on behalf of the Council and affixes the official seal of the Council on documents.

Other water sector representation in Ireland
The National Federation of Group Water Schemes (NFGWS) was formally established as a Cooperative Society in 1998. It is the representative and negotiating organisation for community-owned rural water services in Ireland.

2. Legislation and control measures

Main legislation includes the *Public Health Act* (1878), the *Water Supplier Act* (1942), the *Sanitary Services Act* (1964), the *Local Government Water Pollution Acts* (1977/1990), the *Environmental Protection Agency Act* (1992), and the *Water Services Bill* (2002).

3. Institutions responsible for water resources management

- Local authorities act under the direction of the Ministry of Environment, which is the relevant authority for planning and development.
- Ireland has been divided into 5 regions to undertake the River Basin Management studies required under the Water Framework Directive.

4. Drinking water and wastewater services management

The provision and upgrading of capital projects is provided by the Department of the Environment, Heritage and Local Government. Drinking water quality testing is carried out by local authorities and the Health Service Executive (HSE). The new National Water Service Authority is the relevant authority for water distribution and sewerage services. It is responsible for supervision of contracted out services, such as design-build-operate contracts and operations and maintenance contracts.

The Irish Republic has 29 County Councils, 5 City Councils, 5 Borough Councils, and 75 Towns Councils. These local authorities are the responsible bodies for providing water supply and sewerage services. The local authorities administer the building of approved water supply projects, and they also own and operate water utilities. Even if ownership of infrastructure remains public, all projects and the provision of improved services are now checked for feasibility as a Public Private Partnership, if any funding is required prior to procurement.

In some rural areas where the local authority has not (and does not intend to) install a water supply system, water supply is organised into small Group Water Schemes (GWS). GWS are operated by users as non-profit cooperatives represented by an elected trustee and subsidized by their local authority. GWS can get water supply from a public network or from a private source (well). Local authorities can test GWS drinking water quality but they are not responsible for operations and have no organizational input. GWS can ask their local authority to take over operations, in which case there is a signed agreement. GWS are responsible for the provision of water to around 200,000 households.

5. Water services pricing

Water services have traditionally been paid for by the general taxation and commercial rates system. Domestic water supply charges were abolished in 1997. All non-domestic uses in large cities are charged for, either on a fixed-charge basis or through metering.

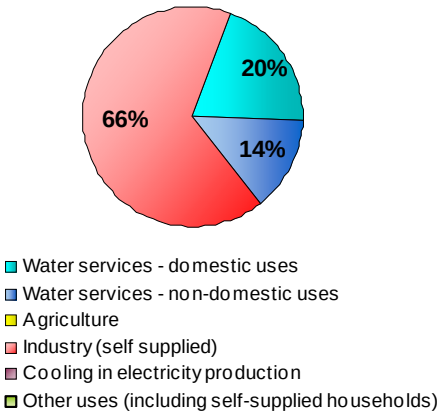
6. General statistics

			DW	WW
Country population (M inhabitants)	4.3			
Population density (inh./km²)	63	Population served by EUREAU members	93%	92%
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	143			

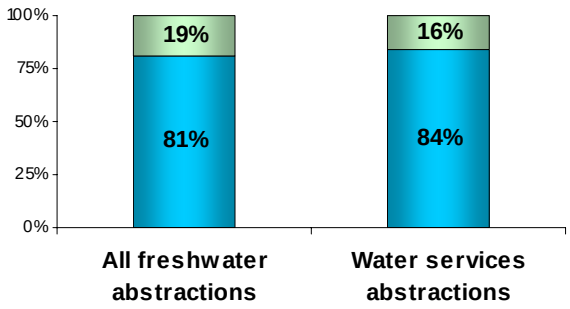
7. Water resources and use

Total freshwater abstractions (Mm³/yr)[1]	1,176
Per capita freshwater abstractions (L/inh.d)[2]	748
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	2.4%

Uses of abstracted freshwater[3]



Sources of abstracted freshwater[4]



8. Drinking water and wastewater services

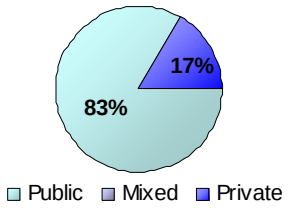
Population served by water services (% of total population)	DW	WW collection	WW treatment
	94%	93%	89%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	279	191	470
Per capita water delivered (L/inh.d)	188	129	317

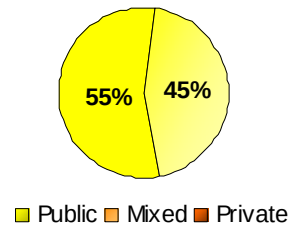
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	-	-	3,020
Turnover (latest year available, M €/yr)	-	-	-
Investments (latest year available, M €/yr)	-	-	-
Length of network (km)	5,105	5,878	
Number of wastewater treatment plants			478
Wastewater treatment capacity (Mpe)			6

Operators	Multi-service	DW	WW	Total
Number of operators	45	0	0	45

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] Total freshwater abstractions data is from 1994 (Eurostat, 2008).
[2] Taking into account 1995 population, this figure would be 896 L/inh.d.
[3] Water uses data is from 1994 (Pacific Institute, 2006).
[4] Fresh surface water abstractions and fresh groundwater abstractions data is from 1994 (Eurostat, 2008).

Italy

1. EUREAU member information

Federutility is the Association of Italian public and private utilities working to provide water and energy to Italian users. The Federation currently brings together 515 members which provide water to 75% of the Italian population and gas and electricity to respectively 35% and 20% of Italian end users. Associated companies are operators for all or part of the integrated water cycle: water, wastewater, and reuse. They are often multi-utilities (gas, electricity, waste collection and water treatment).

2. Legislation and control measures

Main legislation includes the Act 152/2006 (*Decreto Legislativo del 3 aprile 2006*, which replaces the Galli Law of 1994); the implementation of part of the WFD and other EU wastewater directives, which regulate the water services, wastewater discharge, and water resources management; the Act 31/2001 (*Decreto Legislativo del 2 febbraio 2001*), the implementation of 98/83/CE, the Regal Act 1775/1933, and the Act 267/2000 (*Decreto Legislativo del 18 agosto 2000*).

The main institutions involved in the water sector regulation are the Government, the Parliament, the Ministry of Economics and Finance, the Ministry of Health, the Ministry of Environment, and the Ministry of Productive Activities. In Italy, there is no independent authority regulating the water sector. The Supervising Committee on the use of Water Resources (*Comitato di Vigilanza sull'uso delle risorse idriche*) is part of the Ministry of Environment and its members are elected by the Government (in particular by the Ministry of Environment).

3. Institutions responsible for water resources management

District Basin Authorities are regional organisations responsible for water resources management and planning of the allocation of resources between different uses.

4. Drinking water and wastewater services management

Italy's 8,000 local communities are historically the responsible bodies for water services. However, since the reorganization of the sector during the 1990s, following the Galli Law, local communities transferred this responsibility to Integrated Water Services Management Authorities (*Servizio idrico intergrato*). Their territory corresponds to "optimal territorial areas" (*Ambito Territoriale Ottimale*, ATO). ATOs are defined by Regions following geographic, administrative and economic criteria. Most often, they correspond to provincial boundaries, but in some cases they correspond to regional boundaries. A recent Act has been issued implying that ATOs are eventually going to be replaced by larger institutions defined by the Regions.

Regional governments are responsible for identifying the most effective form of integration of existing water services within the ATOs. This can take the form of either a convention supervised by one municipality or by the province, or of a Water and Wastewater Consortio.

Within the ATO, local authorities form an inter-municipal structure called the Optimal Territorial Area Authority (A-ATO). A-ATOs are responsible for providing technical and financial Plans (*Piano d'Ambito*), for choosing operators, for deciding on service levels and tariffs, and for contract enforcement.

Relations between the A-ATO and the Integrated Water Services Management Authorities are regulated by a specific contract (*Convenzione di affidamento*), the framework of which (*Convenzione – tipo*) is also drafted by Regional governments.

The water services operators appointed by each Area Authority can take different forms: delegation to a private company identified through public tender procedures; publicly-owned local companies; or public-private mixed capital companies in which the private shareholder has been chosen through public tender.

5. Water services pricing

Tariffs are defined in the ATO (Optimal Territorial Areas) Plans in a regulation period of 20-30 years and in their revision of the plan. In ATOs where the water manager has not been chosen (25% in terms of population) the tariffs are fixed by municipalities or by the water manager in a price cap regulation which is defined by an inter-ministerial committee (CIPE).

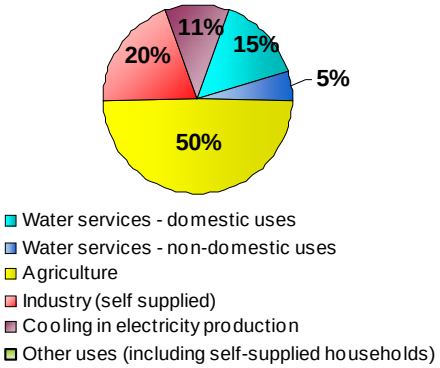
6. General statistics

			DW	WW
Country population (M inhabitants)	59.1			
Population density (inh./km²)	201	Population served by EUREAU members	75%	75%
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	104			

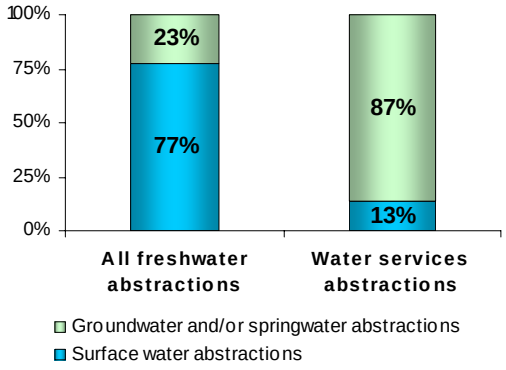
7. Water resources and use

Total freshwater abstractions (Mm³/yr)[1]	51,820
Per capita freshwater abstractions (L/inh.d)	2,401
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	55%

Uses of abstracted freshwater



Sources of abstracted freshwater[2]



8. Drinking water and wastewater services[3]

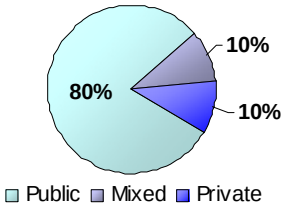
Population served by water services (% of total population)[5]	DW	WW collection	WW treatment
	97%	84%	73%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	4,188	1,410	5,600
Per capita water delivered (L/inh.d)[6]	200	67	267

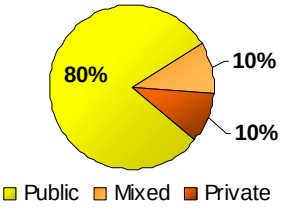
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	40,671	22,704	63,375
Turnover (latest year available, M €/yr)	2,675	2,434	5,109
Investments (latest year available, M €/yr)	932	1,108	2,040
Length of network (km)	322,968	158,161	
Number of wastewater treatment plants			10,375
Wastewater treatment capacity (Mpe)			64

Operators	Multi-service	DW	WW	Total
Number of operators	-	-	200	2,638

Drinking water operators ownership[4]
(% of population served)



Wastewater operators ownership
(% of population served)



[1] Total freshwater abstraction data is from 2001 (Ministry of Environment).
[2] GIUSEPPINA FARRACE, Maria (2007).
[3] Information provided by EUREAU members is from 1999 to 2006.
[4] Figures for ownership of operators were found in "The IWA Statistics and Economics Specialist Group's European water regulation survey: survey results summary", *Water utility Management International,* Oct. 2006, pp.16-24, www.iwahq.org/uploads/sgs/WUMI%20regulation%20survey.pdf.
[5] Population served by Water Services data is for 2002 (CoViRi).
[6] Per capita water delivered by water services (L/inh.d) is from 1999 (ISTAT).

Lithuania

1. EUREAU member information

The Lithuanian Water Suppliers Association (LWSA) was established in 1992 to unite diverse domestic as well as international companies, agencies, and individuals who work in fields related to water management. LWSA aims to assist its members by providing systemized guidance over the operations of water supply, disposal of waste water, and waste water treatment, and by providing forecasts of sector development trends. LWSA also represents its members' interests to the relevant institutions and agencies of the Republic of Lithuania. Almost a half of all the Association's members are water supply companies, which are in charge of both water and wastewater.

2. Legislation and control measures

Main legislation includes the Law on Environment Protection (1992, 1996), the Law on Water (1997, 2003), the Resolution no. 562 *On the Approval of 2007-2025 Programme for the Assessment of Groundwater Resources and Usage Thereof for the Supply of Drinking Water* (2006), the *Law on Drinking Water Supply and Waste Water Management* (2007) and the Order no. D1-515 *On the Approval of Wastewater Management Regulation* (2007).

3. Institutions responsible for water resources management

The Environmental Protection Agency (EPA) was established in 2003 by the Ministry of the Environment. EPA is a merger of the former Joint Research Centre and Water Resources Department of the Ministry of Environment. It is responsible for overseeing water resources management.

4. Drinking water and wastewater services management

The Ministry of Health together with the State Food and Veterinary Service is the relevant authority for controlling the quality of drinking water. The Municipal Department of the Ministry of Environment is the relevant authority for water services. It shapes the policy on water supply and wastewater collection and treatment. It devises strategies, plans and long-term programs for the development of services, coordinates their implementation, drafts legal acts regulating the organization and provision of services, coordinates the reform of the administration of the water management sector as well as the creation of regional municipal waste management systems; collects and analyses information on ritual burial services.

The water and wastewater sectors are being restructured by amalgamating their management and ownership on a regional basis. Municipalities are the responsible bodies for providing water services.

Most of the water service operators are municipally-owned Water Companies, which operate both drinking water and wastewater services. There also exist many small operators organized as cooperatives, residential groups, agricultural companies, or other municipal companies.

Private sector can be involved to assist with electromechanical equipment renewal, existing infrastructure renewal, research and development.

5. Water services pricing

Water Companies are independent financial units and they are expected to operate on the income they generate, although some have been experiencing problems due to unpaid bills. The *Law on Drinking Water Supply and Waste Water Management* sets the framework for price setting principles and objectives. It provides that municipal councils set prices for public water suppliers based on a methodology drafted by the National Control Commission for Prices and Energy. In 2006, not all prices complied with these requirements.

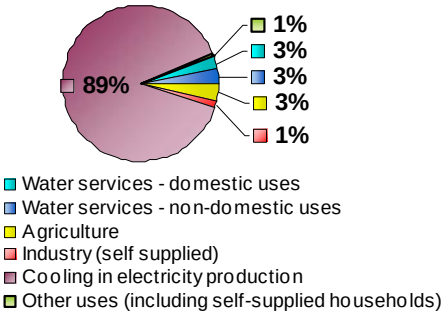
6. General statistics

			DW	WW
Country population (M inhabitants)	3.4			
Population density (inh./km²)	52	Population served by EUREAU members[1]	68%	61%
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	58			

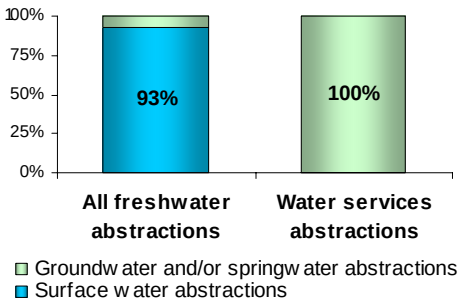
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	2,365
Per capita freshwater abstractions (L/inh.d)	1,917
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	10%

Uses of abstracted freshwater[2]



Sources of abstracted freshwater[3]



8. Drinking water and wastewater services

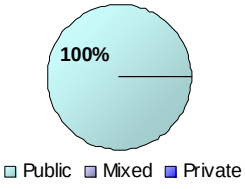
Population served by water services (% of total population)[4]	DW	WW collection	WW treatment
	70%	60%	58%

Water services delivered water[5]	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	88	12	100
Per capita water delivered (L/inh.d)	102	14	116

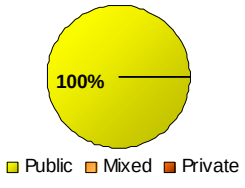
Water services management	DW	WW	Total
Number of employees (full-time equivalent)[6]	-	-	5,826
Turnover (latest year available, M €/yr)[7]	-	-	110
Investments (latest year available, M €/yr)[8]	33	76	110
Length of network (km)[9]	10,945	6,824	
Number of wastewater treatment plants[10]			631
Wastewater treatment capacity (Mpe)			3.4

Operators	Multi-service	DW	WW	Total
Number of operators[11]	45	1,410	-	1,455

Drinking water operators ownership (% of population served)



Wastewater operators ownership (% of population served)



[1] Information provided by EUREAU member (Lithuanian Water Suppliers Association - LWSA) is from 2006.
[2] For uses of abstracted water, figures are estimated from Eurostat (2005) and the National Control Commission for Price and Energy (2006).
[3] For total water abstractions, figures are from 2005 (Eurostat). For water abstracted by water services, figures are from Ministry of Environment (2006), p.11. For more detail see also: Ministry of Environment (2004), *State of Environment*, p.57-60 and United Nations Statistics Division (2001).
[4] Ministry of Environment (2006), *Ministry of Environment of the Republic of Lithuania*, p. 19 and LWSA 2006.
[5] This is an estimation based on the Lithuanian Water Suppliers Association (LWSA) figures.
[6] For number of employees see National Control Commission for Price and Energy, *Annual Report 2006*, p.49.
[7] This is an estimation based on the Lithuanian Water Suppliers Association (LWSA) figures.
[8] For investments see National Control Commission for Price and Energy, *Annual Report 2006*, p.51. Conversion rate used is: 1 LTL = 0.289 €.
[9] This is an estimation based on the Lithuanian Water Suppliers Association (LWSA) figures.
[10] Number of plants and treatment capacity are figures from ECOPROG (2006-2007). *Waste Water Treatment Plants in Europe*, pp. 202-203.
[11] Includes 45 Companies serving 90% of the population, as well as 1,330 small supplies of drinking water exceeding 10 m³/d or serving more than 50 people, and 80 larger utilities extracting over 1,000 m³/day or serving more than 5,000 people. These figures are for 2000 (Pietilä, 2004, p.10).

Luxembourg

1. EUREAU member information

The Luxembourg Water Services Association (ALUSEAU) is a non-profit organization aiming to represent the common interests of public bodies in the drinking water and wastewater sectors. It promotes the study of technical, scientific, economic and administrative problems and proposes solutions. Its members are municipalities, Water Associations (formed by more than one municipality), ministries, and other public bodies.

2. Legislation and control measures

Main legislation include: Water pollution control legislation (1929), groundwater abstraction legislation (1961), Law 115 on drinking water quality (2002), and Law 020 on drinking water supply (1999).

3. Institutions responsible for water resources management

The Water Administration was created by the Ministry of the Interior and Territorial Planning in 2004, by grouping many administrative water-related tasks. The Water Administration is the relevant authority for water resources quality and quantity management.

4. Drinking water and wastewater services management

Luxembourg is organized into 3 districts and 118 municipalities (*communes*). Municipalities are the responsible bodies for water supply and wastewater disposal. They are responsible for providing annual information on drinking water quality and for realizing technical audits. They are also responsible for approving budgets and setting tariffs, which are then approved by the Ministry of Interior.

Municipalities can operate directly water services when they are self sufficient in groundwater resources. In this case, they own the production and distribution assets. When they are not self sufficient in water supply, municipalities can affiliate to regional Water Associations (*Syndicat*), which group municipalities in order to provide bulk groundwater in a collective way to participating municipalities. In this case, the Association owns the production facilities and each municipality remains the owner and operator of its distribution assets.

Surface water is treated by the Water Association of Esch-sur-Sûre Dam (*Syndicat des Eaux du Barrage d'Esch-sur-Sûre*, SEBES), operating since 1969. SEBES is a national bulk water provider and operates with central government financial support. SEBES is overall responsible for one third of Luxembourg's water supply and also operates 3 groundwater "backup" catchments.

Except in the eastern part of the country, most wastewater treatment plants are owned by associations of municipalities.

5. Water services pricing

Water prices are set by each municipality according to the cost recovery principle. They include fixed and variable charges, as well as a tax for water resources protection.

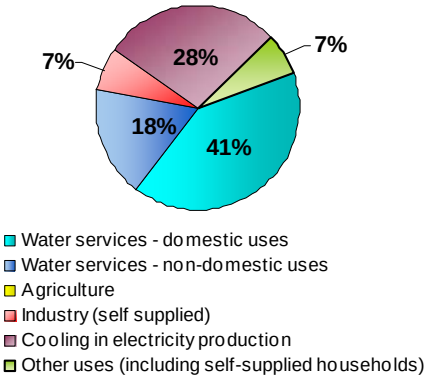
6. General statistics

			DW	WW
Country population (M inhabitants)	0.4			
Population density (inh./km²)	158	Population served by EUREAU members	98%	98%
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	279			

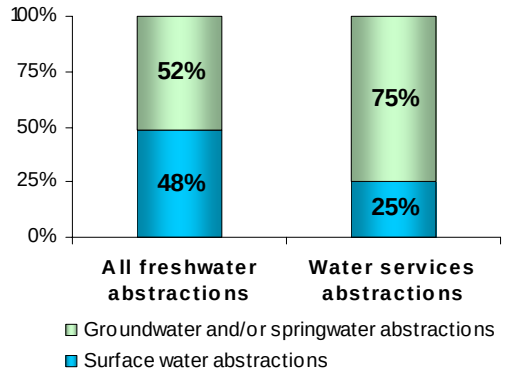
7. Water resources and use

Total freshwater abstractions (Mm³/yr)[1]	60
Per capita freshwater abstractions (L/inh.d)	401
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	3%

Uses of abstracted freshwater[2]



Sources of abstracted freshwater[3]



8. Drinking water and wastewater services

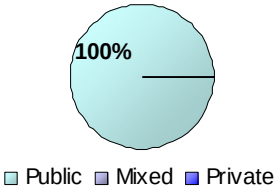
Population served by water services (% of total population)	DW	WW collection	WW treatment
	100%	99%	94%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	23	10	33
Per capita water delivered (L/inh.d)	154	66	221

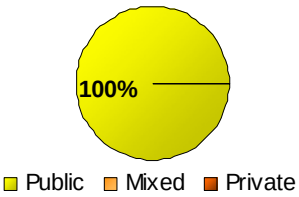
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	-	-	-
Turnover (latest year available, M €/yr)	-	-	-
Investments (latest year available, M €/yr)	-	61	-
Length of network (km)	4,600	-	
Number of wastewater treatment plants			277
Wastewater treatment capacity (Mpe)			1

Operators	Multi-service	DW	WW	Total
Number of operators[4]	0	123	130	253

Drinking water operators ownership (% of population served)



Wastewater operators ownership (% of population served)



[1] The figure for total freshwater abstractions is from 1999. Per capita withdrawals calculated with 1999 population are 121 m³/person/year (Source: Pacific Institute, 2006; Eurostat, 2008).
[2] Irrigation in Luxembourg concerns only small scale vegetable production, however there are no official statistics on this matter (Aquastat, 2008).
[3] Total fresh groundwater abstractions data is from 1999 (Eurostat, 2008).
[4] The number of operators represents, for drinking water, 116 communes, 6 inter-communal associations (DEA, SES, SIDERE, SEC, SR, SESE) and one association of communes with the State (SEBES); and for wastewater, 116 communes and 14 inter-communal associations, of which 6 are transboundary.

Malta

1. EUREAU member information

The Water Services Corporation (WSC) was set up by the Government in 1992 to produce and distribute drinking water in the Maltese Islands. It is under the responsibility of the Ministry for Infrastructure, Transport & Communications. WSC is a State-owned corporation and has rights for the acquisition, production, sale, distribution, exportation and disposal of domestic, commercial, and industrial water.

2. Legislation and control measures

- Main legislation include: *Water Service Corporation Act* (1991); *Sewerage Discharge Control Regulations* (LN139/2002); *Malta Resources Authority Act* (2000); *Environmental Protection Act* (2001).
- The relevant authority for Drinking water quality is the Public Health unit within the Ministry of Health.
- The Malta Resources Authority (MRA) is an autonomous and independent regulator. It is responsible for monitoring all practice, operations and activities related to water, energy and mineral resources. It must formulate and implement resource management strategies. MRA supervises treatment, storage, disposal, use or re-use of sewerage, waste-water, sludge, and storm water run off.

3. Institutions responsible for water resources management

- The main institutions responsible for water resources management in Malta are the MRA, the Ministry for Resources & Rural Affairs, the Department of Agriculture within this same Ministry and the Ministry for Communications and National Projects. The WSC also plays an important role in water cycle management.
- Water resources in Malta are scarce and population density is high. There is high competition for freshwater resources, and most sewerage is disposed at sea.

4. Drinking water and wastewater services management

The State-owned Water Services Corporation (WSC) is the responsible body and the operator for drinking water and wastewater services. It is wholly responsible for the complete water cycle from production to safe disposal.

Operations are divided following four regions: North, Central, South, and Gozo Regions. They each have their own engineers and technical staff. WSC activities are also divided in distinct management units: Corporate Services, Communications, Management Information Systems and Technical Support Services. There are also three Customer Care offices.

For drinking water production, WSC operates 3 reverse osmosis desalination plants in Pembroke, Cirkewwa and Ghar Lapsi. It also abstracts groundwater.

For wastewater treatment, the Corporation operates two wastewater treatment plants, one at Sant Antnin and a new one at Ras il-Hobz Gozo. A new plant in the North will be completed by June 2008, while construction of another much larger plant for the South will commence soon, thereby conforming to the wastewater directives.

WSC also has two organizations within its structure: the Institute for Water Technology and the Desalination Marketing Services Ltd.

5. Water services pricing

There are 16 different water tariffs that vary according to whether the user is a domestic residence, industry, commercial outlet, farm, etc.

Every person living in a domestic household is entitled to 33m^3 *per annum* at a basic rate per cubic meter. Any consumption exceeding 33m^3 *per annum* is charged at a stepped-up unsubsidized rate per cubic meter. A surcharge based upon the current oil prices is levied on consumption. A meter rent of €27.95 *per annum* is also charged.

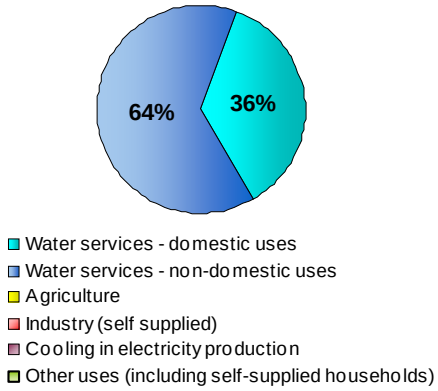
6. General statistics

			DW	WW
Country population (M inhabitants)	0.401			
Population density (inh./km²)	1,269	Population served by EUREAU members	100%	100%
GDP (PPP) / inh. (EU 27 = 100, 2006)	76			

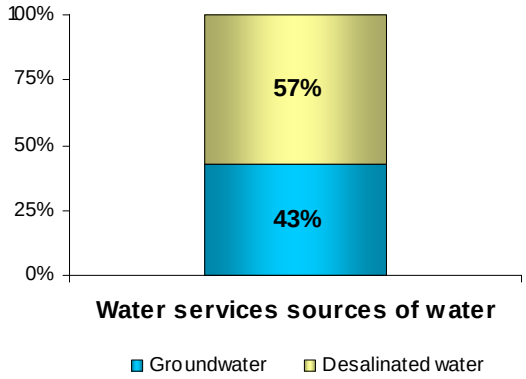
7. Water resources and use

Total freshwater abstractions (Mm³/yr)[1]	13.4
Per capita freshwater abstractions (L/inh.d)	92
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	20%

Uses of abstracted freshwater[2]



Sources of freshwater[3]



8. Drinking water and wastewater services

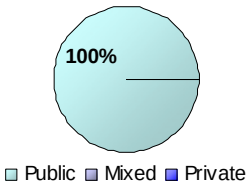
Population served by water services (% of total population)	DW	WW collection	WW treatment
	100%	100%	20.6%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)[4]	11	8	19
Per capita water delivered (L/inh.d)	75	55	130

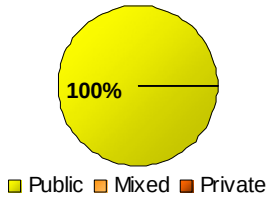
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	-	-	1,400
Turnover (latest year available, M €/yr)	36	20	56
Investments (latest year available, M €/yr)	15	10	25
Length of network (km)	2,042	1,000	
Number of wastewater treatment plants			2
Wastewater treatment capacity (Mpe)			0.08

Operators	Multi-service	DW	WW	Total
Number of operators	1	0	0	1

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] This includes only abstracted groundwater. Total freshwater produced, when including desalination, is 30.5 million m³/year, or 205 L/inh.d (WSC Annual Report 2007).
[2] All freshwater abstracted comes from groundwater. We do not include here freshwater produced by desalination.
[3] All freshwater comes from two sources: abstracted groundwater and reverse osmosis water produced from seawater. All groundwater abstracted and desalinated water is used by water services.
[4] Water delivered figure is based on data for actually billed water. It includes groundwater and desalinated water (WSC Annual Report 2007).

The Netherlands

1. EUREAU member information

EUREAU has two member organizations in the Netherlands:

- The Association of Water Boards (UVW, *Unie van Waterschappen*) aims to promote the interests of all Netherlands' 26 water boards at national and international levels. Water boards are decentralized public authorities with legal tasks and a self-supporting financial system. The oldest water boards date from the 13th century. UVW draws up guidelines and models and supports its members with the implementation of EU regulations. It also participates in studies and research and negotiates agreements about the terms of employment of water board personnel.
- The Association of Dutch Water Companies (Vewin, *Vereniging van waterbedrijven*) was founded in 1952. Vewin´s most important activity is the protection of its members' common interests in The Hague and Brussels. All Netherlands' drinking water companies, as well as a company in Curacao, are members of Vewin.

Other water sector representation in the Netherlands

VNG (*Vereniging van Nederlandse Gemeenten*) is the association of Dutch municipalities, who are in charge of the wastewater collection. The RIONED Foundation is the centre of expertise in sewer management and urban drainage. It is an umbrella organization in which public bodies, industry and the educational sector work together. Municipalities, Water Boards, Provinces, ministries, suppliers, engineering consultants, contractors and educational institutions participate in RIONED Foundation. There is also Kiwa water research, a watercycle research institute.

2. Legislation and control measures

- National government draws up policy and the 12 provincial governments are the relevant authorities for implementation measures and plans.
- Regional inspectors of the Ministry of Environment, Housing and Spatial Planning (VROM, *Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer*) guard the health aspects, hygiene and supply security of Dutch drinking water.
- The main laws are the *Water Supply Act* and the corresponding *Decree on the Water Supply*, as well as the *Water Boards Act* (2007).

3. Institutions responsible for water resources management

- Large water bodies which are of national importance are controlled by the State via the *Rijkswaterstaat*.
- The Provinces act at a strategic level for regional surface and groundwater and are responsible for groundwater management. Extraction of groundwater has to be licensed by the provinces, which work closely with water companies. All Provinces have delegated their water management responsibilities to Water Boards.
- The Water Boards (government bodies with an elected board) or the District Water Control Boards and the Department of Public Works and Water Management are responsible for managing the quality and quantity of surface water. Water Boards manage an extensive system of watercourses such as streams, canals, ditches and trenches. Water Companies and Water Boards work together in some regions as both benefit from clean rivers and canals.

4. Drinking water and wastewater services management

In the Netherlands, various organizations ensure drinking water and wastewater services.

- The 10 Dutch Water Companies are the responsible bodies as well as the operators for water extraction, treatment and distribution, as well as for management of all pipes up to home water meters. Most Water Companies are owned by municipalities and/or provinces.
- The 443 municipalities of the country are the responsible bodies and operators for collecting and discharging waste water via the sewerage system.
- The 26 Water Boards are the responsible bodies and operators of waste water treatment plants.

5. Water services pricing

Drinking water tariffs are proposed by the Water Companies and must be approved by the shareholders (municipalities and provinces). All Water Companies charge a rate per cubic meter (volumetric rate) and a fixed annual rate (standing charge). The fixed rate increases with the service connection capacity.

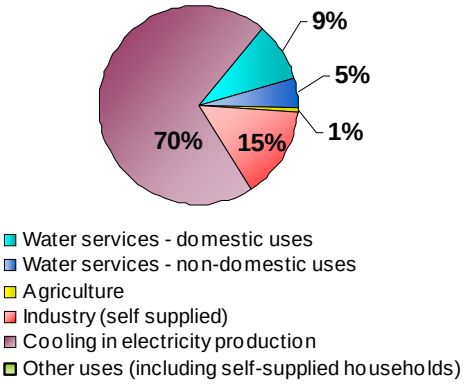
6. General statistics

			DW	WW
Country population (M inhabitants)	16.4			
Population density (inh./km²)	483	Population served by EUREAU members	100%	99%
GDP (PPP) / inh. (EU 27 = 100, 2006)	132			

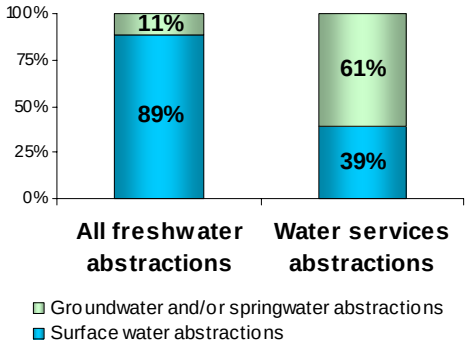
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	8,937
Per capita freshwater abstractions (L/inh.d)	1,497
Water exploitation index (total freshwater abstractions/total renewable freshwater resources) [1]	10%

Uses of abstracted freshwater[2]



Sources of abstracted freshwater



8. Drinking water and wastewater services[3]

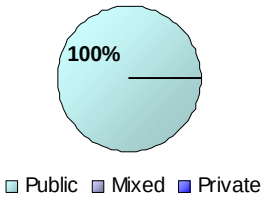
Population served by water services (% of total population)	DW	WW collection	WW treatment
	100%	99%	99%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	729	369	1,099
Per capita water delivered (L/inh.d)	122	62	184

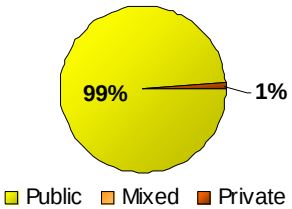
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	5,026	3,900	8,926
Turnover (latest year available, M €/yr)	1,451	1,893	3,344
Investments (latest year available, M €/yr)	348	500	848
Length of network (km)	115,000	109,000	
Number of wastewater treatment plants			392
Wastewater treatment capacity (Mpe)			23

Operators	Multi-service	DW	WW	Total
Number of operators[4]	1	9	470	483

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] "Total renewable fresh water resources per capita" excludes underground flows, estimated at 2 billion m³ (UN Statistics Division, 2007).
[2] Data for water uses and water sources is from 2002 (Eurostat, 2008). Netherlands is mostly preoccupied by drainage, rather than irrigation.
[3] Information provided by EUREAU members is from 2004 to 2006.
[4] Wastewater collection is managed by the municipalities, and wastewater treatment is managed by the Water Boards. The number of wastewater operators includes the 27 Water Boards as well as the 443 municipalities which levied wastewater taxes in 2005 (RIONED Foundation, *Urban Drainage Statistics 2005-2006*, pp.18-19).

Norway

1. EUREAU member information

Norwegian Water BA (*Norsk Vann BA*) is a national association of municipal and inter-municipal water and wastewater works. Norwegian Water BA also has affiliated organizations like suppliers to the water and wastewater industry, consultants, educational and research institutions.

2. Legislation and control measures

- Main legislation consists of the *Act for water and wastewater fees (1974),* the *Pollution Control Act* (1981), the *Planning and Building Act* (1985), the *Water Resources Act* (2001), the *Food Act* (2003), the *Municipal Health Service Act* (1982) and the *Health Preparedness Act* (2000).
- At national level, the competent authorities pursuant to the *Water Resources Act* are the Ministry of Petroleum and Energy and the Norwegian Water Resources and Energy Directorate (NVE). The Ministry of the Environment is the highest administrative authority for the *Pollution Control Act* and the *Act for water and wastewater fees*, through its subordinate agency, the Norwegian Pollution Control Authority (SFT). They are also partly responsible for the *Planning and Building Act*. The Ministry of Health and Care Services are responsible for the *Food Act,* the *Municipal Health Service Act* and the *Health Preparedness Act*. The Norwegian Food Safety Authority is a governmental body for the *Food Act*.
- At regional level, the relevant authorities are the county governor and the district offices of the Norwegian Food Safety Authority.
- At the local level, the municipalities are the relevant authorities when it comes to parts of the health affairs and the regulation of wastewater.

3. Institutions responsible for water resources management

The Norwegian Water Resources and Energy Directorate (NVE) is responsible for the *Water Resources Act*. The Norwegian Pollution Control Authority (SFT) is responsible for the *Pollution Control Act*.

4. Drinking water and wastewater services management

Water services responsible bodies are the local authorities (municipalities).

Water services operators can be a municipal department, an inter-municipal or a municipally-owned company, or a privately-owned company:

- In most cases, drinking water and wastewater utilities are owned and managed directly by municipalities, as a municipal department that can also include other technical services. Financing comes from the water and wastewater fees.
- In the inter-municipal organization of services, some activities are outsourced to the inter-municipal company (IMC), who becomes the owner of the related assets. Usually, the IMC is responsible for water production and wastewater treatment, and the municipalities remain responsible for distribution to end users. The IMC's operations are financed by the sale of water and wastewater to the connected municipalities, and investments are financed by public loans and municipal contributions.
- Privately-owned water and wastewater utilities are responsible for financing operations and investments. They organise the management of services and own the assets. They seldom outsource their operations. Private utilities are not subject to the national Act and Regulations for water and wastewater fees.

5. Water services pricing

According to the act and regulations for water and wastewater fees, the pricing of water and wastewater services is based on the principle of full cost recovery, which means that the incomes shall not exceed the costs. Each municipality decides their own tariff and therefore the water prices vary a lot from one municipality to another.

6. General statistics

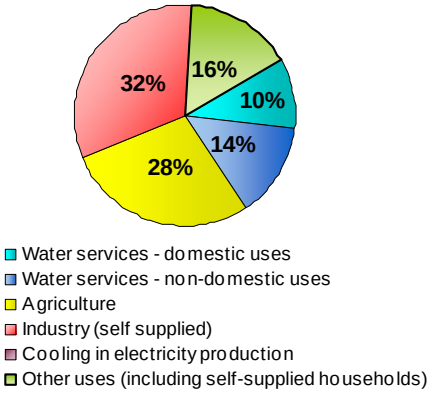
Country population (M inhabitants)	4.7
Population density (inh./km²)	15
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	187

	DW	WW
Population served by EUREAU members	81%	72%

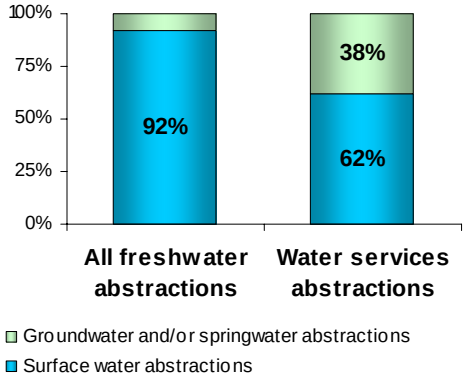
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	3,400
Per capita freshwater abstractions (L/inh.d)	1,990
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	1%

Uses of abstracted freshwater[1]



Sources of abstracted freshwater



8. Drinking water and wastewater services

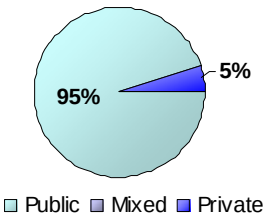
Population served by water services (% of total population)	DW	WW collection	WW treatment
	90%	80%	76%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	299	413	712
Per capita water delivered (L/inh.d)	195	269	463

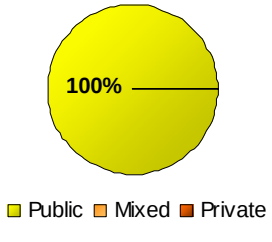
Water services management	DW	WW	Total
Number of employees (full-time equivalent)[2]	-	-	3,400
Turnover (latest year available, M €/yr)	-	210	-
Investments (latest year available, M €/yr)	-	-	-
Length of network (km)	47,000	34,000	
Number of wastewater treatment plants			2,158
Wastewater treatment capacity (Mpe)			6

Operators	Multi-service	DW	WW	Total
Number of operators	-	-	-	1,600

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] There is no data for water use in cooling for energy production but most energy in Norway comes from hydro power plants and thus few cooling is necessary. For more detail, see: www.ssb.no/english/subjects/01/sa_nrm/nrm2006/kap7-water.pdf, p.127 and Eurostat (2005).

[2] Estimation Norwegian Water BA, 2008

Poland

1. EUREAU member information

The Economic Chamber "Polish Waterworks" was established in 1992. It now associates 390 water and wastewater companies representing about 80% of all water companies and sewage treatment plants in Poland.

Other water sector representation in Poland
Some Polish institutions and associations represent the water sector: Water and Wastewater Treatment Plant Operators Association, Institute of Meteorology and Water Management, Polish Association of Sanitary Engineers and Technicians, Polish Chamber Of Maritime Commerce.

2. Legislation and control measures

- Water and sewage tariffs are covered by an ordinance of the Ministry of Infrastructure.
- The Chief Sanitary Inspector, under the Ministry of Health, is responsible for drinking water quality control.
- The Ministry of the Environment according to the "Operational Programme - Infrastructure and Environment 2007-2013" is in charge of water and sewage management priority, with support from the European Regional Development Fund (ERDF) and the Cohesion Fund.
- The Ministry of Agriculture and Rural Development, according to the "Rural Development Program 2007-2013", is in charge of projects of extension of water and wastewater networks in *Gminas* in rural areas, with support from European Agricultural Fund for Rural Development.
- Legislation includes: the *Law on Local Government* (1990), the *Law on Municipal Management* (1996), the *Water Act* (2001), the *Environmental Protection Act* (2001), the *Common water supply and common sewage service Act* (2001).

3. Institutions responsible for water resources management

- The Ministry of the Environment is the relevant authority for environmental management and policy.
- The Inspectorate for Environmental Protection is the main body responsible for the enforcement of environmental regulations. In cooperation with the Institute of Meteorology and Water Management, it conducts measurements and prepares information on water quantity and quality.
- The President of the National Water Management Authority is a central authority for water conservation, and especially for water management and water use. It supervises the regional responsible bodies for water management, which are the seven Regional Water Management Boards.
- The State Council for Water Management gives opinions and advises on the matters of water management.

4. Drinking water and wastewater services management

The local authorities (*Gmina*), which had been abolished in 1975, were reintroduced in 1990. In 1998, the number of provinces (*Voivodeships*) was reduced from 49 to 16. Since 1999, the provinces are divided into counties (*Powiat*), and these are in turn divided into communes and municipalities (*Gminas*). Major cities normally have the double status of Gmina and Powiat. Poland currently has 379 Powiats (including 65 cities with Powiat status), and 2,478 Gminas. In this context, some of the administrative duties and tasks were devolved from central government to the territorial and/or local authorities, and State-owned water services companies were gradually re-municipalized.

The Ministry of Infrastructure is the relevant authority concerning the *Common water supply and common sewage service Act* and legislation related to water tariffs. Gminas are the responsible bodies for providing public water services, under control of national bodies. They are under obligation to plan the development of the water and wastewater networks in their territory by managing local water and wastewater Companies. Almost all municipal water operators are municipally-owned commercial-law Companies. Some of these Companies were privatized or entered into a public private partnership (PPP) structure.

5. Water services pricing

In Poland there is no independent regulator for tariffs. It is the responsibility of the Gmina executive to define the tariffs for water supply and sewage discharge within the limits defined by the law. Water and wastewater infrastructure projects receive funding from municipal budgets, as well as from the National and Regional Fund for Environmental Protection, the European Agricultural Fund for Rural Development (EAFRD), commercial banks, investment funds and foreign donor assistance. Several privatization processes in the sector are supported and financed by the European Bank for Reconstruction and Development (EBRD).

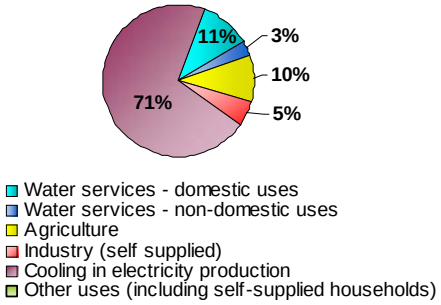
6. General statistics

			DW	WW
Country population (M inhabitants)	38.1			
Population density (inh./km²)	125	Population served by EUREAU members[1]	69%	48%
GDP (PPP) / inh. (EU 27 = 100, 2006)	53			

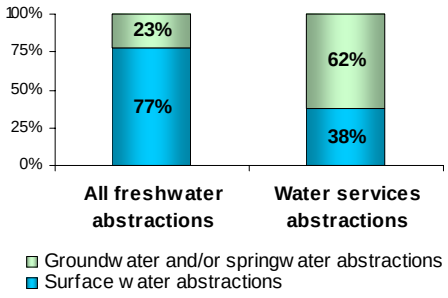
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	10,940
Per capita freshwater abstractions (L/inh.d)	786
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	17%

Uses of abstracted freshwater[2]



Sources of abstracted freshwater[3]



8. Drinking water and wastewater services[4]

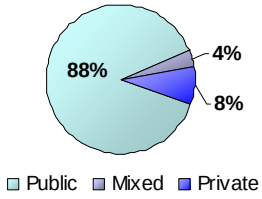
Population served by water services (% of total population)[6]	DW	WW collection	WW treatment
	86%	60%	60%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	929	293	1,222
Per capita water delivered (L/inh.d)	78	25	102

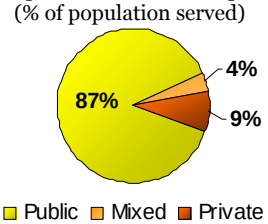
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	57,900	57,300	115,200
Turnover (latest year available, M €/yr)	1,695	-	-
Investments (latest year available, M €/yr)	517	-	-
Length of network (km)	251,369	80,131	
Number of wastewater treatment plants			2,931
Wastewater treatment capacity (Mpe)			25

Operators	Multi-service	DW	WW	Total
Number of operators	-	729	1,735	-

Drinking water operators ownership[5]
(% of population served)



Wastewater operators ownership[7]
(% of population served)



[1] Estimation based on IGWP 390 members, representing an estimated 80% of water companies and sewage treatment plants in Poland.
[2] Figures for uses of abstracted freshwater are for 2005, based on Eurostat and on the Statistical Yearbook of the Republic of Poland.
[3] Figures for sources of abstracted freshwater are for 2005, based on Eurostat and on the Statistical Yearbook of the Republic of Poland.
[4] Data provided by EUREAU member is from 2005.
[5] Ownership of drinking water services operators is based on the number of connections leading to residential buildings by type of company ownership. The results based on volumes of household water consumption by type of ownership are 90% public, 7% private and 3% mixed (2006, www.stat.gov.pl). About 41% of Companies are liable directly to the local authorities, 28% are commercial law companies in which local authorities hold shares, 17% are water companies (*spolki wodne*) in which users hold shares, 7% are natural persons conducting economic activity, 4% are commercial companies with exclusive private domestic capital, 2% are civil companies, 0.6% are commercial companies with foreign capital participation, and 0.4% are State-owned enterprises.
[6] Population served by drinking water services is 72.7% in rural areas and 94.9% in urban areas. Population served by water services for wastewater collection is 20.2% in rural areas and 84.8% in urban areas (2006, www.stat.gov.pl).
[7] Ownership of wastewater services operators is based on length of network by type of company ownership (2006, www.stat.gov.pl).

Portugal

1. EUREAU member information

The Portuguese Association of Water Distributors (*Associação Portuguesa de Distribuição e Drenagem de Águas* – APDA) was created in 1988. Since 1997, APDA decided to broaden its activities to include both drinking water and wastewater services. APDA comprises public and private utilities, suppliers to the water and sewerage industry, advisors, institutions and also private persons with interest in the sector.

2. Legislation and control measures

- The planning of water resources and elaboration of and approval of water resources plans are regulated by Law 58/2005 (Water Law) and Decree-Law 226-A/2007. River Basins Plans (PBH) are approved and published. The National Water Resources Plan (PNA) relies on 15 Hydrological Basin Plans in order to implement its main actions and measures and was also approved by Decree-Law 112 /2002.
- Water supply is governed by Decrees-Laws 372/1993, 379/1993 and by Laws 88-A/1997, 5-A/2002 and 53-F/2006.
- A regulator, the Institute for the Regulation of Water and Solid Waste (*Instituto Regulador de Águas e Resíduos* - IRAR), was established in 1997, by Decree-Law 230/97, to monitor economic and quality aspects of water services. Its Statutes were approved by the Decree-Law 362/1998, as amended by Decree-Law 151/2002.
- IRAR is the relevant authority for drinking water quality.

3. Institutions responsible for water resources management

- Relevant authorities include the Ministry for Environment, Spatial Planning and Regional Development (and its 5 regional directorates) and the State Secretariat for Environment.
- The Water Institute (INAG) is responsible for implementing water policy at national level.

4. Drinking water and wastewater services management

The responsible bodies for drinking water and wastewater services are Portugal's 308 municipalities.

In Portugal there are two types of drinking water operators: the municipal operators and the multi-municipal operators. Multi-municipal operators have been set up following an agreement between the municipalities and the Central Administration. They imply substantial investments by the latter on a regional basis. They are owned by at least 51% by the Central Administration (State-owned holding company Águas de Portugal - AdP), the remaining shares being owned by local municipalities. These are regional bulk systems, complementary to the municipal systems. All the other systems, even if they cover more than one municipality but do not comply with the remaining conditions, are considered as being municipal systems.

Before 1993, the only regional system was in Greater Lisbon where the State-owned company EPAL has been responsible for water supply to the capital and surrounding municipalities. Currently, 13 regional bulk water supply and 15 wastewater companies were established by the municipalities and AdP. They are linked to the government by a long-term concession contract and to the local municipalities by service contracts.

Until the end of 1993, water services operators could not be private companies. The 1993 acts allowed for the establishment of concessions, which may be granted to privately-owned corporations or to corporations jointly owned by the State and the private sector.

5. Water services pricing

Prices vary from one operator to another and are approved by municipalities. Concessions determine the tariff structure and the prices fixed by contract.

All water delivered to a user is metered. The average price for domestic use is 0,879€/m3 for (120 m3/year) and 0,965€/m3 (200 m3/year).[1]

[1] These figures are provided by EUREAU member and are from December 2006.

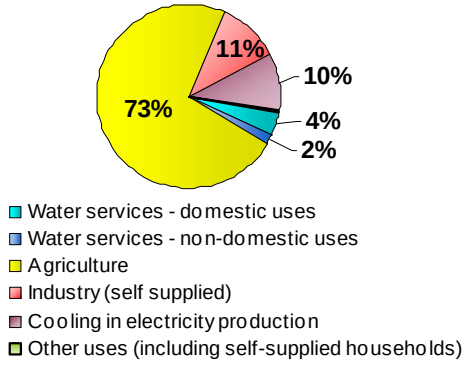
6. General statistics

			DW	WW
Country population (M inhabitants)	10.6			
Population density (inh./km²)	115	Population served by EUREAU members	61%	53%
GDP (PPP) / inh. (EU 27 = 100, 2006)	74			

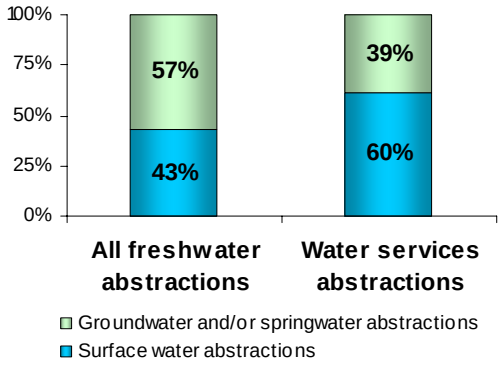
7. Water resources and use

Total freshwater abstractions (Mm³/yr)[1]	8,750
Per capita freshwater abstractions (L/inh.d)	2,262
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	12%

Uses of abstracted freshwater[2]



Sources of abstracted freshwater



8. Drinking water and wastewater services[3]

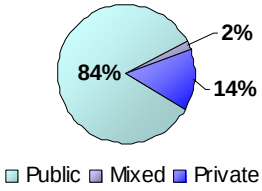
Population served by water services (% of total population)	DW	WW collection	WW treatment
	93%	76%	68%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	255	131	386
Per capita water delivered (L/inh.d)	71	36	107

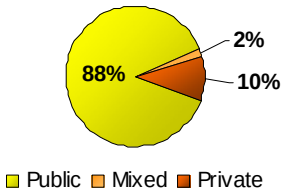
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	-	-	8,639
Turnover (latest year available, M €/yr)	459	203	662
Investments (latest year available, M €/yr)	-	-	-
Length of network (km)	68,596	33,296	
Number of wastewater treatment plants			785
Wastewater treatment capacity (Mpe)			5

Operators	Multi-service	DW	WW	Total
Number of operators[6]	288	13	18	319

Drinking water operators ownership[4]
(% of population served)



Wastewater operators ownership[5]
(% of population served)



[1] Total freshwater abstraction figure is from 2001 (PEZON, 2007, p.108). Proportions used to calculate total fresh surface water abstractions and total fresh groundwater abstractions are from 1998 (Eurostat).
[2] Water uses data is from 1998 (Pacific Institute, 2006).
[3] Data provided by EUREAU member is from 2003 to 2007.
[4] Private operators are concessions (APDA, 2005). Mixed operators operate in 2 municipalities.
[5] Private operators are concessions (APDA, 2005). Mixed operators operate in 2 municipalities.
[6] There are 301 different DW services operators and 305 different WW services operators. Municipalities operate directly 234 DW services and 249 WW services. Independent municipal bodies (SMAS–*Serviços Municipalizados*) operate 31 DW services and 27 WW services. Municipal or public enterprises (mixed operators included) operate 14 DW services and 14 WW services. Private companies operate 22 DW services and 15 WW services.

Romania

1. EUREAU member information

The Romanian Water Association (ARA) has 6 regional branches. It is a knowledge forum and a water policy advocate for the experts and the manufacturers in the water sector. It provides professional training through its Water Training Center.

2. Legislation and control measures

- The central water management authority is the Ministry of Environment and Sustainable development, which draws national policy in the field of water.
- Main legislation includes the *Law on Environment* (1995), the *Water Law* (107/1996), Law 219/1998 authorizing concession of services, Law on drinking water quality (458/2002), and the Government Ordinance no. 32/2002 on the organization and function of water supply and sewerage public services, approved through Law no. 634/2002 and amended through G.O. no. 35/2003.

3. Institutions responsible for water resources management

The Romanian Waters National Administration "Apele Romane", created in 2002, is the national authority in charge of the management, administration and exploitation of water resources. This financially autonomous State-owned enterprise operates under the authority of the Ministry of Environment and Sustainable development. It is structured in 11 Water Directorates, which correspond to the 11 river basins of Romania. Apele Romane offices issue water withdrawal permits and are also responsible for the monitoring of water quality.

4. Drinking water and wastewater services management

Romania has 42 counties (*judete*), which have 320 towns and cities and over 10,000 communes.

Three main institutions are involved in water services management: the Ministry of Environment and Sustainable development, the National Water Authority "Apele Romane", and the local Environmental Protection Inspectorates (EPIs).

The responsible bodies for water supply and wastewater are the local authorities (municipalities), which own water services assets. Municipalities can associate themselves in Intercommunity Development Associations (ADI) in order to implement a common integrated strategy for water and wastewater development. In this context, municipalities transfer their responsibility for water services to the ADI. Some smaller utilities are run directly by a service of the local government.

Operators are mostly municipally-owned Regional Operating Companies (ROC) operating under a management delegation contract established with the ADI on behalf of the municipalities. The delegation contract is elaborated according to the National Regulatory Authority for Public Utilities (ANRSC). ROC have responsibilities for both drinking water and wastewater services.

There are some long-term concession contracts to private investors in Romania.

5. Water services pricing

Water tariffs are endorsed by the National Regulatory Authority for Public Utilities (ANRSC).

6. General statistics

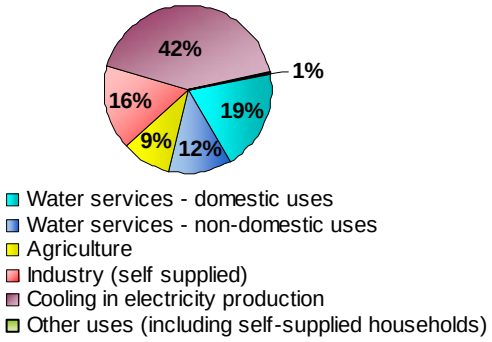
Country population (M inhabitants)	21.6
Population density (inh./km²)	94
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	38

Population served by EUREAU members	DW	WW
	70%	51%

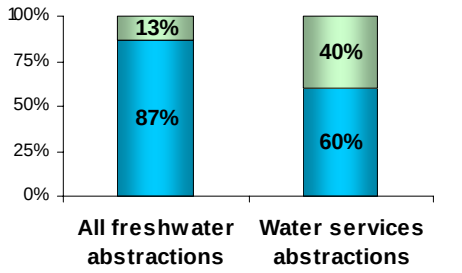
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	5,301
Per capita freshwater abstractions (L/inh.d)	673
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	13%

Uses of abstracted freshwater



Sources of abstracted freshwater



8. Drinking water and wastewater services

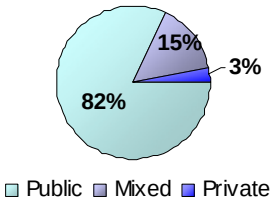
Population served by water services (% of total population)	DW	WW collection	WW treatment
	70%	54%	40%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	652	418	1,070
Per capita water delivered (L/inh.d)	118	76	194

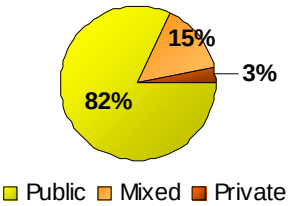
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	45,830	-	-
Turnover (latest year available, M €/yr)[2]	380	-	-
Investments (latest year available, M €/yr)[3]	105	-	460
Length of network (km)	50,821	18,600	
Number of wastewater treatment plants			202
Wastewater treatment capacity (Mpe)			13.4

Operators	Multi-service	DW	WW	Total
Number of operators[4]	540	0	0	540

Drinking water operators ownership[1]
(% of population served)



Wastewater operators ownership
(% of population served)



[1] Population served by private operators is under 3%. Mixed operators operate in 2 towns, covering about 15% of the population.
[2] Annual turnover (million €) represents industrial production for water catchments, treatment and distribution for 2005 (National Institute of Statistics, 2006, www.insse.ro).
[3] Drinking water investments (latest year available, million €)" include net investments for water catchments, water treatment and water distribution for 2005 (National Institute of Statistics, 2006, www.insse.ro). Total investments (latest year available, million €) figure comes from CIOMOS, Vasile (2003). "Liberalization of Water supply Services in Romania", Romanian Water Association, in *European Conference on Liberalization and privatization of water services*, Trieste, September 24-26, p.217, Federgasacaqua Publishing.
[4] 40 operators cover about 85% of the population supplied. Many small operators cover the remaining population, mostly in rural areas and small towns.

Slovakia

1. EUREAU member information

The Association of Water Companies (*Asociácia vodárenských spoločností*, AVS) represents the 17 big water companies providing water supply and wastewater treatment services in Slovakia. These companies cover more than 95% of the Slovak water market. AVS plays a role of information, representation, consulting, and networking for its members.

Other water sector representation in Slovakia
Other water sector organizations are the Slovak Water Management Enterprise (SWME) and the Association of Wastewater Treatment Experts of the Slovak Republic (ACE SR).

2. Legislation and control measures

- Main legislation includes the *Water Law* (364/2004), the *Law on Public Health* (126/2006), and the *Regulation on Requirements Quality of Water Intended for Human Consumption and Control of Quality of Water Intended for Human Consumption* (354/2006).
- The *Act on Public Pipelines and Public Sewage* (442/2002) adjusts the establishment, development and operation of public pipelines and public sewages. It also adjusts the rights and obligations of physical and legal entities upon the establishment and operation of public pipelines and sewages, including their connections. It also adjusts the acting of public administration bodies in the part of public pipelines and public sewages.
- The Regulatory Office for Network Industries (URSO), under the Ministry of Building and Regional Development, is the relevant control body for water services. It has issued the Order No 3/2007.
- Act no 276/2001 Coll. on Regulation is the most relevant document in terms of regulation. Specific conditions of price regulation of the water economy services are adjusted by URSO every year by the Výnos-Order. For the year 2008 is the Výnos č.3/2007 – Order No.3/2007 that is applicable.

3. Institutions responsible for water resources management

- The relevant authority is the Ministry of Environment, established in 1993.
- Also involved in the implementation of the State Water Management Policy are the Slovak Environmental Inspection and the eight regional and 50 district administration offices with their environmental branches.
- The country is divided into 6 national river basins of which 5 are part of the international Danube River Basin. Their activities are overseen by the Water Management Enterprise.

4. Drinking water and wastewater services management

The Ministry of Environment is the relevant authority for water management, and municipalities are the responsible bodies for drinking water and wastewater services.

Water and wastewater services are operated by 17 regional Water Companies. The water services infrastructure is owned by municipalities. Some of them have signed long-term contracts with a private sector operatior, and others operate themselves the water services.

Generally, drinking water suppliers are also the operators for wastewater collection and treatment. A small part of drinking water and wastewater services is provided directly by municipalities.

5. Water services pricing

The price of water services in the Slovak Republic is regulated by the Regulatory Office of Network Industries (URSO), according to the *Act on Regulation in Network Industries* (276/2001) and its amendments. Linked to this Act, URSO Order No.1/2007 establishes the extent of price regulation in the network industries and the manner of its execution and URSO Order No. 3/2007 establishes the extent and structure of legitimate charges, the way of determining the amount of fair profit, as well as guidelines for determination of the price for production, distribution and supply of drinking water and for discharge and treatment of wastewater. New Orders are issued every year which can sometimes make long term planning difficult.

The price regulation is implemented based on the cost of services. Since the shareholders of Water Companies are the municipalities, a certain self regulation in the determination of the price of water does exist, taking into consideration the economic strength of the region.

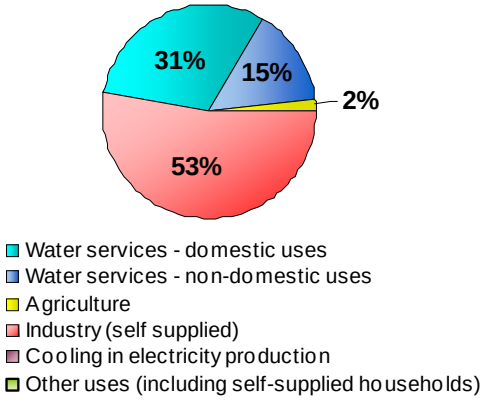
6. General statistics

			DW	WW
Country population (M inhabitants)	5.4			
Population density (inh./km²)	111	Population served by EUREAU members	80%	52%
GDP (PPP) / inh. (EU 27 = 100, 2006)	63			

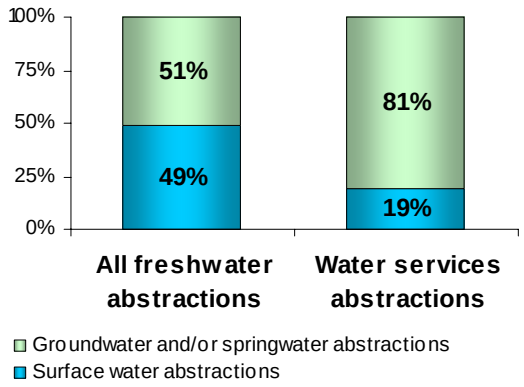
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	730
Per capita freshwater abstractions (L/inh.d)	370
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)[1]	1%

Uses of abstracted freshwater[2]



Sources of abstracted freshwater



8. Drinking water and wastewater services[3]

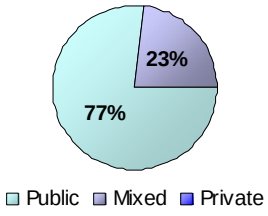
Population served by water services (% of total population)	DW	WW collection	WW treatment
	90%	58%	56%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	152	73	225
Per capita water delivered (L/inh.d)	86	41	128

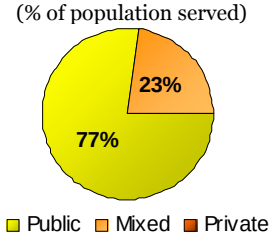
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	-	-	13,404
Turnover (latest year available, M €/yr)[4]	165	134	299
Investments (latest year available, M €/yr)	-	-	115
Length of network (km)	26,227	8,054	
Number of wastewater treatment plants			557
Wastewater treatment capacity (Mpe)			3

Operators	Multi-service	DW	WW	Total
Number of operators	17	0	0	17

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] Figure for total renewable freshwater resources excludes underground flows, which represent 946 mio m³ (UN Statistics division, 2007).
[2] "Water used for cooling in electricity production and in other uses is included in "Industry". 10.5% of the population rely on self-supply for drinking water. See also *Freshwater country profile. Slovak Republic* (UNDP 2004).
[3] Data provided by EUREAU member is from 2005 to 2007. The Association of Water Companies does not have latest data for the Slovak Republic water sector. Most of its data comes from The Statistical Office of the Slovak Republic and The Blue Report 2007.
[4] Total turnover of the water companies is 398 € million, of which core business activities (water services) represent 299 € million.

Spain

1. EUREAU member information

The Spanish Water and Wastewater Association (*Asociación Española de Abastecimientos de Agua y Saneamiento*, AEAS) was founded in 1973. It aims to promote and develop all aspects of the urban water supply and sanitation, including service efficiency, end user satisfaction, and water resources protection. The association's members include 120 collective utilities (public or private) serving more than 32 million people in Spain, 114 Individuals interested in the water sector, 95 collaborators (consultants, suppliers, manufacturers, etc.) and 23 "protectors" representing central and regional administrations.

Other water sector representation in Spain
The national Association of Urban Water Utilities (*Asociación Española de Empresas Gestoras de los Servicios de Agua a Poblaciones*, AGA) was founded in 1995 and has 62 members. AGA is a member of the Confederation of employers and industries of Spain (*Confederación Española de Organizaciones Empresariales*, CEOE), the major institution representing the Spanish business community.

2. Legislation and control measures

The Ministry of Environment, the Ministry of Health and Consumer Affairs, and the Regions are the relevant authorities for drinking water and wastewater. The River Basin Authorities have control responsibilities. Main legislation includes the *Water Law*, the *Coastal Law* and the *Urban Wastewater Law*.

3. Institutions responsible for water resources management

- The Ministry of Environment is the relevant authority for general legislation and planning on water resources. The General Water Council (*Consejo Nacional del Agua*) is the Ministry's highest consultative organization. It brings together State administrations, Autonomous Communities, Basin Authorities and other professional and economic organizations.
- Water administration is organized by River Basin Authorities (*Confederaciones Hidrográficas*). 10 of them are State entities (for waters shared by more than one region) and 6 of them are under the responsibility of Autonomous Regions. Basin Authorities have responsibilities in hydrological planning, resource management, quality control, data management and water works projects. They also grant water allocation permits for all water uses: urban supply, electricity production, industrial uses or agricultural irrigation.

4. Drinking water and wastewater services management

Spain's territory is divided in 17 Regions or Autonomous Communities, with their own Parliament and legislation. They share political and administrative responsibilities with the State.

Spain's 8,110 municipalities are the responsible bodies for water supply, wastewater collection and wastewater treatment. In a subsidiary way, Regions can also have responsibilities for some services, especially for wastewater treatment.

The basic law on municipal administration allows providing services in multiple ways:
- Directly by the municipality through an ad hoc service or through a society owned by the municipality;
- By a consortium of several municipalities;
- By a transfer of responsibilities from the municipalities to the Region in which they are located;
- By partnership between a municipally-owned company and one or more private companies;
- By concession or delegation to a private company.

5. Water services pricing

Water services charges are approved by municipalities, sometimes by the Regions. For 2006, the average price for domestic use was 1.20 €/m3 and for non domestic uses 1.53 €/m3. Generally – for 87% of the population – the price increases with the water consumption (increasing blocks).

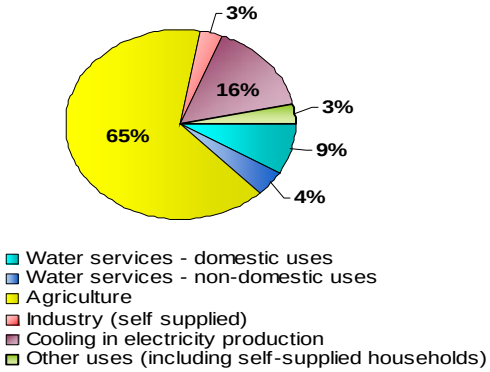
6. General statistics

			DW	WW
Country population (M inhabitants)	44.7			
Population density (inh./km²)	89	Population served by EUREAU members	68%	61%
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	102			

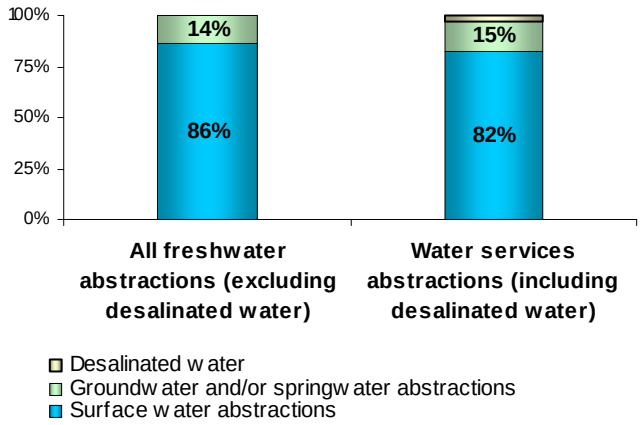
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	36,993
Per capita freshwater abstractions (L/inh.d)	2,267
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	33%

Uses of abstracted freshwater



Sources of abstracted freshwater



8. Drinking water and wastewater services[1]

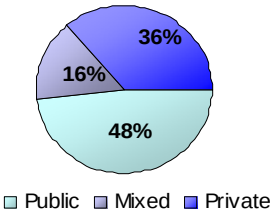
Population served by water services (% of total population)	DW	WW collection	WW treatment
	100%	98%	86%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	3,100	1,520	4,620
Per capita water delivered (L/inh.d)	190	93	283

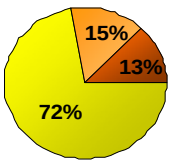
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	-	-	23,700
Turnover (latest year available, M €/yr)	2,770	1,248	4,018
Investments (latest year available, M €/yr)	-	-	-
Length of network (km)	133,200	89,900	
Number of wastewater treatment plants			1,720
Wastewater treatment capacity (Mpe)			47

Operators[2]	Multi-service	DW	WW	Total
Number of operators	81	1735	1075	2891

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] Data provided by EUREAU member is mostly from 2005.
2 Of the 44.7 million of inhabitants, 35.5 are supplied by 116 operators (81 in multi-service and 35 only with drinking water service). The remaining 9.2 million live in around 1700 small towns, with its own municipal service. So, 1735 is the number of operators for only drinking water. The 38.4 million people with a complete sanitation service (sewerage and sewage treatment) are served by 106 operators (81 in multi-service and 25 only with sewage treatment service). Of the remaining 6.3 million, 5.3 have sewer service, but with no sewage treatment, for the moment and they live in around 1050 municipalities. So, 1075 is the number of operators only of Sanitation.

Sweden

1. EUREAU member information

The Swedish Water and Wastewater Association (*Svenskt Vatten*, SWWA) was set up by municipalities in 1962 to assist with technical, economic and administrative issues and to represent the interests of the municipalities in negotiations on regulation with authorities and other organizations. SWWA brings together Sweden's 290 municipalities, which are in charge of both drinking water and wastewater. Their membership fee, as well as a special research fee, is paid by the consumers through the water tariffs.

Other water sector representation in Sweden
The Swedish Association of Local Authorities and Regions (SALAR) covers the whole scope of municipal activities and takes an interest in the water sector, especially regarding political and policy issues.

2. Legislation and control measures

- Main legislation includes the *Water Act* (1918), the *Health Protection Act* (1958), the *Environmental Protection Act* (1969), and the *Water Association Act* (1976). The *Public Water Supply and Sewerage Act* (1970) has been replaced by the *Public Water Services Act* on January 1st 2007.
- In Sweden, there is no national framework for price and service regulation, but since the 1970s, there is a special court for legal matters related to public water services.

3. Institutions responsible for water resources management

- The relevant authorities for water protection are the Ministry of the Environment (through its Environmental Protection Agency) at the central level, the county administration at the regional level, and the municipal committee for environment and health at the local level.
- Permits for the discharge of treated sewage are granted by the Regional Environmental Courts for the largest plants. A Supreme Environmental Court deals with appeals.
- The County Administrative Board issues permits for most plants. For the smallest plants, the municipal environment and health committee may give its approval.

4. Drinking water and wastewater services management

The relevant authorities for drinking water quality are the Ministry of Agriculture, the National Food Administration, and, at the local level, the municipal committee for environment and health. The regional administration in Sweden is the County, which has an examining, supervising and coordinating function.

The responsible bodies for drinking water and waste water services are Sweden's 290 local authorities (municipalities), with the exception of the major urban areas of Stockholm, Goteborg and Malmo, which are managed by regional associations. Local authorities are responsible for planning, construction and operation of water and sewerage facilities.

Most municipalities operate water utilities as a municipal service, but some operate water supply and sanitation through a municipal or inter-municipal company. A few small municipalities have also engaged in management contracts with non-public and non-profit organizations (as defined in the *Public Water Services Act*).

5. Water services pricing

Water tariffs must follow the basic principles of reason and justice. Water services operators are not allowed to make profit and can only charge customers to cover costs of operation, following production cost or self-cost principles. Overall, 99% of capital and operational costs are covered by water charges. When services are operated through an association of municipalities, each municipality maintains its control of prices, financing and investment.

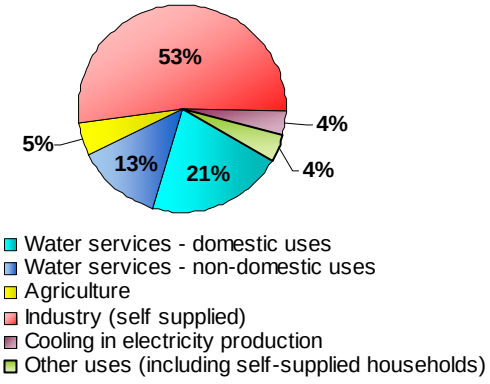
6. General statistics

			DW	WW
Country population (M inhabitants)	9.1			
Population density (inh./km²)	20	Population served by EUREAU members	88%	88%
GDP (PPP) / inh. (EU 27 = 100, 2006)	120			

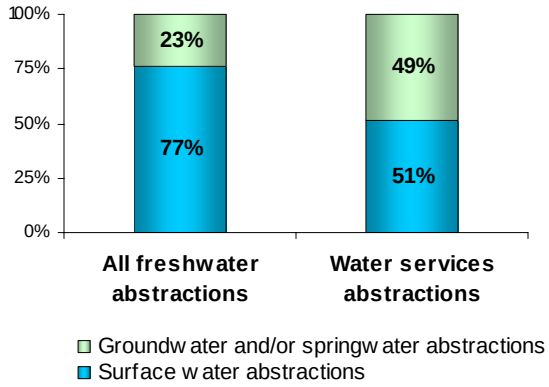
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	2,676
Per capita freshwater abstractions (L/inh.d)	805
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	1%

Uses of abstracted freshwater



Sources of abstracted freshwater[1]



8. Drinking water and wastewater services[2]

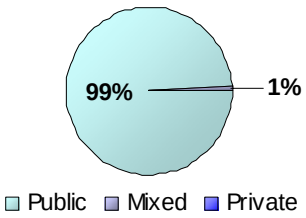
Population served by water services (% of total population)	DW	WW collection	WW treatment
	90%	90%	90%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	552	353	905
Per capita water delivered (L/inh.d)	185	118	302

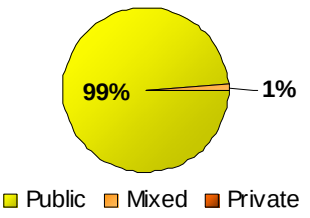
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	2,000	4,000	6,000
Turnover (latest year available, M €/yr)	653	980	1,633
Investments (latest year available, M €/yr)	112	167	279
Length of network (km)[3]	67,000	92,000	
Number of wastewater treatment plants			2,000
Wastewater treatment capacity (Mpe)			9

Operators	Multi-service	DW	WW	Total
Number of operators	284	2	3	289

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] 26% of the population is served by natural groundwater and 23% by artificial groundwater.
[2] Data provided by EUREAU member association is from 2005 and 2006.
[3] The total length of the sewers amounts to 92,000 km, of which 32,000 are stormwater sewers. Half the length of the total water network has been constructed during the past 35 years.

Switzerland

1. EUREAU member information

The Swiss Gas and Water Industry Association (SVGW) is the national umbrella organization for gas and water supply companies. The Association has mostly a technical mission, but it also plays an important role representing the sector's interests in policy making and in general public relations.

It significantly contributes to the secure and flawless supply of the population with natural gas and drinking water with its codes of practice, its professional training, its execution of monitoring tasks on behalf of the state administration, its consulting services and the certification of products, companies and personnel.

Other water sector representation in Switzerland
The Swiss Cities Association also discusses wastewater issues.

2. Legislation and control measures

Drinking water is a consumable substance and is therefore subject to consumable substance legislation. The protection of the water resources is subject of the federal law on the protection of waters.

3. Institutions responsible for water resources management

The Federal Office for the Environment (FOEN) monitors water levels and water quality in rivers, lakes and groundwater bodies. It is legally responsible for protecting water from pollution and overexploitation, and it develops measures designed to reduce the risk of flooding.

The Cantons are responsible for enforcement of the federal law on the protection of waters, e.g. specifying conditions for discharges, monitoring wastewater treatment works and implementing the polluter-pays principle.

4. Drinking water and wastewater services management

Water provision comes under the traditional areas of activity of the public authorities. Generally speaking, it is the local authorities that are the responsible bodies and the operators for water services provision. In most cases, this means that the water supply companies are public institutions. In addition to that, however, there are bodies under public law that are organised as cooperatives.

Occasionally, water provision is run by public limited companies. In many places, several communities join forces in order to deal with the task of water provision together. In most cases, these water provision groups are set up as administration unions or simple companies. In addition to pure water provision there are a large number of companies that supply a range of services such as the supply of gas, water and electricity.

The size of the various drinking water services operators, measured in terms of the number of supplied inhabitants, can vary considerably. Just five drinking water services – Geneva, Zurich, Bale, Lausanne and Bern – supply water to more than 100,000 people. There exist on the other hand a large number of medium and small sized drinking water services.

For the wastewater sector, planning, supervision of construction and control of operations is done directly by a dedicated service within the Canton administration. Each Canton decides on how wastewater services are operated. Operations can be done by a municipality or by an association of municipalities. They can also be outsourced to an independent company (private, public or mixed). Finally, they can be done by the same operator as for drinking water supply, but this is an exception.

5. Water services pricing

Each water service operator decides on the pricing structure in order to cover its costs. Tariffs vary throughout the country. Normally, the drinking water pricing structure includes a fixed annual charge and a variable charge proportional to consumed water volumes.

There is also a connection charge for wastewater. Furthermore, an annual wastewater tax proportional to the volume of consumed water is charged to owners. This tax is intended to cover costs related to wastewater services.

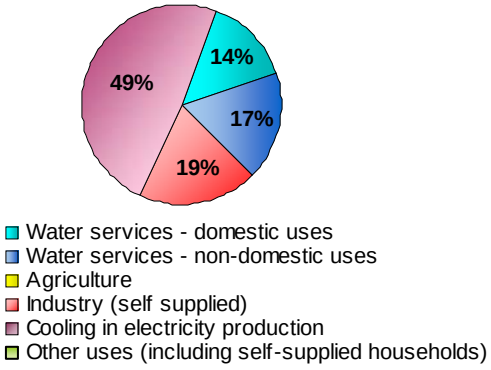
6. General statistics

			DW	WW
Country population (M inhabitants)	7.6			
Population density (inh./km²)	183	Population served by EUREAU members	100%	96%
GDP (PPP) / inhabitant (EU 27 = 100, 2006)	136			

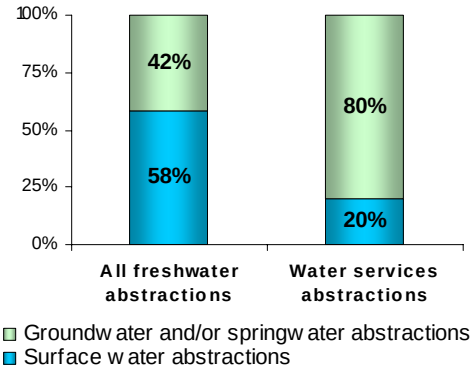
7. Water resources and use

Total freshwater abstractions (Mm³/yr)[1]	3,084
Per capita freshwater abstractions (L/inh.d)	1,112
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	5.82%

Uses of abstracted freshwater[2]



Sources of abstracted freshwater



8. Drinking water and wastewater services[3]

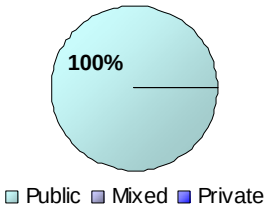
Population served by water services (% of total population)	DW	WW collection	WW treatment
	100%	97%	97%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	444	537	981
Per capita water delivered (L/inh.d)	160	194	354

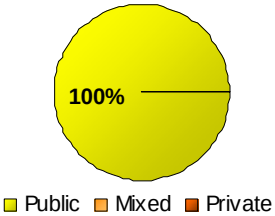
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	2,285	2,080	4,365
Turnover (latest year available, M €/yr)	916	1,445	2,361
Investments (latest year available, M €/yr)	346	-	-
Length of network (km)	54,000	48,880	
Number of wastewater treatment plants			900
Wastewater treatment capacity (Mpe)			20

Operators	Multi-service	DW	WW	Total
Number of operators	3,000	0	0	3,000

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] Eurostat 2005 and SVGW 2006. See also United Nations Statistics Division.
[2] Eurostat 2005 and SVGW 2006.
[3] Data provided by EUREAU member is from 2005 and 2006. SVGW only has data on drinking water.

United Kingdom

1. EUREAU member information

Water UK represents almost all UK water and wastewater service suppliers for England, Scotland, Wales and Northern Ireland, providing a framework for the water industry to engage with government, regulators, stakeholder organizations and the public. In UK there are 15 water only companies and 12 water and sewerage companies.

2. Legislation and control measures

England and Wales: The legislative base is predominantly provided by the *Water Act* (1989), by the *Water Industry Act* (1991) and by the *Competition Act* (1998). As a result of the *Water Act* (2003) economic regulation for prices and customer service is provided by the Water Services Regulation Authority (Ofwat) and the Consumer Council for Water represents water consumers. Drinking water quality is covered by the *Water Supply (Water Quality) Regulations* (2000) for England and Wales and regulated by the Drinking Water Inspectorate. Environmental water quality is covered by the *Water Resources Act* (1991) and by the *Environmental Protection Act* (1990) and is regulated by the Environment Agency. The *Environment Act* (1995) placed a duty on companies to promote the efficient use of water by customers.

Scotland: Main legislation is based on the *Water Industry (Scotland) Act* (2002) and the *Water Services etc. (Scotland) Act* (2005). The Water Industry Commissioner for Scotland (WIC) is the economic regulator, and Waterwatch Scotland the customer representative body. Other regulators are the Scottish Environment Protection Agency (SEPA) and the Drinking Water Quality Regulator for Scotland. The Water Framework Directive has been implemented in Scotland by the *Water Environment and Water Services Act* (2003).

Northern Ireland: Responsibilities are defined in the *Water and Sewerage Services (Northern Ireland) Order* (2006). Economic regulation is done by the Northern Ireland Authority for Utility Regulation and the General Consumer Council represents customer interests. The Department of the Environment's Northern Ireland Environment Agency is the relevant authority for the regulation of drinking water quality & environmental discharges.

3. Institutions responsible for water resources management

Relevant Authorities for water resources management are the Department for Environment, Food, and Rural Affairs (DEFRA) and the Environment Agency in England and Wales, the Scottish Environment Protection Agency, and the Northern Ireland Environment Agency.

4. Drinking water and wastewater services management

England and Wales: DEFRA has ultimate responsibility for all aspects of water policy in England and Wales, including water supply and regulatory systems for water industry. The 10 Water and Sewerage Companies (WSC) and the 12 Water Only Companies (WoC) are responsible for water services. WSCs are the result of the 1989 privatization by asset-sale of the previous Regional Water Authorities formed in 1974, whilst the WoCs are private companies which have existed since the nineteenth century and have never been municipalised. All have an effective monopoly of public water supply and own the assets in their area of operation. The WSC tend to include one or two major populated areas as well as rural areas, and many of the WoCs are centered on smaller towns and cities.

Scotland: Scottish municipal companies were not restructured into Regional Water Authorities in 1974, partly because Scotland's water policy was directed by the Scottish Office rather than by the UK. Water and waste water services thus remained the responsibility of local governments until 1996, when responsibility for the provision of water and sewerage services was handed to 3 new public water authorities (public corporations). In 2002, these 3 authorities merged into Scottish Water, a publicly-owned company answerable to the Scottish Parliament, and which is now the responsible body and the operator for all water services in Scotland.

Northern Ireland: From the mid-1970s to 2007, water and sewerage services were the direct responsibility of the UK Government. Since 1 April 2007 the responsible body for providing water services is Northern Ireland Water (NIW) a Government owned company operating under company legislation.

5. Water services pricing

Water prices are set by the economic regulators, OFWAT, the Water Industry Commission for Scotland, and NIAUR, in a regulatory settlement following a periodic review of prices.

6. General statistics

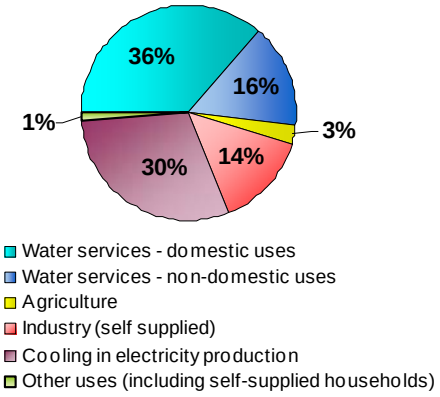
Country population (M inhabitants)	60.9
Population density (inh./km²)	252
GDP (PPP) / inh. (EU 27 = 100, 2006)	119

Population served by EUREAU members	DW	WW
	98%	96%

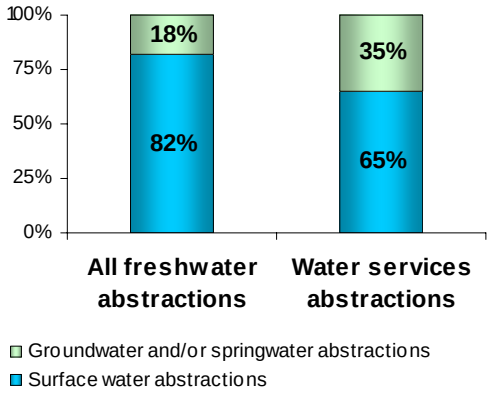
7. Water resources and use

Total freshwater abstractions (Mm³/yr)	13,649
Per capita freshwater abstractions (L/inh.d)	614
Water exploitation index (total freshwater abstractions/total renewable freshwater resources)	9%

Uses of abstracted freshwater[1]



Sources of abstracted freshwater[2]



8. Drinking water and wastewater services[3]

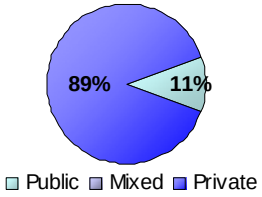
Population served by water services (% of total population)	DW	WW collection	WW treatment
	99%	97%	97%

Water services delivered water	Domestic DW uses	Non-domestic DW uses	Total
Water delivered (Mm³/yr)	3,686	1,618	5,304
Per capita water delivered (L/inh.d)	168	74	241

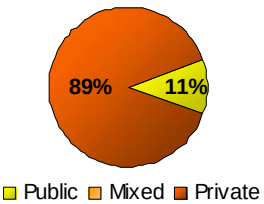
Water services management	DW	WW	Total
Number of employees (full-time equivalent)	-	-	35,000
Turnover (latest year available, M €/yr)	-	-	11,890
Investments (latest year available, M €/yr)	2,871	3,016	5,887
Length of network (km)	406,000	368,000	
Number of wastewater treatment plants			9,000
Wastewater treatment capacity (Mpe) [4]			76

Operators	Multi-service	DW	WW	Total
Number of operators	12	15	0	27

Drinking water operators ownership
(% of population served)



Wastewater operators ownership
(% of population served)



[1] Data for water uses is for 2004 and is estimated from Eurostat and the Environment Agency (2005). (www.environment-agency.gov.uk/commondata/103196/s3-1a_abstraction?referrer=/yourenv/eff/1190084/water/213872/609264).
[2] Fresh groundwater and surface water abstractions are for 2003, for England and Wales only (United Nations Statistics division, 2007).
[3] Data provided by EUREAU member is from 2003 to 2006.
[4] Data for wastewater treatment (million PE) is from 2000 (DEFRA).

European Water Sector Profile

EUREAU Water and Wastewater Sector Profile

Availability of Water Resources in EUREAU member countries

A very high variability of average water availability among the EUREAU member countries is indicated in Figure 4. It ranges from less than 100 m³/inh·yr in Malta to 552,536 and 79,254 m³/inh·yr in Iceland and Norway, respectively. Also, an average of about 5,000 m³/inh·yr for all over the countries is shown. Some countries such as Belgium and the Netherlands are shown higher water availability when it is considered in m³/km².yr (Fig. 5). It is probable due to the increased population density in these countries in comparison to others.

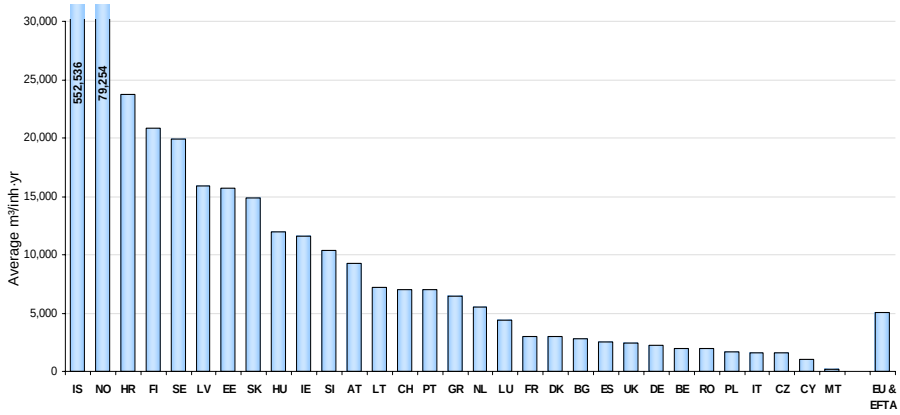


Figure 4 Average available renewable freshwater resources per inh. in m³/inh·yr (UN, Statistics Division, 2007).

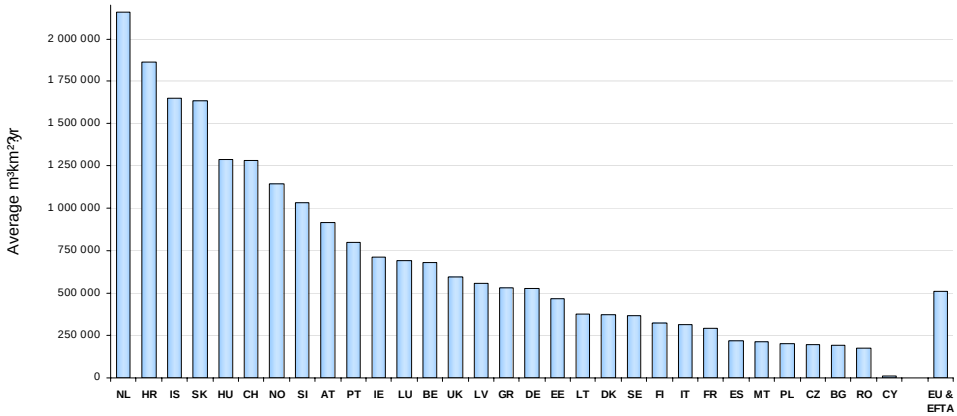


Figure 5 Average available of freshwater resources in m3/km2 .yr (UN, Statistics Division, 2007 and Eurostat, 2005).

In addition, the average geographical distribution of available water resources among the EUREAU member countries is highly varying. The highest water availability is shown to be in Norway, France, Germany, Sweden, Iceland, and UK and the lowest in the Bulgaria, Estonia, Belgium, Slovenia, Czech Republic, Denmark, Luxembourg, Cyprus, and Malta (Fig. 6). It should be noticed that several countries in central Europe are characterized with low water availability by both measurements (m³/inh·yr and Mm³/yr). A relatively low water availability (<5000 m³/inh·yr) is indicated in half of EU countries (Figs. 5 and 6).

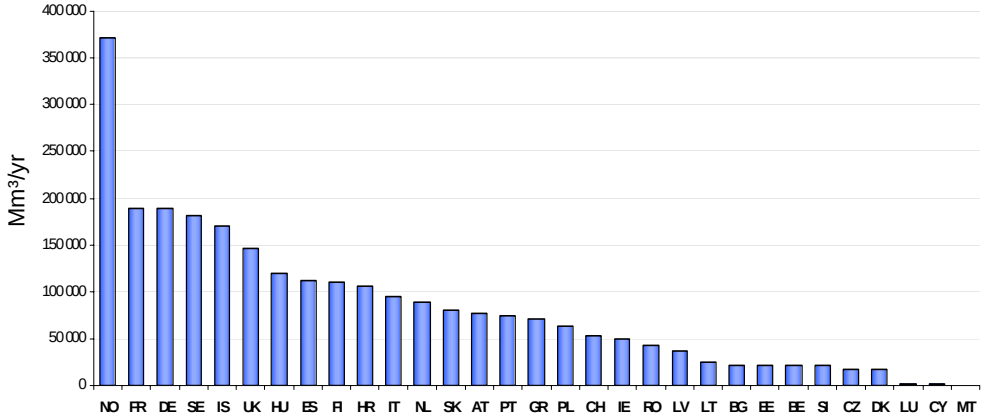


Figure 6 Geographical distribution of available water resources in EUREAU member countries (Mm³/yr) (EUREAU, 2008; UN, Statistics Division, 2007; Eurostat, 2005).

Sources and Uses of Freshwater Abstracted in EUREAU member countries

Regarding the type of the source of the total freshwater water abstracted for all uses among the EUREAU member countries, it ranges from over 90% of surface water in countries such as Hungary, Lithuania, Norway, Belgium, Bulgaria, and Netherlands to over 90% of groundwater in countries such as Malta, Denmark, and Iceland (Fig. 7). Allover about 80% of the total freshwater abstracted is surface water (Fig. 7).

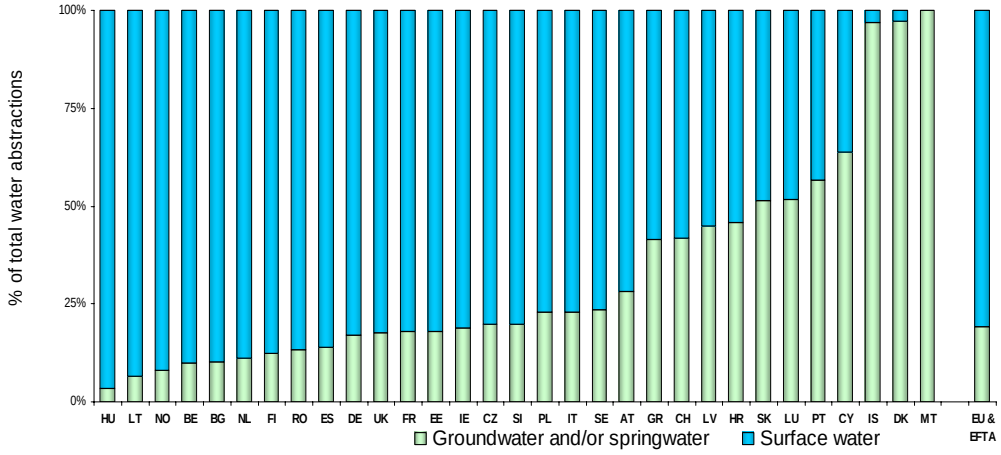


Figure 7 Sources of water for all freshwater abstractions (all water uses) Note that Figures exclude water abstractions for desalination (UN, Statistics Division, 2007; Eurostat 2005).

The water exploitation index (%) shown in Figure 8 more or less follows the tendency of renewable water availability with a high percentage in counties with low availability and a very low percentage in countries with very high availability (Fig. 8). It is also altered when the cooling water for electricity production is included (Fig. 8). Thus, the exploitation index is

increased from about 6.5% to 11.5% when cooling water is included among all EUREAU member countries.

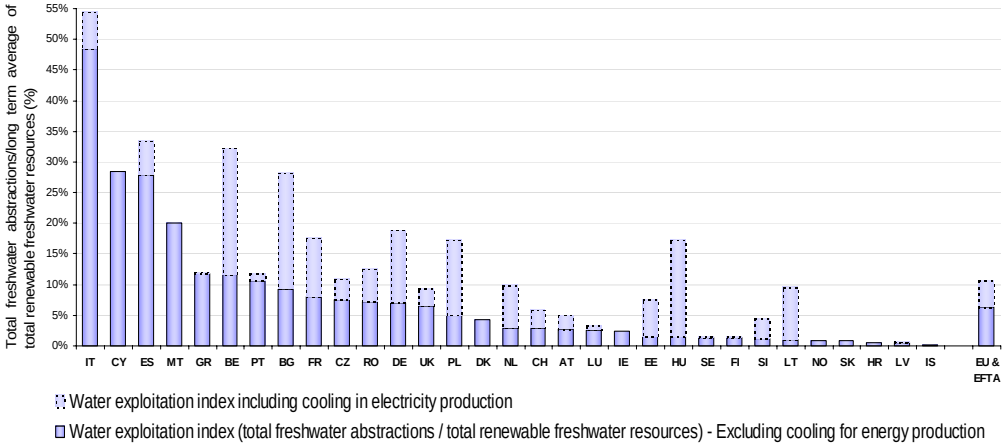


Figure 8 Water exploitation index (EUREAU, 2008; UN, Statistics Division, 2007; Eurostat 2005).

Regarding the source of the freshwater abstracted for drinking purpose it is more or less following the same tendency of freshwater abstracted for all uses. However, it is substantially differentiated in the overall picture of the EURAU countries to be about 50% surface and 50% ground water (Fig. 9). It is also indicated that in Malta about 50% and 60% of the total freshwater abstracted (for all uses) and that for drinking use, respectively is desalinated water. Also, desalination is significantly increased in Cyprus (of about 40% of drinking water) and to a minor extent in Spain, Portugal, and Greece (Fig. 9).

Mediterranean countries (Italy, Spain, Greece, Portugal, and France) are abstracting water for agricultural use more than 2000Mm³/yr (10a). On the other hand, Slovenia, Switzerland, Germany, Croatia, Ireland, Luxembourg, and Malta are abstracting less than 5 Mm³/yr (10c). In the other counties it ranges from 100 to 2,000 Mm³/yr (Fig. 10b).

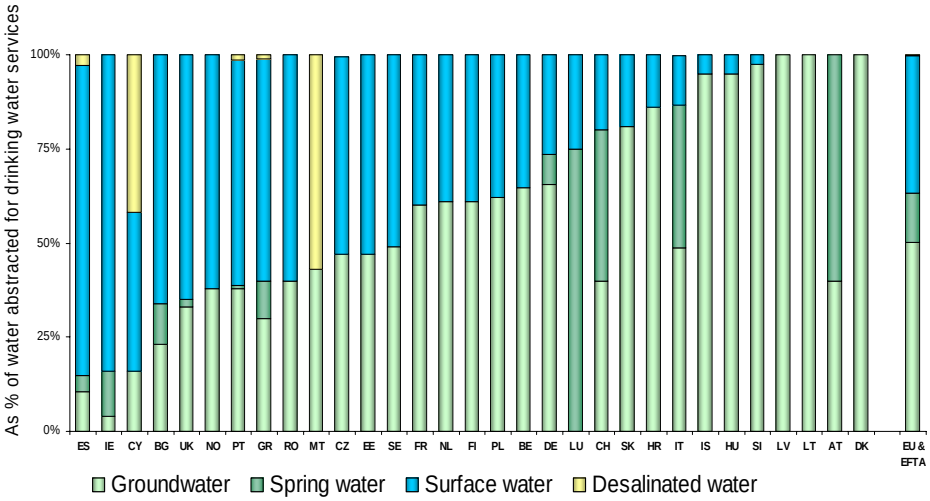
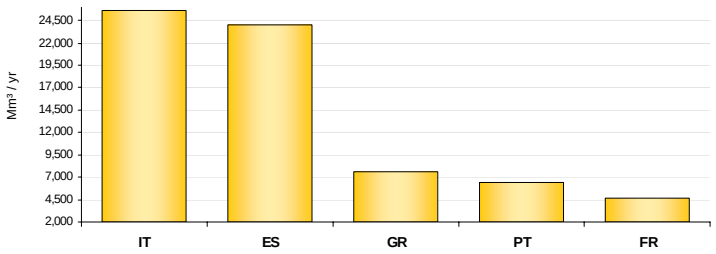
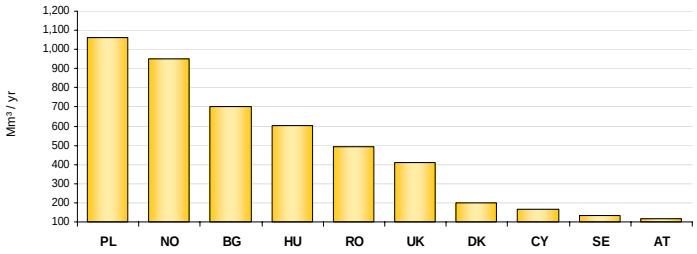


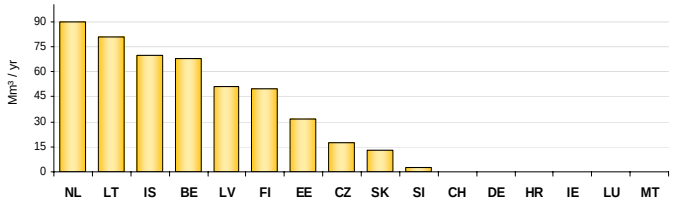
Figure 9 Sources of water for drinking water services abstractions. Note that some countries include spring water in groundwater figures (EUREAU, 2008 and Eurostat, 2005).



(a)



(b)



(c)

Figure 10 Countries abstracting for agriculture: (a) more than 2,000, (b) from 100 to 2,000, and (c) less than 100 (in Mm³/yr) (EUREAU, 2008; UN, Statistics Division, 2007; Eurostat, 2005).

In addition, Greece, Portugal, Spain, and Italy are abstracting for agricultural use more than 400m³/inh·yr, when Hungary, Germany, Ireland, Lithuania, Malta, and Czech Republic are abstracting less than 5 m³/inh·yr. The average water abstraction for agricultural use in all EUREAU member countries is about 150 m³/inh·yr (Fig. 11). The water abstracting for self-supplied industrial uses in EUREAU courtiers is ranged from over 150 m³/inh·yr in northern countries (Norway, Finland, and Ireland) to less than 5m³/inh.yr in small Mediterranean countries (Cyprus and Malta) and an average among all EUREAU countries of about 75 m³/inh·yr (Fig. 12).

The freshwater abstracted for drinking water services ranges from less than 50m³/inh·yr in Germany, Portugal and Malta to over 175 m³/inh·yr in Iceland, Norway, and Italy. An average freshwater abstracted for drinking water services is close to 100 m³/inh·yr among all EUREAU member countries is indicated (Fig. 13). In most of the countries it ranges from 50 to 125 m³/inh·yr. Thus, much less freshwater abstracted is used for drinking water services (100 m³/inh·yr) than for agricultural use (150 m³/inh·yr).

Cumulative values of use of abstracted water for drinking water services (domestic and non domestic), agriculture, industry, and other uses are given in Figure 14. In this Figure a lower percentage of freshwater abstracted for drinking water services in comparison to other uses is indicated. Only Malta, Denmark, Luxembourg, United Kingdom and Croatia are using more

than 50% of freshwater abstracted for drinking water services, within the EUREAU member countries the average being less than 18%. Even when excluding volumes of water abstracted for cooling in electricity production, which is generally returned directly to the environment, less than 29% of abstracted water resources in EUREAU member countries are used by the drinking water services.

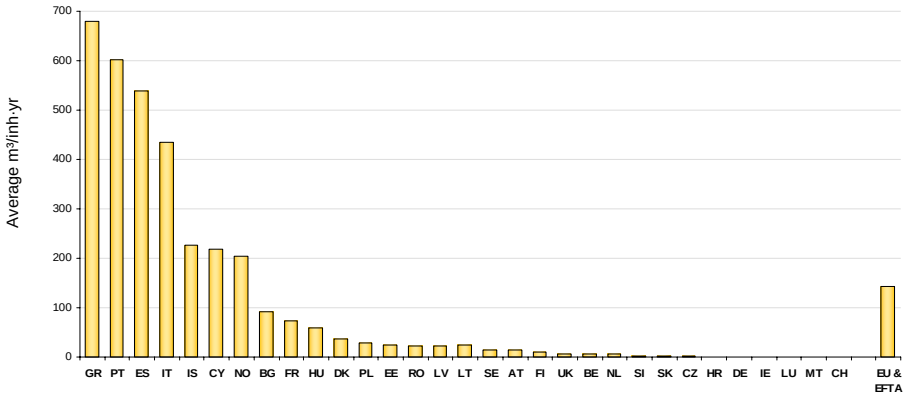


Figure 11 Average water abstractions per inh. for agriculture (EUREAU, 2008; UN, Statistics Division, 2007; Eurostat, 2005).

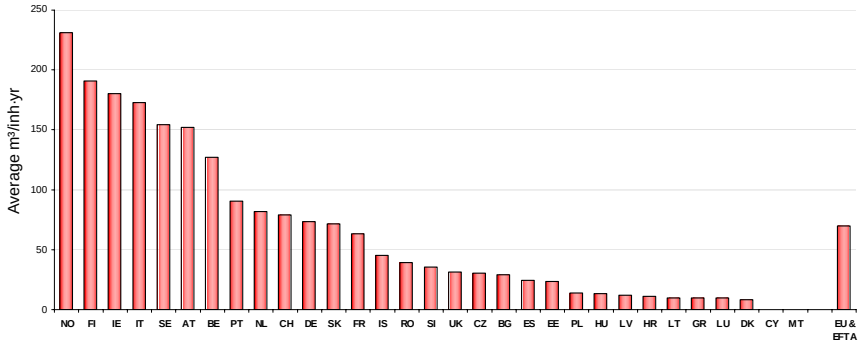


Figure 12 Average water abstractions per inh. for self-supplied industrial uses. Note that for Slovakia, water used for cooling is included in "industry" (EUREAU, 2008; UN, Statistics Division, 2007; Eurostat, 2005).

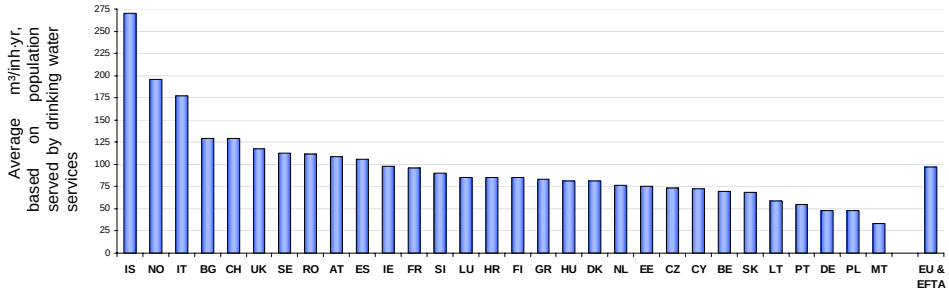


Figure 13 Average freshwater abstractions per inh. for drinking water services. Note that Figures do not include abstracted sea water for desalination. Missing data: LV. (EUREAU 2008, UN, Statistics Division 2007, Eurostat 2005).

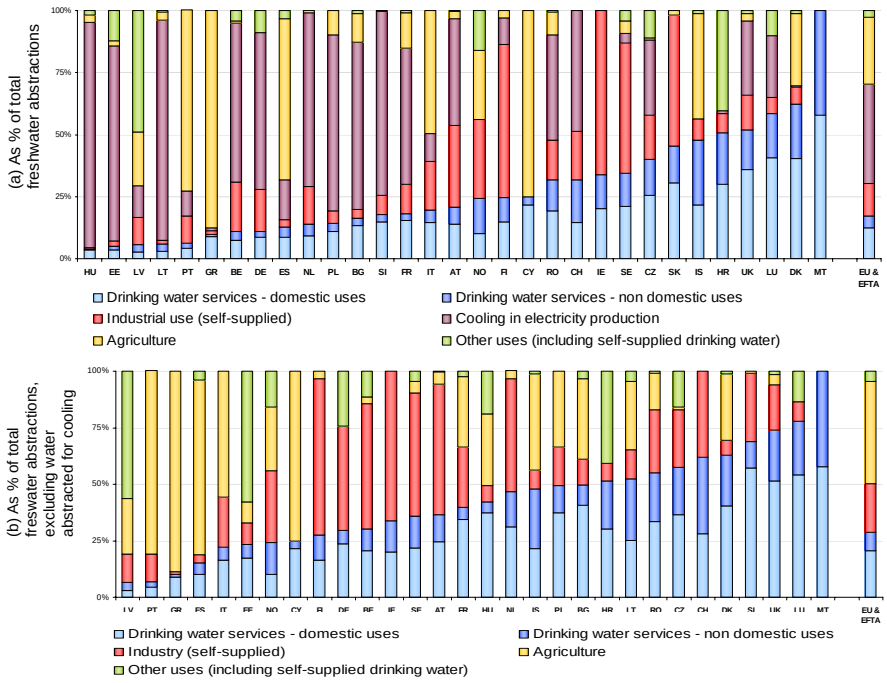


Figure 14 Uses of abstracted water in EUREAU member countries. Note that (a) for SK, water used for cooling is included in "industry" and (b) Missing data: SK. (EUREAU, 2008; Pacific Institute, 2006; Eurostat, 2005; Earth Trends, 2003).

Population Served by Water and Wastewater Services

The population served by drinking water services ranges from 65 to 70% in Romania, Lithuania, Cyprus, Estonia, and Latvia to about 100% in most of the old EU-countries. Overall 95% of the population among the EUREAU member countries is served with drinking water services (Fig. 15). Regarding the population served with wastewater collection services it ranges from 50 to 60% in countries (such as Bulgaria, Slovenia, Romania, Slovak Republic, Poland, and Lithuania) to almost 100% in Malta, Luxembourg, Netherlands, and Czech Republic (Fig. 16). On the other hand, the population served with wastewater treatment services ranges from 15-40% in Croatia, Malta, Cyprus, Bulgaria, Slovenia, and Romania to over 95% in The Netherlands, Czech Republic, UK, Luxembourg, and Germany (Fig. 17). Overall picture, about 80% of the population in the EUREAU member countries has access to wastewater services. Finally, the population served by wastewater collection services but not by wastewater treatment services it ranges from 0% in many counties such as Portugal, Austria, Czech Republic, Denmark, and Finland to almost 80% in Malta (Fig. 18). Notice that in Malta three major WWTP are under construction.

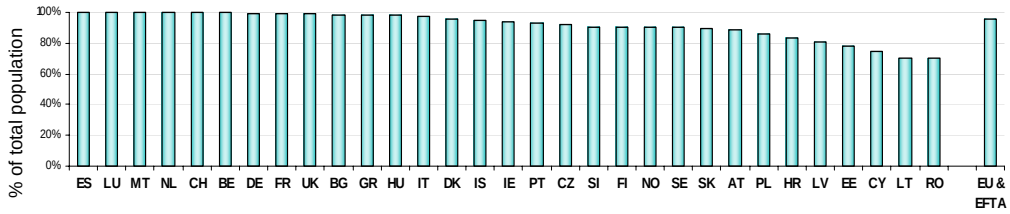


Figure 15 Population served by drinking water services (EUREAU, 2008; OIEAU, 2004; WHO-UNICEF, 2008; UN, Statistics Division, 2007).

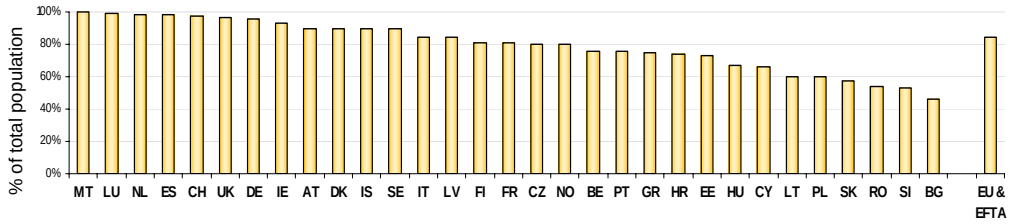


Figure 16 Population served by wastewater collection services (EUREAU, 2008; ECOPROG, 2006; OIEAU, 2004; WHO-UNICEF, 2008; UN, Statistics Division, 2007).

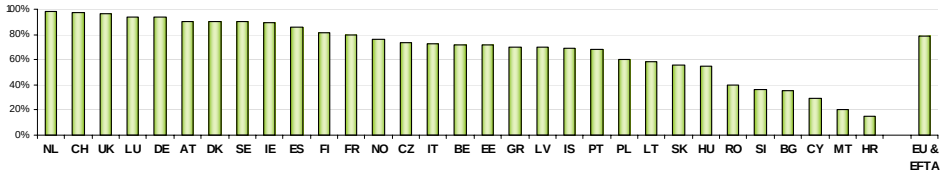


Figure 17 % of population served by wastewater treatment services (EUREAU, 2008; ECOPROG, 2006; OIEAU, 2004; WHO-UNICEF, 2008; UN, Statistics Division).

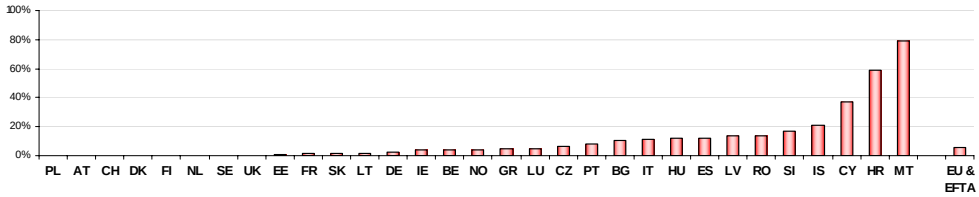


Figure 18 Population (%) served by wastewater collection services but not by wastewater treatment services (EUREAU, 2008).

Networks Length and Density of Water and Wastewater Services in EUREAU member countries

Countries with very high length (in km) of drinking water network are all old big EU countries (such as France, Germany, UK, Italy, and Spain). On the other hand, as it was expected, small countries such as Malta, Iceland, Estonia, Cyprus and Luxembourg have the lowest length of drinking water network (Fig. 19). It is also worth noting the importance of investments in infrastructure assets, with more than 3.5 Mkm of drinking water networks, more than 2.2 Mkm of wastewater networks and almost 70,000 wastewater treatment plants (Table 3, p. 90).

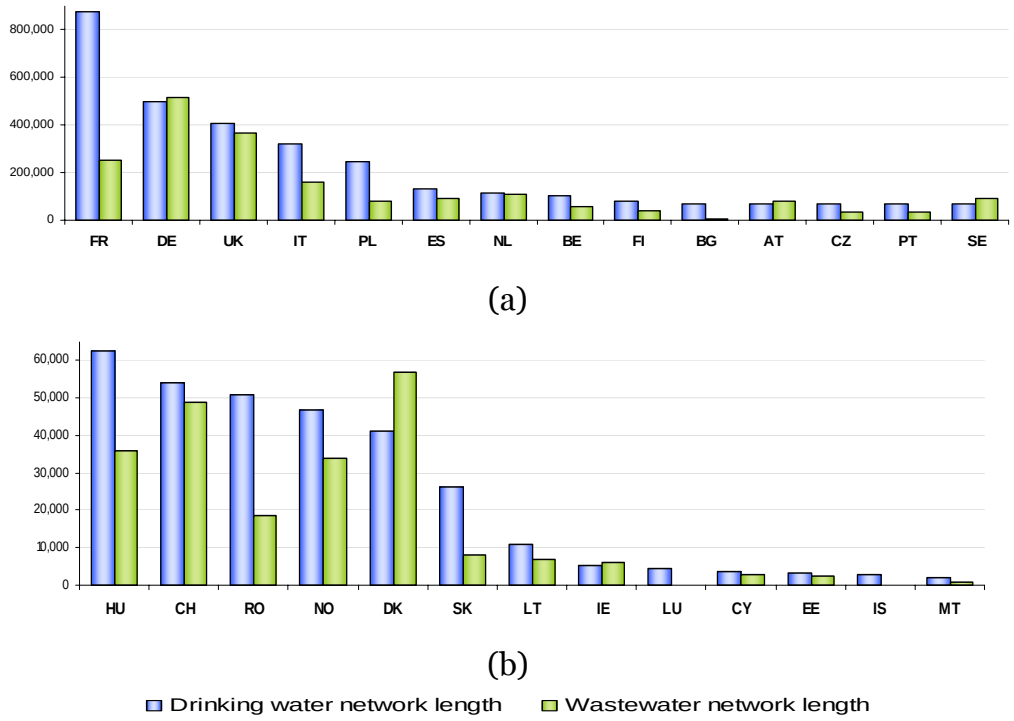


Figure 19 Drinking water and wastewater network length (in km): (a) countries with more than 65,000km and (b) countries with less than 65,000km. Missing data for drinking water network density: LV, SI, GR and HR; Missing data for wastewater network: LU, IS (EUREAU, 2008).

Regarding the average density of drinking water and wastewater network based on population served by drinking water and by wastewater collection services, the lowest density (of less than 100 inh./km for drinking water and 200 inh./km for wastewater) is shown in several countries, such as Finland, France, Luxembourg, Norway, Belgium, and Austria and the highest (of higher than 180 inh./km for drinking water and 400 inh./km for wastewater) is shown in Malta, Lithuania, Romania, Estonia, Spain, and Ireland (Fig. 20).

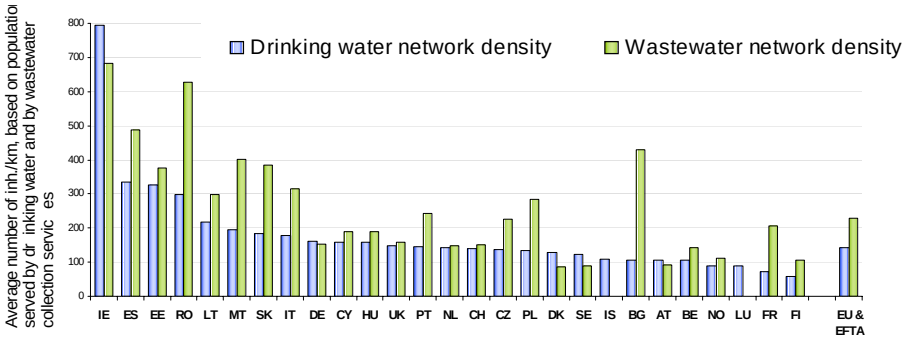
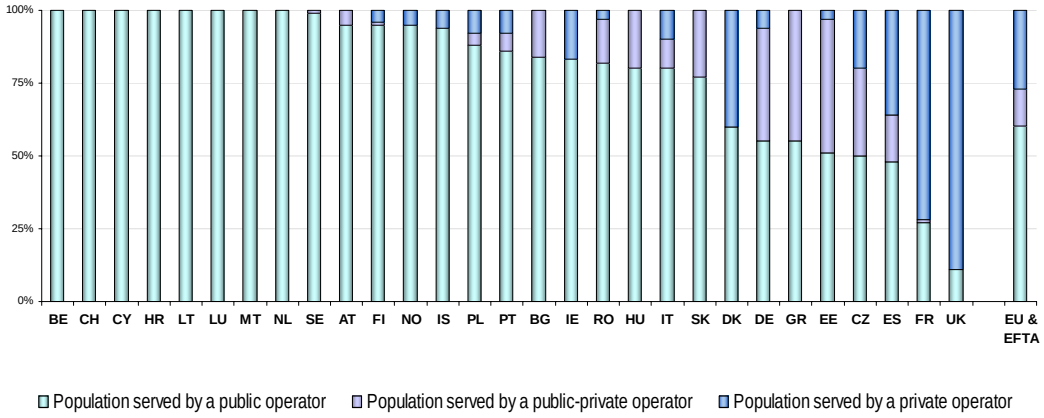


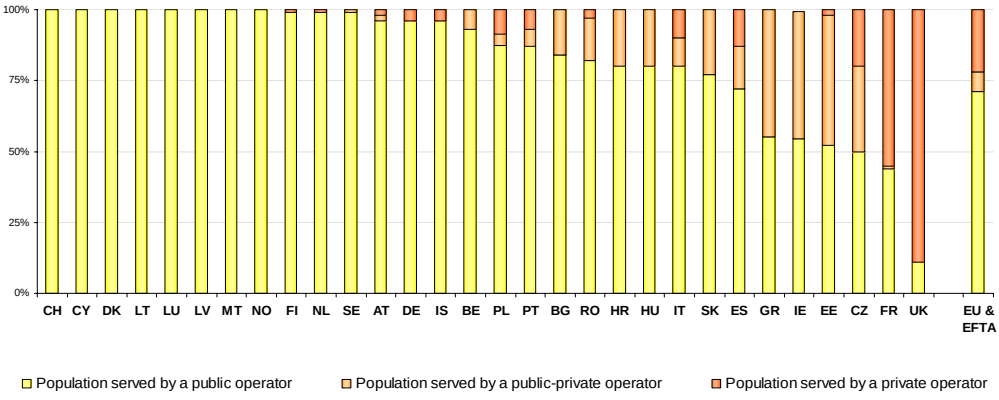
Figure 20 Average density of drinking water and wastewater network density. There is not a certain pattern among the countries regarding the size of the country and/or the geographical region. Missing data for drinking water network density: LV, SI, GR, HR; Missing data for wastewater network: LX, IS. (EUREAU, 2008).

Water and Wastewater Services Ownership of Operators

The dominant public operators' ownership for both the drinking water services and the wastewater services throughout the EUREAU member countries is demonstrated in Figure 21. Over 70% of the total population in EUREAU member countries are served by a public or a public-private operator for drinking water services, the figure being 80% in the case of wastewater services. In three EUREAU member countries, France, the Czech Republic, and the United Kingdom, more than 50% of the population is served by a private or mixed (public-private) operator both for drinking water and wastewater services (Fig. 21).



(a)



(b)

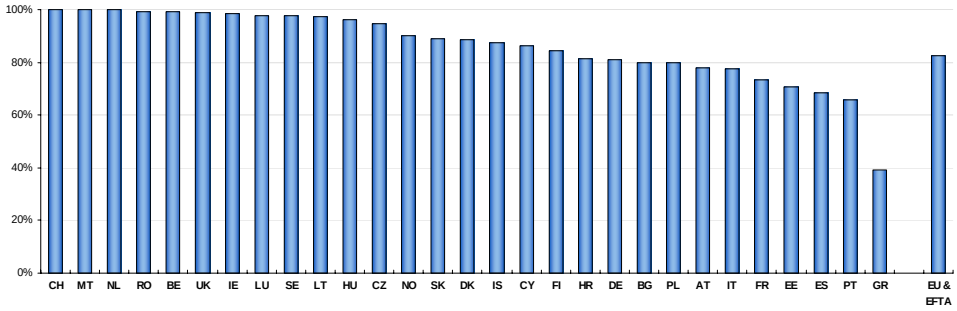
Figure 21 Percentage of population served by operators of (a) water (Missing data: SI, LV) and (b) wastewater (Missing data: SI) services ownership in EUREAU member countries. (EUREAU, 2008; IWA, 2006).

Conclusions

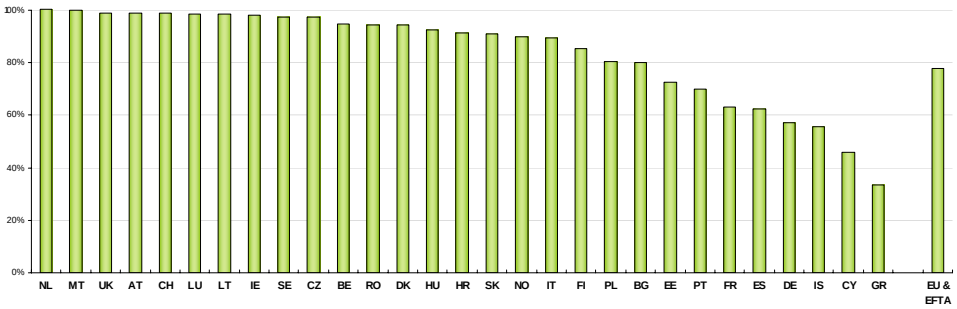
This Overview has presented a general portrait of the European water resources and water services sector. Gathering and comparing data on water services across countries is not an easy task, as information is unevenly available throughout the EUREAU member countries. These basic statistics do, however, provide a valuable source of useful data, while reflecting the great diversity and the importance of the water services sector in Europe. Economic, demographic and geographic contexts are very different from one country to the other. The availability of freshwater resources, the size of the infrastructure networks and the population density are significant when looking at how water resources are used.

Accordingly, the water services sector has a very different relative weight in the use of freshwater resources from one country to the other. In most countries, the agricultural, industrial and energy production sectors are widely predominant regarding uses of water resources. Only Malta, Denmark, Luxembourg, the United Kingdom and Croatia use more than 50% of water abstracted for drinking water services, the EUREAU member countries average being less than 18%. Even when excluding volumes of water abstracted for cooling in electricity production, which is generally returned directly to the environment, less than 29% of abstracted water resources in EUREAU member countries are used by the drinking water services. It is worth noting that, but with the exception of Italy, Norway and Iceland, the volume of water abstracted for water services varies between 100 and 350 L/inh·d. In comparison, volumes of water used in industry and agriculture contrast greatly across regions.

Water services coverage by EUREAU operators also differ across the EUREAU member countries. Overall, more than 95% of the population in these countries is connected to drinking water services, while 84% of the population is connected to wastewater collection services (Fig. 22). Of this later figure, more than 94% is also connected to a wastewater treatment plant.



(a)



(b)

Figure 22 % of population served by EUREAU members, as a % of the population served by drinking water services: (a) drinking water and (b) wastewater services (SI and LV are not included) (EUREAU, 2008).

The water and wastewater services play a major economic role in EUREAU member countries, providing close to 600,000 jobs for more than 70,000 water services operators. The turnover for this sector is around 72,000 M€ annually. It is also worth noting the importance of investments in infrastructure assets, with more than 3.5 Mkm of drinking water networks, more than 2.2 Mkm of wastewater networks and almost 70,000 wastewater treatment plants. Investments in the sector represent overall more than 33,000 M€ annually.

A brief overview of the water and wastewater sectors is presented in Table 3.

Table 3 EUREAU water and wastewater sector overview.

Population			
Total population (M inhabitants)	512.15		
Population served by EUREAU member associations	DW	WW	
Minh[1]	399.35	334.41	
% of population served by DW/WW services[2]	82.51%	78.28%	
Water resources			
Total renewable fresh water resources (Mm³)		2,567,129	
Water abstractions	Including cooling water	Excluding cooling water	
Total freshwater abstractions[3] (Mm³/yr)	272,734	163,697	
Drinking water services water abstractions			
Total water abstracted for DW (Mm³/yr)		47,122	
Average water abstractions per inh. for DW (m³, based on population supplied)		92	
DW services water delivered	Domest.	Non-domest.	Total
In Mm³/yr	26,736	10,902	36,816
Water services management	Total		
Total investments (latest y. available, M€)[4]	33.396		
Average investments per inh. (latest year €/yr)[5]	65.21		
Total annual turnover (M €)[6]	72,086		
Total number of employees[7]	584,705		
Total number of operators[8]	74,578		
Wastewater			
Total length of DW water network (km)[9]	3,584,617		
Average number of inh./km for DW water network (based on population served)		143	
Total length of WW collection and treatment network (km)[10]	2,228,930		
Average number of inh./km for WW network (based on population served)		230	
Total WW treatment capacity (Mpe)		667	
Number of WW treatment plants[1]		68,800	

[1] LV and SI are not considered.
[2] Based on population served by drinking water and that by wastewater collection services.
[3] For figure excluding cooling, IT, IE and SK are not included.
[4] Extrapolation based on 71.44% of the population.
[5] Extrapolation based on 71.44% of the population.
[6] Extrapolation based on 65.63% of the population.
[7] Extrapolation based on 92.32% of the population.
[8] Extrapolation based on 82.99% of the population.
[9] Extrapolation based on 96.11% of the population.
[10] Extrapolation based on 95.97% of the population. Excluding HR and IS.

We have also outlined the great diversity of organizational structures and management models in the water and wastewater sectors across the EUREAU member countries, as well as the different institutional and legislative frameworks, largely inherited from history. In most cases, the local governments are the responsible bodies for providing water services, under the supervision of national-level relevant authorities. In many countries, the local governments have created autonomous operators, which can have varied structures and responsibilities, to provide the services. These vary from the Austrian and Danish cooperatives to the Belgian Inter-Municipal Companies, the Dutch Water Boards, and the French private companies, among others. Overall, around 60% of the population in EUREAU member countries is served by a public-sector operator for drinking water services, the figure being 71% in the case of wastewater services. In four EUREAU member countries, the Czech Republic, France, Spain and the United Kingdom, more than 50% of the population is served by a private or mixed (public-private) operator both for drinking water and wastewater services.

This Overview presents general data regarding water and wastewater services in EUREAU member countries, with the aim of basing EUREAU position on reliable data, providing an overview of the sector to policy-makers and a sturdy starting point to those looking for more comprehensive information. We strive to continue this very important work of collecting, analyzing and making available data in the years to come, as there is an obvious need for more wide-ranging and consistent data on the water services sector in EUREAU member countries.

More specific, the following statements could be made:

(a) EUREAU positions on water and wastewater should be based on reliable data.
(b) EUREAU is growing very fast and it is the only Federation representing the water and waste water operators in Europe.
(c) In EUREAU member countries less than 20% of total freshwater abstracted is used for drinking water services.
(d) More than 95% of the population is connected to drinking water services, while 84% of the population is connected to a wastewater treatment plant. EUREAU member countries represent around 80% of European Water Services.
(e) The water and wastewater services play a major economic role in EUREAU member countries, providing close to 600,000 jobs and more than 33,000 M€ investments annually.

[1] Excluding HR and IS.

References

When information was not available from EUREAU members, it was completed using national ministries, national statistics offices, and other government bodies. Some figures were extrapolated or estimated from existing data. The following international sources of information were also used and can be consulted for further information:

Alvarez, C., 2007. EU funding water projects in the 12 new member States of the European Union. Vewin – Unie van Waterschappen, December, 23 p. (www.waterland.net/showdownload.cfm?objecttype=mark.hive.contentobjects.download.pdf&objectid=692A067-A974-1CE9-6FB77CBD18B56D13).
Angelakis, A.N., Koutsoyiannis, D. & Tchobanoglous, G. (2005). Urban wastewater and storm water technologies in the Ancient Greece. Wat. Res., 39(1), 210-220.
Angelakis, A.N., Marecos do Monte, M.H., Bontoux, L., and Asano, T. (1999). The status of wastewater reuse practice in the Mediterranean basin. Wat. Res., 33(10), 2201-2217.
AQUAREC (2006). Water Reuse System Management Manual. (Eds. D. Bixio and T. Wintgens). EC Directorate-General for Research.EC, OfficeCDMA00/38, B-1049 Brussels, Belgium.
Buffet, B. and Evrard, R. (1950). L'Eau Potable a Travers Les Ages. Editions Soledi, Liege, Belgium.
ECOPROG, 2006. Waste Water Treatment Plants in Europe. IWA Publishing, London, UK, 374 p.
EUREAU, 2008. www.eureau.org.
European Bank for Reconstruction and Development (EBRD, www.ebrd.com).
European Environment Agency (AEE, www.eea.europa.eu).
European Environment and Health Committee (EEHC, www.€.who.int/eehc).
European Federation of Public Services Unions (EFPSU, www.epsu.org).
European Water Information System (http://water.europa.eu).
Eurostat,2006. Values GDP-PPP/inh. indicator must be interpreted in relation with an average where EU 27 = 100. See: http://epp.eurostat.ec.europa.eu.
Eurostat (http://epp.eurostat.ec.europa.eu).
FAO's Information System on Water and Agriculture (www.fao.org/nr/water/aquastat/main/index.stm).
FAO Statistics Division (www.fao.org/statistics).
International Commission on Irrigation and Drainage (www.icid.org).
IWA, 2006. The IWA Statistics and Economics Specialist Group's European water regulation survey: survey results summary. Water Utility Management International, IWA, London, UK, October, p. 16-21.
International Research Unit, University of Greenwich, Greenwich, UK, 33 p.
Lobina, E., 2001. Water privatization and restructuring in Central and Eastern Europe. Public Services
OIEAU and Service national d'information et de documentation sur l'eau, 2004. La gestion de l'eau dans les pays de l'Union européenne, (www.oieau.fr/international/pays/2004/).
Organization for Economic Co-operation and Development (OECD, www.oecd.org).
Pacific Institute (www.pacinst.org).
The World's Water (www.worldwater.org).
United Nations Development Programme (UNDP, www.undp.org).
United Nations Global Environment Monitoring System (GEMS) Water Programme (www.gemstat.org).
UNEP-Plan Bleu Environment and Development in the Mediterranean (www.planbleu.org).
United Nations Statistics Division (www.unstats.un.org).
United Nations Statistics Division, 2007. Figures represent long term annual averages of more than 20 years. See: http://unstats.un.org/unsd/environment/waterresources.htm
WaterTime Project case studies and country reports (www.watertime.net).
WISE website
WHO-UNICEF Joint Monitoring Programme (www.wssinfo.org).
World Health Organisation (www.who.int)

Annexes

Annex I: Full and Observer Members of EUREAU *(on the 31st of December, 2008)*

Full members

EUREAU Members	Country
ÖVGW	Austria
ÖWAV	Austria
BELGAQUA	Belgium
BAWK	Bulgaria
Water Board Nicosia	Cyprus
SOVAK CR	Czech Republic
DANVA	Denmark
EWWA	Estonia
Finnish Association	Finland
FP2E	France
BDEW	Germany
DVGW	Germany
Hellenic Union of Water & Wastewater Municipal Enterprises	Greece
Maviz	Hungary
Samorka	Iceland
County and City Association	Ireland
FEDERUTILITY	Italy
LWSA	Lithuania
ALUSEAU	Luxembourg
Water Services Corporation	Malta
UVW (Unie van Waterschappen)	Netherlands
Vewin	Netherlands
Norsk Vann	Norway
IGWP	Poland
APDA	Portugal
ARA	Romania
AVSSR	Slovakia
AEAS	Spain
Svenskt Vatten	Sweden
SSIGE (SGWA)	Switzerland
Water UK	United Kingdom

Observer member

Croatian Water and Waste Water Association	Croatia

Annex II: Abbreviations

ADI:	International Development Association
AGA:	Association of Urban Water utilities
ALUSEAU:	Luxembourg Water Services Association
APDA:	Portuguese Association of Water & Wastewater services
ARA:	Romanian Water Association
AEAS:	Spanish Water and Wastewater Association
ATO:	Ambito Territoriale Ottimale (Opltimal Territoriale Areas)
AT:	Austria
AVS SR:	Slovakian Association of Water Companies
BAWK:	Bulgarian Water Supply and Sewerage
BDEW:	German Association of Energy and Water Industries
BE:	Belgium
BELGAQUA:	Belgian Federation for the Water Sector
BG:	Bulgaria
BoM:	Board of Management
BOT:	Built-Operate-Transfer
BWA:	Bulgarian Water Association
CH:	Switzerland
CIS:	Common Implementation Strategy
CY:	Cyprus
CZ:	Czech Republic
DANVA:	Danish Water and Wastewater Association
DBVW:	German Alliance of Water Management Association
DE:	Germany
DEYA:	Municipal Water and Wastewater Enterprise
DG:	Directorate General
DK:	Denmark
DSP:	Délégation de Services Publics
DW:	Drinking water
DWA:	German Association for Water, Wastewater, and Waste
DWD:	Drinking Water Directive
DVGW:	German Technical and Scientific Association for Gas & Water
EBRD:	European Bank for Reconstruction and Development
EE:	Estonia
EFTA:	European Free Trade Association
EPI:	Environmental Pollution Inspectorate
ES:	Spain
EVEL:	Estonia Water Works Association
EU:	European Union
EWWA:	Estonian Water Association
EYDAP:	Athens Water and Wastewater Company
EYATH:	Thessaloniki Water and Wastewater Company
ExCom:	Executive Committee
FIWA:	Finish Water and Wastewater Works Association
FAO:	Food and Agriculture Organization of UN
FEDERUTILITY:	Association of Italian Public and Private Utilities
FI:	Finland
FOEN:	Federal Office for the Environment
FP2E:	French Federation of Water Companies
FR:	France
GM:	General Meeting
GR:	Greece
GS:	General Secretariat

GWS:	Group Water Schemes
GWSS:	Government Water Supply Systems
HR:	Croatia
HU:	Hungary
IE:	Ireland
IGWP:	Economic Chamber of Polish Waterworks
IMC:	Inter-municipal Company
Inh.:	Inhabitant
IS:	Iceland
IT:	Italy
IWA:	International Water Association
LT:	Lithuania
LU:	Luxembourg
LV:	Latvia
LWSA:	Lithuanian Water Supply Association
M:	Million
Maviz:	Hungarian Water Utility Association
MEW:	Ministry of Environment and Water
MRA:	Malta Resources Authority
MS:	Member State
MT:	Malta
MoEPPW:	Greek Ministry of Environment, Planning, and Public Works
NL:	Netherlands
NO:	Norway
Norsk Vann:	Norwegian Water BA
NVE:	Norwegian Water Resources and Energy Directorate
OVGW:	Austrian Association for Gas and Water
OWAV:	Austrian Water, Wastewater and Waste Association
Pe:	Population equivalent
PL:	Poland
PNA:	National Water Resources Plan
PPP:	Public-Private-Partnership
PT:	Portugal
RBD:	River Basin District
RBMP:	River basins management plants
REC:	Regional Environment Center
RO:	Romania
ROC:	Regional Operating Companies
RWC:	Regional Water Company
SALAR:	Swedish Asociation of Local Authorities and Regions
Samorka:	Icelandic Energy and Utilities Association
SAO:	State Audit Office
SE:	Sweden
SEPA:	Scottish Environment Protection Agency
SG:	Secretary-General
SFT:	Norwegian Pollution Control Authority
SI:	Slovenia
SK:	Slovak Republic
SOVAK CR:	Water Supply and Sewerage Association of the Czech Republic
SGWA (SSIGE):	Swiss Gas and Water Industry Association
SWWA:	Swedish Water and Wastewater Association
SWME:	Slovak Water Management Enterprise
SVGW:	Swiss Gas and Water Industry Association
TF:	Task Force
UK	United Kingdom
UN:	United Nations
URSO:	Regulatory office for Network Industries
UVW:	Dutch Association of Water Board

UWWD:	Urban Wastewater Directive
UWWTD:	Urban Wastewater Treatment Directive
WDD:	Water Development Department
WG:	Working group
WFD:	Water Framework Directive
WHO:	World Health Organization
WIC:	Water Industry Commissioner for Scotland
WSC:	Water Service Corporation
WSC:	Water and Sewerage Companies
WW:	Wastewater (including collection and treatment)
Vewin:	Association of Dutch Water Companies
(hyphen):	Data missing