Chapter 6

WATER MANAGEMENT

6.1 Albania's water resources

Overview

Albania is rich in water resources, including rivers, groundwater, lakes, lagoons and seas. Overall its resources exceed by far its consumption (Table 6.1), although locally water shortage and conflicts among users may occur in the dry season. The hydrographic basin of Albania covers 43,305 km^2, of which 28,748 km^2 lie within its boundaries (Figure 6.1). The rest (i.e. 33 per cent) is in Greece, the former Yugoslav Republic of Macedonia and Yugoslavia, so Albania shares upstream and downstream water resources with its neighbours. Since 1990, the monitoring of water is much less frequent, and in particular the quality of the water resources is not well known.

Rivers (quality and quantity)

The most important rivers are the Drini, the Mati, the Ishmi, the Erzeni, the Shkumbini, the Semani, the Vjosa and the Bistrica (Table 6.2). The overall river flow is 1,308 m^3/sec. Rivers are mountainous with steep slopes and a flow ratio between the wettest and the driest month averaging 10. Their regime is torrential. In general, river flows are the highest in winter or early spring during the wet season. The rivers carry large quantities of solid matter: an estimated 1,650 kg/sec on average.

A water quality survey was conducted in 1997-1998. It showed that rivers were in general slightly alkaline (pH from 7.5 to 8.25), with a mineral content of 200-400 mg/l. Surface waters are largely contaminated. The two main contaminant factors are: (i) urban waste water directly discharged into surface water bodies; and (ii) pollution by industry, though the latter has lessened during the economic crisis. Many rivers (Ishem, Tirane, Erzeni, Shkumbini, Semani) show a deficit in dissolved oxygen, with high chemical oxygen demand (COD) and biological oxygen demand (BOD) values, which indicate pollution by organic matter, generally of domestic origin. The Gjanika and Semani Rivers, in which waste water from oil extraction and processing are discharged, are amongst the most polluted in the country. They contain high phenol concentrations (0.98 to 3.90 mg/l), high COD contents (60 to 190 mg/l) and high BOD values (20 to 63 mg/l) - far above the European Union standards for river water quality (i.e. phenols less than 0.05 mg/l, COD less than 30 mg/l and BOD less than 15 mg/l for category IV, i.e. bad quality) - and a high content of oil products. Other rivers, such as the Ishmi (industrial and domestic waste in particular from Tirana), the Kiri (industrial waste), the Great Fan, Little Fan and Mati (copper mining), are heavily polluted by pollution discharged from ore-dressing factories. The Shkumbini River downstream of Elbasan is also severely polluted even though metallurgical and mining activities have decreased since 1990. The rivers in the south (Vjosë, Bistrica, Pavlla and Pallasa) seem generally cleaner.

Lakes and lagoons

Lakes cover 4 per cent of Albania's territory. Ohrid, Prespa and Shkodra are the major lakes, but there are also many smaller ones (247 in total). An analysis of the transparency and the nutrient contents (nitrogen and phosphorus) of the lakes indicate that they are oligotrophic, except in specific areas where tributary rivers sharply increase the concentration of nitrogen and phosphorus (0.064 mg of phosphorus/l in the Cerava, up to 0.156 mg of phosphorus/l in the Pogradeci). In Lake Ohrid, the phosphorus content varies from 0.003 to 0.007 mg/l, in Prespa from 5 to 10 mg/l.

Also, 626 reservoirs, with a total capacity of 562 million cubic metres, were built along the main rivers (Drini, Mati and Devolli) for irrigation.

There are some large lagoons along the Seacoast, such as Karavasta, Narta and Butrint (see Chapter 8 and 11); all of them are wetlands of key importance for flora and fauna protection.

Table 6.1: Water balance, 1997

(million m³)

Surface water	Inflow	Outflow
Rainfall/evaporation	42,690	15,773
River flow	15,670	41,280
Groundwater	..	915

Water abstraction	Intakes	Discharges
Public supply and industry *	258	..
Waste-water discharges**	..	134
Irrigation **	675	..
Drainage **	..	..

Source: Draft National Water Strategy, 1997.
Note : *from groundwater; ** into surface waters

Groundwater

Groundwater is relatively abundant in Albania and well distributed over the country. It is exploited from wells mostly in valleys or plains or through springs in mountains. The water is of good quality (good physico-chemical and microbiological characteristics) at the source, but in some specific locations little is known about its quality since monitoring has been neglected for several years. Only the water table level has been monitored without interruption. Potential problems that have cropped up in recent years are the intrusion of saline water into the aquifers (such as in the coastal regions of Shkodër, Lezhë, Durrës, Lushnjë and Fier), the degradation of water quality in rivers underlying aquifers where the extraction is too intense or sanitary protection perimeters are lacking around water wells (e.g. Ishmi aquifer for the supply to Tirana), and the drying-up of springs during the dry season (Mati basin aquifer). Another risk is the upstream pollution by all kinds of wastes discharged in karstic zones, where the water penetrates quickly in the ground through fissures and then feeds the aquifers without being filtered by soil layers. The Shkodër aquifer is one such vulnerable area.

Groundwater resources are Albania's major source of drinking water. Seventy per cent of the main cities are supplied by wells. About 20 per cent of the groundwater is also used for irrigation and agriculture (in Shkodër and Vlorë areas). Today, it is estimated that about 30 per cent of the available resources of water are used; however, not much is known regarding their availability, the potential extraction capacity, the locations of water-uptakes, the real extracted amounts and the hotspots for pollution or for over-exploitation. Figure 6.2 shows the use of groundwater based on the most recent available data, i.e. these of 1996.

6.2 Water uses and pressures on the water resources

Overall situation

The current situation as far as the use of water resources in Albania is concerned is very difficult to assess because of insufficient monitoring and the fast changes in agriculture, mining and industrial activities since 1990, as well as major internal population movements (see Chapter Introduction). Roughly, irrigation and mining rely on surface waters, and households and industry on water from aquifers. Nearly all water used in industry is supplied by public drinking-water networks. There is no recent data on the quantity and provenance of water abstracted and its uses by the different sectors of activities.

Table 6.2: Major rivers

Rivers	Catchment area Total (km²)	Catchment area In Albania (km²)	Annual flowrate volume million m³	Main tributaries and lakes	Transboundary with
Drini	..	19,582	11,100	Buna river with Lake Skhodra; Fierza reservoir:2.7 km³;	FYR of Macedonia and Yugoslavia
Mati	2,441	2,441	3,250	Fani river; Ulza reservoir: 0.24km³	-
Ishmi	..	..	..		-
Erzen	..	..	..		-
Shkumbin	2,445	2,445	1,900	Rapuni, Gostima and Zaranica rivers	-
Seman	5,649	5,649	2,700	Devoli and Osumi rivers; Banja reservoi	-
Vjosë	..	4,365	5,550	Drino	Greece
Bistrica	..	..	..		-

Source : Draft National Water Strategy, 1997.

Figure 6.1: Albania hydrographic network and hydrographic basin boundaries

Source: Department of Public Information of the United Nations (UNDPI), Cartographic Section, New York, Post-Conflict "Environmental Assessment-Albania", United Nations Environment Programme (UNEP).

"The boundaries and names shown on this map do not imply official endorsement or acceptance by the United Nations"

Box 6.1: Lake Ohrid Conservation Project

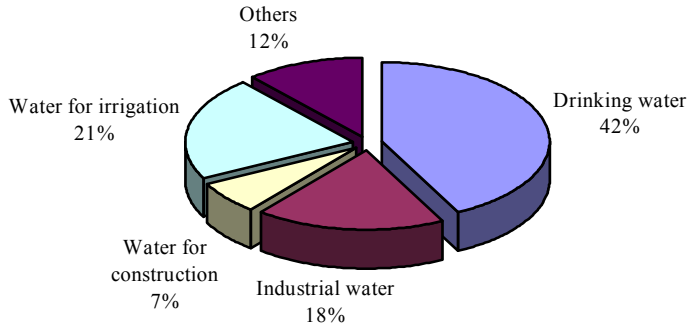
Lake Ohrid is a transboundary lake located in the east of Albania and the southwest of the former Yugoslav Republic of Macedonia. It covers 349 km^2, of which 118.9km^2 (34 per cent) belong to Albania. UNESCO classified it as a world natural heritage site in 1979. It is a natural, cultural and historical monument and the cradle of very ancient civilizations (Neolithic). The Lake is one of the oldest lakes in Europe. Because of its oligotrophic state, it is one of the largest biological reserves in Europe, sheltering unique flora and fauna that are extinct elsewhere. Due to its age, many of Lake Ohrid's aquatic species are endemic, including 10 of its 17 fish species. At present, more than 100,000 people live and work along its banks, and exert environmental pressure (domestic activities; tourism; textile, metal, electrical industries; and agriculture and fishing). In 1996, in an attempt to protect the lake from anthropogenic pressures, both countries adopted the Lake Ohrid Conservation Project financed by GEF and executed by the World Bank.

The three-year project started in 1998 at a total cost of US$ 4.4 million. The Albanian part is US$ 2 million, of which 93 per cent is covered by GEF and 7 per cent by the country. The main objectives of the Lake Ohrid Conservation Project are to:

- Develop a basis for the joint management and protection of the Lake by the two border countries,
- Create conditions for promoting environmentally friendly solutions for the management of natural resources and economic development of the watershed.

The first step consisted in developing a participatory watershed management approach. This step aimed at raising public awareness of the project and its results at an early stage, by actively involving the population, stimulating local initiatives through NGOs, and setting up a water management committee. Still under debate are the establishment of a joint monitoring programme and the sustainable management and control of fish stocks. Pilot projects in forestry, tourism, spatial planning, sewage, waste management, and the use of phosphorus-free detergents are developed in cooperation with NGOs. A recent opinion survey shows that 80 per cent of the local population is now aware of the project. Other concrete results are the building of the first Albanian waste-water treatment plants in Pogradec (30,000 inhabitants); the improvement of the sewage collector and the drinking-water-supply system; and the creation of a landfill for solid waste. Germany and the European Union Phare programme will finance these projects, beginning in June 2002. The success of the project has been ensured by the active involvement of all the local stakeholders; the water management committee is a good example for the establishment of river basin management committees in the rest of the country.

Figure 6.2: Use of groundwater (as % of total), 1996



Source : Draft National Water Strategy, 1997.

Protection from floods

Protection of the urban centres and the agricultural lands from floods is a major undertaking in Albania as the rivers are subject to sudden spates in rainy periods (winter and spring). Flood protection works are wide-ranging: 300 km of channels in the mountains collect and drain the rainwater into reservoirs, lakes and sea; kilometers of embankments along the rivers protect rural zones and urban areas and 864 km of dikes stand along the seacoast. These protection works have practically not been maintained over the past 15 years. The Ministry of Agriculture and Food, which is in charge of the maintenance of all flood works (except in the urban areas where the authorities responsible are the municipalities), has received an annual budget of about US$ 0.3 million per year in

the past decade for these works' overall maintenance. This is far too little. The problem is further compounded by the fact that pebbles and gravel from the riverbeds have been illegally exploited for road building, resulting in drastic modification and displacement of the water streams. Today, new buildings are mushrooming in all fertile plains and in urban areas. They are made of gravel illegally and carelessly extracted from riverbeds and of sand from beaches. This practice causes a deep modification in the river courses and their estuaries, leading to an acceleration of the water flow, making existing flood protection works inefficient, causing the erosion of agricultural lands, threatening urban areas with possible floods and causing adverse modifications of the seashores and coastal zones.

Domestic uses

Urban water supply and waste-water systems are plagued by problems. Albania has been operating underdeveloped and obsolete infrastructures built before 1990. Over the past decade, the migration of about 13 per cent of the population from rural to urban zones and the concentration of 44 per cent of the urban population in the Tirana-Durrës-Fier-Elbasan area has put significant pressure on the water infrastructure. A particular feature is the spectacular growth of the population in major urban centres between 1990 and 1999, especially in Tirana, Durrës, Fier and Lushnjë. (In the coastal zone and in Tirana, the population density has increased from 82 inhabitants/km^2 in 1960 to 179/km^2 in 2000.) This is accompanied by a boom in building construction, illegal siting of new construction due to the absence of urban planning, and illegal connections to both water-supply pipes and sewage pipes. The situation is not better in rural areas, where land use planning is non-existent. People put up their farms and houses in the middle of the countryside, far from any public infrastructure and then illegally dig their own wells for drinking water.

Water supply

About 80 per cent of drinking water is abstracted from underground and 20 per cent from surface waters. The drinking-water-supply network covers the whole country. Most of the population (85 per cent) is supplied through a public system at home in urban areas and essentially from standpipes and public taps in rural areas. Ten per cent also have access to groundwater through private wells, 4.9 per cent of families use treated surface waters, and 0.1 per cent use untreated surface water. The water is distributed in general without preliminary treatment with the exception of that from three drinking-water plants (two in Tirana and one in Durrës) that have recently been renovated as a result of international funding (Box 6.2). The average quantities supplied are very low, i.e. about 20-50 litres/person/day at the tap and 120 litres/person/day at the origin, i.e. at the supply enterprise. The latter figures reflect the importance of the amounts lost in the distribution system.

Overall the supply is not yet satisfactory and the quality of the drinking-water at the taps is mediocre. Water demand has increased not only because of population growth and urban density but also because of the mismanagement of water resources and obsolete infrastructure in poor repair. (On average, pipes, now 30 years old and made of cast iron, are corroded.) Losses for the water enterprises run at about 50-70 per cent. Insufficient storage capacity and frequent cuts in electricity interrupt water supply, in some places for several hours a day. This intermittent water service and the lack of chemicals and disinfectant reagents for treatment increase the risks of contamination in the supply pipes by external biological, chemical or microbial agents. In the ground, infiltrations of waste water from parallel sewer lines contaminate the old supply pipe network.

In rural zones, the construction of public water pipes began in the 1960s but accelerated only after 1986 as a consequence of Decision No. 428 on supplying cities and villages with drinking water. Drinking water in rural areas is supplied by public taps for groups of houses. The network was never completed, however, and, even where it exists, it has been poorly maintained and was damaged in approximately 400 villages during the 1991-1992 civil unrest. Villagers often dig their own wells without any monitoring of the water quality or reference to rules of sanitation. In some valleys, the wells are dug on the banks of heavy polluted rivers (e.g. along the Seman valley) and fed almost directly with unfiltered water, unsuitable for human consumption (see Chapter 12). There is therefore a strong need to complete and rehabilitate the water-supply network.

Box 6.2: Water supply and waste-water management in the Tirana and Durrës region

The population of the capital, Tirana, has mushroomed over the past ten years (150,000 people in 1991, 523,000 in 2001), as has the population of the valley from Tirana to the sea, Durrës included. In the surrounding countryside, new farms are emerging everywhere right in the middle of fertile plots, without building permits, and are scattered far from any road, electricity and water infrastructure.

For the past two to three years, Tirana has experienced one of the highest development rates in cities worldwide. Seventy per cent of the new buildings breach municipal planning and building regulations. Tirana has no water-supply and sewerage master plan. The existing water-supply infrastructure is in a critical condition, and the water is provided for only four to six hours per day. Drinking water is distributed by two water enterprises that have recently benefited from funds from the European Union/PHARE and Italy for the rehabilitation of their facilities (reservoirs and treatment plants). PHARE has also funded the rehabilitation of part of the supply pipe network in the Kombinat, Paskutan and Koder Kamez areas; however other zones are still in dire need of renovation (Ali Demi, Tirana e Re).

Tirana has 530 km of mixed sewage system (collecting rain and sewage altogether) functioning by gravity. Illegal buildings and illegal connections have damaged the sewerage system designed for a capacity of 200,000 people in 1962. In the new suburbs there is no sewerage infrastructure; new buildings are equipped with septic tanks, which are emptied by pumping trucks, and sludge is discharged into the sewerage system. In 1997, the Government of Japan funded a study on the rehabilitation of the sewage collection system and designed a waste-water treatment facility. In 2001, the reconstruction of secondary collectors started. Overall the cost of total immediate and long-term rehabilitation has been estimated at € 55 million.

The prices of water in Tirana differ according to the user (see section on economic instruments). They do not cover the full cost of operation and maintenance. Ninety-three per cent of the price charged to consumers is for drinking water and 7 per cent for sewage collection. The collection rate, at 91 per cent in September 2001, has much improved over the past two years for people and legally registered enterprises.

The situation in Durrës is not better. As the country's second city with 183,000 inhabitants in 2001, its population doubles every summer since it is the most important domestic sea resort in Albania. Durrës has also been the destination both of refugees during the Kosovo conflict and of internal migrants. The water problems in Durrës are similar to those of Tirana, exacerbated further by the uncontrolled building of homes and hotels along the seashore, which are discharging their waste water directly into the sea. The pollution of the sea is at its highest in the summer when people are most likely to be exposed. Hepatitis, dysentery, gastroenteritis, and other diseases transmitted by water are frequent. There is no waste-water treatment at all at the moment.

Waste-water discharges and treatment

The situation regarding sewage is critical. Because of the economic crisis, the waste-water collection and treatment infrastructure has not been maintained and has not developed quickly enough to cope with the increasing flow of discharged pollution. No new waste-water infrastructure has been built to keep pace with the increasing population in Tirana and along the coast of Durrës (see Box 6.2). In urban areas, only 40 per cent of the population has access to sewerage connections. The poorer neighbourhoods are without any access at all. At best, buildings and houses are equipped with septic tanks. There are no sewage treatment facilities for domestic waste water in Albania.

Waste water has been discharged in an uncontrolled manner, and might have polluted groundwater, but this has not yet been investigated.

Agricultural uses

Agriculture is the main economic activity in Albania and remains the most important water consumer. The climate makes irrigation a necessity. Crop water deficits between June and August range between 400 and 500 mm. Out of its 2.9 million hectares, Albania has 0.7 million hectares of arable land. In 1990, 60 per cent of this arable land was irrigated and produced 80 per cent of the agricultural value. More than half the irrigated area is located in the coastal plains. The development of irrigation was accompanied by flood protection works for 0.13 million ha and drainage systems for 0.3 million ha. Since the fall of the previous regime and of the State farms, the irrigation network has been badly maintained or even destroyed. There are no recent measurements or reporting of the quantities of water abstracted (see Chapter 10).

Over the past decade, fertilizer and pesticide consumption have seriously declined, thus lessening the risk of polluting water bodies, in particular aquifers, a threat that existed in the past. Nevertheless, since 1994, the use of fertilizers and pesticides has been picking up steadily with the take-off of agricultural activities (Chapter 10). This growing demand is leading to an increased interest in rehabilitating fertilizer factories, potentially heavy polluters.

Industry uses and pressures

Hydro energy

Albania has a large potential for hydropower production resulting from the combination of large water quantities and steep riverbanks. Ninety-eight per cent of the electricity generated in the country is from hydropower; 93 per cent of this production is from dams on the Drini. Other hydropower plants have been built along the Mati. In the rest of the country (centre and south) hydropower plants are driven by river-flow without dams. The dams originally built only for hydropower generation also play a role in river-flow regulation. Other multipurpose dams were envisaged. For instance, the Chinese Government has just approved a loan for the construction of the Bushati hydropower plant in 2002, a construction which, though approved by the World Bank, is contested by environmental NGOs. The project has a transboundary character and would badly affect Lake Shkodra in Montenegro, a wetland classified as a Ramsar site.

Mining and ore processing

Before 1991, mining was an important activity in Albania. It has significantly decreased since then (see Chapter 9), as have its pollution discharges (Table 6.3). The mining industry is a strategic sector that has been open to privatization since 1999.

Copper ore is still extracted (930,000 tons in 1990, 260,000 in 1995, 34,000 in 1999) in the Drini basin, the Mati basin and the Semani basin, and some enrichment factories still operate but at reduced capacity. Most of the pollution (iron, copper and other elements) originates from the enrichment process through the discharge of waste water and from the leachate of inert materials deposited around the plants. Today, only one metallurgic copper plant is still working in Rubik on the Mati River. The waste water is very acidic and contains sulphur, sulphates, arsenic, iron and phosphate, and has a high COD.

Chromium ore is another important mineral resource for Albania. In 1992, one million tons of chromium ore were extracted, but, eight years later, extraction was reduced to one tenth (80,000 tons in 1999). Chromium ore mines are located in the Drini and Mati basins. Enrichment factories are still operational at reduced capacity. Chromium metallurgic complexes are still working in Elbasan and Burrel and produce ferrochromium compounds. They generate waste water that is highly toxic (heavy metals) and that is not treated before being discharged. The Fani River is polluted with hexavalent chromium (the most toxic form of chromium), due mostly to heaps of sludge of high chromium and copper contents that have been dumped along the riverbanks and are leaching into the river. There have been no regular measurements of pollution since 1995.

Lake Ohrid is polluted with iron and chromium leaching from a mining plant.

Table 6.3: Industrial liquid discharges into water bodies, 1996-1998

in thousand m³

	1996	1997	1998
Total	**10,814**	**5,340**	**12,450**
Mining/ total	**7,158**	**2,434**	..
of which:			
Chromium extraction	..	..	..
Chromium enrichment	3,250	1,913	..
Chromium melting	547	377	..
Copper extraction	..	..	..
Copper enrichment	1,909	144	..
Copper melting	1,452	..	..
Oil /total	**3,156**	**2,513**	..
of which:			
Extraction	546	359	..
Refining	2,610	2,154	..
Thermo power plants	**500**	**393**	..

Source: State of the Environment Report, 1997-1998.

Industry

Industry is also discharging untreated polluted water. Before the 1990s, a few big industrial State-owned facilities were equipped with waste-water treatment plants. Over the past decade, most of these industrial facilities have closed down because of the economic crisis and the few that remain operational have not maintained their waste-water treatment plants. According to the environmental legislation, every new enterprise has to obtain an environmental permit (or licence) (see Chapters 1 and 2) as a prerequisite for a building authorization and a guarantee that the necessary environmental equipment will also be incorporated into the project. But when production starts up no operating permit is required and there is no obligation to monitor and report pollution that is then discharged.

In the past, Albania had much heavy polluting industry, including an important chemical industry producing nitrogen and phosphate fertilizers, pesticides, soda, pigments, paints and solvents; oil

refining; metallurgical plants for iron and copper melting; cement production; and a wood and paper industry. With the exception of oil refining and cement production, most of them have ceased operating, without any prospect of resuming production. The heavily polluting fertilizer factories in Fier are no longer in operation due to the lack of a natural gas supply. Other active industries include tanneries, construction materials and food processing. The majority of these industries use very old technology and do not treat their effluents.

The oil sector is the major industrial water polluter. In the Visoke-Patos-Marinez-Ballsh zone, polluted water is directly discharged into the Gjanica and the Semani, causing heavy pollution by organic aromatic compounds (see the specific environmental survey financed by PHARE in 1997). The Ballsh refinery, the most important in Albania, discharges a significant amount of pollution (in particular phenols) into the Gjanica River, as the refinery's waste-water treatment plants are inadequately managed. In the same region, the water from irrigation and drainage canals has a toluene and benzene content several times higher than the standards. Almost 10,000 tons of pollution (in particular oil and grease) per year were discharged this way in 1999 and 2000, and 100 highly polluted spots have been identified.

Statistical surveys of industry show that the food and beverage industry, the textile industry and the leather industry (respectively 26, 8 and 9 per cent of 1999 manufacturing output) are rapidly expanding their activities. Most of these private small and medium-size industries are developing in the suburbs of the big towns. Leather industries are found in Tirana, Durrës, Korçe, Gjirokaster and Berat; the textile industry in Tirana, Korçe, Berat; sugar and spirit factories in Maliq and beer factories all over the country, the biggest of them in Tirana. These branches traditionally generate heavy water pollution. How much polluted effluent they discharge is not known, nor are the characteristics of the pollutants it contains.

Tourism

Tourism is still in its infancy, but domestic tourism is developing steadily. It is developing along the coast essentially in the south of the country (see Chapter 11) and also in the vicinity of the large lakes in the east of the country (Ohrid, Prespa). Along the coast the population doubles during the high season (Durrës, Vlorë, Sarandë). Illegal buildings along the coast have mushroomed, while municipalities have been unable to regulate their development and provide adequate water infrastructure. The new buildings are equipped with private reservoirs for storing the intermittently supplied drinking water, a practice that is not safe since the residual chlorine content disappears in time and certainly does not ensure that the stored water will be kept uncontaminated for long. Domestic waste water is discharged into septic tanks, where it is sometimes partially treated before going directly to the sea along the coast. In summer, the efficiency of this type of treatment is highly questionable as this technology is not adapted to the sudden chock-loads occurring from the high population increase (see Box 6.2).

6.3 Policies, strategies and framework management

Policies and strategies for water use and protection

Albania has no national water strategy and no master plan for water management. A national water strategy was drafted in February 1997 under the European Union's PHARE Programme. Although drawn up under the close supervision of all the members of the National Water Council, in its final stage the strategy met with opposition from a few Ministries and local authorities and has therefore never been adopted.

The draft national water strategy promotes water resource conservation and the sustainable use of water resources in harmony with the environment and other natural resources. It defines the national objectives of water uses and water resources management, as well as the appropriate institutional structures for implementing the strategy. It also indicates the legal, regulatory and technical framework to be developed, as well as the coordination among the different partners. It indicates how to fulfil the requirements of each different use in agreement with national and regional development and individual sectoral policies. It identifies specific programmes and priority projects for the short, medium and long terms.

Legislation

National

The Law on Water Resources (No. 8093/1996) is the main legislation on water resource management. It established the National Water

Council (NWC) and its Technical Secretariat as well as other water institutions in place today. The Law provides for the protection, development and sustainable use of water resources, and it organizes water resource management and administration by river basin according to its use and purpose. It introduces permits, concessions and authorizations for using water and for discharging waste water. Although the Law is concerned with controlling and preserving the quality of water resources, it does not define very strict conditions for the discharge of pollution, nor does it introduce pollution charges to encourage polluters to reduce their pollution loads. The Law also calls for the drawing-up of a water strategy.

The Law on Water Supply and Sanitation Sector Regulation (No. 8102) was also issued in 1996. This Law is concerned with securing a safe and reliable drinking-water supply and domestic waste-water treatment, and promoting private investments in the sector. The Law makes licences compulsory for all entities wanting to distribute drinking water and collect and treat waste water. The Law also establishes the national Water Supply and Sanitation Regulatory Commission, which grants licences and approves the water charges or prices and the terms and conditions of services provided by the licensees. The Commission is under the Ministry of Territorial Adjustment and Tourism.

The Law on the Construction, Administration, Maintenance and Operation of Water and Drainage Systems, (No. 7846/1994), concerns the irrigation and drainage systems. Its implementation is under the responsibility of the Ministry of Agriculture and Food. The 1999 Law for Irrigation and Drainage (No. 8518), which updates the Law of 1994, essentially provides for the decentralized management of irrigation and drainage infrastructure, and paves the way for their privatization or for concessions and management by water users' associations.

A draft Law on Water Protection, proposed in the new NEAP, has been prepared and is under review of the line Ministries. It focuses exclusively on reinforcing existing legislation to protect and preserve water quality. The ultimate goal is to protect human health. The draft law clarifies and reinforces the tasks of the National Water Council and gives the Ministry of Environment more responsibilities for protection. The draft law forbids "the discharge of any substances that might pollute water resources, either directly or indirectly". Regulations on the discharge of waste water and emission limit values for polluting substances should be laid down. Under the draft law, the Ministry of Environment would be entrusted with setting up water protection areas, issuing regulations regarding the siting and functioning of treatment facilities, regulating the use of fertilizers and pesticides, and monitoring the implementation of the law on water protection, including water monitoring. The municipalities would be responsible for the planning, management, connection to and discharge from public sewerage in their jurisdiction. In addition, the draft law calls for national standards for drinking water and for strictly and strongly enforcing these standards. Sanitary protection perimeters must be set for protecting the water resources used for drinking.

Starting in January 2002, the Law on the Organization and Functioning of Local Government (No. 8652/2000) gives full administrative, service, investment and regulatory powers for water supply, sewerage and drainage system and flood protection canals to local governments (municipalities and communes). This increase in responsibilities also requires that municipalities should improve their capacity for water management and urban planning. International organizations and the European Union are helping Albania to face this challenge (see Chapter 1).

The critical issue in Albania is not the availability of appropriate legislation but the lack of implementation and enforcement. Called for in the Law on Water Resources, the draft water strategy of 1997 was never adopted. Neither the Law on Water Resources nor the draft law on water protection indicates how the permitting system should be enforced and by what authority. For the time being, Regional Environmental Agencies and the Health Inspectorate of the Ministry of Health are responsible for inspection, but they lack the means and real authority to undertake this work.

International

Albania has been a Party to the Barcelona Convention for the Protection of the Mediterranean Sea against Pollution and to four of its protocols since 1990. Albania also ratified the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes in 1994, and signed its London Protocol on Water and Health in 1999. Further developing bilateral agreements on transboundary rivers is the task of the National Water Council, but no

significant action has yet been taken. The most important achievement regarding international water cooperation is the agreement with the former Yugoslav Republic of Macedonia on the common management of Lake Ohrid (see Chapter 3 and Box 6.1).

Institutions

According to the 1996 Law on Water Resources, the management of water resources is entrusted to the National Water Council (NWC, i.e. the former Water Authority) and its Technical Secretariat (implementing body) at central level and to water basin authorities at local level. As many strong sectors were benefiting from the free use of water, the NWC was set up at a very high level to ensure that it had enough clout. The National Water Council is headed by the Prime Minister, co-chaired by the Ministry of Territorial Adjustment and Tourism and the Ministry of Transport and Telecommunications, and is made up of representatives from the Ministry of Agriculture and Food, the Ministry of Industry and Energy, the Ministry of Transport and Telecommunications, the Ministry of Foreign Affairs, the Ministry of Health, the Ministry of Environment and the Ministry of Local Government and Decentralization. Since Decision 240 of 1998, its Technical Secretariat, made up of one person only at the beginning, should include five staff (director, economist, hydrologist, hydrotechnician and lawyer). At the moment, there are only three persons.

While the structure and tasks of the National Water Council are well defined and the Council has adequate coordination with other ministries, little progress has been made to implement the provisions of the 1996 Law on Water Resources. In 1998, the NWC delineated the boundaries of six river basins: the Drini-Buna, the Mati, the Ishmi-Erzeni, the Shrumbini, the Semani and the Vjosa basins. Two years later, a decision called for the establishment of a water basin council and implementing agency for each of the six basins. However, this decision has never been implemented. In early 2001, another NWC decision (No. 63) defined the responsibilities of the previous water basin councils and water agencies regarding the granting of abstraction permits according to the type of applicant and the quantity requested (Table 6.4). De facto, the decision cannot be implemented, since the water agencies do not yet exist. Therefore, ministries have complete discretion over whether or not to issue permits, and, in general, water is withdrawn illegally. Water extraction charges exist and are calculated according to the type of use. However, users are not registered, the quantities extracted are neither measured nor reported, and the abstraction taxes are not paid.

In short, despite its best efforts, the National Water Council has only partially succeeded in enforcing the Law. It has failed to introduce a water strategy. It has not drawn up an inventory of water resources. It was not able to issue any authorizations for the use and discharge of water under its direct responsibility. Moreover, there is neither an implementing mechanism nor a budget for the decisions that have been taken.

Since 1998 the National Environmental Agency, now the Ministry of Environment, has been responsible for protecting water. The Ministry of Environment is responsible for water quality monitoring and emissions monitoring. It is also competent for setting water quality standards and water emission limits in coordination with other ministries, chiefly the National Water Council. Through environmental permits, the Ministry of Environment has the task of regulating emissions (domestic and industrial) into water. The Ministry of Environment and its Regional Environmental Agencies issue the environmental permits, and collect and process data on the state of the environment, including on water bodies, at district and regional levels.

The Ministry of Health, through the Institute of Hygiene and Epidemiology and the State Health Inspectorate, is responsible for monitoring the quality of drinking water. Local public health directorates carry out control and monitoring at local level. They control the toxic substance content and the bacteriological contamination of water, manage drinking-water and water-supply systems, and control the sewerage system. They regularly share information and coordinate with the Ministry of Environment at national and local levels. At local level the State Health Inspectorates verify that the quality standards for drinking water are respected. They are also entrusted with the monitoring of bathing waters; however, their overly tight budget prevents them from doing their monitoring jobs properly (see Chapter 12).

The Ministry of Territorial Adjustment and Tourism plans and manages the water-supply and water-treatment infrastructures, and provides for specialized technical support. Water supply is organized by district, each having at least one water-supply enterprise (52 in all, of which 38 are

State-owned entities and 14 given in concession to private firms). These enterprises often lack technical expertise, spare parts and maintenance capacity. Traditionally, the infrastructure investments have been financed by the State through the Ministry ofTerritorial Adjustment and Tourism, a situation that will change with the decentralization of authority (see the new Law on Local Government). The Ministry is also responsible for monitoring, data collection, and the compilation and storage of information from these enterprises. Sewerage management and waste-water treatment are organized in a similar way. The Water Supply and Sanitation Regulatory Commission, i.e. the leading decision-making body for regulating the water supply and sanitation sector, was established in 1999. It has the authority to issue licences to commercial water enterprises providing water for public consumption and to control their functioning, and to approve water supply and sewerage tariffs (prices and charges) submitted by the water enterprises and the municipalities. By law, the Commission should submit a yearly report on the state of the water industry.

The Ministry of Agriculture and Food, through its Regional Directorate for Irrigation and Drainage, was traditionally responsible for administering, maintaining and using the irrigation and drainage system. At present, this management is progressively being shifted to water users' associations. There is as yet no coordination with the National Water Council and the Ministry of Agriculture and Food, and, despite the Law, the National Water Council does not issue licences for the abstraction of irrigation water.

The local governments (municipalities) are responsible for the proper operation and maintenance of water facilities in their jurisdiction. As of January 2002, the responsibility of the local governments will be extended. Together with the basin councils, the municipalities will be responsible for sewerage planning and the construction of sewerage works within their jurisdiction in consultation with the Water Supply and Sanitation Regulatory Commission. Tariff-setting and regulatory authority for water supply and waste-water services will be exclusively under their responsibility from January 2002. All these tasks will be difficult to assume if the corresponding, currently weak, municipal water-management capacities are not strengthened. At the moment, only Tirana has an infrastructure department with a subsection for the water-supply and sewerage network.

Monitoring

A Decree of the Council of Ministers on Monitoring of 1995 stipulates who should monitor what in order to share and clarify the tasks of the different institutes and avoid gaps and duplications. This reallocation of resources was carried out because of economic difficulties and shrinking budgets, and does not reflect an in-depth rethinking and restructuring of the monitoring system itself. In 2001, the Ministry of Environment, which is responsible for monitoring the environment, subcontracted the monitoring of water for a total amount of 1.76 million leks (i.e. about US$ 12,000).

Table 6.4: Designation of competent authorities for water abstraction permits

Type of use	Units	Quantities		Competent authorities			Ratification	Implementing authority	
		>	<	Basin Councils	NWC	Council Ministers	by Parliament	Water agency	Technical Secrt NWC
Drinking-water supply	l/sec	0	100	X				X	
	l/sec	100	2000		X				X
	l/sec	2000				X	X		X
Industry through public supply	l/sec	0	5		X			X	
	l/sec	5	300			X			X
Irrigation and hydropower generation	Mln m3/y	< = 1		X				X	
	Mln m3/y	1	5		X				X
	Mln m3/y	5	10		X				X
	Mln m3/y	> 10				X	X		X

Source: National Water Council. Decision No. 63, January 2001.

Groundwater: For about half a century, the Albanian Geological Survey has monitored the

groundwater and, in particular, aquifers, for water quantity, quality and movement. The Survey also carries out hydrological studies of groundwater and so has a precise idea of the current state of the resources. By law (Law on the Albanian Geological Survey, 1998), the Survey must protect the aquifers, but information on abstraction licences and the quantity of water withdrawn from aquifers is not reported to it. The Albanian Geological Survey does stress that the current use of groundwater is unsustainable because it is too intensive in certain aquifers and in certain locations.

Surface waters: The monitoring of rivers is subcontracted by the Ministry of Environment to the Institute of Hydrometeorology. According to the 1998 State of the Environment report, 80 per cent of the surface water would meet the European Union's first-quality category for surface waters, but the report also indicates that the monitoring stations have been deliberately located in places far from pollution sources. In fact, monitoring of surface water quality has dramatically decreased since 1990. Most of the initial 150 stations no longer function because they do not have sufficient staff, sampling and analysis equipment, or cars. Currently, two series of results are transmitted to the Ministry of Environment per year. The quality of each of the 13 most important rivers is described from one instantaneous grab sample taken at one precise sampling location through the measurement of global parameters (such as temperature, pH, O_2, COD, BOD, reduced and oxidized nitrogen, P and alkalinity) and sometimes bacteriological determination. This methodology cannot give a reliable picture of the situation. This problem was already pointed out in the 1997 draft national water strategy.

Drinking water: Drinking water and coastal water are monitored by the Ministry of Health (the Institute of Public Health and the Directorates for Primary Health Service in districts), subcontracted by the Ministry of Environment. About 15 parameters are monitored, including the standard global physico-chemical parameters and bacterial counts. Pesticides are sporadically monitored; hydrocarbons not at all. Here again, the frequency and representative nature of the sampling are insufficient. In particular, the local laboratories of the Institute of Public Health cannot carry out the monitoring satisfactorily; for instance, the monitoring of the bathing zones on the coast during the high tourist season is done only sporadically, if at all (see Chapter 12).

Standards

Albania has no water quality standards for its water resources, be they surface waters, groundwaters or coastal waters and regardless of their use. There are no water emission standards either. Only drinking water standards have existed since 1997; they are similar to the WHO standards. The new Law on Environmental Protection calls for standards to be consistent with EC Directives, objectives of the national environmental state policy and best available techniques.

Economic instruments

Charges for water abstraction and discharges: According to the 1996 Law on Water Resources, the Council of Ministers was to define the charges payable for the use of water. The fees and payments for using water were to be collected by the water authorities: the National Water Council at national level and the basin agencies at local level. While the different categories of users and of permits have been defined (Decision No. 63/2001 of NWC), no charge levels have been set, so no charges are levied. Because of this lack of revenue, it has not been possible to set up the water-basin structures that are required for proper and efficient water resource management.

Neither law mentions *pollution charges*, although the 1996 Law on Water Resources provides for the collection of charges on discharged waters by the water authorities (National Water Council and basin agencies). In addition, the 2002 Law on Environmental Protection does call for environmental taxes to be imposed on physical and legal persons who discharge into the water. The details of the amount of taxes and the rules of tax collection are to be regulated by a special law.

The 1996 Law on Water Resources also provides for financial incentives such as loans and tax exemptions to those wanting to reduce their use of water or their waste-water discharges. None of these instruments has been created, however.

Violations are defined in the Law on Water Resources. The fines can reach a maximum of 2 million leks (about US$ 14,000 in 2001), depending of the kind of violation.

Water pricing: The price of water managed by public supply enterprises (so-called water enterprises) is set by the Water Supply and

Sanitation Regulatory Commission of the Ministry of Territorial Adjustment and Tourism on proposals from the water enterprises and the municipalities. The cost of drinking water depends on the location, the treatment and the distribution network. It also depends on the client. The scale has recently been simplified from six (including hospitals, schools, private companies, etc.) to three tariff categories (households, industry and institutions). Drinking water is still partly subsidized. The Regulatory Commission adjusts the final price, taking into account social and regional considerations (see Table 2.3 in Chapter 2). Institutions and industry pay more to compensate for the lower price that households pay. In addition, in six cities, including Tirana, the price also incorporates sewage management (see Table 2.4 in Chapter 2). Some of the income of the water enterprises goes to the municipalities for maintaining the pipe network, and 0.5 per cent to the Regulatory Commission.

Currently only 14 of the 52 water enterprises, most of them partly or fully private, are under the control of the Water Supply and Sanitation Regulatory Commission. The other 38 are still State enterprises under the direct authority of the Ministry of Territorial Adjustment and Tourism; there is no obligation for them to join the Regulatory Commission. For water enterprises working with the Water Supply and Sanitation Regulatory Commission, water prices can be adjusted every year, and are based on the balance sheet of the water enterprises. In general, the price of water should cover operating and maintenance costs, not investments. However, even to cover only operation and maintenance, subsidies from the general budget are necessary. In principle investments are financed by the State budget, a burden difficult to assume at present. The State encourages the privatization of waterworks. In Elbasan, a German private company, the Berliner Wasser Co., has a 30-year concession to manage the water enterprise. It plans to invest DM 42 million and proposes to cover the full cost of operation, maintenance and investments. Water prices will rise to 40 leks/m^3 for households, 120 for institutions and 140 for industry, with more regular increases planned. Some 5000 families will not be able to afford these prices and will be subsidized by the municipality.

Expenditures and projects

From 1996 to 1999, expenditure on the water supply and sewerage remained stable. A big increase was expected in 2000, largely reflecting higher external financing of investments (Table 6.5). Expenditure on water infrastructures has long represented more than half overall public works expenditure. Nevertheless, funding for the operation and maintenance of water works is insufficient.

Water infrastructures are investment-intensive and are a real problem for countries facing a long economic crisis. This is the case in Albania. But, in spite of a shaky political decade, Albania has often received financing from abroad. The World Bank has conducted two projects for the rehabilitation of the irrigation system. The water supply infrastructure is currently benefiting from a number of projects financed by bilateral donors and international organizations. Recently, the European Union through PHARE has concentrated its efforts on sanitation projects, as these were attracting less interest from the international community. The main donors are the European Union (€ 40 million), the EU member States (Austria € 4 million, Germany € 84 million, Italy € 49 million and Norway 30 million kroner per year), the World Bank (€ 26 million) and Japan's International Cooperation Agency (€ 1.6 million). Foreign contributions to Albania's water supply and sanitation projects total some € 205 million.

However, donors find it difficult to identify the most useful projects for Albania. Until recently, information on its actual needs was not readily available. As a first attempt to improve the situation, a "water group" has been set up, on the initiative of the World Bank, to advise donors. The water group holds regular meetings with donor countries. In addition, in May 2001, the Ministry of Territorial Adjustment and Tourism issued its Strategic Framework for the Water Supply and Sanitation Sector in preparation for the national strategy that will be issued in 2002. The strategy will identify the country's infrastructure priorities, as well as set standards for the design and construction of facilities. The European Union has used the Ministry of Territorial Adjustment and Tourism's Strategic Framework to develop its own PHARE/Strategic Approach to the Development of the Water Sector (September 2001).

Table 6.5: Investments and expenditures in the water sector, 1992-2001

	1996	1997	1998	1999	planned 2000	2001
Overall public works expenditures (million euro)	33.9	28.1	30.8	32.7	51.5	..
% of water infrastructure expenditures	52.0	52.4	59.5	50.6	68.7	..
Water supply and sewerage expenditures (million euro)	17.7	14.7	18.4	16.5	35.4	..
Investments by the Albanian Government (million euro)	11.1	2.4	6.0	7.3	5.3	5.8

Source : Strategic Framework for water supply and waste-water sanitation, Ministry of Public Works and Transport, 2001.

6.4 Conclusions and recommendations

Albania is endowed with sufficient surface water and groundwater resources for its various needs, which is a real asset for a Mediterranean country with a dry climate. Moreover, the aquifers as well as the surface hydrographic network, including the artificial reservoirs, are evenly distributed throughout the country. Another advantage is that the groundwater is in most cases still of a good drinkable quality. It is still mostly used only for human consumption. It is vital to manage these resources in a sustainable way for future generations, a task that Albania is completely underestimating at present.

Water is a key resource for most economic and social activities. In Albania, surface waters are traditionally used for both non-consumption (as hydroelectricity, tourism) and consumption (irrigation, industry) and receive all the pollution generated and discharged by anthropogenic activities. The threat from industrial pollution has eased since the early 1990s, except in a few hotspots. Nowadays most of the pressure comes from domestic pollution in urban areas that are developing at full speed totally uncontrolled by any urban planning. Ultimately, the polluted rivers contaminate the coastal areas, which have lost their appeal and are no longer suitable for recreation and fishing. If this situation continues, the further development of economic activities and human welfare could be badly affected in the long run.

Therefore, in managing its water resources, the challenge for Albania is twofold:

- Keep the groundwater resources suitable for drinking, protect them from any contamination from the surface and further ensure their sustainable management for future generations;
- Improve the management of effluents in order to better protect surface waters and the seashore, so that fishing, agriculture and tourism can continue there in the long run.

Related short-term actions should be strategically targeted and implemented without delay. Longer-term developments should be in line with the policies of the European Union.

Short-term objectives

Albania should properly manage its precious water resources starting with the aquifers that show signs of contamination (below Tirana and its suburbs) or of salinization (along the seashores). The current situation is due to uncontrolled management: neither the quantities withdrawn, nor the location and methods of withdrawal are known or controlled. The 1996 Law on Water Resources was a first attempt to introduce sound and long-term management, and integrates the main principles of the EU Water Directive. The Law contains excellent provisions but has never been implemented. It should be enforced urgently and its provisions put into practice.

Recommendation 6.1:

(a) The Government of Albania, through the National Water Council and with the support of all its members, should urgently enforce the 1996 Law on Water Resources and the related regulations. The Technical Secretariat of the National Water Council should set in motion the following expeditiously:

- *Management by river basin should be put into practice as provided by the Law; river basin authorities should be set up and should manage their water resources;*
- *Water abstraction permits for groundwater and surface water should be properly*

registered; this should apply to all entities defined by the Law, i.e. hydropower plants, irrigation enterprises and drinking-water enterprises (be they private or State-owned);

- *Proper implementation of sanitary protection perimeters is required around the water uptakes intended for drinking water;*
- *Enforcement of the water abstraction charges; the enterprises abstracting water should report on the quantity they abstract; the related data should be registered, compiled and used as a management tool, in particular at the basin level;*
- *The money collected from the water abstraction charges should help pay for the functioning of the river basin authorities and their projects.*

(b) The coordination role of Technical Secretariat of National Water Council should be strengthened and it should implement its tasks and obligations deriving from the 1996 Law on Water Resources.

The intense extraction of gravel from riverbeds is endangering agricultural land as well as urban areas. According to the 1996 Law on Water Resources, gravel and sand are in State ownership (art. 3) and their extraction from rivers is subject to a permit from the National Water Council (art. 20), an obligation never enforced. Measures should be taken to stop this practice and propose alternative building materials.

Recommendation 6.2:
The National Water Council, with the help of its river basin agencies, of the regional environmental agencies and of the construction police and State police, as appropriate, should combat the illegal uptaking of gravel and sand. Places where this practice can take place under control without endangering the environment should be defined under EIA procedures.

Improving the drinking-water supply in order to protect the population from diseases is high on the Albanian agenda. This is illustrated by the high number of ongoing projects for water supply and water treatment and the associated high investments. The Government is also pursuing an active policy to introduce market instruments into water management (concessions, semi-private companies, municipal companies, etc.) and transfer their ownership to local governments in order to ensure their efficient operation and maintenance. The Strategic Framework for the Development and Management of the Water Supply and Sanitation Sector in Albania is a useful attempt by the Ministry of Territorial Adjustment and Tourism to indicate priorities and guide donor countries.

The discharge of untreated water in rivers and coastal zones is also increasingly threatening human health and limiting numerous human activities. Treating these waters is another immense and costly task, too costly given the country's current economic potential. In the long run, all towns and villages with more than 2000 inhabitants (see European Union regulations) should be equipped with public sewerage and treatment facilities. But, in the short term, a targeted approach is to be followed: hotspots should be identified, prioritized and eliminated in the most cost-effective way. There are two kinds of hotspots: (i) discharges of domestic waste water in rapidly developing urban areas and in coastal zones; and (ii) discharges of polluted water from industrial sites.

Waste-water discharges from urban areas typically have a high concentration of organic matter and faecal bacteria, although their toxicity is low. The impact is especially detrimental in coastal zones, where there is tourism and fishing. The European Union, under PHARE, is paying particular attention to waste-water treatment in the coastal cities in southern Albania and intends to finance projects for extensive waste-water lagooning (oxidation lagoons). This unsophisticated technology is well adapted to the Mediterranean climate; it requires minimum maintenance and little energy for its operation. However, the main challenge will be to collect all discharges into one sewerage network connected to the facility, a task that is today impossible as urban planning is inexistent and buildings mushroom haphazardly outside urban zones. Organized urban planning in cities and land-use planning in the countryside have a strong impact on the development of all infrastructures and reduce their costs. If Albania wants to solve the problem, it has to take immediate steps, as the uncontrolled development of buildings will make their connections to water supply, waste-water, electricity, telecom utilities and roads very costly for society as a whole.

Recommendation 6.3:

The Ministry of Local Government and Decentralization should encourage all relevant administrative authorities, and chiefly the municipal authorities of the biggest cities, to develop urban plans and especially master plans for water supply and sewerage networks. Municipalities should strengthen their competences regarding water infrastructure planning and management, taking advantage of the numerous possibilities for assistance offered by the international community.

A similar targeted approach is necessary for industrial hotspots. Facilities that release significant amounts of toxicity should be identified and mapped. Particular attention should be paid to the medium-size but highly polluting industries, such as the leather industry, slaughterhouses, the dairy and food-processing industry and industrial animal-breeding installations. At present, the oil industry is a major concern. Its waste-water discharges pollute groundwater, rivers, reservoirs and the sea. For such big polluters, whether private or State-owned, an environmental permit should be compulsory.

At present, no real environmental operating permit exists in Albania. The so-called "environmental licence" does not regulate day-to-day pollution, although it does ensure that, at its nominal production capacity, an industry respects the water quality objective of the receiving water body. Due to their importance, environmental permits in the worst industrial hotspots should be issued at ministerial level, while all other less important permits should be the responsibility of the regional environment agencies. Moreover, incentives should be developed to encourage industry to improve its environmental performance. For instance, emissions charges or tax exemptions should be introduced and their amount re-invested for improving industry's environmental performance. To negotiate these permits, there should be a few well-trained and experienced inspectors at the Ministry, capable of working out measures with the enterprises and pressing them to comply within a defined but realistic timeframe. In extreme cases, production sites should be closed down.

Recommendation 6.4:
The Ministry of Environment should identify and draw up a list of industrial hotspots that have a significant adverse impact on the environment, and rank them. Environmental objectives, and in particular water emissions objectives, for these plants or for particular industrial sectors (firstly the oil industry, private and State-owned), should be set or negotiated and introduced into the environmental permits. Environmental permits for these facilities should be compulsory and handled at the Ministry, and environmental, economic and other incentives worked out in parallel. (see also recommendations 2.1, 7.3(b), and 9.1)

Long-term policy objectives

Joining the European Union is Albania's ultimate objective. Therefore, the long-term objective in water management is approximation to the EU Water Directive 2000/60/EC that establishes a framework for Community action in the field of water policy. Already Albania is moving in the right direction with the upcoming introduction of river basin district management. However, protecting the water itself is not enough. An integrated approach will have to be envisaged in the future. First, the ecosystems surrounding the water need to be protected as well as the water itself. And second, further integration of water protection and sustainable water management into other policy areas such as agriculture, urban development, transport, tourism, fisheries and regional development is necessary. Albania will have to decide for which activities or uses the different water bodies will be responsible and will have to shape their protection and management rules and standards accordingly. This should be reflected in a national water strategy and a national water resources plan, encompassing the management and the protection of water resources (both requested under article 6 item 3 of the Law on Water Resources), and further refined at the river basin level (river basin management plans).

Recommendation 6.5:
The Ministry of Environment, in cooperation with the National Water Council and other entities (ministries and institutions) involved in water management, should draw up water quality standards and set water emission limits, taking as reference the corresponding standards of the European Union.

Recommendation 6.6:
Under the joint auspices of the National Water Council, the Ministry of Environment and the Ministry of Territory Adjustment and Tourism, should revise, adopt and implement the draft national water strategy of 1997 without further delay. It should define a clear policy towards a sustainable use, management and protection of Albania's water bodies. The strategy's revision should involve all the ministries that are members

of the National Water Council and institutes that carry out water management tasks. (see also recommendation 1.1)

Albania cannot afford comprehensive water monitoring at present. However, data requirements on water resources, their quantity and quality, as well as the impact of discharges, should be selected and prioritized according to national strategic goals (that should be defined in the water strategy). Under the leadership of the Ministry of Environment and of the National Water Council, all the institutions involved in water monitoring should work to establish a cost-effective and demand-driven water monitoring system to provide the necessary information for effective decision-making in water resource management and protection. Recommendation 4.1 in Chapter 4 calls for the creation of a separate institutional unit for environmental monitoring. Water monitoring should increasingly follow the EU Water Directive (2000/60/EC) and in particular its annex V.

The poor supply of drinking water, which is sporadic and of mediocre quality, does not encourage people to respect their water resources and use them in a sustainable way. In parallel with the investments that aim at improving the distribution and quality of water, campaigns should be launched to raise public awareness. (see recommendation 4.4)