

**Regional Forum:**

**Regulatory Systems and Networking of Water Utilities  
and Regulatory Bodies**

**CASE STUDIES**

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**South Australia  
Bulgaria  
Chile  
England and Wales  
Germany  
Indonesia  
Italy  
Poland  
South Africa  
USA (New Jersey)**



## Australia Case Study – Key Points

Australia has a population of 19 million people in eight states, with 80% of them living in urban communities. It is one of the driest countries on earth, about one third of its land area being desert, and it has the highest per capita water storage in the world.

**The management of scarce water resources is a major concern and increasing demands and growing awareness of environmental problems led to a major policy reappraisal in 1995.** This resulted in a set of measures, contained in the National Competition Policy, designed to achieve more efficient and sustainable water use.

**The measures included guidelines on institutional reform; the costing and pricing of water services to reflect their economic value;** water resource management; and conservation measures. They also covered aspects such as research and public education.

The responsibility for managing water services rests with each state and they have each developed their own approaches and institutional arrangements. This paper concentrates on the regulation framework in South Australia.

**South Australia has set up a corporatized government enterprise, South Australia Water Corporation (SA Water), to own and manage all the water and sanitation services.** SA Water has outsourced some of the services to the private sector, notably the provision of water and wastewater services to the City of Adelaide, which are carried out by United Water on a 15-year contract.

**South Australia has no independent economic regulatory body for water.** The state government directly controls the tariff setting process. The decision is taken at cabinet level on the basis of a submission by SA Water. **Despite the national guidelines, political considerations, as well as commercial ones, influence tariff determinations.**

Since there are no other service providers the absence of comparative competition makes commercial judgements on pricing harder to take. SA Water negotiates flat fees with United Water, which provides them with some market opportunity to improve productivity in the services. **Although they can take grievances to an Ombudsman, consumers must rely largely on the politicians to look after their interests.**

Environmental and water quality regulation is based mainly on self monitoring, carried out by SA Water for the responsible agencies. There are concerns that this process is not sufficiently rigorous in practice.

**Background**

Australia has a large landmass and a relatively small but growing population approaching 19 million people. There are eight states and territories which, within the national legislative framework, take responsibility for the government of their own communities. The country is highly urbanized with over 80% of the population living in the major cities. It is a wealthy country with a GDP per head of US\$20,050.

Australia is environmentally diverse and is one of the driest countries on earth, about one third of its land area is desert. Population development has tended to follow the availability of water resources. Water is a major concern being a scarce resource for which there is a continually rising demand. Issues of water conservation and source protection have consequently become a focus of attention in recent years.

This situation has been exacerbated in the past by a lack of clear definition of the roles and responsibilities of a number of the agencies involved in the industry and by inefficient service delivery. Environmental controls and regulation tended to be ineffective and water utilities, which are largely in public ownership, received significant subsidies and failed to recover their costs equably or adequately, which led to a false impression of the value of water as a resource. During the last decade extensive water reforms have begun to address these issues.

The water systems in Australia are state government owned and operated and the regulatory bodies are a division of the same state governments. The provision of water and wastewater services is managed on a state and territory basis. Organizational structures vary but the waste and sanitation services are generally managed in multi-functional units. In some areas electricity is included within the same utility. Although the management arrangements differ from state to state, there is some consistency in the regulatory regimes, and to demonstrate this, the regulation framework in South Australia will be examined in more detail.

**Water and Sanitation Sector**

The number of utilities involved in the supply of water for residential and industrial purposes is large. There are about 384 utilities operating throughout Australia. Of that number only two are private sector utilities, the remainder are either state or local government bodies and a small proportion are corporatized. The metropolitan utilities supply the largest proportion of the population. In New South Wales there are 124 urban utilities and 4 metropolitan utilities. The two largest, Sydney Water Corporation and Hunter Water Corporation, supply 3.9 million people. Of the local government utilities, 80% supply populations greater than 20,000, 50% supply to populations of less than 5,000 and 15% supply to populations of less than 1,000.

Service coverage in Australia is very high. In the urban areas water and wastewater services are effectively universal. Water resource management and the availability of supplies is a critical issue for the industry. In much of inland Australia groundwater is the only practical water source. In the Perth region groundwater constitutes about two-thirds of total water use. Australia has the highest per capita water storage of all countries in the world. The bulk of this is concentrated in a few very large reservoirs. The 10 largest reservoirs hold about 50% of national capacity.

In response to the pressing need to address the water resource and service management problems in the water and wastewater sectors a national strategic framework for water reform was agreed by the Council of Australian Governments in February 1994. This created a structured program of measures designed to achieve more efficient and sustainable water use which was formalized in the National Competition Policy (NCP) in 1995. State and territory governments have the prime responsibility for water resource management and for the implementation of the reforms. The Federal Government provides leadership and facilitates their implementation.

The reforms, to be implemented over the period to 2001, include measures in relation to water pricing, water entitlements and trading, environmental safeguards, institutional reform, public consultation, and education and research. In addition, state governments adopted the principle of competitive neutrality for their business enterprises. This was designed to ensure that government enterprises do not enjoy a competitive advantage on account of their ownership. These reforms have led to greater opportunities for private sector participation in the industry.

The following measures are of particular relevance to the economic regulation of the industry:

- Adoption of pricing regimes based on the principles of consumption-based pricing, full cost recovery, and the progressive removal of cross subsidies not consistent with efficient and effective service. Where cross subsidies continue they should be made transparent.
- Where water services are provided at less than full cost, this should be transparent and the supplier should be compensated as a community service obligation.
- Charging arrangements for urban water services should include a connection component, plus a usage charge where this is cost-effective.
- Adoption of national asset valuation methods and cost-recovery definitions.
- Future capital investment proposals can only proceed if demonstrated to be both economically viable and ecologically sustainable.
- Funds must be set aside for future asset refurbishment and upgrading of government - supplied water infrastructure.
- State governments should implement systems of water allocations or entitlements backed by separation of water property rights from land title. They should include allocations for the environment as a legitimate user of water.
- In relation to trading in water allocations or entitlements, water should be used to maximize its contribution to national income and welfare, within the social, physical, and ecological constraints of catchments.
- States should develop administrative arrangements and decision-making processes to ensure an integrated approach to natural resource management.
- Adoption of an integrated catchment management approach to water resource management including arrangements to consult with the representatives of local government and the wider community.
- To ensure that, as far as possible, the roles of water resource management, standard setting and regulatory enforcement, and service provision are institutionally separate.
- The efficiency of water service provision should be measured and monitored at the national level to ensure that service providers achieve international best practice.
- Service delivery organizations, particularly in metropolitan areas, should have a commercial focus. Whether this is best achieved by contracting out, corporatized entities, or privatized bodies, is for each jurisdiction to determine in the light of its own circumstances.
- The agreement also contained provisions relating to public education and consultation, water and related research, and considerations of a range of water related taxation issues.
- Support for the development of the National Water Quality Management Strategy, through adoption of a package of market-based regulatory measures, including the establishment of appropriate water quality monitoring and catchment management policies and community consultation and awareness.

The National Competition Council (NCC) recently assessed progress on the implementation of the water reforms and its report identified a number of achievements:

- (i) Most jurisdictions have successfully separated utility service provision from regulatory functions and introduced a commercial focus for their utilities. Water corporations have begun returning significant dividends to government owners.

The Water Authority of Western Australia became the Water Corporation on 1 January 1996 and a Waters and Rivers Commission was established simultaneously to provide management and protective regulatory functions. At the same time an Office of Water Regulation was established to administer a licensing scheme involving a set of service quality standards for both the Water Corporation and other water service providers. In New South Wales (NSW) and the Australian Capital Territory (ACT), regulatory bodies ensure that there is independent determination of pricing for water and sewerage services for metropolitan users and rural bulk water. The determinations are made on the basis of extensive community consultation and transparent processes.

- (ii) All jurisdictions have made progress on the pricing commitments. As a consequence consumers' water and sewerage bills have generally fallen.

Metropolitan water industry experience shows that these bills reduced more than 16% from 1992-1998, made possible by a decline in operating costs of over 18%. In Victoria, small business water bills have reduced two-thirds with the replacement of the previous property value-based pricing by consumption-based pricing. Consumers are generally using less water. In Brisbane there was a 20% reduction in water use from 1995-1998 attributable to the adoption of metering and consumption-based pricing.

Progress has also been made towards the objective of achieving full cost recovery but there is still some way to go. Cross subsidies from urban to rural areas and from commercial to domestic consumers are proving difficult to eliminate. They are, however, more transparent.

- (iii) Water rights are being separated from land rights with a consequential increase in the tradability of those rights. The trade of allocations assists sustainable resource use by ensuring that the resource goes to the highest economic value use.
- (iv) The problems associated with stressed rivers and associated environmental priorities are being dealt with by establishing environmental flow requirements, strategies for reducing withdrawals from over-allocated systems, support for integrated catchment management approaches, and implementation of the National Water Quality Strategy. In all jurisdictions, particularly in NSW and Victoria, community groups are involved in the management of water resources.

The use of economic incentives has reduced domestic water use and has begun to change the culture of water consumers. To be successful in managing water resources on a sustainable basis it will be necessary to change the way in which domestic water consumers behave, for example, one third of domestic water consumption is used for gardening. Domestic use is the largest urban water use, about 80% of all water used. At the same time, attitudes to the use of recycled water for all purposes needs to change significantly.

Encouraged by the overall progress, the NCC is now considering whether the creation of a competitive or market equivalent for water can drive further efficiency. As part of the reforms the State and Commonwealth Governments adopted the principles of competitive neutrality for their business enterprises. This created a level playing field to ensure that government enterprises did not enjoy a competitive advantage due to their ownership. These reforms have led to greater opportunities for private sector participation in the industry.

Twelve major water and sewerage undertakings are currently under consideration for private sector management, although there are significantly different attitudes towards this from state to state. Victoria, which is seen as the leader in market development terms, is to

privatize the retail side of its water services by 2001. Canberra is also expected to privatize its water provision services in the medium term. Western Australia is developing a partnership basis. The State of Queensland has restricted privatization to one contract (Noosa) to date. In New South Wales, Sydney Water has been corporatized and bulk water provision is carried out by the private sector.

#### *South Australia*

The provision of water and wastewater services throughout the state of South Australia is managed by the South Australia Water Corporation (SA Water). SA Water is a corporatized entity operating as a business enterprise wholly owned by the state government. It is managed by a board of directors, which reports to the Minister for Government Enterprises. The corporation supplies a population approaching 1.5 million. Its networks serve some 442,000 urban properties and 168,000 rural ones.

In 1996, SA Water outsourced the management of the provision of water and sewerage services for the City of Adelaide to a private company, United Water, for a period of 15 years. The objectives of the contract are to achieve significant improvements in efficiency and service. SA Water also constructed some smaller treatment plants in the country areas under a BOOT contract to another private operator, Riverland Water. SA Water retains ownership of the service infrastructure and manages all other activities, including billing and collection and service provision in rural areas, with its own resources.

#### **Regulation Framework**

Within the guiding principles outlined above, including the provision of competitive services and a long-term reduction in prices, each Australian state and territory jurisdiction adopts its own approach to the regulation of water and sanitation services. SA Water is regulated in respect of pricing, discharges to the environment, public health, and abstraction.

#### *Economic Regulation*

The State Minister for Government Enterprises is responsible for SA Water; however, he does not set specific performance targets. The tariff setting process requires the board of SA Water to recommend to the minister proposed tariff increases and to provide the necessary justification for them. The minister may take advice from the Competition Commissioner; he then advises the State Cabinet who makes the final decision.

In the state of New South Wales an independent regulator, the Independent Pricing and Regulatory Tribunal (IPART), has the power to set prices for urban customers. IPART recently rejected a price increase for Sydney Water on the grounds of ineffective use of its capital funds and this led to a debate about the rate of return that is appropriate for investment of this nature. South Australia has established independent regulators to take such decisions in the electricity and gas sectors, but this approach has not been extended to include the water services.

SA Water's tariff calculation must take into account the costs of meeting its service commitments on a commercial basis; this includes the requirement to maintain an increasing dividend return to the State Government itself. Since the dividend from SA Water is a significant contributor to the state budget, it is in the financial interests of the government to approve higher tariff increases. On the other hand, the SA State Government has a responsibility to ensure that SA Water's investment decisions do not result in unreasonable burdens on consumers, and it has made commitments that the cost of services will not increase above inflation levels. In making its determination the state is also under pressure from the Commonwealth Government to maintain a competitive environment and to include productivity gains in the price of its basic services. One of the main reasons for outsourcing

Adelaide's water was the need to reduce operating costs in order to satisfy the national requirements of the competition policy.

The tariff setting process is effectively decided on the basis of what is politically acceptable. The concessionaire, United Water, is not involved in this process. Their contract is for the provision of services for a fixed and variable fee. This fee is adjusted every five years to recognize any productivity gains that have been made during that period. Charges to consumers are based on metered supplies and the tariff structure is a fixed and variable tariff, which increases on volumes consumed above a 'cheap block' of 125,000 liters per year.

Consumers do not have any direct input into the regulatory system and they cannot appeal against price increases, although they can complain to the Ombudsman who looks into issues across the whole range of government services. Customers can also approach SA Water if they are unhappy with the service provided by United Water and major consumers may be able to negotiate improved tariff arrangements. There are no specific safeguards for the poorer members of the community although, in the event of non-payment, there is a protracted process that ensures that water supply is not withdrawn unilaterally. If the bills are not paid over a long period the usual recourse is to reduce the flow to allow for basic requirements only.

The economic regulation of SA Water is thus enforced directly by the State Government, which does so by balancing a range of commercial and political considerations, including the guidance provided by the NCP. There is little opportunity to benefit from comparative performance assessments and the process is effectively a political judgement. The end results may meet the state's political agenda and also be acceptable to SA Water and the utility company, but it is less clear that they will maximize benefits for water users. Without independent scrutiny, it is unlikely that the type of public debate that is currently taking place in Sydney, on acceptable commercial rates of return for capital investment in the water sector, will arise in South Australia.

#### *Environmental Regulation*

SA Water holds a license to discharge to the environment and the Environmental Protection Authority (EPA) administers this. EPAs were established in each state in the 1970s when it was recognized there was a need to separate the roles of regulation and operation in respect to discharge to the environment. The EPA is a corporatized identity with a board that operates independently of the state government, although, the minister has the final say as to whether prosecutions proceed. The EPA is responsible for all discharges to the environment including water, air, and land throughout the state of South Australia.

The EPA sets discharge limits for the wastewater treatment plants and it also monitors other discharges to land and the air including noise and odor. SA Water is required to enter into a license agreement with the EPA who can apply penalties if license conditions are breached. The EPA has its own analysis department but it relies in the main on the testing procedures of SA Water to monitor the discharges from the wastewater treatment plants.

The EPA's main success has been in identifying irregular discharges to the environment and prosecuting the offenders. It has been less successful in reducing the background level of environmental pollution and ensuring that industrial, municipal, and commercial enterprises improve their long-term practices. Although the EPA has powers to apply penalties to SA Water it seems to be unwilling to apply them in practice. For example, SA Water entered into an agreement with the EPA to upgrade its wastewater treatment plants to meet limits for nitrogen and phosphorous discharge. The upgrades were to be completed by 2001 but SA Water has successfully negotiated to extend this date.

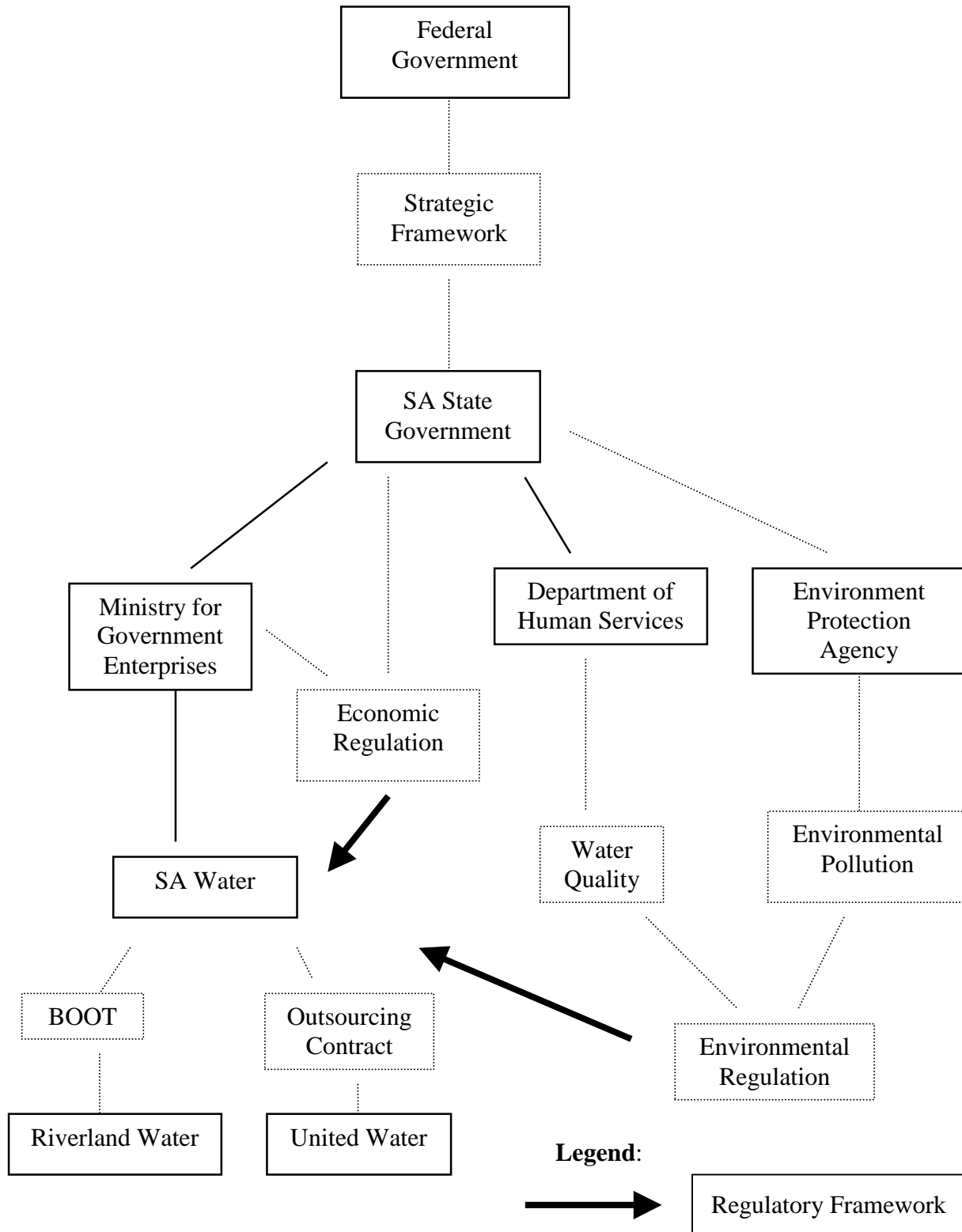
SA Water is a self-regulating body in respect of water quality, and it manages its own sampling program to ensure that the minimum requirements for drinking water compliance

are met. The Department of Human Services is responsible for public health issues. It would be the responsible authority in a case where demonstrable failure by SA Water allowed water which was not fit for human consumption to enter into the supply system. The Department of Human Services does not undertake routine analysis of the water supply.

In respect of abstraction, SA Water relies on its own reservoirs located east of the city and a pump supply from the Murray River. The Murray Darling Authority is responsible for the flow and quality of the water in the Murray River and SA Water has an allocation that it may choose in any one year to withdraw; there is no charge for the water provided. SA Water is exposed to the risk that there will be long-term degradation in the quality of the Murray River water and yet it has no responsibility for the river basin management required to arrest this degradation.

The responsibility for land use in the local catchment rests with the local catchment management boards, which report to Minister for Local Government. The quality of water discharged into the reservoirs is in theory the responsibility of the EPA. However, it undertakes only minimal analysis and there is no clarity in the final responsibility for quality of water discharged into SA Water's reservoirs. It is not clear, for example, where final responsibility would lie in the event of a parasite outbreak such as cryptosporidium in the drinking water system. .

### South Australian Regulation Framework for Water & Sanitation Services - Year 2001



## Bulgaria Case Study – Key Points

Bulgaria has a population of eight million people of whom 68% live in the towns. Sofia is the commercial and political center.

A former socialist republic with a legacy of run down public service infrastructure and serious pollution problems, economic progress is now being made. **Since 1997 fundamental structural reforms have been implemented, including market liberalization and private sector management.**

The water supply network covers 89% of the population. **Losses from the water system are estimated to be around 60%**, largely from aged asbestos cement pipes. Only 30% of towns have sewage treatment plants and the sewerage network requires extensive renovation and extension.

**Until 1998 services were provided by state owned companies. Since then municipalities have been encouraged to take a share in their management and 35 water companies are now co-owned, or owned directly by the municipalities.** Although financially independent, they are constrained by regulations, lack management autonomy, and cannot cover investment costs in their tariffs.

**Since October 2000 the Government has launched a privatization strategy.** Concessions are the preferred option in the water sector. An agreement has already been finalized for the capital city, Sofia, and others are in progress.

**New concession companies will be regulated through their contractual agreements.** The State is involved in preparing and approving them but **the municipalities will manage the contracts, issues of countrywide consistency, and independence from local politics will arise.** The state-owned and co-owned companies will continue to be managed and regulated by the State.

**The regulation framework is in a state of transition.** A Control Body is being set up to regulate water prices and control service quality in the interests of consumers. **The remit of this body is not yet clear, but its composition and effectiveness will be of considerable importance for the future economic regulation framework.**

**The serious pollution problems in the country have also seen a new emphasis on environmental regulation.** Four new basin departments will monitor and enforce water quality and environmental regulations.

**Background**

Bulgaria is located in Southeast Europe on the Western bank of the Black Sea. It has a population of around eight million people of which 68% live in the towns. The country is divided into 28 regions and 262 municipalities. The capital city of the country is Sofia, the commercial and political center, with a population of 1.4 million inhabitants; there are eight other towns with over 100,000 population.

The country suffered from high levels of inflation in the mid-1990s but since 1998 this has been stabilized and economic growth is forecast. In 1999 the GDP per capita was US\$1,380.

Bulgaria suffers from many of the problems of the former socialist republics of Eastern Europe including an inadequate and run down public service infrastructure. The country also suffers from major pollution problems from outdated power stations, petrochemical plants; steel, cement, industrial waste discharges; mining; and inadequate sewage treatment facilities. The quality of surface waters is poor with lead and arsenic problems affecting some drinking water supplies. Groundwater is universally contaminated with nitrates.

Following years of delays, Bulgaria is currently in the process of implementing fundamental structural reforms. A previously irresolute transition process left Bulgaria economically behind other countries in Central and Eastern Europe. Bulgaria launched privatization in 1991 with a privatization law being passed in April 1992. Privatization proceeded fitfully with changing government regulations, bureaucracy, lack of transparency, and insider dealing impeding progress.

Since 1997 the government has accelerated the privatization process and has liberalized previously controlled prices. Important steps have also been taken in banking sector reform, agricultural liberalization, energy pricing, property rights, and legal reforms required to improve the prospects for sustainable economic growth. Bulgaria was invited to start European Union accession talks in December 1999.

Approximately 50% of previously state-owned assets have been privatized although the role of insiders in the privatization process has led to corporate governance problems. However, considerable progress has recently been made in many areas including the liberalization of markets and trade, the privatization of small and medium sized enterprises and the restructuring of the financial sector.

**Water and Sanitation Services Sector**

Bulgaria water resources are relatively limited. Total water consumption amounts to nearly 12 billion cubic meters per year and water utilization is about 120 liters/person/day. There is a tendency towards a reduction in this figure because of the increase in the price of water and the improved accuracy of measurement. Potable water supplies account for 8%, irrigation 34%, industry 25%, and the electricity-generating sector up to 33%.

The country has a well-developed public water supply. More than 45,000 settlements have access to the public water supply, which is 90% of all settlements in Bulgaria. The water supply system comprises 67,000 kilometers of water pipeline, 10 dams mainly for water supply, 5,900 potable water tanks, 3,850 water supply pump stations, and 52 potable water treatment plants with an overall capacity of over 20 cubic meters per second. About 40% of Bulgaria's water supplies are provided by gravity and the rest through pumping stations. At present four water supply reservoir dams, seven drinking water treatment plants, 58 kilometers of pipework and other facilities are under construction.

A major problem for the Bulgarian distribution systems is water losses. Between 50% and 70% of drinking water is currently lost through leakage and new investment in this area is regarded as a major priority. The water system is suffering massive leaks from aged asbestos concrete water pipes. Almost 81% of Bulgaria's 67,000 kilometers of water pipes are outdated and during the last 20 years the efficiency of water usage has decreased from 85% to 49%. It

is estimated that US\$22 billion will be required for the replacement of all of these pipes. About half of the 3,600 kilometers of water pipes in Sofia need replacement now.

The total length of the constructed sewerage network is 7,718 km for the entire country with 322 thousand sewer connections. The number of settlements with sewerage systems is 277 of which 167 are towns. Seventy percent of towns are provided with a sewer network; the proportion in the rural areas is minimal. The condition of the network is poor; about 20% requires replacement for constructional reasons. In addition much of the network was constructed in the 1960s and can no longer provide for the increased volumes of wastewater, so a reconstruction program is needed.

Fifty-two urban wastewater treatment plants are currently operating in Bulgaria of which 13 are for mechanical treatment only and 39 have biological treatment included. They service 47 populated areas and 35% of the country's population. Only 30% of Bulgarian towns have sewage treatment plants. Many municipal wastewater treatment plants are incomplete owing to problems of funding and the government has identified this area as one of its main investment priorities.

#### *Ownership*

The ownership of water assets and lands in Bulgaria is vested in the public sector, both at state, and more recently, at municipal level. The State owns the rivers, reservoirs, dams, natural lakes, lagoons, and the underground waters. Municipal ownership includes the water systems and construction, systems and constructions for purification of sewage effluent, water supply and distribution systems for mineral water.

By a resolution of the Council of Ministers in 1998, there began a process of transfer of ownership from the entirely state water and sewage companies (ViKs) to the municipalities. The intention was to facilitate the privatization of the ViK sector in Bulgaria by making the municipalities more interested in improving the management of the companies. As a result a mixed state-municipal ownership appeared. However, in May 2000 the Government decided to stop the transformation of water companies into government-municipal partnerships. Experts believed that establishing partnerships between the government and the municipalities would create barriers to future privatization plans and adversely affect investors' intentions.

Currently, the Ministry of Regional Development and Public Works (MRDPW) and the respective municipalities co-own 16 water companies, in which the state holds 51% of the capital; 13 others remain entirely state-owned. Exclusively the municipalities own 19 companies, including the water and sanitation services of Sofia, which are under concession to a private company for a period of 25 years.

The companies with a state interest are entirely subordinate to the MRDPW through a process of representation at general meetings, ministry appointment of executive directors, and progress reporting. The municipal-owned companies are not subject to these measures but are still subject to methodical guidance from MRDPW which holds regular meetings with company managers for this purpose.

Within these constraints the water companies are financially independent and are responsible for water supply, its quality and efficiency, and for sewerage and sewage treatment. They determine their own methods of charging within the constraints of Ministerial Instructions and compliance with the provisions of the Law of Prices.

Despite this progress, regional water companies face problems, which include:

- Insufficient local accountability and a corporate environment not conducive to autonomous decision-making and commercialization.
- Low operating efficiency and cost recovery, evidenced by high water losses and tariffs for domestic water that cover only minimum operating costs and no investment.

- Adjustment-induced fiscal contraction has left companies with no access to long-term capital to finance urgent investments, upgrading, and rehabilitation.

#### *Privatization of the Water and Wastewater Sector*

In February 2000, a new Water Act was adopted in Bulgaria providing some harmonization with European standards. In October, the Government launched a new privatization strategy focused on the privatization of public services. A reduction of the state share in the companies is envisaged through the introduction of various ownership and management forms. These will include municipal cooperatives, joint ventures, and long-term concession arrangements. Furthermore, the strategy aims at introducing measures that will enhance the transparency of the privatization process.

The government is expected to shift the emphasis to tenders and auctions as opposed to negotiations with potential buyers and the practice of minimum bidding price could be eliminated. The cabinet will seek to promote the privatization of the water and sewage companies (ViKs) among others (Bulgarian Telecommunications Company, Bulgarian State Railroads, and the National Electricity Company) but there is a need to synchronize the legislation and establishing mechanisms for the different privatization procedures.

According to the privatization strategy guidelines, a portion of the regional water companies will be offered under a concession. The concession is regarded as the preferable form of privatization for the water sector, with the assets remaining in public ownership. The option to contract foreign water utility operators as managers with the provision to use the revenues and invest in the modernization of the existing infrastructure is also under consideration. The Minister of the Regional Development and Public Works, Evgeni Chachev, thinks that a combination of concessions and management contracts gives the best options for divestiture of the water sector in Bulgaria. According to him these methods give scope for a faster inflow of investments and technologies.

The Republic of Bulgaria has received a loan from the World Bank for funding the Water Companies Restructuring and Modernization Project. It intends to use these funds in part to pay for advisory services to develop and implement private sector participation (PSP) in the water sector in Bulgaria.

The process of introducing the private sector in the water supply and sewerage services is already taking place. A concession agreement between the water and sewage company of the Bulgarian capital city of Sofia and the UK-based International Water was finalized in the autumn of 2000. International Water holds a 75% stake and the Sofia water and sewage company will take a 25% share of a new company, called Sofiiska Voda, which is the holder of the 25-year concession. Sofiiska Voda intends to invest US\$65 million in the first 5 years, followed by US\$152 million in the next 15 years of the concession period. By the middle of 2001 the water utilities in the cities of Varna (on the Black Sea) and Shumen will also be concessioned, and another five privatization are planned to proceed during 2001.

MRDPW has prepared an ambitious middle term investment program till 2004 for the regional development of the country. A special place in the program is dedicated to the water supply and sewerage of all populated areas of Bulgaria. The necessary funds are expected to be provided by private business and the concessions in this sector as well as from the funds provided by the Government.

#### **Regulation Framework**

The laws, which govern regulation in the water and sanitation sector, are primarily derived from the Water Law, Ordinance 9, to which several amendments have been made during the last two years. Other changes are currently being discussed by Parliament. The goal is to synchronize these changes with the government concepts and policy for privatization of the

sector. Within this framework the regulatory arrangements are currently in a state of transition.

The Council of Ministers takes the strategic role. It has overall responsibility for water resources, approves the National Water Plan, and grants concessions for areas where several municipalities are involved, for example, 10 municipalities co-own the water supply system in Varna. The Council also defines the quantity of mineral waters used by public health centers and permits usage of water for defense and for national security, etc.

The approach to economic regulation that is emerging in Bulgaria places control with individual municipalities, or groups of them, within a framework of concession contracts. In its recent tender for a water concession to take on the water supply and wastewater services in Varna and Schumen, the Government listed the following goals for the project which are the aims of the development and implementation of private sector participation (PSP) in Bulgaria:

- (i). Increase the cost-efficiency of operations and development of the cities water sewage and waste water systems and introduction of current managerial and technical practices;
- (ii). Reduce contingent liabilities for the municipalities, by having the private sector contribute capital (if applicable) and share risks and incentives;
- (iii). Increase consumers satisfaction and willingness to pay through the provision of a higher quality, more responsive service; and
- (iv). Better delineate the role of the municipalities as regulator and representative of the customers' interests and separate the municipalities from the management of the restructured water companies and make tariff decisions more transparent by introducing an arms-length relationship between the regulator and management.

In order to achieve these goals, the municipalities intend to look at the possibilities of having either a management contract with an experienced operator or of bringing in an experienced strategic investor for each regional water company (RWC), to be selected by competitive tender among qualified firms, which would make an equity investment and assume management responsibility for the RWC under a specific legal and contractual form yet to be defined.

Article 193 of the Water Law states that the price of water supply, sewerage, and treatment services should cover the costs of construction, operation, maintenance, and reconstruction of the facilities and systems necessary for their service supply. Each company calculates its prices and can allow for a specified profit. Those companies with majority state ownership notify the MRDPW of their tariffs. The municipalities have their proposals ratified by their respective municipal councils. However, the base price of the water can only be considered after the losses from the poor water transit network, which currently stand at 50% to 70%, are taken into account. From 2002 any losses of water above 25% cannot be included in the water price. One of the major objectives of the privatization strategy is to dramatically upgrade the quality of the supply network and reduce losses.

In Sofia the new concession agreement is for 25 years and it gives the new joint venture company the exclusive rights over the municipal water and sanitation assets. In return, the company's achievements will be measured by output measures based on target levels of service. There is also a strong emphasis in the agreement on productivity and an affordable tariff. It is not clear whether any clear model is being promulgated for this but it seems that political influence will be a significant factor in the contractual relationship between the company and the Sofia Municipality.

MRDPW which supervises the water supply and sewage systems in the country, is planning to set up a new Water Control body to regulate service standards and the price of water countrywide. According to some observers this is to protect consumers from unjust increases in the price of water by the new owners. There are no specific measures to

subsidize tariffs for poorer members of the community in Bulgaria although they may receive general support through the social security system.

The proposed Water Control body will control the quality of water supplies, although its powers are not yet clarified; it is also expected to determine regional caps on water prices. It is intended to be a small professional body including five financiers. The minister of MRDPW has stated that the new body must be created before water privatization can move forward and he has appointed consultants to recommend on the form it should take and the means of setting it up. The present target for its commencement is September 2001.

The overall intentions of this approach are clear, namely to attract international finance and expertise within a regulatory framework that balances the interests of the companies and the customers of the services. As an observer of the process there are areas of concern in relation to the political independence of the regulation and how it will be applied in practice and also with regard to its consistency across the country. The Sofia concession was drawn up at a time when new legislation was still coming forward. Looking to the future and further concession agreements across the country, the role and status of the new Water Control body will be critical. This body can provide the means for an effective national framework of economic regulation in the sector.

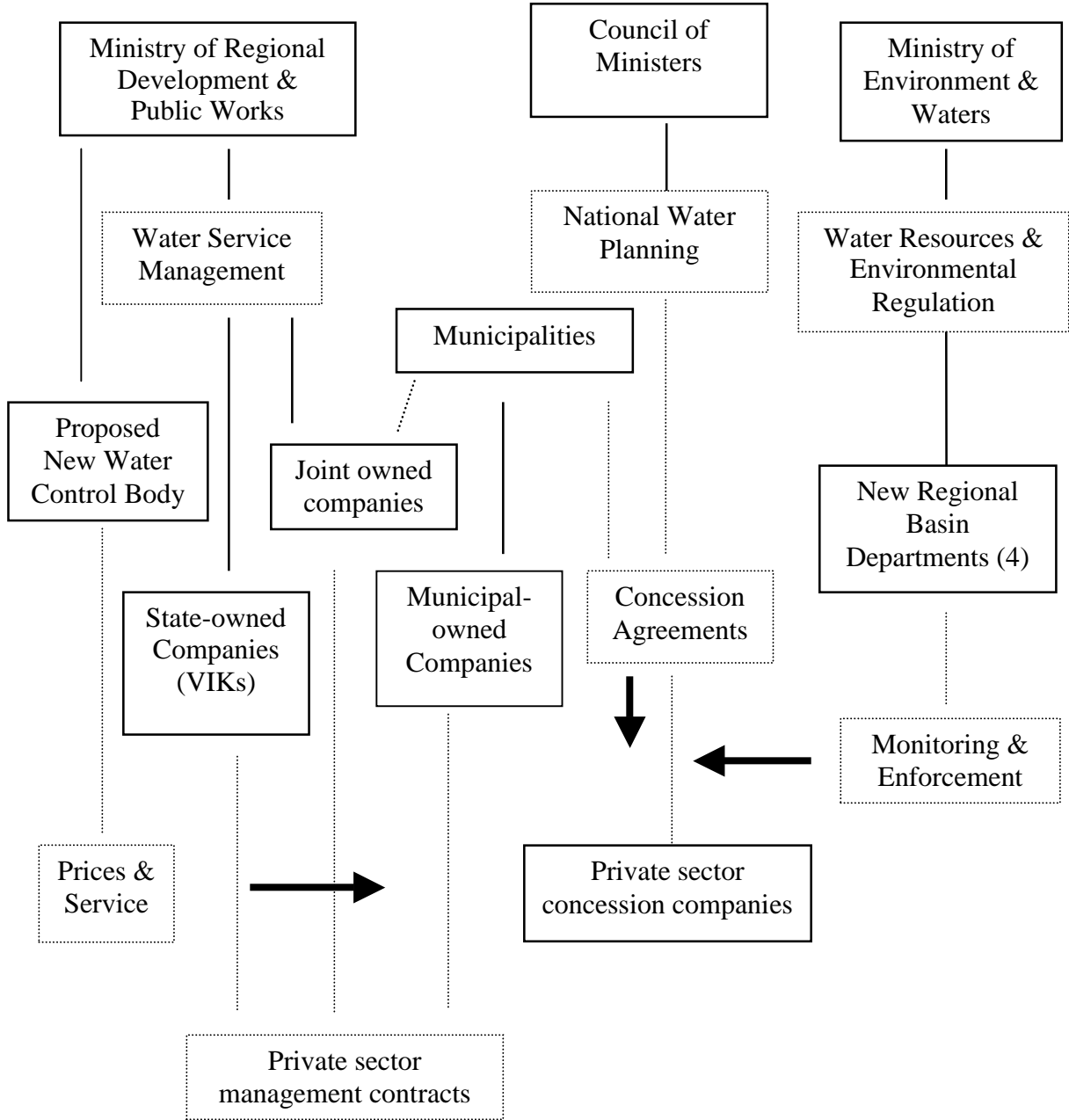
#### *Environmental Regulation*

According to the Water Law the management of water resources is to be undertaken at national and basin level. The regulatory bodies at national level are the Council of Ministers, the Ministry of Environment and Waters, and the Ministry of Health, which is responsible for drinking water quality. At basin level are new Basin Departments. Their areas are defined by the natural situation of the watersheds between catchment areas of one or more major rivers on the territory of the country and they do not follow the border of the administrative districts.

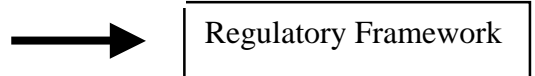
The Minister of Environment and Waters is responsible for state policy in the area of water resource management and development. Integrated water resource management is being developed through strategies for unified water management and for water resource use. The ministry issues licenses for the use of water, makes the necessary organization, makes proposals for and provides financing of procedures for granting concessions, organizes and manages the National System for Water Monitoring, and approves the projected plans and designs for water systems and constructions, etc.

The new Basin Departments are to be set up during a two-year period from the enactment of the law. They will take responsibility for the National System for Water Monitoring. This comprises a set of specific activities of measurement and analysis that enable assessments and forecasts for the quantity and the quality of waters to be made. It includes systematic monitoring of the meteorological, hydro-geological, hydro-biological, and hydro-chemical indices. The data that the system provides are used for control and using sanctions when necessary. The Basin Departments will issue water licenses, collect the charges for them, control compliance with the conditions of the issued licenses, and grant concessions. There are four regions for basin management of waters – the Danube region with its center in Pleven, the Black Sea region with its center in Varna, the East White Sea region with its center in Plovdiv, and the West White Sea region with its center in Blagoevgrad.

**Bulgarian Regulation Framework for Water & Sanitation Services  
Year 2001 - in transition**



**Legend:**





## Chile Case Study – Key Points

**Chile lies along the Pacific seaboard of South America and has a population of around 14 million people.** Its climate varies widely from the arid north on the Tropic of Capricorn to the temperate south of the country. Urban water and wastewater systems are well developed although less than one fifth of sewage collected is treated.

In response to the need to attract investment and improve its service provisions **Chile has restructured its legislative and institutional base in the water and sanitation sector over the last 12 years.** This has seen the progressive development of regional public companies, private sector contracts and, more recently, the encouragement of private concession companies. **The private sector now accounts for 60% of the total sector income.**

In order to ensure that the private companies properly meet their public service obligations, **Chile has established a national regulatory authority, the Superintendence of Sanitary Services (SISS) whose role is very similar to that of Ofwat in England and Wales.** The SISS is a decentralized entity with financial independence, which reports to the President of the Republic via the Ministry of Public Works

The Head of the SISS is appointed directly by the President for an indefinite period. He has a considerable degree of autonomy and is supported by a professional staff. He has a wide range of powers, which include tariff setting, supervision of the concession contracts, resolving disputes, and enforcing sanctions on the concession companies.

**There has been a strong emphasis in recent years on extending services to the urban poor.** This has been facilitated by special payment terms and by the use of state subsidies which are paid to the concessionaires, based on a percentage of the monthly account of the customer up to a consumption of 20 m<sup>3</sup>. This process ensures that the companies, who are required to charge full economic tariffs, receive proper payment for the services.

**Environmental management and regulation is overseen by the National Commission of the Environment (CONAMA),** which carries out its responsibilities through regional commissions of the environment, known as COREMAS. Its powers include consultation on and the coordination of environmental issues, policy development, ensuring the compliance and enforcement of legislation, financing environmental initiatives, and public education. Water resource management is undertaken by the General Direction of Waters (DGA).

**Background**

Chile is located on the Pacific Coast of South America covering an area of about 750,000 sq km with a population of around 14 million. The GDP per capita is US\$4,740. Average annual rainfall varies from less than 50 mm in the arid north to 1,250 mm in the temperate south. Urban water and sanitation services are well developed. Water supply coverage is about 99%, and 89% of the population is served by sewerage systems. Wastewater treatment is still very low, with only about 14% of the urban sewage being treated. Despite the latter, public health statistics for Chile are impressive, with infant and child mortality rates close to those of the Organization for Economic Cooperation and Development countries.

At the end of the 1980s, in response to the need to invest in new service infrastructure and make improvements to the continuity and quality of the service, the State introduced new legislation, which transformed the former public water and sanitation services into companies. The objective was to improve the efficiency of the management and the equitable nature of the services, and to mark a first stage in the separation of the management and regulatory activities of the State by the creation of the Superintendence of Sanitation Services (SISS).

Between 1988 and 1989, six laws were passed which successively:

- Established the system of concession and operation of the sanitation services; regulated the relations between the concessionaire companies, the State, and the users; and structured the control of the sector.
- Authorized the State to develop entrepreneurial activities in relation to drinking water and sewerage, and the formation of joint stock companies regulated by the rules applying to open companies.
- Created the Superintendence of Sanitation Services.
- Established a subsidy for payment of the consumption of drinking water and use of sewerage services, to the benefit of users on low incomes.
- Established the tariff system regulating the sector.

The legislation created public service companies characterized by a greater transparency, autonomy, commercial and operational management oriented towards the profitability of their assets. The formation of the regional companies required the creation of a tariff system based on the criteria of efficiency and economic rationality. In parallel, regulation of the sector was established providing for more autonomy, and a system of subsidized payment for the consumption of drinking water and use of the sewerage service for residential users on low incomes. This led to significant improvements in the commercial and operational management of the public companies and to the extension of a quality sanitation service throughout the country.

**The Water and Sanitation Services Sector**

There are 53 service companies in the sector at the present time. They are mainly regional and provide both drinking water and sanitation services.

In 1997, the coverage of drinking water and sewerage by the state companies (which represented 92% of the customers of the country) amounted to 99% and 91%, respectively. Chile occupied first place (with Argentina) in Latin America, in terms of access to sanitation services (sewerage system, septic tanks, or chemical latrines). However, the rate of coverage of sewage treatment remained at low levels; only 17% of sewage collected in the country was subjected to treatment in 1998.

About one half of new water and sewerage connections over the period 1987-1995 were provided to the urban poor. Municipalities funded most of the new distribution networks required for this purpose. To enable the provision of these services to be affordable to this group of customers, connection fees for new customers were allowed to be paid in up to 60 installments. In addition, individual subsidies were granted by local government to those in

need, thus ensuring full payment for services provided. Finally, training was imparted to housewives to reduce wastage of water.

The private sector, in addition to owning certain companies providing water and sanitation services, participated in the development of the services by means of contracts with the state companies. These included service contracts, management contracts with investment, BOOT contracts, and partial concessions in respect of an aspect of the service or a geographical area. The need for greater participation from the private sector gained more emphasis from 1995, based on a political will to encourage a more equitable growth of the country by means of allocating resources to areas with no entrepreneurial public action. Secondly, the fixing of coverage targets and quality of service at a national level generated the need for investment, especially in sewage treatment, which was in excess of the public companies' capacity to self finance (limited borrowing, distribution of 100% of the dividends).

In February 1998 a second significant step in the process of change took place with new legislation to modernize the regulatory framework of the sector and facilitate the involvement of the private sector. This legislation:

- Established rules applying to all the companies of the sector - whether publicly or privately owned - with regard to concessions, tariffs, development plans, and quality of service.
- Provided greater powers for SISS to supervise the fulfillment of the commitments of the service companies (development plans, levels of quality of the water and of the service). Regulations on the quality of service were introduced and the amount of the fines was significantly increased.
- Introduced improvements in the tariff fixing process and reduced the fixed component of tariff charges.
- Established safeguards to avoid a concentration of ownership between water and sanitation companies and the concessions of different monopolistic services.
- Determined the percentage of participation of the State in the ownership that could be transferred to the private sectors (a maximum of 65%, more if the State is not involved in increases in capital contributions).

Up until 1998, the private sector invoiced less than 10% of the sector income. By the end of 1999, as a consequence of the transfer of the control of the water and sewage companies to private investors and operators, the private sector represented 60% of total income and provided drinking water and sewerage services to 68% of the urban population of the country. The largest company, Empresa Metropolitana de Obras Sanitarias (EMOS), serves 37% of drinking water connections in the country; the Metropolitan Region overall has 45%.

### **The Regulatory Framework**

In Chile, the service companies are subject principally to the regulation and supervision of the SISS. In addition, other organizations regulate specific aspects of their activity, such as the National Health Service and the General Direction of Waters (DGA), which is charged with managing hydraulic resources at a national level and the formation of water rights. The National Commission of the Environment (CONAMA) applies State policy in relation to environmental issues.

Those companies remaining primarily in public ownership are subject to regulation and administration by the Ministry of Economics through the System of Administration of Companies. This is an entity created to manage the companies where the Corporación de Fomento de la Producción (CORFO), which is a government body responsible for promoting the economic development of Chile, holds shares, rights, or any other title of ownership. The System of Administration of Companies appoints the boards, controls meetings, and sets policies.

The state water and sanitation companies are subject to the regulations regulating public companies in general. These apply state budgeting rules, require authorization from the Ministry of Finance for any external debt, and constrain the financing of public companies through controls over dividend policy, budget allocations, funds reinvestment, and borrowing. The state companies must also meet the specific service targets of the Government, namely:

- an increase to 100% in the coverage of drinking water and sewerage in the urban areas of the country.
- a significant increase in the national coverage for sewage treatment with a view to achieving 70% coverage by the year 2000 (except for the Metropolitan Region).

All of these restrictions are removed when more than 50% of the shareholding capital passes into the hands of privately-owned companies.

#### *Economic Regulation - The Superintendence of Sanitation Services*

The sanitation services sector in Chile is regulated by the SISS, a public entity created in 1988 to supervise drinking water and sanitation companies and ensure the compliance of their activities with the regulations. It is a decentralized entity with financial independence, which reports to the President of the Republic via the Ministry of Public Works (MOP).

The head of the SISS is the Superintendent, who is chosen and removed by the President of the Republic. The term of the position is indefinite according to the law, but there are restrictions with regard to holding other offices or taking responsibilities in the private sector, and regarding the use of confidential information.

The SISS is recognized as a competent professional body. Its staff is well paid and it has good working conditions. As of June 2000 it employed 136 officials, 92 of who were professionals, including 32 civil and industrial engineers, 12 lawyers, and 12 commercial engineers-economists. The organizational approach is based on the following principles:

- Management by objectives
- Multi-functional team working
- A culture of responsibility
- Continual audit and review
- Information regarded as an asset
- High quality technology and working systems
- Outsourcing to specialists

As a regulating entity, the SISS issues instructions of a mandatory nature for all the concessionaires of water and sanitation services, and ensures compliance with the legal, regulatory, and technical norms that govern the different aspects of the services. Resolutions taken by the SISS can be contested, first before the SISS itself, and there is always the possibility of going to the Chilean Courts of Justice. Its main responsibilities are as follows:

- Study, propose and supervise compliance with the technical standards for the design, construction, and operation of the sanitation systems.
- Ensure that the Law on Sanitation and its regulations are complied with.
- Report on and ensure the fulfillment of the system of concessions.
- Regulate the five-year tariff fixing processes.
- Resolve any possible disputes between drinking water, sewage treatment or sewerage companies and the users.
- Impose fines on the companies in accordance with the law.
- Control the discharges of the drinking water and sewerage companies and discharges of liquid industrial waste.

The SISS has the power to recommend applications for concessions to the MOP. A concession covers the establishment, construction, and operation of (i) production of drinking water, (ii) distribution of drinking water, (iii) sewage collection, and (iv) sewage disposal, in a

defined geographical area. The concession and the right of operation are assets of the concessionaire and can be leased or transferred, subject to approval by the SISS. In order to apply for a concession in a given area, a company must submit to the SISS a development plan for the area and a guarantee, in addition to providing accreditation of the appropriate water rights.

The development plan must include a detailed program of the planned investments in the concession area for the next 15 years. It must also guarantee a level of service for each sector within the concession area. If, within 60 days from the date of publication of the application, another company applies for the same concession, it is granted to the company offering the lowest tariff and complying with the technical requirements, providing the tariff is not higher than that calculated by the SISS. Another factor that may be considered for the granting of a concession is the duration of time that is necessary to commence the operation.

The concessionaires for drinking water and sewerage services are responsible for guaranteeing the continuity and quality of the service. In the event of a modification by supreme decree of the levels of quality of the service or modification by the SISS of the development program, the concessionaire is entitled to review its tariffs proportionately. They are responsible for constructing, operating, and maintaining the public service networks up to the point of connection with the customer, and for controlling discharges to its sewerage systems. The concessionaire is also obliged to allow the use of its networks by other companies producing drinking water or disposing of sewage which directly contract the provision of the service with large consumers in return for a tariff determined by law.

A concession can be terminated by the President of the Republic of Chile by means of a Supreme Decree of the MOP, if the company fails to comply with the law, meet the obligations set out in its concession agreement, or to fulfill its development plan. Depending on the seriousness and repetition of the fault, the SISS may fine the company or submit a technical report to the President of the Republic, who will take the final decision with respect to the termination of the concession.

### *Tariffs*

The tariff system in Chile is based on the fundamental principles of efficiency, equity, and transparency, and has been designed to ensure self financing of companies plus an adequate return on the investment. The tariffs are calculated every five years, in accordance with procedures established by law.

The SISS has been responsible for setting tariffs in the water sector since 1990. The tariffs subsequently become official by means of decrees issued by the Ministry of Economics, and they have the nature of maximum prices for a period of five years. The SISS is charged, in an interactive process with the companies in the sector, to analyze and determine the tariffs for sanitation services taking into account the following fundamental objectives:

- Economic efficiency - to make possible the optimization of profits, based on the limited resources of the company, involving technical efficiency and costs;
- Financial viability - to allow companies to generate sufficient income to cover the costs of operation, maintenance and development, required for their efficient functioning;
- Equity - not to discriminate between users, except for reasons of different costs, avoiding crossed subsidies among consumers; and
- Intelligibility - to give clear signals, both to the users in order to determine an adequate level of consumption, and to the service provider, in order that it may determine the optimum level of production.

To guarantee that possible inefficiencies present in the actual companies are not passed on to the users the tariffs are determined on the basis of a simulation of an efficient model company to

- reflect the marginal cost of the service provider;
- cover the costs of efficient operation and maintenance, and allow the sanitation companies to finance their development;
- generate profitability on the modeled assets such that the minimum, according to the law, must amount to 7% annual true profits;
- reflect improvements in the efficiency of companies, and its gradual transfer to the users, by means of a review every five years;
- provide adequate information to the user to guide his consumption decisions and contribute towards an efficient allocation of resources, also facilitating the production decisions of the companies; and
- promote the efficient operation of services, and the rational use of water by the users.

Thus the tariffs are calculated according to technical parameters, whereby profitability is only guaranteed by an efficient level of operation, towards which the companies must strive, and which is represented by a model company, with reference to known development programs.

#### *Consumer Subsidies*

The law establishes subsidies in respect of drinking water and sewerage for low-income families. The subsidies towards the payment of consumption of drinking water and sewerage services form part of the monetary assistance given to low-income families and families with economic problems that prevent them from paying the whole account. The subsidies consist of the payment by the municipalities, who receive the funds from the State, to the concessionaires of a percentage of the monthly account of the customer up to a consumption of 20 m<sup>3</sup>.

According to the law, the percentage to be subsidized on the fixed and variable charges may not be less than 25% of the account of a consumer, nor higher than 85% of the total. Moreover, it must be equal for all the beneficiaries of the same region who are subject to the same tariff and have a similar economic situation. The benefits for customers entitled to a subsidy have a duration of three years. The rights to a subsidy are withdrawn automatically in any of the following cases:

- Change of address outside the place where the consumer receives the subsidy,
- Voluntary renunciation of the benefit,
- Non payment of the portion payable by the customer,
- Failure to provide, within the required period, the information requested by the municipality to enable the beneficiary to qualify for the subsidy, and
- Termination of the period of the subsidy.

The implementation of the system of subsidies in Chile has assisted the service companies to maintain an acceptable level of bad debts.

#### *Environmental Controls*

Environmental regulation across all sectors is undertaken by the Ministry of the General Secretariat of the Presidency through the National Commission of the Environment (CONAMA). CONAMA is a State institution with the mission of promoting the environmental sustainability of the development process, and of coordinating the actions derived from the policies and strategies defined by the government in the environmental area. Its main objectives are:

- To recover and improve environmental quality,
- To prevent environmental deterioration,

- To promote the sustainable use of natural resources,
- To introduce environmental concerns in the productive sector,
- To involve the citizens in environmental management,
- To strengthen the environmental institutions at national and regional levels, and
- To improve the environmental legislation and to develop new management instruments.

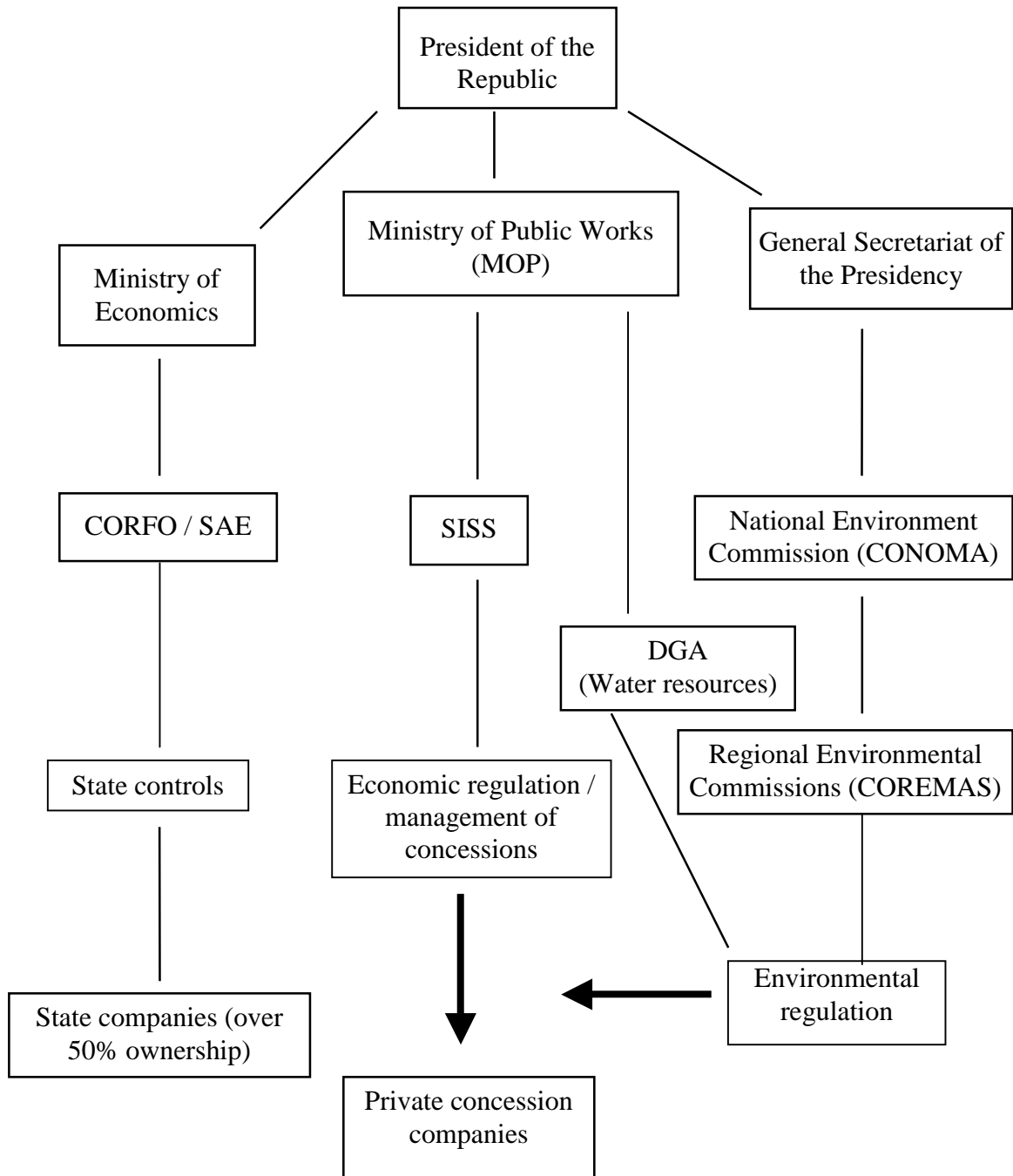
The CONAMA carries out its responsibilities through Regional Commissions of the Environment, known as COREMAS. Its powers include the promotion of consultation and coordination on environmental issues, policy development, ensuring the compliance and enforcement of legislation, financing environmental initiatives, and public education.

The General Direction of Waters (DGA) reports to the MOP and is responsible for the planning, development, and husbandry of the natural water resources. There are also laws, regulations, and rules regulating the quality of drinking water and of sewage. The SISS establishes an obligation on the part of sanitation companies to control the discharges of liquid industrial residues into their sewerage networks. Other bodies concerned with the supervision of the companies with regard to the quality of drinking water and sewage include the Health Service, reporting to the Ministry of Health, and the municipalities.

#### *Comment*

The regulation framework in Chile is modeled on the system that operates in England and Wales. The role and powers of SISS reflect those of Ofwat. A distance is achieved from the political influences in local communities enabling an objective independent approach founded on well-established principles to be applied. In Chile each concession contract, in effect, incorporates the full regulatory package administered by SISS.

### Chilean Regulation Framework for Water and Sanitation Services



CORFO = Corporacion de Fomento de la Produccion  
 SAE = System of Administration of Companies



## England & Wales Case Study – Key Points

England & Wales are located within the British Isles off the Northwest coast of mainland Europe. They have a combined population of about 52 million and are one of the world's wealthiest nations. The country has an extensive coverage of high quality water and sanitation services.

**In 1989 the Government passed legislation that revolutionized the management of the water and wastewater sector.** The former Regional Water Authorities were privatized and a national economic regulator, the Office for Water Services (Ofwat), was set up to oversee them.

**Water and sanitation services are provided by 10 regional companies and 18 water only companies.** The companies are obligated by license to provide the essential services within their areas. **Ofwat is responsible for ensuring that they carry out their functions properly and are able to finance them; it is also required to protect the interests of customers.**

Ofwat is headed by a Director who is appointed for a fixed term. **The Director is independent of the political system and he is able to exercise wide powers of discretion in undertaking his duties.** He works closely with 10 Customer Service Committees (CSCs) which represent consumers' interests across the country. The regulator conducts all activities openly and he publishes reports on his approach to issues and on decisions taken.

**Ofwat is responsible for tariff reviews, which are undertaken every five years, monitoring companies' performance, and taking sanctions against them when necessary.** In the course of this work, service standards and targets are specified in close consultation with environmental and customer interests.

Since privatization, the standards of service provided by the water and wastewater sector have improved substantially, and they generally comply with the stringent European Union (EU) standards. The price of the services has also risen significantly, by over 30% on average, reflecting the high levels of investment required to upgrade the services during the 1990s.

Environmental regulation is provided by **the Environment Agency** which is responsible for setting standards, monitoring compliance, and enforcing sanctions across the natural water environment. **The Drinking Water Inspectorate** has comparable responsibilities for drinking water quality. **Both agencies work closely with Ofwat to provide the overall regulatory framework for the industry.**

**Background**

England and Wales comprise a substantial part of the British Isles, which lie to the northwest of mainland Europe. Together with Scotland and Northern Ireland they form the United Kingdom, which is one of the world's wealthiest nations with a GDP per capita of US\$22,640. The total population of England and Wales is about 52 million. London, the capital city, has a population of 7.3 million and the towns of Manchester and Birmingham exceed 2 million each.

The country has a cool, moist, temperate climate and although rainfall and topographical conditions vary considerably, it is well endowed with water resources. Surface waters provide the predominant source of water supply and 20% of demand is met from groundwater sources. The quality of both the natural water sources and drinking water supplies is good reflecting the high levels of investment that have been made in the water and wastewater services, particularly over the past decade.

Prior to 1974 the water and sanitation services were managed by a mixture of statutory water supply companies and by hundreds of local authority water and wastewater departments. In that year a major reorganization of local government separated the management of the public water services from local government and consolidated them into 10 Regional Water Authorities (RWAs). The RWAs, whose areas were based on natural river catchments, were responsible not only for water and drainage services but also for river management and associated environmental responsibilities. These authorities rationalized the numerous local networks and working methods and introduced more commercial practices, but they were not able to provide the capital investment and productivity that the industry required.

In 1989 the Government passed legislation that revolutionized the management of the water and wastewater industry in England and Wales. The industry was privatized in its entirety, subject to a comprehensive framework of economic and environmental regulation. This reform was one of the last in a series of public service privatizations introduced by the Thatcher government to attract private investment and management into ailing public services. In view of the monopolistic nature of water and wastewater services, the reform was a controversial one, but measured in terms of improvements to customer services, water quality, and impact on the water environment, generally it has been very successful. The accompanying increase in the level of water tariffs has been more debatable.

**Water and Sanitation Services Sector**

Water and wastewater services are provided by 10 private companies, the successors to the former Regional Water Authorities. They provide wastewater services to 50 million people and water supply to 40 million. A further 11 million persons receive their water supply from 18 water only companies, the majority of which were operating in a restricted form of private ownership prior to 1989.

A fully privatized industry requires a comprehensive and rigorous framework of regulation. This is provided by three national bodies. The Office of Water Services (Ofwat) is responsible for the economic regulation of the private companies. This includes prescribing and enforcing both service standards and tariff levels. Environmental regulation is the responsibility of the Environment Agency (EA) that prescribes, monitors, and enforces compliance across the natural water environment. The Drinking Water Inspectorate (DWI) is responsible for ensuring that drinking water quality standards are complied with.

Each of the companies holds a license. They set out the conditions that must be met to ensure that the duties of a water and wastewater utility are properly performed and that there is ultimate security for the nation's essential public service assets. The companies are also able to undertake other, non-regulated, commercial business. A number of the companies have diversified their activities, including the operation of water services internationally. With Ofwat's consent, one or two of the smaller water only companies merged during the 1990s. There have

also been a number of ownership changes with French and German companies holding majority shares in some of the companies. The license conditions continue to apply to safeguard the core water and sanitation services, including the prevention of any form of cross subsidy with other commercial activities managed by the company.

The freedom given to these companies is unique in the water industry worldwide and there is no question that they have achieved significant improvements to services during the past decade. One of the incentives for the privatization legislation was the growing concern about the industry's performance in the 1980s at a time when new European quality standards were being introduced. There was a perceived need for new capital investment on a scale that the public purse could not support. In the 1990s, following privatization, over US\$20 billion was invested by the new companies (around 2.5 times the level in the 1980s).

Today, drinking water quality is recognized as being of a consistently high quality in England and Wales. The sewerage network serves 96% of the population and over 80% of the sewage effluent receives secondary or tertiary treatment. River water quality has shown consistent improvement over the decade. Monitoring of these indicators is thorough and the regulation systems in place should ensure that standards would continue to be improved and maintained.

These improvements have not taken place without stress. The high levels of investment have resulted in substantial increases in water bills. There are concerns about perceived problems in the services such as the high levels of water leakage from the distribution systems, instances of poor bathing water quality on the coasts, and supply restrictions in drought conditions that have been common in the 1990s. There is also recognition that these issues require resources and cost money to overcome. Now that the full cost of services is falling directly on the consumers of water, concerns and debates about the efficiency of the companies and choices for the future are becoming more informed and transparent.

### **Regulation Framework**

The Director General of Water Services is the economic regulator of the water and sewerage industry in England and Wales. Ofwat is a non-ministerial government department for which the Director has full responsibility. It is financed by an annual levy on the water companies. The Director is appointed for a fixed term by the Secretary of State for the Department of the Environment and may only be removed for incapacity or misbehavior.

The Director must comply with the statutory duties laid down in the Water Industry Act 1991 and, in the performance of these, he has to make a wide range of judgements about how to use them to achieve his objectives. He is not subject to direction about what those judgements should be. Regulators are independent of ministers but the Director must make an annual report to the Secretary of State that is laid before Parliament and published. He also documents for public inspection his approach towards regulation issues and the reasoning behind decisions that he reaches.

The Director is assisted in his duties by the Ofwat National Customer Council (ONCC) and by 10 regional Customer Service Committees (CSCs), for which he appoints the chairmen and members. They have statutory duties to identify concerns, represent the views of customers, and investigate customers' complaints. Ofwat regularly consults the CSCs for their views on policy matters affecting the interests of customers. The direct link between the CSCs and the regulator means that customer interests play a significant and continuous presence in his work.

The Director's primary duty is to ensure that the functions of a water and sewerage company are properly carried out; and that companies are able to finance their functions, in particular by securing a reasonable rate of return on their capital.

Subject to the above, the Director has a duty to customers to ensure that no undue preference is shown and that there is no undue discrimination in the way companies fix and recover charges, and that rural customers are protected. This means that a customer's bill

should, in general terms, reflect the costs that that customer imposes on the water and sewerage systems. He is also required to protect other aspects of customers' interests, including their quality of service.

These duties are seen to be complementary because customers benefit if efficient companies remain financially viable. The protection of customers' interests will become more explicit under a draft water bill, which is currently under consideration, that proposes to make the customer duty a primary one alongside the 'financial viability' one. There is a body of opinion that believes that the Director's duty to protect the interests of customers should be made his single primary duty, putting customers' interests firmly at the heart of water regulation.

The Director has a duty to encourage companies to operate efficiently and the companies' price limits must contain productivity targets. Ofwat examines company performance against their targets and makes comparisons both between the companies and with other comparable sectors of the economy.

The Director reviews company price limits every five years. He sets the annual price increase, or 'K' factor, for each company to reflect what it needs to charge to finance the provision of services to customers. The Director sets price limits (or caps) that give companies the incentive to make efficiencies. Companies that increase efficiency and hence profitability, can share these rewards with shareholders and customers.

Interim price adjustments can take place in situations where significant changes in circumstances fundamentally alter the assumptions made during the review. They might include new commitments resulting from unanticipated legal requirements, or substantial external impacts on a company's business.

The Director also has a duty to facilitate competition between suppliers and potential suppliers, ensuring that a framework exists in which competition can develop. The companies operate under licenses to provide water and sewerage services in England and Wales, which were awarded in 1989 for a period of 25 years. A new, inset appointment can also be granted to a company seeking to provide water and/or sewerage services on a site without a current supply, or to a large user of water or sewerage services within an existing company's area. So far only a few such appointment have been granted.

The Director has the power to amend a company's license, either in agreement with the company, or otherwise if he considers that it is acting against the public interest. Disagreements between companies and the regulator are normally settled through consultation and agreement. Where the Director feels the company is in breach of the terms of its license, or is failing to perform its fundamental duties, he has powers to secure compliance by means of an enforcement order. If the company fails to comply, then the Director can ask the High Court to appoint a special administrator to run the company until arrangements can be made for a new company to take over. A Special Administration Order would require the Secretary of State's consent.

If a company acts against the public interest by misusing its monopoly position, the Director can refer the case to the Competition Commission. An example of this might be a requirement that the customer purchase something connected with the water and sewerage service only from that company or another nominated source. This could lead to an order from the Trade and Industry Secretary requiring remedial measures or an end to the practice.

Ofwat's powers are, thus, considerable and the Director has a clear mandate to use his own independent judgement in carrying them out. The main practical means that he has are the fixing of company tariff levels, the setting of service standards, the measurement of performance, and the enforcement of sanctions. In carrying out his duties he works closely with customers, handling their complaints and awarding them compensation in prescribed circumstances.

*Tariff setting*

The process for setting company tariff levels is based on the price cap form of regulation. The formula for calculating a company's future tariff at review is known as RPI+K but is better expressed as RPI-P+Q. The 'K' factor includes two critical factors. The first (P) is a projection of productivity that the company should, in the regulator's opinion, achieve. The second (Q) is based on the additional cost that the company will face in meeting its future capital investment commitments. This has been a particularly significant factor during the last decade at a time when under investment in previous years had to be made good at the same time as tighter quality and environmental standards were being adopted from Europe.

In making his determinations the regulator takes a number of factors into account for each company. They include performance over the previous period, both financial and operational, forward commitments, asset condition and current investment levels, operating costs, and productivity assessments. In doing this he makes use of company comparisons that assist him in identifying good practice and poor performers, and establishing industry norms. He must also take a view on factors such as the cost of capital and acceptable profit margins. In carrying out this work, Ofwat consults fully with the companies and through the Consumer Service Committees with customers and other interested groups. The Director takes the final decisions on future tariff levels; there is no overt political involvement in the process.

The average price change allowed for companies in the first years after privatization was around 5% per annum, in real terms, reflecting the weight given to future capital investment requirements. Ofwat conducted its first price review in 1994, introducing more demanding efficiency targets and tighter financial assumptions, as a result of which permitted price increases fell to under 2% on average. The Director reviewed prices again in 1999 and in its 1999-2000 Annual Report Ofwat stated, "The current price limits, which came into force on 1 April 2000, allow the companies to meet all their responsibilities to improve water quality and the environment. Average bills nationally will fall on average by 2.1% per year for the next 5 years in real terms."

The issue of price rises has been a contentious one since privatization. In the early years, high increases, exaggerated by inflation, were blamed on the process of privatization itself. High profit levels fueled these fears, as many companies were able to beat their efficiency targets. The new labor government reacted to this situation by clawing back some of the company profits with a one-off tax levy. This represented a political view, supported by popular public opinion, that regulation had been too generous in the early years. On the other hand, an effective company needs some incentive to be able to improve its profitability and Ofwat has been able to take back much of the productivity gain for customers in the form of lower prices in its subsequent reviews. It is also the case that the companies have met their investment targets in the 1990s and made significant service improvements. Most objective observers believe that the regulatory framework has achieved its objectives and that the water and wastewater sector in England and Wales is far healthier now than it was 10 years ago.

For the future, the regulator must continue to focus on the license obligations in a climate where companies face tougher productivity targets and, in many cases, begin to derive the majority of their income from non regulated activities, often overseas, possibly operating as multi-utility companies. New issues will arise but there is no obvious reason why the regulatory process cannot continue to cope with them on a pragmatic basis.

*Standard setting*

Each year the water and sewerage companies in England and Wales are required to provide Ofwat with information on their performance against various aspects of service. The company's annual return covers levels of investment in new capital assets, and its operational performance in meeting potable water quality and environmental standards. The report also

measures performance against eight levels of service indicators, which Ofwat uses to provide a measure of service to customers.

The eight levels of service indicators are:

- Inadequate pressure - the number of domestic properties which experience pressure below a given reference level in normal circumstances.
- Supply interruptions - the number of properties without a supply of water for longer than three hours, and the reasons for this.
- Restrictions on use of water - the percentage of the population that has experienced restrictions in using water e.g. hosepipe restrictions, drought orders, etc.
- Flooding from sewers – records problems caused by inadequate drainage.
- Billing contacts - the number of billing contacts received by a company and the time taken to deal with them.
- Written complaints - the number of written complaints received by a company and the time taken to deal with them.
- Bills for metered customers - the percentage of metered customers who receive at least one bill during the year based on an actual meter reading.
- Ease of telephone contact - the ease with which customers can make telephone contact including speed of response, abandoned calls, and engaged lines.

In order to provide confidence in this process Ofwat appoints independent auditors to verify the information and to ensure that it has been collected and compiled in an acceptable manner. Ofwat publishes the findings in an annual levels of service report. The report compares companies' performance against industry averages and individual companies are assessed in terms of their performance over time. Ofwat used the results of analyses for the period 1996-1997 to 1998-1999 to adjust some company price limits for each of the five years commencing 1 April 2000. These adjustments rewarded the best companies and penalized the worst, thereby maintaining incentives for companies to improve services offered to customers.

#### *Customers' interests*

Strong and effective arrangements for the independent representation of the interests of customers are vitally important in the regulation of a monopoly utility such as the water industry:

- Customers cannot take their business elsewhere and from time to time they need help and advice in resolving complaints against their service company.
- Representation on behalf of customers ensures that companies are aware of, and are responsive to, concerns about the range and quality of their services.
- The interests of customers must be represented to Ofwat, which cannot carry out its job as economic regulator properly without such knowledge.

In England and Wales, customer interests are represented by Customer Service Committees (CSCs) established and maintained by the regulator. The CSCs are concerned solely with the interests of water customers and do not share the wider duties of the regulator.

There are 10 CSCs reflecting the regional structure of the industry. They are fully independent of the water industry with their own statutory identity and duties to investigate customer complaints and to represent the interests of water customers. CSC chairmen and members are local people, appointed on merit, with a wide range of backgrounds and experience and a shared interest in working on behalf of customers. The CSCs are funded by the regulator and are supported by professional and technical staff from his office.

Representation of customer interests at national level is the responsibility of the Ofwat National Customer Council (ONCC), whose membership consists of the 10 regional CSC chairmen. ONCC provides a forum for the exchange of information between CSCs, organizes national conferences for CSC members, and promotes good communication with Ofwat. ONCC

also represents customers' interests directly to the Government and the media. It has lobbied, among other things, for an independent consumer council for water that is the subject of draft legislation.

The way in which customer representation is integrated within Ofwat is a strength of the regulatory regime in England and Wales. The structure ensures that there is close and regular contact between the regulator and customer representatives who have a significant influence on his work and the regulator benefits from informed debate before he takes his decisions.

Customers benefit in a number of ways including:

- Complaint handling - Between them, the CSCs and Ofwat provide a one-stop service for customers who have a complaint about their water company. To date CSCs have achieved compensation and savings for customers amounting to over £6 million.
- Practice and policy - The CSCs and the regulator working together have developed initiatives to improve company practice and the CSCs have contributed to Ofwat's policy research and development.
- Setting price limits - Customer involvement is an important part of the Periodic Reviews when new price limits for all water companies are determined. In the 1994 and 1999 reviews the water companies, with the involvement of the CSCs, carried out research to establish their customers priorities and ensured they were fed into the review process.

Customers are also entitled to guaranteed standards of service, as laid down by the Government. Failure to provide them gives automatic rights of compensation, normally £20 per occurrence for domestic customers. Ofwat monitors the scheme, recommends changes, and arbitrates in the event of any dispute between customer and company. It also publishes details annually about company procedures and payments made under the scheme.

Some companies go further than the statutory requirements but the following aspects of service must be covered. There are guaranteed time limits for making and keeping appointments, responding to account queries and service complaints, and dealing with interruptions to water supply. Compensation is also payable for repeated instances of low water pressure and for sewage flooding into customers' premises. Companies have also agreed to license changes requiring them to pay compensation to customers when essential household water supplies are interrupted as a result of emergency restrictions authorized by drought orders.

#### *Environmental Regulation*

The Environment Agency (EA) which was formed in 1996 from the National Rivers Authority and smaller pollution control bodies undertakes environmental regulation in England and Wales. It has a headquarters, which handles policy issues, and eight regional offices. The agency's duties devolve from the 1995 Environment Act and include responsibility for river basin management, water abstraction licensing, the monitoring and enforcement of effluent discharges, pollution control, and natural water quality.

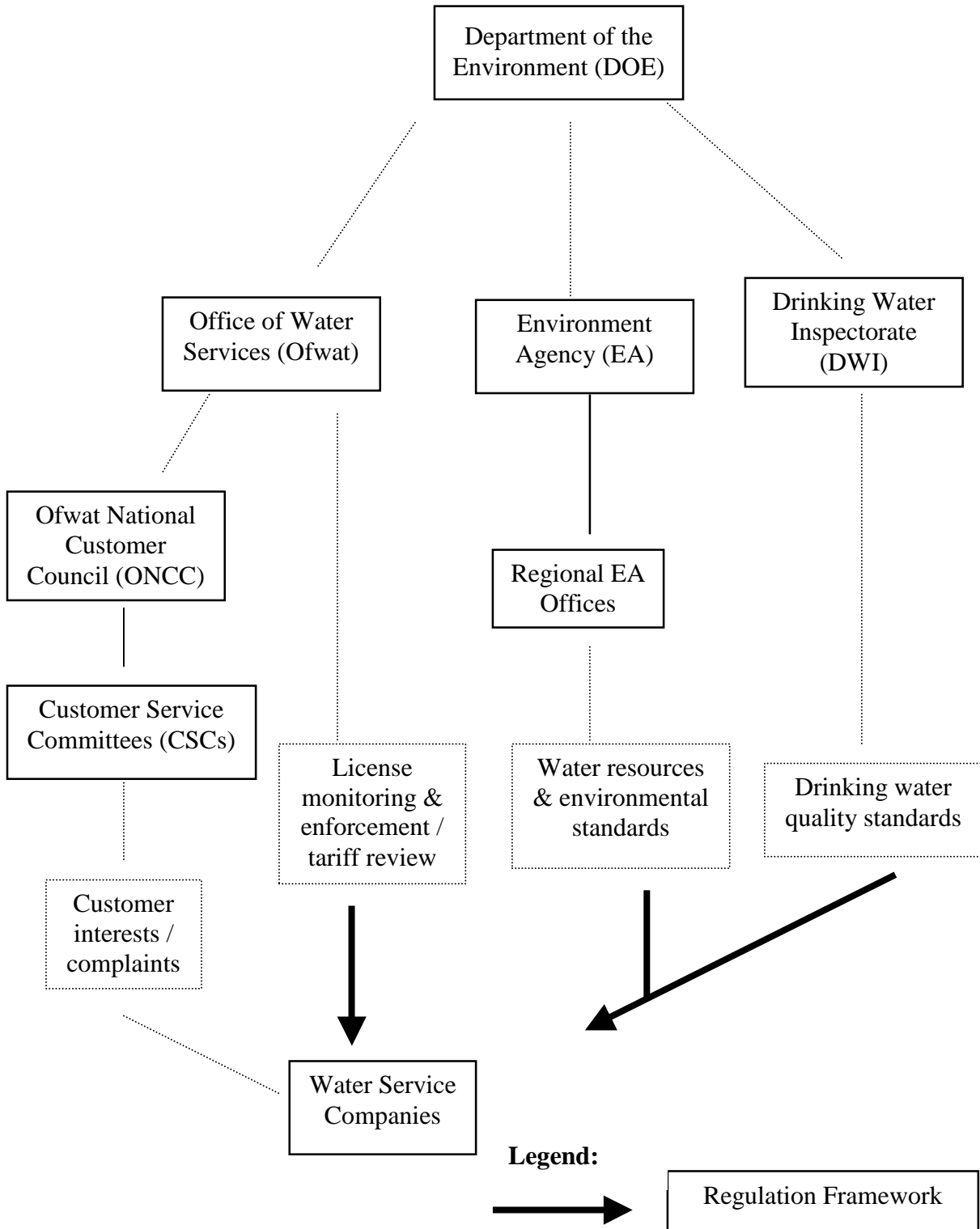
Discharging these activities brings the EA into daily contact with the water companies. On occasion, the agency has to prosecute the companies, particularly in relation to unacceptable discharges from sewage treatment works. The EA also needs to maintain a close working relationship with Ofwat, notably in relation to the environmental quality standards expected from the companies and to provide feedback on their performance. Legislation currently before Parliament is strengthening the force of environmental legislation, notably by placing new restrictions on water abstractions. This will have a knock on effect on the costs of the water companies.

This situation illustrates a concern amongst water companies that the two regulators should agree on a process for the handling of such issues. At the last price review, a difference of opinion was registered between consumers who wanted prices reduced and the EA who wanted tougher standards applied, which would result in higher company costs and prices.

Ofwat's role places such debates firmly in the public forum but how the final decision on such matters is resolved is not entirely clear.

The Drinking Water Inspectorate (DWI) is responsible for ensuring that drinking water supplies comply with national standards, which incorporate the requirements laid down in the EU Drinking Water Directive. Although the DWI relies mainly on data submitted by the water companies, it carries out extensive audits of their operations and methods and investigates customer complaints. The DWI can oblige water companies to take remedial measures where water quality fails to meet the standards. Meeting drinking water quality standards is a fundamental service obligation that has required high levels of capital investment to meet more stringent standards during the past decade.

## English & Welsh Regulation Framework for Water & Sanitation Services - Year 2001





## German Case Study – Key Points

Germany, which was reunified in 1990, is one of the strongest economies in Europe and has a population of about 82 million.

**The coverage and quality of its water and sanitation service provision is high** and comprehensive environmental protection measures are rigorously enforced.

The price of its water services is among the highest in the world. This reflects its high standards funded through full economic tariffs. There is also a growing view that **there is scope for a higher level of productivity in the German water industry.**

**Water and sanitation services are predominantly run by the public sector** and its organization is rooted in the German administrative system. This is hierarchical based on country, state and municipalities. Legislation, strategy, and controls come from above but the management of ‘the vital needs of the community’ is vested with the municipalities.

**There are over 15,000 different management units providing water and sanitation services.** Some of them are integrated with other services such as gas and electricity. There are several forms of provider ranging from municipal departments and public-controlled companies to joint ventures, outsourcing and more recently, management concessions to private companies. The level of private management is about 30% in the water supply sector and 10% in wastewater.

**The route for private companies to enter the market is through a joint venture or concession agreement with the local municipality.** Such agreements exist in several German cities but there is some evidence that they are over prescriptive and thus limit the scope for innovation and potential productivity improvements.

**Economic regulation is also carried out at municipality level where it is integrated within the overall management activities;** tariff levels are approved through the local democratic process. Regulatory decision-making is constrained by the traditional approach to public service management and its constitutional link with the administrative and democratic processes. Also, the **municipal regulators have little opportunity to use company comparisons and yardsticks to enforce greater value for money in service provision by the operating companies.**

Environmental regulation is rigorous and effectively enforced, primarily at municipality level.

**Background**

Germany is located in the heart of Europe having reunified the former West and East sectors of the country in 1990. The population of the country is estimated at 82 million with a population density of some 230 persons per sq km. The capital city, Berlin, has a population of some 3.5 million and there are several other major commercial centers. For many years Germany has been one of the strongest economies in Europe, with a GDP per capita of US\$25,350 in 1999.

In Germany water is regarded as a common resource and its management is subject to collective and democratic decision making. These powers are divided between the federal parliament (Bundestag), the 16 federal states (Länder), and the local authorities (cities, towns, and rural districts) known as municipalities (Kommunen). As a general rule, framework legislation is enacted at the federal level and this is given greater detail by each state in a manner appropriate to its area. The municipalities are responsible within this structure for the provision of vital services; these include water supply and sanitation services and responsibility for the local environment.

The municipal authorities have the choice of how their region's water services will be managed. It is generally the case that the water and wastewater activities are managed separately from each other on a single function basis. It is estimated that there are over 15,000 different bodies currently providing water and or wastewater services to the public in Germany. The majority of these are small municipal departments providing local mains drainage. There are some 6,500 water supply bodies of which about 1,600 account for 84% of Germany's total water revenues. Once again, the majority of the water supply utilities are small municipal administrations, many of which supply rural communities.

**Water and Sanitation Services Sector**

Approximately five billion cubic meters of water is abstracted for water supply per year in Germany; of which a little over four billion cubic meters is consumed by domestic and trade users. Industrial consumption accounts for about one billion cubic meters. About 64% of abstraction is from groundwater supplies; of the remainder 9% is from springs and 27% from surface water. Water abstraction in Germany represents about 23% of the total annual availability.

Some of the groundwater sources are polluted by nitrates from agricultural sources and their removal is a current priority requiring major investment. Some of the surface waters are below national standards, especially in the new states where industrial pollution has been severe in past years. In addition to nutrients, there are problems with levels of many metals and heavy metals, as well as solvents and pH levels. Water treatment and the management of water resources are therefore likely to be significant areas for water sector investment.

With regard to distribution networks, considerable investment is also required across the whole country as a result of the ageing pipe network. Leakage is estimated to account for 9.1% of the total water delivery; this figure ranks among the lowest in Europe. However, considerable investment is currently being directed at replacing large portions of the delivery network and detecting and fixing faulty networks. It is believed that the total leakage rate can be reduced to 8% by 2005.

Germany has one of the highest sewerage connection rates in Europe, with over 92% of the population being connected to mains sewers. However, service coverage varies somewhat between the old Western states and the new states. Ninety percent of the population of the old states is now served by sewage treatment works, with secondary or even tertiary treatment facilities and advanced sludge treatment works. In the new states connection rates are somewhat lower and are likely to require additional investment over the next few years.

In almost all European countries, the traditional solution to wastewater treatment problems has been to treat effluents at the end of the process, before discharging to a receiving water body. However, the constant tightening of German environmental regulations in recent years and the relatively high water supply charges and effluent disposal costs, has seen the emergence of a trend in Germany to reduce water consumption, clean up processes, and recycle or re-use wastewater.

According to Vivendi Environment (2000) the German water industry requires investment over the next five years amounting to about DM160 billion. Driven by the need to comply with the European Water Directive and to renew networks, this level of investment will require a quadrupling of current investment levels. There is a perceived inability for municipal budgets to be able to stand this as well as a lack of administrative capacity.

### *Organization Structure*

The basic laws of the country determine where administrative responsibilities lie in terms of the hierarchy of country, state and municipality. The key legislation relating to water supply (and sewage disposal) is the Federal Water Act of 1957, amended in 1996. This provides the framework legislation on which state laws are based. Federal law stipulates that water has to be managed in such a way that serves the public interest and it lays down basic provisions concerning the management of water in terms of quantity and quality. Conditions of service are laid down by the law and can be enforced through the courts.

The federal law provides a legal framework for the states to follow in respect of water resource management. They implement these laws and reinforce them if desired. The states regulate the ownership, supervision and maintenance of water resources, licensing and control, and procedures for the use of water. Drinking water quality and sewage treatment requirements are also laid down by the law and administered by the states.

The municipalities are responsible for the provision of water and sanitation services. Their central objective is to provide secure and reasonably priced water supplies. They are able to determine the best means of fulfilling those responsibilities, including the appropriate form of organization and management system. Each municipality has the choice of taking full responsibility for its own services, joining with other municipalities for combined management, or contracting services to an external utility company.

Administrative law is applicable to all direct management and multi-municipal services, while company law is applicable to concessions or other delegated management systems. Direct management systems can be either 'Regiebetriebe', where management is carried out by a department of the municipal administration, or 'Eigenbetriebe' where management is carried out through a specific body that has its own budget and management arrangements. In some cases intermunicipal associations (Zweckverbände) are formed by groups of local authorities and other corporations under administrative law. All these forms of management are subject to local political scrutiny and controls.

In addition to the Intermunicipal Associations, a number of Water and Ground Associations (Wasser und Bodenverbände) exist. They are responsible for a wide range of tasks relating to water and are generally responsible for water catchments, which often extend across administrative boundaries. In many cases they provide water to the municipalities that are, in turn, responsible for supplying customers.

Service companies subject to company law include private companies, municipal enterprises and mixed-ownership companies, where the municipality and the company are both responsible for the service, with management being carried out solely by the company. This is a delegated management, or concessionary, system whereby the company owns all the facilities. A balance is achieved whereby management can be carried out according to commercial and economic criteria but with democratic control continuing to be exercised over

strategic decisions. Approximately 31% of the population of Germany is served by companies under private law, with the majority of these being public or mixed companies.

Municipal responsibility for water and sanitation services provision is currently reflected in a fragmented industry structure. Many of the smaller local authorities lack the skills necessary to plan and supervise public water supply and many observers expect that the number of companies will reduce significantly over the next few years.

With regard to wastewater services, all management duties have historically been carried out directly by the municipalities and local communities, with the law restricting any opportunities for delegation. Across much of Germany it has therefore been the case that water supply services have been supplied separately to wastewater treatment services. However, commercial considerations are leading to new structures and there is a trend towards combining facilities in the supply and disposal sectors.

In many of the German cities, water and sanitation services are organized together with other public services such as electricity and gas supply, district heating and public transport, in horizontally integrated municipal enterprises. In many cases this has resulted in some cross subsidization of the water sector.

Rostock was the first town in Germany to entrust the management of its water and wastewater services to a private company, Eurawasser, in the mid-1990s. Today, private companies provide services to some 20 million people in a sector dominated by a small number of large companies of both domestic and foreign origin. For example, the two leading French water companies, Compagnie Generale des Eaux and Suez Lyonnaise des Eaux, are both present through subsidiary companies, as well as Germany's leading energy company the RWE Group, which has recently diversified into the market. In future years the continuing need for high levels of investment to maintain the reliability and quality of supply, together with the financial restrictions of municipal operators, will further attract private companies to the sector.

### **Regulation Framework**

An important characteristic of water management in Germany is the clear separation between state institutions with global responsibilities for water resource protection and management and the municipalities carrying out their specific water management and control functions. There is thus a strong tradition of municipal self-government, stemming from the political structure, which is reflected in the way the local authorities apply their regulatory controls.

#### *Economic Regulation*

The economic regulation of the water and sanitation sectors in Germany is vested, along with the management responsibilities, in the municipalities. Service standards are set in conformity with Federal and State requirements and are subsequently imposed and enforced by the local authority. Companies operating under public law are subject to price control by the municipality. In the case of an independent company this control may be exercised in the form of a management contract or concession agreement.

Water tariffs and prices are not fixed by the state but are set by water suppliers together with the municipal councilors on behalf of the population of the supply area. Through political representation, water prices are thus determined by agreement between the supplier and the users. In practice, this means that the municipal councils, who are usually the shareholder (or dominant shareholder), are controlling the level of prices. The legislation against monopoly abuse applies to water suppliers, and the Cartel authorities can investigate whether price rises are justified. The States assume this control function where water prices are set according to the principles of public law.

Tariffs in Germany must be set to comply with the 'cost recovery principle', whereby water and wastewater charges must cover the total costs to the service supplier. For water supply,

the principle of cost recovery includes four key features:

- Tariff bands are set according to the costs that the respective consumer groups impose.
- Charges are made up of two components, one that relates to infrastructure provision and the other to running costs. These must combine to reflect the actual total costs.
- The return on investment must be set at appropriate levels.
- Reserves must be established for maintenance and replacement of assets.

Subsidies are very rarely available in the German market, meaning that all fees and charges must cover all operating, maintenance, repair, and investment costs. The principle that prices should reflect the specific costs incurred by different classes of customers has led to the introduction in some towns of regressive tariffs offering a lower unit rate for large users. The introduction of separate supply contracts with very large users also follows this principle.

In their analysis of the German regulatory framework Balance and Taylor came to the following conclusions:

- *Political or legislative mandate:* It is clear that Germany does not have a distinct regulatory body or set of regulatory bodies responsible for regulating the water industry and the political or legislative mandate is therefore weak.
- *Accountability:* There is limited accountability for regulatory decisions, which are largely taken at the local level between municipalities and operators in a very closed fashion.
- *Decision-making processes:* The decision-making processes in the regulation of the water industry are extremely unclear and not even well understood by the major participants in water supply beyond negotiations with the municipality.
- *Expertise:* There is unlikely to be a high level of expertise beyond the large municipalities and even then the expertise is likely to be far higher in the Stadtwerke and the large companies. There is believed to be limited expertise in the Cartel Authorities/Monopoly Boards to deal with water matters.
- *Summary:* In summary, the legitimacy of the regulatory regime of the German water industry is poor as measured against our criteria. This is despite little in the way of adverse perceptions from stakeholders, but perhaps this is because of the lack of attention given to this issue in Germany. While decision-making is localized, and as such water users and citizens can exert influence, there is virtually no explicit regulation or clear accountability for decision-making.

The same observers noted that the highly legalistic approach found in Germany results in contracts for delegated service provision to the private sector allowing much less room for re-negotiation than, for example, in France. Companies have neither the regulatory pressures (or incentives) to become efficient, nor do they have to compete for the market. They also suggest that in the main case where private sector participation has occurred, namely Berlin, heavy restrictions were placed on the company preventing a number of efficiencies from being realized.

The strong institutional influence leads to management responsibilities being conducted hand in hand with the control and protection activities that are inherent in economic regulation. Thus, tariff rules are implemented and high levels of service standard are sought within an overall enabling framework of government and community support. The common thread is that local democratic processes control both service management and regulation. Perhaps the issue for Germany is how robust and flexible can this system be in the future? Are there sufficient competitive pressures on the service bodies to ensure that value for money is being achieved in what is generally regarded as a very high standard of service provision?

Local authorities in Germany, short of cash since reunification, are realizing the importance of efficient water services management. Water experts from the World Bank on a visit to Germany in 1995 expressed surprise at the level of costs in the sector. "Despite the high technical standard of their water and sewerage systems, we were amazed there were so few signs of cost consciousness in the German water industry," remarked economist John Briscoe, World Bank water director. He particularly criticized overmanning in the 7,000 local water companies, which employ 10 people for every 10,000 sewer connections, 5 to 10 times more than in France.

It is also argued that the high costs of water supply, treatment and disposal services in Germany demonstrate the national commitment to resource preservation and the 'Polluter Pays Principle'. It is reputed that the average prices for both water and wastewater services are the highest in the world, an average of about US\$3.40 per cubic meter in 1999. The rate of increase has decelerated somewhat during the last two years, with many investment targets having been met, but resistance to the level of water prices is putting pressure on local politicians to bring them down in some areas.

There is a small but growing body of private sector participation consisting of local management and service contracts most of which remain within public sector management control. Concession contracts and public-private partnerships are developing in the German water and sanitation services sector and it is likely that further private sector growth will be managed through the concession agreement model or by joint ventures. It remains to be seen whether the present decentralized, democratic, rule-based approach towards economic regulation can provide sufficient scope for the full commercial benefits of the private sector to be achieved.

#### *Environmental Regulation*

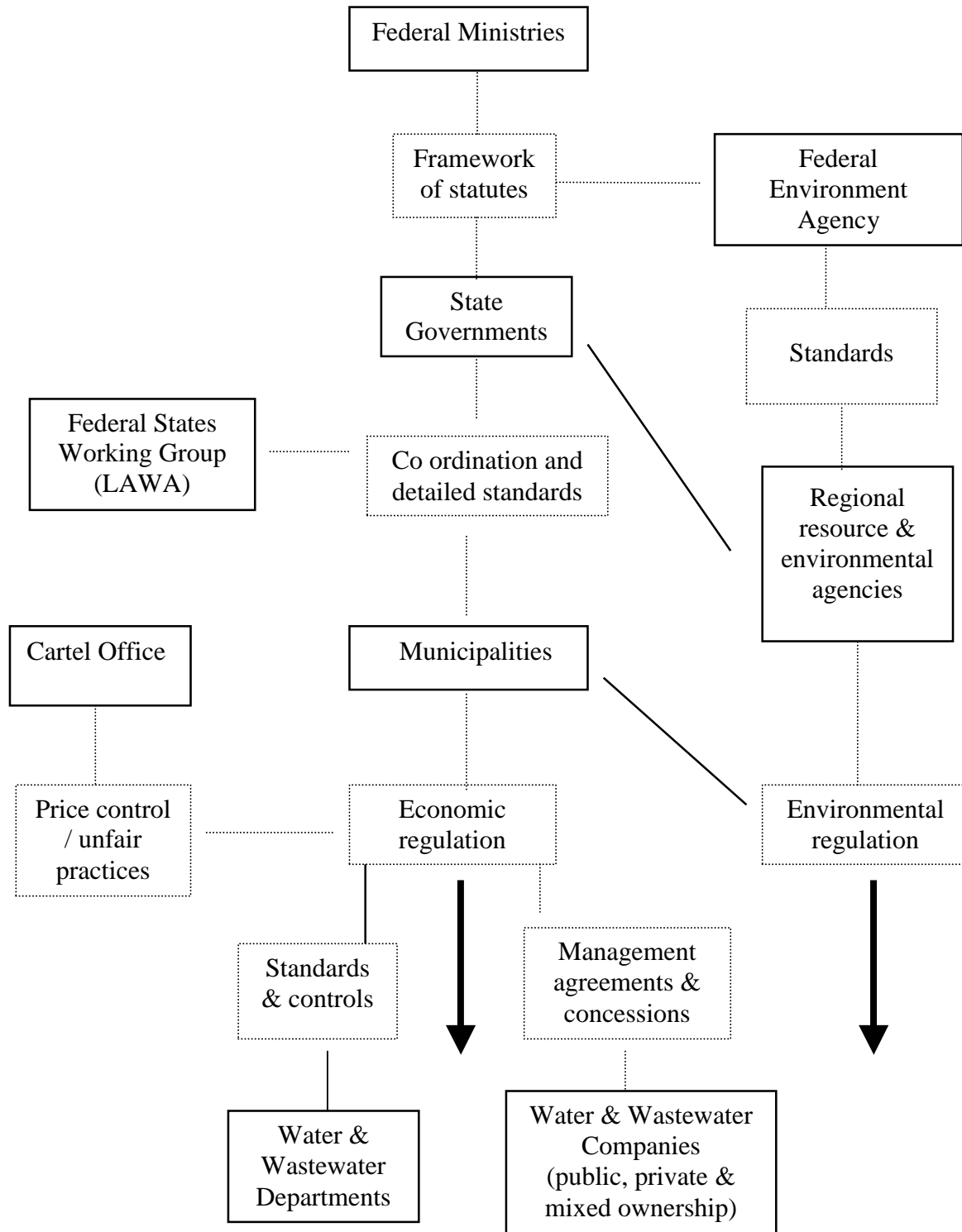
Environmental awareness is high in Germany, and it is a leading country in EU environmental policy making. Environmental legislation is formulated at Federal level and implemented and monitored at state level. Federal duties are carried out by the Federal Ministry of the Environment and regulations are enforced by the Federal Environment Agency (Umweltbundesamt) and State Environment Offices. There is a comprehensive system of licensing and control, and enforcement is generally very effective with a well-defined system of penalties.

The implementation of water resources management regulations is exclusively a matter for the states and the municipalities. The monitoring of water abstractions and effluent discharges and the collection of charges are the responsibility of the municipalities and the operators themselves, subject to checks by the responsible authority. The water management administrations of the states are integrated within their respective authorities; in the new states (former East Germany) special environmental administrations have been introduced. For the purpose of coordinating common problems and handling legislative instruments under the water acts, the State authorities working in the field of water resources management have pooled together to form the Joint Water Commission of the Federal States (LAWA).

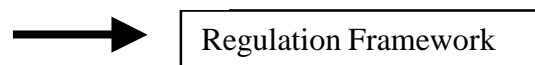
LAWA was originally set up in 1956 as an amalgamation of the ministries of the states of the Federal Republic of Germany responsible for water management and water legislation. The aim of the working group is to discuss in detail questions arising in the areas of water management and water legislation, to formulate solutions and to put forward recommendations for their implementation. In order to fulfil these objectives, LAWA has set up five permanent working parties and topic-related working groups to deal with the topics of water legislation, hydrology, inland waters and sea conservation, ecology, flood prevention, coastal protection, groundwater, water supply, municipal and industrial sewage and water polluting substances.

LAWA decisions and recommendations do not have the force of law but this cooperative approach has brought a convergence of water resource protection and management as well as common reporting procedures. The results obtained from this work form a basis for the implementation of a standardized water management system within the federal states. LAWA provides continuous and up-to-date information through a range of publications on the findings of the working groups and makes its policy documents available to all interested parties.

### German Regulation Framework for Water & Sanitation Services Year 2001



**Legend:**



## Indonesia Case Study – Key Points

**Indonesia is the largest country in Southeast Asia with a population of some 210 million**, projected to grow to 275 million by 2050, with over 50% living in urban areas. The country contains a number of large cities. Jakarta, with over 10 million people, is classed as a megacity.

For cities like Jakarta and Surabaya significant quantities of water are pumped from deep-wells giving rise to seawater intrusion. Aquifers are being drawn down at a faster rate than natural replenishment and pollution is occurring. Service provisions generally require extensive investment. **There is a need to raise tariff levels to economic levels, but much of the population is below the poverty line.**

There is an urgent need to address the water supply and sanitation needs of all Indonesia's cities and towns. This underlines the vital importance of resolving a satisfactory institutional framework. Indonesia is currently undergoing a difficult transition from an authoritarian and bureaucratic style of government, to one of more democratic form. **Current instability provides a difficult context for institutional change but steps must be taken in order to provide stability and investor confidence.** The water and sanitation sector in Indonesia was opened to private investors in 1994-1995 but progress has been slow. To date, only five major BOT and concession awards have been made.

There are currently no regulatory bodies for water supply and sanitation services in Indonesia but the issue is receiving increasing attention. The need to more effectively control the major concessions in Jakarta has been the main driver. **The proposed regulatory mechanism is to include sector regulators and a National Appeal Board. The proposed regulatory functions would include market entry, tariffs, services, and abuse of market power, and dispute resolution.**

The proposed establishment of such regulation at the local level raises the issue of professional know-how and available skills. **Central government should consider providing a 'regulator of regulators'** to provide training and technical support, oversight, and benchmark information to promote comparative competition and performance guidelines for the regulators themselves.

The body set up to deal with environmental issues is the Environmental Impact Management Agency (BAPEDAL), which is a non-ministerial government agency. Reporting direct to the President, its main tasks are to establish laws and procedures to protect the environment, with some preliminary activity in monitoring.

**Background**

Indonesia is the largest country of Southeast Asia, straddling the equator, with some 17,000 islands set out as an archipelago and measuring some 5,000 km from east to west. The population is about 210 million, and is anticipated to increase to around 275 million by the middle of the century. It is currently the fourth most populated country in the world, although the population is unevenly distributed, with 58% based on the highly fertile island of Java, and 25% on Sumatra.

Indonesia has a diverse culture as a result of the various ethnic peoples spread across its various islands. Most of the population is Muslim (88%), with the remainder largely Christian (10%). The national guiding principle involves freedom of religious expression, although religious differences have arisen recently as manifested by the unrest that has broken out in a number of places. This is partly but not wholly as a result of the current economic crisis and the transitional phase of government; some resentment, ethnic as well as religious, has been around for generations.

The climate is tropical with anti-monsoonal conditions over the west half of the country. West Java, Sumatra, and Kalimantan enjoy a relatively high rainfall, with the capital city of Jakarta having an annual precipitation of about 2,500 mm. East Indonesia is drier, 800-1,000 mm, except for Irian Jaya and neighboring islands where precipitation is also higher. There are many rivers and sub-systems throughout Indonesia; all of which carry large quantities of eroded sediments, which is added pollution in populated areas, as in Java. Much needs to be done to attend to the conservation of catchment basins and river systems.

The country contains a number of large cities, one of which, Jakarta, with over 10 million people, is classed as a megacity. Jakarta is destined, by spreading and absorbing satellite conurbations, to be the sixth largest city in the world by 2025 with a population of over 25 million. Surabaya, in East Java is also expected to become a megacity, increasing to about 12 million over the same period. There are eight other important metropolitan areas and, as elsewhere in other developing countries, there is a trend to urbanization of the population, such that 60% is expected to be living in towns or cities by the middle of the century compared with 30% now. The significance for water supply, solid waste, and wastewater treatment, as well as for the environment, is evident.

While the cities generally contain most modern conveniences, power supply and telecommunications are not readily available throughout, particularly the latter. In telecommunications, Indonesia has one of the lowest network densities in the world. Much remains to be done in transport and roads, and in the manufacture of equipment and appliances for which many basic elements are still imported. Finally, of course, much needs to be done to extend the coverage of water and sanitation services and improve standards, including those in the environment generally. The investment needed for these purposes is very large.

As is well known, Indonesia is currently undergoing a difficult transition from an authoritarian style of government to one of more democratic form. This is a fall-out from the regional crisis, which struck East and Southeast Asia in the latter half of 1997, although the pressure against the Soeharto style of government had been building up for some time and some change in political style would probably have been forced through in due course. This instability provides a difficult context for institutional change but it is quite clear that steps must be taken in order to assist in providing the stability and investor confidence that is required.

Indonesia is a country of future opportunity, with little of its human or national resources yet being utilized to a reasonable potential. Until the mid-1997 economic crisis, Indonesia had been developing at a rate of about 7% per annum for more than a decade. Then, until the middle of 2000, the business environment tended to track the political barometer, after which,

partly in frustration, activity increased due to returning consumer confidence and state enterprise. Both export growth and the balance of payments situation improved but, due to political uncertainty, the improvements are not considered sustainable without the introduction of real investment, one crucial sector being infrastructure.

In order to address the issues, there is in parallel a very large requirement for major involvement in education and training. This applies equally to the water and sanitation sector where there is a need to take forward both technical and institutional reform. The relative level of the work force, compared with regional neighbors, for instance, is poor to average, and this stems from the generally low standard of education received.

There are many factors that will influence the recovery process. Crucially, with more than half of the government budget needing to be set aside for servicing loans and debts, it is essential that the sale of assets by the Indonesian Bank Restructuring Agency meet its targets. This is becoming increasingly less likely since political interference and corruption in the courts is hindering the process. The Indonesian Bank Restructuring Agency must also continue the recovery program for the next two years. In terms of investor confidence, its performance in 2000 and for 2001 is receiving particular scrutiny. The lending agencies, in particular the International Monetary Fund (IMF) and the World Bank remain concerned over the slow pace of reform and general government ineptitude. Consequently, future financial assistance to support economic development is expected to be subject to close scrutiny, with possible delays in release being quite likely.

## **The Water and Sanitation Sector**

### *Water usage*

For cities like Jakarta and Surabaya or Bandung, significant quantities of water are extracted from deep-well pumping, with serious negative impacts on underground sources. Aquifers are being drawn down at a faster rate than natural replenishment and the pollutants entering from surface causes are not being adequately neutralized. At the coastal locations of Jakarta and Surabaya seawater intrusion is occurring. The situation is compounded by a considerable number of illegal or unaccounted for wells. Periodically, government leaders make statements concerning the urgent need to reduce the dependency on water supply from deep-well sources, but no effective action has emerged or is likely to in the short term.

As in most parts of the world, most of the surface water that is harnessed for use is directed towards irrigation, approaching the order of 90%. While the water usage by the population in the towns and cities will increase significantly in the years ahead, in line with steady urbanization, overall, the majority of collected surface water will still be directed towards irrigation. Again the recent introduction of regional autonomy and river basin authorities will affect the administration of supply for irrigation works as well as bulk water.

Where sewage is dealt with in towns and cities, this is by using septic tank systems, although maintenance of these is haphazard. The new town of Lippo Karawaci, some 25 km to the west of Jakarta is the first location involving the introduction of a modern sewerage system, with some 70% of accommodation covered in this way, along with provision of drinking water. Town authorities have noted a very significant drop in the numbers of vermin, cockroaches, and snakes in the area with the closed sewerage system compared with the area served by septic tanks. Initiatives to introduce a modern sewerage system to Jakarta have been discussed but the government still places the treatment of wastewater and sewerage some way down its list of priorities. The island of Bali, with its high tourist potential, is looking to deal with sewerage in a modern manner, possibly with Japanese funding.

The question of urbanization should attract urgent attention. Today's urban population represents about one third of the total Indonesian population of about 210 million. In 25 years this total is expected to be in the order of 250 million or more, with over 50% living in urban

locations. This translates to there being a further 60 million urban dwellers and highlights the need for planning immediately the water supply and sanitation needs of all Indonesia's cities and towns. It also underlines the vital importance of addressing and resolving as quickly as possible a satisfactory institutional framework for this purpose in line with the principles and implementation of regional autonomy.

#### *Institutional arrangements*

Institutional factors have constituted a major constraint on effective water and sanitation management in Indonesia. Inter-governmental relations have been characterized by a strong control from central government. This has created a bureaucratic culture, which is reflected in long chains of command in the organization structure with decisions dominated from the center. Excessive reliance on overextended government agencies and the complexity of institutional arrangements in water supply have resulted in responsibilities that are unclear and confused. Management of the services is fragmented among many ministries and agencies that do not communicate with each other. As a result, institutional arrangements are complex and unclear.

Seven different government ministries are involved in the abstraction and use of water in Indonesia, depending on the source of supply. Some rationalization of this situation is now being addressed by government and through on-going technical assistance but changes are not expected to be in place quickly. The two significant issues that will have an impact concern the introduction of regional autonomy and a proposal to handle water issues through river basin authorities, some seven in number. This latter proposal is not finding favor with district authorities, which feel a threat to current autonomy arrangements.

The ministry undergoing the biggest changes is the former Ministry of Public Works, now the Ministry of Human Settlements and Regional Development. The new ministry includes all the old public works functions, including water resource and systems planning, but since January 2001 its implementation function has been passed to the regional district authorities as part of the process of decentralization. In the past, provincial and district affairs came under the jurisdiction of the Ministry of Home Affairs, which had a major say in rural water issues. In many cases this led to a conflict of interests and rivalry with Public Works regional offices. Under the new arrangements the role of both ministries becomes an advisory one.

Although the policy laws are now in place the details for their implementation – who does what – have barely been examined. A muddled transition of two to three years is expected, with better-organized and more aggressive districts pushing ahead and setting a pattern in their favor which, according to rulings of the lower house of parliament, will stand. A major difficulty that has not been addressed concerns the borrowing of money for infrastructure projects and the question of sovereign guarantees.

Water supply throughout Indonesia is handled by some 307 district water authorities, Perusahaan Daerah Air Minum (PDAMs). Seventy of the PDAMs serve populations in excess of 100,000 and 150 serve between 20,000 to 100,000 people. Most of these were declining in efficiency before the regional economic crisis struck in 1997. Since then almost all of them have become technically bankrupt with operations continuing at a bare minimum of maintenance. There is a desperate need to raise tariff levels to reasonable economic levels, but the issue is highly charged politically since much of the population is below the poverty line. This dilemma is only being addressed in a few situations, notably where there is local will and potential ability to engage the private sector.

The water and wastewater sector in Indonesia was opened to private investors in 1994-1995 but progress has generally been slow. To date, only five major BOT and concession awards have been made. Technical assistance project work, underwritten by bilateral or multilateral lending agencies, has identified a number of situations where private sector participation could be introduced. However, many of the projects are too small to interest the

main international utilities, assuming that the various risks can be fairly apportioned and depoliticized, and there is a lack of domestic companies with the skills required to undertake the work.

### **Regulation Framework**

At this time there are no regulatory bodies for water supply and sanitation services established in Indonesia although the issue is currently receiving increasing attention. The need to control the major concessions in Jakarta more effectively has been the main driver for this. The proposed regulatory mechanism to be introduced for all infrastructure sectors is to consist of three main elements, namely: sector regulators, a National Appeal Board, and the central and regional governments. The proposed regulatory functions would deal with market entry, tariffs, services, abuse of market power, and dispute resolution.

The role of the central and regional governments is to formulate public policies that are binding on the sector regulators and the National Appeal Board, and to act on the decisions of the regulators. In the water and wastewater sector this will include resource planning, overseeing contract agreements and the state-owned enterprises, and the ratification of tariff decisions. Appeals against the decisions of the sector regulators will be heard by the National Appeal Board, with ultimate referral to the courts.

The new arrangements also make specific provision for community involvement that is becoming increasingly important in Indonesia. Non government organizations (NGOs), water users, and local people can maintain a dialogue with the sector regulator and bring matters such as breach of service obligations and abuse of monopoly power to his attention. They can also provide information directly into the proceedings of the sector regulator and the Appeal Board.

The role of the sector regulators is to make regulatory decisions within the framework of Government policy. This will include making recommendations on contractual agreements, taking tariff decisions, conducting reviews and hearings into customer complaints, and ruling on service obligations, abuses of monopoly power and disputes. Given that water and sanitation services in Indonesia are a local government responsibility, regulation at the local level is deemed appropriate. It is also considered that the establishment of new institutions is likely to be easier at this level.

There are, however, genuine concerns about the availability of local capacity in terms of resources and skills, and the potential danger of regulator ‘capture’ by political interests or the private sector companies. Under an ADB project for a small concession for the district of Weru in W. Java, one aspect of the project brief has been the setting up of a regulatory body. The provisional members of that committee are the Speaker in the District Parliament, a member of the local Chamber of Commerce, a member of the National Water body, a local community representative, and a member of the consumers association.

A test for the new institutional framework will be the extent to which the sector regulators are able to take an independent and impartial position in making their decisions. Local regulators will also be constrained by the lack of access to reliable comparative competition information, and the potential difficulties of knowing about external issues and costs affecting surrounding but independent jurisdictions.

In order to accommodate the new regulatory framework, local regulation for large concessions like Jakarta and interim regional regulators to cover the smaller cooperation agreements might provide the best transitional arrangements. As private enterprise becomes more widespread, further regulatory bodies can be established in the local sectors. Whatever approach is adopted, central government should consider providing a ‘regulator of regulators’ to provide training and technical support, oversight and technical advice, and benchmark information to promote comparative competition and performance guidelines for the regulators themselves.

*Jakarta*

Recent reports and papers have particularly highlighted the need for a regulation body for the Jakarta water supply and distribution concessions managed by Thames Water and Lyonnaise des Eaux. In these concessions, the original indigenous water supplier, Pam Jaya, is in the position of taking part of the supply responsibility and also acting for the client, the city government (DKI). While it is acknowledged that this is an untenable position, the issue has yet to be resolved satisfactorily.

Discussion within government is taking place over the appropriate form and membership of a regulatory body for Jakarta, with reference to consultancy work funded by the aid agencies. The World Bank report by NERA recommends that an independent regulatory body should be set up to exercise powers and functions given under the cooperation agreements; this means that Pam Jaya would no longer have a role in the monitoring and enforcement of the cooperation agreements. Pam Jaya's regulatory responsibilities would transfer to the city government (DKI), which is consistent with a future role for Pam Jaya as a government-owned enterprise with the ability to develop business interests in related markets. This could include taking a direct equity stake in the concession business in Jakarta.

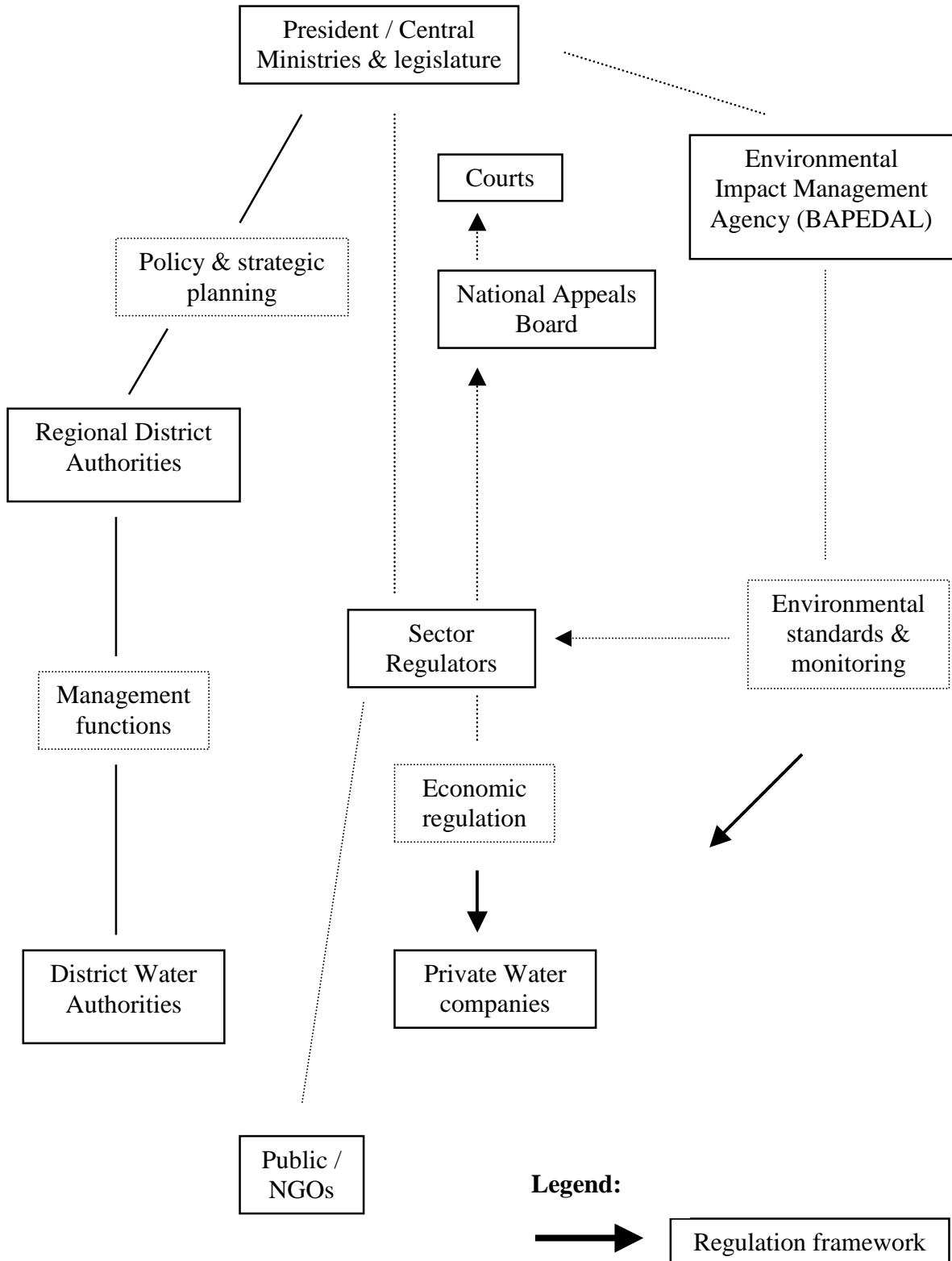
According to the report the new regulatory body would "take responsibility for all monitoring and enforcement powers and functions.... As soon as possible thereafter and, if possible, at the same time, the regulatory body should also be given the power to set water tariffs to final customers, and approve the investment plan of the second party (the concessionaires). This additional step would cause both the profile and the perceived authority of the regulatory body to increase, and should be taken once the regulatory body has been established and developed some expertise, as soon as stakeholders have developed confidence in the new arrangements, and once the political and economic situation in Indonesia has stabilized."

*Environmental considerations*

In 1993 the Government stipulated that the development of Indonesia should be based on the concept of sustainable development and environmental protection. The body set up to deal with environmental issues is the Environmental Impact Management Agency (BAPEDAL), which is a non-ministerial government agency, reporting direct to the President. Its main tasks to date have been to establish laws and procedures to protect the environment, with some preliminary activity in monitoring. This latter element of BAPEDAL's responsibility is still very much in its infancy and much remains to be done. The skills base is low and the training tasks ahead are considerable.

The importance of the environment and its protection are increasingly recognized by government and some elements of the private sector but other economic imperatives generally take precedence in decision making at this time. It is to be hoped that the right balance of economic need and environmental protection can be achieved as this decade progresses.

## Indonesian Regulation Framework for Water & Sanitation Services Year 2001 – proposed arrangements





## Italy Case Study – Key Points

**Italy has a population of 58 million** of whom 67% live in urban areas; Rome is the largest city with a population of 2.7 million. It is a wealthy country with a per capita GDP of US\$21,500.

The Italian political situation has been fluid for many decades, with nearly 50 governments since 1945. The country is characterized by strong regional government and within that by provincial governments.

**A high proportion of the population has access to a mains water supply but there are problems both with regard to the quality and the security of those supplies.** An estimated 80% of the population has access to a sewerage system but the proportion of sewage receiving effective treatment is only about 50%. **It is increasingly being recognized that the water and sanitation services require substantial investment in infrastructure and an accompanying tightening of environmental controls.**

**The Italian Government is increasingly turning to privatization as a way of raising finance and removing bureaucracy from the business environment.** There is resistance to privatization in the water industry, but it is being regarded as necessary in order to finance the huge bill for bringing Italy in line with EU water and waste directives.

**At the present, the Italian water market is largely self-regulated by the vast number of municipal water entities. The 1994 Galli Law paved the way for change.** It requires the grouping of the full water cycle, from the collection of water at source to purification, distribution and waste disposal, into one single management structure for every catchment area (ATO). It separates the ownership from the management of the services and defines optimal basins in which the integrated water cycle can only be operated by one entity.

**Regulation would be undertaken by an area authority in the ATO. Its responsibilities would include letting and managing the concession, preparing an area plan to include reference to future service standards and investment requirements, and determining appropriate tariffs on the basis of a price cap system.** Progress towards implementation has been very slow, hindered by inertia on the part of many local authorities and opposition from the existing municipal utilities. The issue is one of political will. At present vested interests are delaying progress.

Regional governments manage environmental controls and area health authorities oversee water quality.

**Background**

Italy is the fourth largest economy in the EU, with a population of 58 million of whom 67% live in urban areas. It has a long coastline projecting into the Mediterranean Sea and enjoys a benign climate. Rome is the largest city with a population of 2.7 million; Milan has 1.3 million and Naples 1 million. It is a wealthy country with a per capita GDP of US\$21,500.

The system of government in Italy is similar to many other western countries, with a separate and independent judiciary. Italy has a strong tradition of local government, and the 20 regions have a high degree of autonomy and legislative powers. Each region is divided into provinces, each with its own authority. The provinces are further subdivided into municipalities.

The Italian political situation has been fluid for many decades, with nearly 50 governments since 1945. Today, many of the numerous political parties are coalescing around center left and center right political poles. The present Government is center left in persuasion. However, it has been responsible for the introduction of traditionally right-wing policies like privatization.

Italy has a dynamic private sector, with a high proportion of small and medium sized firms. Fiscal policy has become firmer and more conservative in recent years, with a tight grip on price stability. Wealth creation is focused on the north, with parts of the south suffering from high unemployment and a lack of investment.

The increasing trend towards privatization, a process began in 1992, is now offering numerous investment opportunities for foreign firms. The legal system does not pose substantial barriers to trade and 100% foreign ownership of Italian firms is allowed. The attractiveness of the country is further improved by the success of policies to remove corruption, a problem that beset Italy for decades.

The Italian Government is increasingly turning to privatization as a way of raising finance and removing bureaucracy from the business environment. Until recently, the majority of the utility sector, including water, has been in public hands. This situation is now changing as the requirement to generate capital for investment increases. There is some public resistance to privatization in the water industry but it is increasingly being regarded as necessary in order to finance the huge, EUR50 billion bill for bringing Italy in line with EU water and waste directives.

The increasing trend towards privatization of the water sector began in 1994, with the implementation of the Galli Law. This legislation provided the mechanism that would ensure that the highly fragmented water industry could amalgamate into 100 or so large ATOs, or water catchment areas. The legislation required that the whole water cycle be managed as an integrated organization and that the water areas be loosely based on natural water basins. Lack of capital in the water sector, has subsequently led to partial or full privatization in some areas, with concession and BOT projects, becoming available.

**Water and Sanitation Services Sector**

A high proportion of the population has access to a mains water supply but there are problems both with regard to the quality and the security of those supplies. While in the North of Italy, 8.5% of the population does not have sufficient amounts of water, this rises to 18% in central Italy, 55% on the islands, and 78% in the South. The Italian Parliament is currently examining a law proposing the reorganization of the National Water Network with special emphasis on supplying the southern parts of Italy. In total, 9.2 million people live in areas of regular water stress.

The Rivers Po, Tiber, Adige and Arno account for 40% of Italy's fresh water resources, with their basins covering 35% of the surface area and 45% of the population. These four rivers are all of poor or bad quality. The water quality in natural and man-made lakes is

generally poor. There are also ground water problems caused by the intensive use of herbicides and fertilizers and by saline intrusions into underground coastal aquifers.

An estimated 80% of the population have access to a sewerage system but although treatment standards have been improved in recent years, the proportion of sewage receiving effective treatment is only about 50%. It is increasingly being recognized that the water and sanitation services require substantial investment in infrastructure and an accompanying tightening of environmental controls.

#### *Organization*

Central Government inertia has led to a fragmented central administration of the water sector. There is a Supervising Committee for the Use of Water Resources, which is neither a fully empowered 'water authority' nor a proper executive administration. The Government itself lacks the technical means to exercise a proper administrative role and has failed to define its relationship with the Supervising Committee, while on the other hand it has been reluctant to fully empower the regional and local authorities to administer the water sector themselves.

The Italian water industry employs around 36,000 people. It is estimated that, overall, the sector suffers from a substantial financial deficit, which is accumulated at every stage of the water cycle. The main causes of this are the unsatisfactory tariff policy that has operated in the past, especially with regard to the recovery of investment costs and the extreme fragmentation of the industry.

Water supply in Italy is currently managed by a total of 8,075 municipal administrations, which work either individually or in association with other municipalities. An exception are three public utilities, the Apulian Waterworks, the Sicilian Waterworks, and the Sardinian Water Supply and Drainage, which operate large facilities for the abstraction and distribution of water. According to the figures of the association of Italian public water and gas utilities, 55% of the water is supplied by 184 municipal or co-operative waterworks and the remaining 45% is in the hands of 5,896 different public bodies.

The industry is reasonably vertically integrated, with most firms dealing directly with production, transportation and distribution. Council firms almost always deal with aqueduct, drainage, and purification services simultaneously. Municipal and private firms have often diversified into the gas and other sectors. The Italian water sector is undergoing extensive change at the present time. The 1994 Galli Law envisages that the 8,000 or so Italian water entities will be rationalized into 100-120 more manageable structures aiming at combining water provision and sewerage, and generally serving populations in excess of 300,000 each.

Many municipalities have tried to keep control of their local services, by awarding the 'concession' for water and waste to the existing municipal operator. This has been the model followed in Rome, where ACEA has been awarded a 30-year contract, and also in Genoa, where AMGA has achieved the same result. New legislation, currently going through parliament, is designed to prevent this, with all new privatization schemes being attributed to individual operators through public tenders. The situation is changing quickly and two former municipal entities have been partly privatized and several more will be in the next few years. One method of achieving this is to allow the more successful municipal entities to expand their services into other regions of the country. Another is to encourage the participation of domestic and foreign competitors to bid for concessions in the water and sanitation sector.

Private firm involvement is concentrated in a few companies. A large part of production and distribution is managed by Italgas-Eniacqua and CREA (Pesenti group). Italgas currently manages around 415 contracts, distributing about 300 million cubic meters of water to 2.7 million people. Foreign groups have recently entered the sector too, particularly through co-operation between AMGA Genova and Lyonnaise des Eaux. They are becoming more and more aggressive in the competitive bidding for licenses.

The size of the potential market in Italy is large and it is likely to become increasingly competitive in the next few years. Two thirds of the population still receive their services from the numerous municipal entities. In the affluent north, there are many areas still served by large municipal operators who are reluctant to see their services managed by foreign operators. In the south of the country large-scale investment is required in infrastructure and there will be opportunities for BOOT schemes, as well as for concessions.

### **Regulation Framework**

The regulatory bodies for the water industry are:

- The Ministry of Public Works and under this, the Supervising Committee for the Use of Water Resources
- The Area Authority. This is a new body that was set up under the 1994 reforms and is currently being made operational. The 1994 law required the establishment of the water areas (ATOs), based on hydrological catchments. The Area Authority will have the task of co-ordinating, controlling, and defining tariffs within each ATO.
- The competent appeal bodies for disputes arising from the granting of concessions, by public bidding are, in the first instance, regional administrative tribunals, and in second instance, the ordinary law courts.

Apart from a few exceptions the move to competitive bidding has not yet occurred, so licenses are still granted by councils and provinces and not by public bidding. As a result, the competent appeals body in the second instance is the State Council. At the present time, the Italian water market is largely self-regulated by the vast number of municipal water entities.

#### *The Galli Reforms*

The 1994 Galli law (National Law No.36) paved the way for change. This is a framework law that seeks to achieve 'integrated water services'. It requires the grouping of the full water cycle, from the collection of water at source to purification, distribution and waste disposal, into one single management structure for every ATO. It separates the ownership from the management of the services and defines optimal basins in which the integrated water cycle can only be operated by one entity, thereby maximizing scale savings.

The object is to foster the development of the water service industry by encouraging a more 'entrepreneurial' approach to its management and by attracting private capital to fund the massive investments that are necessary for modernizing the sector. The operating license can be granted to either public or private firms via competitive bidding. Mixed companies are proving the most popular model with 51% of the shares remaining in the ownership of the municipality, or area authority. This situation is being challenged because the Galli Law states that the company manager cannot also be the owner of the assets.

The relationship between the owner of water industry assets and the manager of a water service is governed by the instrument of "convenzione". This is the basic document for the provision of the service and it defines the characteristics of the concession (management contract). In particular, it indicates the contract terms (rights, duties, borders, and term); control mechanisms; the quality characteristics required from the service; guarantees; and the service code (technical specifications, relationships with users, service standards). The assets (especially distribution and sewerage networks) remain public property to be operated under license for the supply of the service.

The license agreement stipulates:

- the type of firm (municipal, public, or private)
- economic and financial obligations upon management;
- the duration of the license (not more than 30 years);
- control mechanisms;

- the degree of efficiency and reliability to be ensured;
- financial guarantees;
- criteria for tariff and inflation adjustments; and
- guarantees of the quality of services (based on a 'consumer rights' list).

An area plan is to be drawn up on lines established by the regions, to help define the contents of a license. The plan identifies the investment necessary to provide a stated minimum level of service.

The new tariffs norms defined by the 1994 reforms are based on price-cap criteria. In particular, tariffs must reflect:

- the nature of resources;
- the quality of the service provided;
- investment needed for the improvement of the service;
- running costs;
- a return on investment capital; and
- productivity gains.

The tariff is defined at territorial area level (ATO). The new law encourages a reorganization of the tariff structure on a progressive and redistributive basis, there are concessions for minimal domestic consumption and for certain income groups. Unfortunately, the reorganization has moved forward very slowly and a cost-plus approach applies in many areas. Every year the old tariff is confirmed with adjustments for new investment, increased productivity, and inflation.

#### *Implementation of Reforms*

The ATOs are the 'geographical units' into which the existing utilities are to be regrouped according to their natural water basins. There are expected to be around 100 ATOs overall and each region is required to set up a number of them with some 500,000 people in each. There are two methods of doing this, consortium and convention. In the consortium arrangement, the authority, its management, and organizational structure is chosen by unanimous agreement of all the local authorities belonging to an individual ATO. In the case of a convention, the management is effectively determined by a decision of the provincial authority.

Inertia in the regions has delayed the establishment of the ATOs and the transfer of water resource management from public structures towards a more market-oriented management. By the end of 1999, all the Italian regions (with the exception of certain regions with Special Autonomy Status which were exempt) had adopted the necessary regional legislation that governs the cooperation between the local entities for the establishment and functioning of the ATOs. In spite of this, there are considerable delays in the drafting of the actual cooperation agreements within the defined ATOs. In many cases, the governing bodies have not been established, often due to conflicts among individual municipalities belonging to the same ATO.

Regional and local authorities are also failing to provide themselves with the technical capabilities necessary for the control and comparative analyses of the new operators. At the present time (February 2001) many ATO authorities have not yet assumed control of water services and there is resistance from municipal entities, especially those in the major cities. The reforms have also been hindered by opposition from current operators in the water and sanitation sector, who benefit from the existing arrangements.

The Supervising Committee on the Use of Water Resources is seeking to draw a clearer picture of the current state of implementation of the Galli Law and wrote to the Italian Regional Administrations in September requesting information on their progress. The committee intends to collate a report to be submitted towards the end of the year to the Italian

Parliament. It is expected that the pace of change will increase after the forthcoming election, which is expected to generate a change of Government to one of a center right persuasion.

Countrywide, progress in implementing the reforms varies widely. Tuscany was the first region to approve the regional legislation as required by the Galli law and its experience in implementing the legislation is summarized below:

#### *Tuscany Region*

The main aspects that a region needs to address in order to implement the Galli Law are the number and form of the ATOs, and the organizational structure, powers, and responsibilities of their area authorities. These are known as Ambit Authorities in Tuscany. There are 6 ATOs in Tuscany with populations ranging from 300,000 to 1.2 million. Ambit Authorities have been established in each of them and Ambit plans are close to the final approval stage in half of them.

Two cooperation modes are defined by the regional legislation, consortium and convention. The difference mainly refers to the way the institution and the organizational structure of the Ambit Authority is set up. In Tuscany the consortium mode has been adopted, whereby the statute for the Ambit Authority and its management are chosen through unanimous agreement among all the local authorities within the ATO. In cases where the convention mode is chosen, the Provincial Authority generally determines the Ambit Authority management.

The Ambit Authority is the administrative body in charge of the planning, organization, and regulation of the Servizio Idrico Integrato (Hydrological Integrated Service) as defined by the Galli Law. The following are the main duties assigned to the Authority by the national legislation:

- Survey of existing assets,
- Safeguards for existing operators in each ATO region,
- Preparation of the technical and financial plan,
- Responsibility for personnel transfer,
- Choice of the management option, and
- Management and regulation of concessions, once awarded.

The organizational structure of the Authority is defined by the regional legislation. In most of the regions, the responsibilities for the ATOs activities are to be shared by the existing communal, provincial, and regional authorities. In Tuscany, the institution of the newly established Ambit Authorities provides truly independent regulatory bodies, as intended by the legislation.

Using the establishment of the Arrezo ATO as an example, the following process is typical of what is required.

- *Establishing the organization:* The starting point for the institution of the Ambit Authority was the appointment, on a temporary basis, of the Managing Director and the Planning Director. The first task of the appointed directors was the selection of qualified personnel currently employed within the ATO municipalities and the appointment of engineering firms to carry out the survey of the existing assets.
- *The Asset Survey:* The Tuscanian legislation imposes a 6-month deadline on the newly established Ambit Authorities to carry out the survey of all the assets managed by the existing operators. The Authority is also given the task to implement an IT system, to record and subsequently validate the survey results.

A field survey was contracted to local engineering firms to assess the performance of the distribution networks and of the treatment plants. At the same time, a desk-based activity involved the collation of the data available from the existing operators, including many small municipalities. The survey of the sewerage network gave many problems.

Often, no relevant documentation was found in the local public administration offices and at the end of the survey 532 illegal discharge points were recorded. A high number of unregistered wells were also identified where groundwater is abstracted for agricultural use, highly increasing the pollution risk for the aquifers. Hydraulic simulation was carried out to validate the survey results that were used as the base for the definition of the Ambit Plan.

- *Operational Safeguards:* The survey results are also used by the Ambit Authorities to assess the performance of the existing operators. In Tuscany, extensions of up to three years were granted to those operators who are providing an economic, efficient, and effective service.

Legislation currently before Parliament could allow up to 12 years extension to the current concessions. There is a view that this legislation would support the interests of the biggest municipalities and would severely weaken the overall progress of the reform process defined by the Galli Law.

- *The Ambit Plan:* Based on the survey results, the technical and financial plan was developed with reference to the achievement of the qualitative and quantitative standards as set by the European Directives for drinking water and wastewater. Investment projections were made and input to a standard model, approved by the Public Work Ministry, which is used to calculate the starting tariff and the maximum yearly increase. Operational costs, capital depreciation, and capital remuneration are the three parameters included in the model.

The Ambit Plan also confirmed the organizational framework for future operations and this formed the basis for the number and skills of the personnel to be transferred from the old to the new operators

- *Management Option:* In Tuscany, the mixed (public/private) company option was chosen. The private partner will be responsible for the company management while the Ambit Authority will control the Ambit Plan guidelines. Critics point out that this puts the Ambit Authority into the position of majority shareholder and controller at the same time. The alternative of awarding service concessions to private companies is not excluded but the law requires detailed explanations sustaining the choice.
- *Bid management:* The Arrezo bid assessment referred to three main parameters:
  - Integrated water cycle management experience.
  - Improvement proposal to the Ambit Plan.
  - Financial solution to meet the investment required by the Ambit Plan.

Arthur Andersen was chosen by the Ambit Authority to carry out the bids proposal assessment. The French company, Lyonnaise des Eaux, won the bid for the integrated water service together with AMGA Genova. This was the first contract awarded following the enactment of the law that allowed ‘business partnerships’ between public authorities and private companies. The newly established company was contracted to manage Arezzo ATO for the next 25 years. Interestingly, the Tuscan courts subsequently ruled that it was illegal for a municipal company from one area to bid for work in another company’s area and cancelled the concession. This judgement has been challenged and considerable confusion reigns at the moment.

#### *Comment*

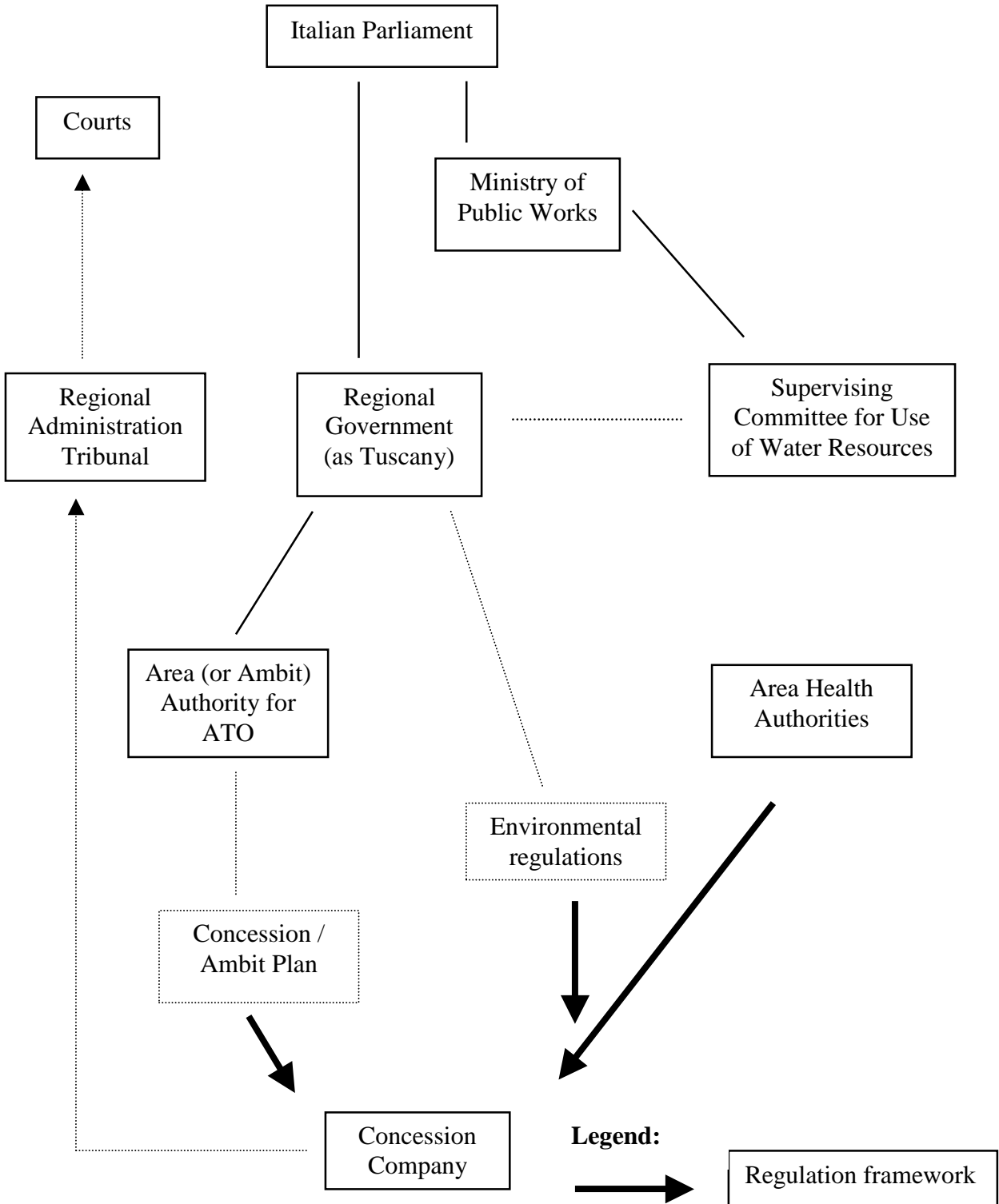
The Galli Law provides the framework and the tools for effective economic regulation at the regional/ATO level. The issue is whether there is the political will to make it work effectively and this has not been the case until recently. A critical aspect will be the degree of independence and objectivity that the Area (Ambit) Authorities can bring to their role. One obvious area of concern is their linkage to the concession companies through shareholdings, as evidenced in the Tuscany example. There is a distinct risk of regulatory capture by the

operating companies. Each region should give consideration to providing positive support and expertise for its constituent regulatory bodies.

*Environmental Regulation*

There are two other forms of regulation of the water industry. The public health authorities carry out water quality monitoring; there is no national equivalent of the DWI in England and Wales. Environment regulation in Italy is carried out at regional level although regulations are not well enforced. These functions are separate from and outside of the ATO authority.

## Italian Regulation Framework for Water & Sanitation Services (Based on Galli Law model)





## Poland Case Study – Key Points

Poland is one of Europe's largest countries with a population of about 40 million people. Warsaw is the capital City with over 1.6 million people.

**In the 1990s Poland emerged as one of the strongest countries in the former Eastern Block** following fundamental changes to its political and economic systems. The transition from the socialist political system to a democratic one and from a centrally planned economy to a market economy led to significant changes in the water and sanitation sector.

The water and wastewater sector has inherited a backlog of investments resulting in **high levels of environmental pollution and poor standards of customer service**. Further, the introduction of European standards in anticipation of Poland's accession to the European Union is placing massive investment demands on the industry.

Legislation introduced in 1990 shifted ownership of and responsibility for municipal water and wastewater utilities from the State to the local municipalities, carrying responsibility for organization and management, financing investment projects, and determining prices and service levels.

Approximately 300 water and wastewater utilities serve cities and towns in Poland. In most of the larger municipalities they are organized as commercial code companies that have a measure of financial independence; in others they are managed as in-house units.

**Economic regulation is undertaken by the municipalities**, largely based on their control as owners. Decisions on water pricing are commonly based on short-term political criteria and do not reflect the economic costs of investing in and providing the services.

The option of attracting foreign funds and expertise through the award of concessions is actively under consideration. In recognition of the need for greater stability and investor confidence, the Office of Housing and Urban Development (UMiRM) has developed guidance in the form of standards to improve the system of pricing and economic regulation.

**A comprehensive package of economic regulation measures is currently passing into legislation**. The municipalities remain responsible for implementing them and it remains to be seen how effective they can be in providing a consistent regulatory framework and the necessary investor confidence alongside wider political pressures.

Environmental regulation measures are being revised concurrently.

**Background**

With a population of close to 40 million and a land area of 313,000 sq km, Poland is one of Europe's largest countries. Approximately 62% of the populations live in the urban areas. There are 42 cities with a population of over 100,000. Warsaw, the capital, is by far the largest city with a population of over 1.6 million.

Poland is emerging as one of the strongest economies of the former Eastern Bloc. From the start of market reforms to July 2000, foreign companies invested US\$43 billion. In 1998 alone US\$10 billion was invested. Two thirds of foreign investment has come from European countries. Gross Domestic Product per capita increased by 25% from 1990 to 1998 (US\$3,960) and unemployment fell steadily to a level of 10.4% in 1998. There has been an upturn in employment to 15% over the last two years reflecting the restructuring pressures in the economy and the rigidity of the Polish labor market.

Over the past decade Poland's political and economic systems have undergone fundamental changes. The transition from the socialist political system to a democratic one and from a centrally planned economy to a market economy have led to significant changes in the municipal water and wastewater sector. The old system left a serious backlog of investments in the water sector, which resulted in degradation of the environment and deterioration of customer service. Further, the introduction of European standards for environment and commerce in anticipation of Poland's accession to the European Union is placing increasing demands on the industry.

Legislation introduced in 1990 shifted ownership of and responsibility for municipal water and wastewater utilities to the local governments, making them responsible for organization and management, approving and financing investment projects, and determining prices and service levels. Water and wastewater utilities have been introducing new management and information systems to respond to increasing pressure from local officials for accountability and from customers for improved service.

New mechanisms for funding and planning major projects have also been introduced. Many water and wastewater projects have been financed with preferential loans from the National and Regional Environmental Funds, which use funds generated from environmental impact fees and fines to support projects that will improve the environment. Foreign donor agencies have provided support to a number of water and wastewater improvement projects. Domestic and foreign commercial lenders are increasingly involved in financing municipal and utility investments and private investors are entering the market.

Poland's water and wastewater sector needs a significant infusion of private capital - both foreign and domestic - in order to upgrade facilities to meet the demands for improving the environment, responding to demands for improved customer service, and providing the foundation for economic development. The World Bank estimates that US\$25 billion to US\$40 billion of investment is required to bring the water sector up to EU environmental standards.

Meeting European standards is a major priority and steps are being taken to make the water and wastewater sector more attractive for investors by developing laws and standards that allow for full cost recovery through prices and lay the foundation for improving economic regulation of the sector. These activities are being carried out by the Office of Housing and Urban Development (UMiRM). A Standards Board for Pricing, Service Availability and Economic Regulation of the Water and Wastewater Sector was formed in 1997 for the purpose of developing standards and recommending legislative change.

**The Water and Sanitation Services Sector**

The municipal services sector in Poland is primarily responsible for water and wastewater utilities. It also carries out housing stock management, district heating, ensuring cleanliness and order, green areas, roads and municipal transport.

The socialist system of government in Poland left the water and wastewater sector in a poor shape. The primary goal of the central planning system was development of industry and little priority was given to improving the level of service provided to citizens or protecting the environment. The quality of water delivered through the central water system was generally adequate but high water losses, energy inefficiency, and pressure problems characterized the water and wastewater systems. Wastewater treatment was inadequate or non-existent, even in the largest cities. In 1997 over 60% of wastewater discharged was not biologically treated, 18% had no treatment at all.

Most utilities use non-uniform volume tariffs, whereby billing is based on consumption during the preceding year. The tariffs are set according to a cost-based formula, which includes only expenditures for operating and maintenance of infrastructure. Under the current legal framework it is normally impossible to include capital investment costs and prices per cubic meter for water and wastewater service in Poland have been much lower than in Western Europe.

#### *Water resources*

Poland is one of the poorest countries in Europe with regard to the availability of water resources. Currently, groundwater constitutes the main source of water for municipal supply, providing about 60% of the total volume of water abstracted. Poland experienced periods of drought throughout most of the 1980s and into the early 1990s, which highlighted their water resource problems.

Most of Poland's water resources have been heavily polluted from untreated or insufficiently treated domestic municipal and industrial wastewater discharge and agricultural sources. Groundwater resources have become progressively more polluted as untreated wastewater, drainage from waste dumps, and agricultural chemicals seep into the groundwater table. The quality of groundwater is generally higher than that of surface waters, although a certain percentage of these waters (some 17%) are significantly polluted.

#### *Urban water and wastewater utilities*

In urban areas, almost all residents are connected to central water supply systems. Coverage for wastewater collection lags behind that for water supply and much of the wastewater collected is not adequately treated or not treated at all prior to disposal. The construction of municipal wastewater treatment plants is a priority in the National Environment Policy.

In 1990, as a part of the sweeping political transformation in Poland, responsibility for municipal water and wastewater utilities was transferred from the central government to local government. Municipalities had to decide how best to organize and manage the utilities, plan and implement investment projects, raise resources for funding those projects, and regulate prices and service.

Approximately 300 water and wastewater utilities serve cities and towns in Poland. In most of the larger municipalities they are organized as commercial code companies (78%), in others they are managed as in-house budgetary enterprises (12%). Where a single water and wastewater utility serves multiple municipalities, municipal associations are often formed. The State retains ownership of some 6% of the utilities.

Utilities organized as commercial code companies - either as joint stock or limited liability companies - have legal identity independent of the municipality and may enter into contracts and borrow funds for investment. These firms can recover depreciation and profit in prices and can reserve funds for investment. Most municipalities retain ownership of the utilities but there has been a trend towards commercialization, creating greater possibilities for water and wastewater utilities to become financially viable.

### *Rural water and wastewater systems*

Approximately 60% of Poland's 1,613 rural municipalities have water systems and some also have wastewater systems. Polish law allows for a special form of water and wastewater utility, the water company "spolka wodna", which are granted special tax privileges. This form is most commonly used in rural areas but it is not uncommon to find water and wastewater services provided by multifunctional units, which also provide other municipal services such as transport, solid waste, town cleaning, road maintenance, and housing.

Central water supply in rural areas is much less extensive and wastewater collection systems are almost non-existent. The national government placed a priority on extending coverage in rural areas following droughts in the 1980s and early 1990s. With World Bank assistance the water network has significantly increased in recent years. There is an increasing demand for extension of wastewater networks to comply with European standards, which require wastewater collection systems in villages with population of more than 2000.

### *Investment Funding*

The European Union has estimated that the Polish water and wastewater sector will need to attract huge amounts of investment in order to achieve European standards. The sources for financing municipal services infrastructure in Poland include the National and Regional Funds for Environmental Protection, commercial banks, leasing, investment funds and foreign donor assistance. Due to technological, legal and financial barriers, the level of foreign investment in the water and wastewater sector has been a very small share of the total investment in the municipal services.

The European Union has introduced a new fund for development of ecological and transport infrastructure in Poland and other countries applying for membership. In Poland up to EUR380 million may be spent prior to accession, this will be administered through the National Fund for Environmental Protection and Water Resources.

Since responsibility for water and wastewater utilities was transferred to the local authorities, funding for investment projects is no longer provided from the central budget. Most utilities in Poland have not yet achieved financial self-sufficiency and, therefore, are unable to finance major investment projects from their own resources. In many cases local municipalities have other priorities for budgetary funds, insufficient funds or debt capacity, and major water and wastewater investment projects have been deferred to future years.

The primary source of funding for major water and wastewater investment projects over the past decade has been the National and Regional Funds for Environmental Protection and Water Management (NFOSiGW and WFOS). These funds are partly derived from the fees for using the environment and fines imposed for violation of legal environmental protection standards, consistent with the "Polluter Pays Principle". NFOS and WFOS funding for water and wastewater projects are typically granted to the municipality, not directly to the utility.

Foreign donors have provided assistance in the sector, primarily in the form of technical assistance for consulting and technology transfer. World Bank has provided loans to water and wastewater utilities and grants and co-financing for extending service in rural areas. The European Bank for Reconstruction and Development is providing funds in support of privatization initiatives.

The water and wastewater sector has not received significant amounts of foreign private capital. Thus far there are only two public-private-partnerships involving a foreign partner operating in the sector. Saur Neptun Gdansk is a joint venture firm, which operates the water and wastewater utility providing service to the city of Gdansk and several adjacent municipalities. In the other case International Water has a 21% stake in AQUA SA operating in Bielsko-Biala. Other cities in Poland are in the process of evaluating privatization options (Poznan, now at an advanced stage, and Szczecin). The European Bank for Reconstruction and Development has been supporting these efforts.

Polish private participation in the sector has also been limited although there are several examples of public-private-partnerships with Polish private companies. Aquarius is a Polish company operating under a management contract to provide service in the small municipality of Piaseczno, under a similar agreement to the one in Gdansk.

## Regulation Framework

### *Economic Regulation*

There is no central regulatory body responsible for reviewing prices, appropriateness of investments, and levels of service. Responsibility for regulating the water and wastewater utilities rests with local governments. The municipality appoints the director of the water and wastewater utility, and elects most of the Supervisory Board members when the utility is a commercial code company. Decisions on water pricing are commonly based on short-term political criteria and do not reflect the economic costs of investing in and providing the services.

The Office for Protection of Competition and Consumers and the Anti-monopoly Courts may get involved in reviewing water and wastewater prices if customers complain or if there is reason to believe the monopolistic provider may be taking unfair advantage of its position on the market. Occasionally, the administrative or civil courts can review disputes between utilities and the municipality or between the utility and its customers.

In recognition of the need for greater stability and investor confidence in the sector, UMiRM has developed legislation to improve the system of pricing and economic regulation. At the same time, the Office for Protection of Competition and Consumers is working to remove barriers to competition in the market and to prevent monopolistic practices.

In 1997, UMiRM initiated the process of reform to the system of pricing and economic regulation for the water and wastewater sector in order to attract investment to the sector. First, changes were made to the ordinance on water supply and wastewater disposal to allow for greater recovery of investment-related costs and to allow for differentiation in prices for different classes of customers based on the cost of providing service.

In order to implement more extensive reforms, UMiRM convened the Standards Board for Pricing, Service Availability and Economic Regulation of the Water and Wastewater Sector. Members of the board include representatives of the various ministries and agencies involved in regulating the sector and representatives from industry and municipal associations. The United States Agency for International Development has provided technical assistance to UMiRM and the Standards Board in this effort.

The Standards Board was assigned the task of developing a set of industry standards for calculating prices, developing service standards, and providing effective economic regulation of the sector. Further, the board was to identify changes needed in legislation in order that standards could be put into practice by utilities and municipalities and to work on disseminating the standards.

The Standards Board has developed the following standards:

- Determining revenue requirements
- Allocating costs to different classes of customers
- Designing tariffs
- Developing service standards
- Informing the public about changes in prices and levels of service
- Justifying requests for changes in tariffs
- Accounting guidelines
- Depreciation guidelines
- Developing service availability policies and related utility regulations
- Financial planning methodologies

*Standard 1: Determining Revenue Requirements*

In order to provide proper water and wastewater service to customers, each utility company should achieve a sufficient level of revenues for proper operation and maintenance, sustainability, and development of facilities as well as financial stability of the utility.

The standard is designed to enable utilities and their owners to attract investment from different sources, including the private sector and capital markets, and to recover related costs in utility revenues. The proposed standard shows how both capital and operating expenditures may be recovered in prices, given different forms of ownership and operation of the utility.

*Standard 2: Allocation of Costs to Customers*

Allocating costs is the second step in calculating prices after revenue requirements have been determined. The basic premise underlying this standard is that allocation of costs to customer classes should be fair, i.e. based on an objective technical and economic analysis. In addition, the methodologies should be practically applicable and cost-effective for utilities.

The standard prescribes technical and economic analytical methodologies and provides criteria for deciding which allocation method is appropriate.

*Standard 3: Designing Tariffs*

The final step in calculating prices is to design tariffs so that they generate required revenues and each group of customers pays its fair share. The way tariffs are structured can influence the behavior of utility customers and, therefore, can help the community and the utility achieve certain goals. Certain tariff structures do a better job of recovering costs from customers in a way that truly reflects the demands they place on the system. In addition, well-designed tariff structures can provide more financial stability to utilities.

The proposed standard sets out criteria for deciding which tariff structure is appropriate and showing how certain types of tariffs may be calculated.

*Standard 4: The Development of Service Standards*

The fourth standard defines guidelines for developing and reviewing service standards (or performance measures) for water and wastewater services. The underlying premise is that it is appropriate for economic regulators to review service standards for monopolistic providers of water and wastewater utilities in conjunction with the review of tariff changes and utility financial plans. Service standards should have a significant impact on the level of prices approved by the regulatory body. Many service and technical standards are specified by law. Local governments responsible for providing water and wastewater services should ensure monitoring and compliance with service standards.

The standard specifies areas where it is possible to identify and monitor technical and customer service requirements. It contains guidelines regarding provisions to be included in agreements between the utility and the local government, and between the utility and its customers. Finally, it identifies the responsibilities of various parties in developing service standards and measuring and monitoring them.

*Standard 5: Guidelines for Public Information*

The fifth standard sets out guidelines for disseminating information about changes in tariffs and service standards. The standard provides guidance to utilities in developing and implementing an effective information policy.

Each citizen has the right to be informed about activities related to public services. Providing information properly and in a timely manner helps to enhance the credibility of the local government and the utility service provider, thereby helping to overcome obstacles to the introduction of change. When customers understand the reasons for change and know what to expect, the level of social acceptance necessary for utility development increases.

*Standard 6: Information Requirements for Tariff Reviews*

The economic regulator responsible for approving tariffs needs to review certain basic information, and this information should be presented by utilities in a consistent and transparent manner. The standard identifies the minimum information that should be required and includes model schedules, which should be included in the information package supporting the application for tariff change.

*Standard 7: Accounting Guidelines for Water and Wastewater Utilities*

Accounting records must be maintained so that they not only enable the company to comply with government reporting requirements, but also provide sufficient evidence of costs and investments to support price setting and financial planning. Reporting should facilitate decision-making and review of regulatory compliance, but should not place an unjustified burden on the utility.

*Standard 8: Depreciation Guidelines*

The guidelines are for water and wastewater utilities to use in calculating depreciation for pricing purposes. The basic premise underlying this standard is that depreciation expense included in prices should be sufficient to provide for replacement of existing assets or to repay principal on loans taken to finance utility investments. Further, depreciation expense for pricing purposes will not necessarily be the same as depreciation expense allowed for tax purposes.

*Standard 9: Regulations on Service Availability*

These guidelines are based on the principle that information about requirements for obtaining utility service should be well documented and readily available to interested parties. The availability of such information will ensure equitable treatment of all parties and will enhance utility, community, and economic development. The actual content of a particular utility's regulations will vary depending on decisions made by the local government and on local conditions and priorities for utility and community expansion and development.

*Standard 10: Financial Planning Methodologies*

Financial planning, incorporating prudent forward projections, is necessary in order to ensure that the utility will have adequate resources to meet its obligations to provide service to customers in the future. The financial plan is the mechanism by which utilities can determine an overall tariff policy and the need for external financing.

The standards, which were formally approved in January 2000, promote the adoption of international practices in Polish water and wastewater utilities and municipalities. They are designed to allow utilities to become financially viable, to attract capital, to promote efficiency in operations and improvement of service to customers, to provide for more consistent and predictable economic regulation, and to improve transparency and accountability.

A new act governing municipal water supply and wastewater disposal has been drafted, which incorporates the principles and major directives outlined in the standards. Throughout

1999 and 2000, members of the Standards Board have been gaining support and acceptance for the proposed legislation. In October 2000 the draft was accepted by the Council of Ministers and is currently being discussed in the Parliament. In addition, since most of what is contained in the standards can be adopted voluntarily before the proposed legislation is adopted, the Standards Board is promoting their earlier implementation by municipalities and water and wastewater utilities throughout Poland.

The objective of the new act is to achieve four general goals:

- Provide an uninterrupted supply of water with suitable quality, reliable discharge and treatment of sewage,
- Achieve the environmental conservation requirements more rapidly,
- Protect the interests of customers, and
- Improve the economic effectiveness of utilities and institutions in the sector.

The draft act contains a series of chapters:

- (i) General regulations specifying the objective and scope of the act, defining and putting in order basic terminology as well as assigning competencies to individual organs of government administration.
- (ii) The principles of water supply and sewage discharge dedicated to the principles and legal conditions of provision and cessation of services.
- (iii) The principle of issuing permits for performing collective supply of water and discharge of sewage. In general, the project assumes that the municipalities issue permits for performing collective supply of water and discharge of sewage. The application for issuing a permit is supplemented with regulations for water supply and sewage discharge specifying, among others, mutual rights and duties of the parties, minimum level of the services provided, and standards as well as information on the method of settlement and making complaints.
- (iv) The principles of setting tariffs for water supply and sewage in accordance with the plans for development and upgrading of water and sewerage facilities. The procedures for setting tariffs will be specified in a suitable executive resolution to the act.
- (v) Approval of tariffs and the principles of settlements for supply of water and discharge of sewage. The bill places approval of tariffs with the boards of the municipalities. Hence, the bill does not forecast, at the current stage of arrangements, transferring the tariff policy to a special regulation office
- (vi) Fines and punishment regulations
- (vii) Changes in the regulations in force, temporary, and final regulations.

The new act provides, among others, that the tariffs will be set by water companies based on 'essential proceeds', which in particular shall include:

- costs connected with providing with the services in the preceding year, including planned changes in these costs,
- changes in economic conditions and in the quantity and conditions of the services to be provided, and
- costs resulting from planned capital investment, based on long term plans for development and modernization of water and wastewater facilities, which water companies will be obliged to prepare.

The outcome of this approach will be to reinforce and provide discipline to a regulatory framework in which the local municipalities continue to take on the regulatory role in their areas of jurisdiction. This will include granting concessions and approving tariffs. This

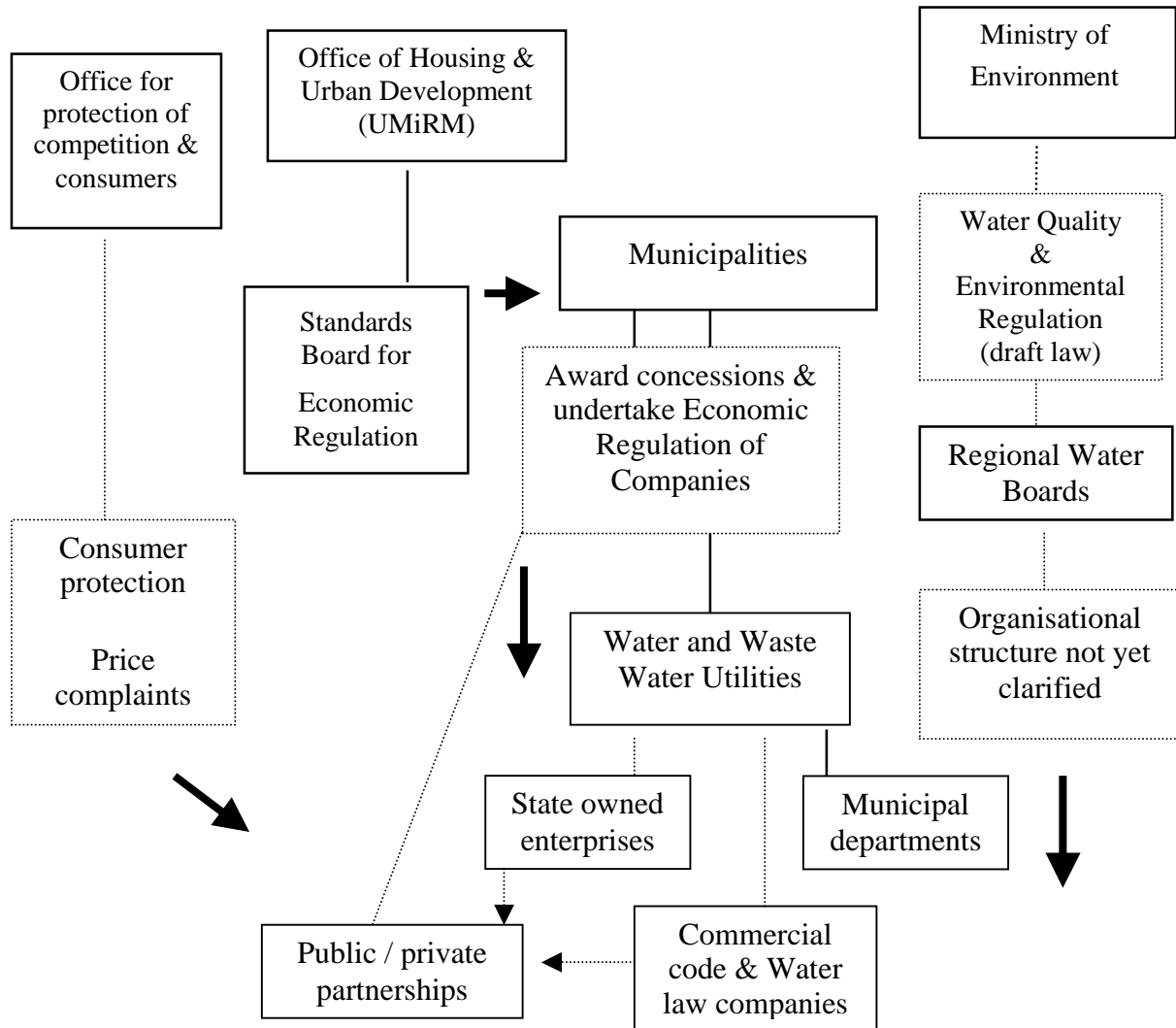
approach should lead to adherence to the basic principles set out in the standards and to a consistency of approach across the country. The test will be whether the municipalities, with their affinity to the political process, can give confidence to external investors that they will receive a sufficiently objective and independent framework within which to operate.

*Environmental regulation*

The government of Poland has implemented a number of changes aimed at improving water supply and wastewater disposal. Environmental funds were created to finance projects aimed at improving the environment. Improvement of water quality has been a priority of the funds.

The Ministry of Environment is working to synchronize Polish environmental laws with European directives. There will be a new Water Law, which will cover administration of water resource management as well as the requirements for water and wastewater quality. In addition, secondary legislation will be amended. The new legislation was drafted in 1999 and has been before Parliament but some aspects have been contentious and there is no clear date for its enactment. The organizational arrangements for implementing water quality and environmental regulation have been a matter of debate and have yet to be clarified, but it seems that new Regional Water Boards will implement environmental controls within their areas of jurisdiction.

### Polish Regulation Framework for Water & Sanitation Services Year 2001 - in transition



**Legend:**



## South Africa Case Study – Key Points

South Africa is a multi-party independent democracy with a population of 43 million people. It is a wealthy state but has a very unequal distribution of income with half of the population accounting for 10% of consumption.

**The country established a new constitution in 1996** following the ending of apartheid and this heralded a series of social and institutional reforms. **The improvement of water availability and service to all members of the community is viewed as a national priority.**

The Department of Water Affairs and Forestry (DWAFF) oversees water policy and performance including both environmental and quality issues and water service provision. Water and sanitation services are provided by the local Water Service Authorities (WSAs) either directly through municipal departments or through joint ventures and concessions. Private participation is in its infancy but is growing.

The National Water Act (1998) and the Water Services Act (1997) have established new bases for water management. **The need to cover the full economic costs of the services is recognized, so is the need to provide affordable services for the poorer members of the community.** Means to achieve this include the use of a lifeline tariff (free water for the first 6,000 liters per family per month is under consideration), a steeply rising progressive block tariff to favor lower volume users, cross subsidization (e.g. from urban areas to the rural poor) and Government subsidies (e.g. for first time service provision).

**Economic regulation is administered by the WSAs under the guidance and regulations of DWAFF.** The local authorities thus take responsibility for both water service provision, through water service providers (often their own department) and for its regulation. Inevitably they are subject to a range of political pressures and aspirations, concerning the provision and pricing of the services.

Economic regulation is at an early stage and many observers fear that there is a lack of the necessary expertise available to local authorities. The City of Johannesburg has tried to overcome this by setting up a multi-service regulation unit covering gas and electricity as well as water and sanitation services. **Despite DWAFF guidance, a lack of consistency of regulation across the country is likely to be a significant issue.** The possibility of a single national economic regulator is still under consideration by the Government.

Environmental and water quality regulation is delegated by DWAFF to the water boards and to new catchment agencies that are being set up.

**Background**

South Africa is a multi-party independent democracy with a population of 43 million people. South Africa's nominal GDP is estimated at US\$138 billion, similar in size to Portugal, Thailand, and Indonesia, larger than Malaysia and Chile. South Africa's GDP per capita is US\$3,160 but in terms of income distribution it is one of the most unequal large countries in the world. In the late 1990s, the wealthiest 2.4 million South Africans accounted for more than 40% of all consumption, while the poorest 21 million accounted for fewer than 10%.

South Africa had its first multi-racial election in 1994 and the constitution of the country was revised and replaced with the new Constitution of South Africa in 1996. Many aspects of the legal and regulatory frameworks are evolving and changing to better facilitate changes within the provision of water and sanitation services. The national Reconstruction and Development Program (RDP), which acts as the primary political mandate for policy transformation, states:

Water is a natural resource and should be made available in a sustainable manner to all South Africans... the fundamental principle of our water resources policy is the right of access to clean water - water security for all... establish a national water and sanitation program which aims to provide all households with a clean, safe water supply.... adequate sanitation facility per site, and a refuse removal system to all urban households.

The RDP's approach is to ensure that essential service needs are met by mobilizing additional resources through partnerships, more forcefully tapping capital markets, and through large increases in government subsidies when required.

**Water and Sanitation Services Sector**

South Africa suffers from the unfortunate combination of low levels of rainfall and a large population. For every South African, there are only 1,200 cubic meters of renewable water resources. Since the population continues to grow at close to 2% annually, this figure is expected to fall to under 1,000 within the next decade that is considered to be the boundary between water-stressed and water-poor countries. Issues of water availability are compounded by the inequality of income distribution. Eighteen million people in South Africa do not have a basic water supply and 27 million people (more than half of the South African population) have no sanitation services. The government considers water conservation policies to be urgent and is seeking to make the full cost of managing water catchment areas self-financing.

The institutional arrangements for water supply and wastewater services in South Africa are complicated. Government departments, notably the Department of Water Affairs and Forestry (DWAFF), provide direction and advice; there are bodies, such as the water boards with specific catchment responsibilities and there are the local authorities that are primarily responsible for providing services to the community. Since 1994, water policy has been undergoing a process of change that has included the restructuring of DWAFF through a review of water policy and legislation.

There are nine provinces in the country each with its own provincial government. Local authorities comprise three categories. There are six metropolitan councils that provide a full range of services to the main urban areas. There are 41 district councils and 284 local councils that comprise a lower tier within the districts. The metropolitan and local councils are responsible for the actual provision of water and sanitation services to the inhabitants, including the distribution systems. Although they must own the infrastructure, they can contract out the operation of their services. Recently, the Government has signified its intention to allocate to the 41 district councils the jurisdiction for water services (water and wastewater) that is currently allocated to the local councils. This will significantly reduce the

number of councils responsible for the services and should allow some material benefits of scale to be achieved.

Local authorities are typically structured into a technical services department (responsible for the operation and maintenance of water services, roads, gas, parks, solid waste disposal, etc.) that is controlled by the city engineer, and a finance department (responsible for tariff setting, treasury, billing, and revenue collection), controlled by the city treasurer. They both report to a town clerk or chief executive. In one case, Durban Metropolitan Council, the water, wastewater and solid waste functions (technical services and finance) have been corporatized into a single entity, which is 100% owned by the council. Private sector operations in the water sector are a recent development, with only three relatively small Public-Private Partnerships (PPPs) in water and sanitation being concluded since 1998.

All local authorities ultimately report to the Ministry of Provincial and Local Government (MPLG) through the relevant provincial department. The Johannesburg Metropolitan Council, for instance, reports to the MEC for Local Government and Development Planning in the Gauteng Province, who in turn reports to the MPLG. Should a metropolitan, district or local council fail to perform its obligations to provide water and sanitation services (or any other service), the relevant MEC in the provincial government will assume responsibility. The provincial departments, however, do not have any capability to deliver water services.

The local authorities receive their bulk water supplies from the water boards, which extract the water from catchment areas and sell it on to them. There are 15 boards covering the entire country. The most important water boards are Umgeni Water and Rand Water, serving the industrialized areas around Durban and Johannesburg, respectively. Not all areas in South Africa are covered by water boards. In some instances the local authorities are responsible for water production and bulk supply, in addition to water distribution, treatment, and discharge.

The water boards report to DWAF. The minister at DWAF has the power to dismiss old water boards and create new ones, and to designate special water services committees to temporarily replace a local authority if he considers it incapable of providing acceptable service to its customers. Although local authorities have representation on the board of water boards DWAF approves the bulk water tariffs charged by water boards to local authorities. DWAF also plays an important role in the financing and operation of raw water reservoir (dam) and transfer schemes.

DWAF sets the policy, guidelines, and regulations on water matters including water services. It also sets standards for drinking water and monitors them throughout the country in the same capacity as the National Drinking Water Inspectorate in the UK. DWAF also acts as the environmental regulator on water matters including abstraction and discharge permits and water quality in river courses, etc. It is the intention of DWAF to devolve responsibility for the environmental management of water related matters to Catchment Management Agencies, which will fund their activities from raw water abstraction charges. The process of establishing these agencies is still in its infancy.

### *The Water Law*

Two important new water laws, known as the National Water Act and the Water Services Act, have recently been placed on the statute books. The National Water Act of 1998 replaced a 1956 Water Act. It was designed to protect, use, develop, manage, and control South Africa's water resources. Its two fundamental duties are to set up a licensing system for the use of water and to prevent the pollution of water. Its core objectives include:

- meeting the basic human needs of present and future generation,
- promoting equitable access to water,
- redressing the results of past racial and gender discrimination,
- promoting the efficient, sustainable and beneficial use of water in the public interest,

- facilitating social and economic development,
- providing for growing demand for water use,
- protecting aquatic and associated ecosystems and their biological diversity,
- reducing and preventing pollution and degradation of water resources,
- meeting international obligations,
- promoting dam safety, and
- managing floods and droughts.

The National Water Act obliges the Water Minister to consider measures necessary to support the establishment of tariffs by water service authorities, and in particular to make allowance for lifeline and progressive block tariffs.

The Water Services Act, passed in 1997, is concerned with the provision of water services. It transfers the responsibility for the provision and management of existing water supply and sanitation from national to local government. The Water Service Authority (WSA) - which is the responsible local authority - takes ownership of the infrastructure and establishes the institutional framework for operations. There are seven core governance functions that WSAs must perform:

- Representation, including understanding its constituency's interests and translating these into services,
- Planning, including drafting a water services plan for its area,
- Regulation, including making by-laws and setting tariffs,
- Conduit for funding from provincial and national government,
- Ensuring water services provision – a function that can be contracted out to water service providers, sanitation promotion agents, and implementing agents,
- Monitoring and evaluation of water service providers (WSPs), and
- Dispute resolution between WSPs and customers.

The Water Services Act recognizes that a WSA may enter into a written agreement with a WSP. Water Service Authorities can enter into various types of municipal service partnerships, including:

- Public-public (WSA and a public sector entity, e.g. Water Board, another Council)
- Public-private (WSA and a private entity)
- Public-NGO (WSA and a non-profit organization)
- Public-CBO (WSA and a community organization).

Various enactments influence the form that these arrangements can take but essentially they must be set up in a fair, equitable, transparent, competitive, and cost effective manner. Under section 19(5) of the National Water Act, there is the possibility of joint ventures, opening the way to the involvement of the private sector in water delivery. In June 2000 DWAF drafted regulations dealing with contracts between water service authorities and water service providers. They prescribe matters that must be regulated by a contract between a water service authority and a water service provider. The minister may also prescribe compulsory provisions to be included in such a contract. The aim of these regulations is to encourage efficient, affordable, economic, and sustainable access to water services for all consumers

### **Regulation Framework**

The regulatory function in South Africa is evolving over time. Under the 1996 Constitution of South Africa jurisdiction and hence regulation is vested in the third tier of government, namely the metropolitan, district and local councils. Unless local authorities agree to allocate the regulatory responsibility to another body, it seems that the national Government is unable to prescribe to local government what mechanism they should use to regulate any water service operations contracts with operators.

The Water Services Act provides the main regulatory framework for the water service sector. There is no independent national regulator of water services. The local authorities undertake the economic regulation of water and wastewater services including the enforcement of concession contracts with private water service operators. In order to provide guidance and consistency for the process, the legislature has established a system whereby DWAF, and other responsible ministries, can prescribe standards through regulations. They include:

- compulsory national quality standards for water and sanitation services,
- requirements for service delivery agreements, and
- monitoring compliance with the above.

DWAF also undertakes a monitoring role. Local authorities are required by the Water Services Act to submit water development plans to DWAF for comment and approval, and water boards have to submit business plans. Although several of these plans have been submitted, observers comment that the process of approval and enforcement does not seem to be in place.

Local authorities have yet to set up regulation or contract units. Private sector management of water services is a new development in South Africa and local authorities do not have an established track record in setting up, monitoring, or carrying out audits of the performance of water service operators. There is currently no well-established process of transparent and accountable reporting. Local government has also lost considerable skills over the past 10 years and the available capability is limited and regulatory experience is lacking.

Some expertise exists in larger authorities and the Greater Johannesburg Metropolitan Council (GJMC) has decided to set up a separate contract unit within the council. This unit will administer the gas utility, electricity generation, which has been privatized, and the water services, which are going out on a management contract. GJMC intends to have a multi-utility contract administration unit consisting of a small professional team supported by administrative staff. GJMC intends to use private sector expertise to augment its regulatory capability, and it is expected that the Council will go out to tender in 2001 to seek technical assistance and advice for the formation of this multi-utility contract administration unit.

It is too early to tell whether these new regulatory arrangements are going to be successful, but initial indications are that the councils are on a steep learning curve, and it will be some time before they have developed adequate regulatory capability and experience. Since each local council is to be responsible for regulating its own contracts with water service providers, the impact and effectiveness of the regulatory process across the country is likely to be variable.

At the moment it is doubtful whether commercial regulation is being carried out effectively, either by DWAF for whom it is not its direct function (its role is limited to promulgating regulations, policy, and guidelines), or by the local authorities for which this is a relatively new and specialist activity. DWAF often issues guidelines to local authorities rather than regulations. One reason for this is the markedly different capabilities of local authorities to comply with them. The application of these guidelines is often not taken seriously by the local authorities. It may be preferable for DWAF to indicate stricter regulations in metropolitan areas, where pollution threats are greatest.

The opinion of some observers is that there are too many bodies responsible for economic regulation, with the effect that none are actually in a position to do it properly. The six metropolitan local authorities have the resources and in time will probably develop this capability. It is considered doubtful, even after the re-assignment of the water service authority functions from local to district authorities (i.e. a reduction from 284 to 41), that the district councils will all have the resources or be able to develop an effective regulatory capability.

A debate on whether or not South Africa should have a national independent regulatory body such as Ofwat is currently taking place. A comprehensive review of economic regulation is being undertaken by DWAF and the possibility of a single regulator is one of the options under consideration. A number of operators appear to be playing lip service to the need for a properly regulated market and are arguing that South Africa cannot afford an expensive independent regulator of the type that exists in England and Wales. There are also marked regional differences in South Africa and there are doubts whether a national regulator would be able to sufficiently appraise itself of the conditions prevailing in all of the district and metropolitan areas. A director from DWAF made the following statement on the issue in January 2001:

We in South Africa plan a comprehensive policy review process as the white paper on water supply and sanitation was already done in 1994. This review will include all aspects including the regulator role, function, and structures. We will certainly learn from other countries but will most probably not adopt an Ofwat model just like that. What will also be considered is what will be regulated by the municipalities and what will be the role of national Government as national regulator.

The framework of economic regulation is under close scrutiny in South Africa and we can expect to see the process continue to evolve over the next few years.

#### *Tariff Setting and Water Services Affordability*

The practicality of affording major improvements and extensions to water and sanitation infrastructure while retaining affordable services for the poorer sectors of the community is a critical issue in South Africa.

The power to determine tariffs vests in the local authorities. In their capacity as WSAs they control the setting and adjustment of tariffs by the WSP and have powers to review and adjust prices within a water services agreement. The tariffs for municipal water services are subject to standards determined by DWAF. In setting out draft regulations for this purpose the minister stated:

The South African Government operates in the context of limited resources and large service backlogs. Given these constraints, it is important that the water services sector becomes financially autonomous, in order to ensure the long-term sustainability of water service provision. In order to achieve financial autonomy, it is essential that the full financial cost of supplying water be recovered from water users, including capital.

The Minister of Water Affairs has powers to intervene in established tariffs for concession contracts, and in using these powers he must take into account the effect that this will have on the return of the water service operator. Bulk water charges (i.e. the water supplied by water boards) also require the approval of DWAF. The Department of Finance must approve local authorities' overall budgets and borrowing allocations and consequently he can also influence annual tariff increases. The Department of Provincial and Local Government, under whose direction all local government falls, is also the line ministry responsible for local government competencies.

There are many influences affecting the setting of water tariffs. There is a conflict for those concerned between the stated need to recoup the full costs of service provision, required to improve and extend the water and wastewater services, and the need to ensure access to those services for the extensive poorer sectors of the community.

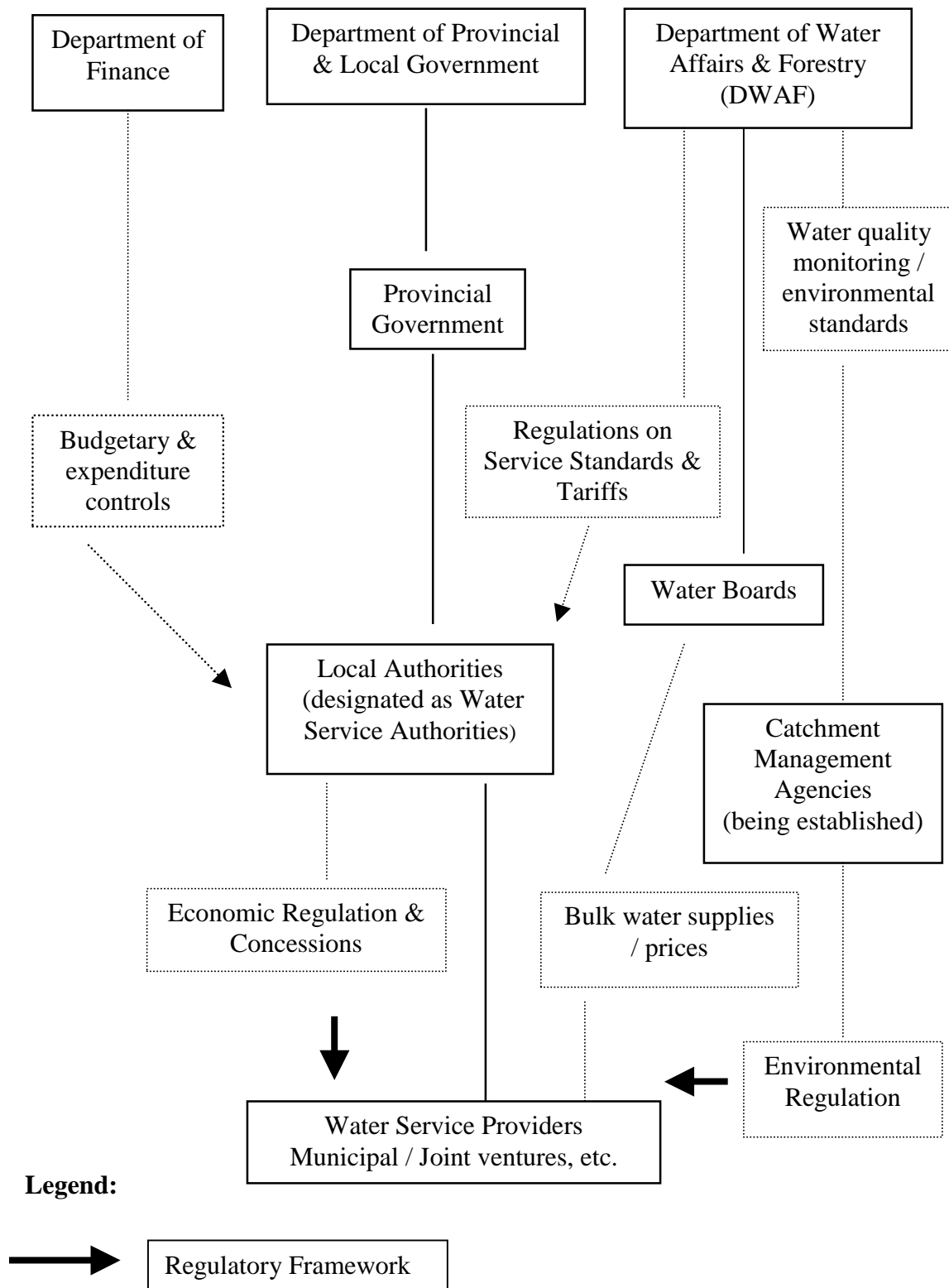
The specific issue of affordability was given emphasis in the Regional Reconstruction and Redevelopment Program. The RDP specifies the need for tariff restructuring, cross-subsidies, and lifeline services to the poor, with respect to both water (including sanitation) and electricity. To ensure that every person has an adequate water supply, the national tariff structure must include the following:

- a lifeline tariff to ensure that all South Africans are able to afford water services sufficient for health and hygiene requirements,
- in urban areas, a progressive block tariff to ensure that the long-term costs of supplying large-volume users are met and that there is a cross-subsidy to promote affordability for the poor, and
- in rural areas, a tariff that covers operating and maintenance costs of services, and recovery of capital costs from users on the basis of a cross-subsidy from urban areas in cases of limited rural affordability.

Most councils now use variable service charges for domestic, institutional, and commercial usage and a rising block tariff within the domestic charges to subsidize poorer customers. In some instances unmetered customers are effectively subsidized where the actual consumption is greater than the assumed consumption. Wastewater charges are increasingly being linked to water consumption and, therefore, subsidies (explicit or effective) to the poor take place through this increasingly popular mechanism. However, in some authorities the ability to cross subsidize is limited by the limited number of commercial or generally affluent customers.

It is current government policy to provide capital subsidies for new water schemes to cover the cost of providing 250 liters of water/capita/day at least 200 meters from the place of residence and a ventilated improved pit latrine. All capital costs above this minimum standard and all O&M costs associated with the service provision have to be recovered in the water and wastewater customer charges. The Government is now seriously considering providing the first 6,000 liters per household/month free. The cost of this water could then be provided either by direct transfer from national to local government or from a steeper rising block tariff, or a combination of both.

## South African Regulation Framework for Water and Sanitation Services Year 2001 – In transition



## US (New Jersey) Case Study – Key Points

**The United States (US) is a federal republic containing 50 states.** It has a large diverse and steadily growing population of 281 million persons and it is the fourth largest country in terms of land area in the world. The US is the world's wealthiest country, a reflection on its rich natural resources and highly developed industrial and technical base. The State of New Jersey lies on the eastern seaboard adjacent to New York.

**Water and wastewater operations are highly fragmented, with a total of some 55,000 service providers.** A large number of these are small, municipally-owned supply and distribution systems. It is estimated that the 5% largest networks serve 76% of the US population. Municipal control is the norm in the US but there are a large number of private companies who are separately regulated.

**Regulation of services in the public interest is a long established and respected process.** State governments have primacy in the control of utility operations, including price controls. The states regulate investor-owned water utility companies through Public Utility Commissions (PUCs), which determine revenue requirements and tariff structures.

**Economic regulation of private companies is based on a 'cost to serve basis', and is concerned to ensure that the water utilities do not abuse their monopoly position and charge a fair price to consumers.** It also ensures that the companies are able to make a "fair" rate of return on their expenditure and are in a position to maintain a safe, adequate, and proper service.

**The New Jersey Board of Public Utilities (BPU) regulates all investor-owned utilities in the state** including telecommunications, electricity, gas, water, and wastewater. It consists of three commissioners who are appointed by the state governor for terms of six years each. The commission is funded by a levy on the utility companies. It publishes reports on its activities and is transparent and accountable in its decisions and processes.

**The general perception in the US is that the regulatory environment has been effective in serving the public interest** and in providing safe and adequate services. However, there is a lack of incentive under the rate of return based approach for companies to increase efficiency. This has led to a cost plus culture and in order to ensure reasonable rates the regulatory process has become resource consuming and intrusive.

**Water and wastewater utilities are also subject to strict environmental regulation** which is overseen by the Federal Environmental Protection Agency and its state counterparts.

**Background**

The United States is a federal republic containing 50 states. It has a large diverse and steadily growing population of 281 million persons and occupies a land area of 9.5 million sq km, making it the fourth largest country in the world in terms of land area. The US is the world's wealthiest country, a reflection on its rich natural resources and its highly developed industrial and technical base. The state of New Jersey lies on the eastern seaboard adjacent to New York. It is one of the smallest states in land area but has one of the largest state populations (8.4 million) making it a highly urbanized area.

There are many federal laws affecting water supply in the US. Legislative influence is particularly strong in the areas of water resource management and drinking water quality. Federal laws are enforced by a number of agencies, the most prominent being the Environmental Protection Agency (EPA). These federal agencies usually have state-based counterparts. Representation of utility companies is via a plethora of associations, which advise on the application of federal standards, carry out service benchmarking, and administer training and certification programs. They include the American Water Works Association, National Association of Water Companies, National Institute for Water Resources, National Association of Regulatory Utility Commissioners, the American Water Resources Association, and the Water Quality Association.

While the federal government plays a large role in water matters, the states have primacy over the federal government in terms of planning, management, and regulation matters. States have the authority to create, allocate, and regulate water rights within their boundaries, and in some cases state standards (e.g. in water quality) exceed federal levels.

Regulation of services in the public interest is a long established and respected process in the US. State governments have primacy in the control of utility operations, including price controls. The states regulate investor-owned water utility companies through state public utility commissions (PUCs). The PUCs determine service revenue requirements and tariff structures. Companies must apply to PUCs to request increases in their rates and overall revenue requirements. Such applications are often evaluated using formal judicial processes with hearings and rules of evidence and procedure. The utilities must demonstrate that price increases are justified by an increase in their costs. Municipal water systems have their own control including pricing, and need only to justify their rates and expenditure to the local municipal and state finance board.

**Water and Sanitation Services Sector**

In the US, water and wastewater operations are highly fragmented, with a total of some 55,000 service providers. A large number of these are small, municipally owned supply and distribution systems. It is estimated that 95% of the systems serve communities of less than 3,300 persons. Conversely the 5% largest networks serve 76% of the US population.

Municipal control is the norm in the US, with 85% of U.S. drinking water and 95% of U.S. wastewater supplied by the municipal sector. Most services are provided by publicly-owned municipal water and wastewater systems serving individual towns, and these agencies dominate the provision of services to the major urban areas. Municipalities also account for the provision of wastewater services for which, traditionally, substantial government subsidies have been received.

Competition is encouraged at the franchise level, although not at the individual customer level. A local municipality can put out to tender the operation of its assets, or sell them completely to a private utility company. In addition there exist bulk supply agreements with inter-connections between networks on the clean water side, and disposal agreements on the wastewater side. Large industrial users can often source their water from a number of

different sources (on-site well and treatment, network connections) and increasingly they are looking to water re-use schemes to reduce their wastewater disposal costs. This fits with a recent drive to keep water within the local watershed, rather than disposal into rivers and loss from the locality.

Privately-owned companies serve water to around 15% of the US population. Most private water companies are investor-owned, though there are some mutually owned by customers or landowners within the service territory. The largest metropolitan systems are still generally under municipal control, and there are very few privately owned systems serving a population of more than one million people. Most private utilities in the water sector are water only companies, or less commonly water and wastewater. There are also a few privately-owned companies managing combined water and electricity operations, although this is rare. In general the US wastewater market is much less developed than the water market and is historically dominated by municipal control. There are only around 10 investor owned water utilities generating annual revenues in excess of US\$100 million.

Performance comparisons of private and public water utilities in the US have found that they provide comparable levels of service, but that the municipal systems generally have a lower net cost of capital and lower real water bills. In smaller municipal systems the ability to provide high levels of customer service (call centers, etc.) and improve facilities to meet new regulatory requirements is constrained by economies of scale and access to large quantities of capital funding. Consequently, many municipal water supply systems face serious problems associated with capital deterioration, deferred maintenance, unreliable water supply, and under-pricing of services. The cost of investment in facilities that is required (estimated at US\$138 billion) is driving a trend of consolidation through acquisition of assets and long-term operating contracts with private utility companies. Fuelling this growth in private participation has been the ability of these companies, through the use of fixed-price contracts and performance guarantees, to fully comply with environmental regulations while realizing substantial cost savings. Cost reductions in the order of 30% plus have been achieved. The US is generally regarded as providing excellent opportunities for private investment, both from local water companies and from the large international multi-utility companies.

The situation in New Jersey is comparable with the national picture. There are some 550 community water and wastewater systems, mostly small and municipal. There are three investor owned utilities present with revenues above US\$100 million, including the European utility RWE (TWI - E'town Corporation).

### **Regulation Framework**

The overriding concern of US economic regulation of privately-owned utilities is to ensure an essential service is provided to consumers at a fair price and in order to achieve this the regulatory system exerts great influence over US water and wastewater utilities.

Privately-owned utility companies, defined as 'a business affected with public interest', are regulated to ensure that their essential services are provided to a safe, adequate, and proper standard. Furthermore, since the services are "essential", such utilities are subject to regulation from a price perspective, not least since the fixed nature of utility connection leads to monopolistic providers which are not subject to the normal laws of competition that would otherwise determine price. Thus, the explicit objective of regulation is to provide the means to substitute for market forces in delivering a quality product at reasonable rates, and also to ensure that social welfare objectives associated with the availability of essential services to all members of the community are met.

Regulation in the water industry in the US has changed little in the last 90 years. Following the principles outlined above there are two separate categories of regulator that have jurisdiction over water utilities; those from a product perspective, and those from an economic perspective.

Regulation of supply is largely performed under the Safe Drinking Water Act. This seeks to ensure that water systems, both treatment and distribution are maintained so as to provide a safe, adequate and proper service. This covers not only end user water quality standards, but also standards of distribution and treatment. Regulation from an environmental perspective also falls into this category, with the overall aim to safeguard supply and manage the entire drainage basin. This regulation applies to all systems, whether municipal, investor or mutually owned.

Economic regulation of investor-owned companies is based on a 'cost to serve basis', and is concerned to ensure that such water utilities do not abuse their monopoly position and charge a fair price to consumers. They must also ensure that the companies are able to make a fair rate of return on their expenditure and have sufficient capital to be able to maintain a safe, adequate, and proper service.

#### *The New Jersey Board of Public Utilities*

The Public Utility Regulatory Law came into effect in 1911. The New Jersey Board of Public Utility Commissioners (PUC) was the first agency in state government with direct powers to order changes, and as such, was the pioneer for the new philosophy that then moved across the country, that government should work affirmatively to serve the public interest. This was part of an ambitious legislative program with included electoral reforms, municipal government reforms, and a worker's compensation law. The name of the PUC changed to the Board of Public Utilities (BPU) in 1977 and it became an autonomous agency within the new state energy department.

The New Jersey BPU regulates all investor-owned utilities in the state including telecommunications, electricity, gas, water and wastewater. The Division of Water and Wastewater is responsible for ensuring that the 61 water and 21 wastewater utilities currently under the Board's jurisdiction provide safe, adequate, and proper service at the most reasonable rates possible. In addition the commission regulates the business activities of utility companies such as acquisitions, privatisations, and long-term operating contracts.

The New Jersey BPU consists of three commissioners who are appointed by the State Governor for staged terms of six years each. The commission is funded by a levy on the utility companies. It publishes reports about all its activities and is designed to be transparent and accountable in its decisions and processes.

The powers of the New Jersey BPU are:

- *Tariffs* – The commission can determine, under law, the reasonableness of the rates charged. They can investigate either on the basis of filed complaints or under their own initiative
- *Service standards* – The commission can adopt rules setting up standards to ensure adequacy, safety, uniformity, etc. As in the case of tariffs it may also approve proposed changes or check on existing practices
- *Service areas* – The commission can specify the boundaries and other service conditions within in which a utility proposes, or may be required, to serve. This may include approval of any substantial service expansion or curtailment of existing services
- *Accounting* – The commission oversees the accounts of utilities and ensures that a uniform system of accounts is in place
- *Security* – Plans for such issues may be examined and they are subject to commission approval before they are granted
- *Property* – The proposed sale, purchase, or substantial alteration of utility property may be subject to commission scrutiny to ensure that the utility can render adequate service to the public, and to determine during a rate review whether proceeds from a property sale (in total or in part) need to be passed back to the customer.

- *Corporate relations* – Any consolidation or merger that might result in the change of corporate control are subject to approval to ensure the continuation of responsible management and adequate service to the public. This also covers the transactions between regulated utilities and the companies with which they may be affiliated.
- *Procedures* – The commission can determine its own proper procedures for exercising its powers in the best interest of public service.
- *Special responsibilities* – the water and wastewater utility has special obligations associated with the environment and public safety (e.g. public health). Thus a number of other regulators such the EPA oversee the utility.

#### *Tariffs*

Economic regulation as overseen by the BPU is on a cost to serve and rate of return basis. Given the high capital nature of the utility business, customer charges are based upon the levels of capital assets necessary to deliver that service. A rate of return for the utility is set by the regulator, and is judged such that, a fair price is paid by the consumer for the service, whilst recognizing the need for the utility to make a fair return for investors, such that it might expect to receive in a comparable business in the open market. This rate of return is commonly in the region of 10%.

The cycle for determining tariff levels (known in the US as rates) revolves around a test period, usually a year, over which the utility is monitored. This leads to the determination by the Board of the change in rates that is necessary. The utility can request to be evaluated for a change in its tariff levels at whatever period it chooses. This is prompted by a need to increase the revenue requirement, commonly caused either by a need to fund major capital investment, or by the rate of return falling below that determined by the Board. The Board may also ask to review the utility's rates if it feels that an adjustment may be necessary. The interval between rate cases varies considerably. Historically large water utilities in New Jersey have filed for rate increases approximately every two years. However, there are companies in New Jersey, which have not been reviewed for 12 years.

In order to ensure that a utility's rates (tariff levels) are reasonable, the BPU will apply the following tests:

- *Cost of Service.* Generally the most important test, this is the operating expenses of the utility plus an allowed (not guaranteed) profit. This can be viewed as a measure of a reasonable rate from the utility's point of view and it generally establishes a minimum level.
- *Value of Service.* This is the perception of the consumer about the worth of the service and its importance from a public safety standpoint (e.g. sanitation, health). This will tend to establish a maximum level.
- *Quality of Service.* This represents a view from the regulators and the courts that the utility's obligation to provide adequate service is just as important as its right to charge a reasonable rate. Thus complaints received about the utility's service can be considered as relevant to the review.
- *Comparison of Rates.* Tariffs levied by similar utilities in the same or different states can sometimes be considered as a test for reasonable rates, although the unique nature of each system, geography, and demography make this difficult in practice
- *Competitive Service.* This is not often used due to the difficulty of establishing a competitive source of water or wastewater to be a source. However, it could apply to a situation where there is an option for a local independent well (borehole) source versus a company network.
- *Economic Conditions.* As with all companies, utilities are subject to inflation and the general economic conditions, and this can be taken into account.

- *History of the Company.* For example, a company that has been conservatively managed and has shown regard for the public interest is much more likely to propose reasonable rates than a company with the opposite history. However, previous rates are not necessarily a good measure since changes in operating and financial conditions can vary as circumstances change.

The customers are represented in the tariff determination process by the rate payer advocate whose mandate is to represent the consumer interest. The rate payer advocate is an independent body affiliated to the BPU and is funded by a levy on the utility companies.

The general perception in the US is that the regulatory environment has been effective in serving the public interest and in providing safe and adequate supply and collection systems. However, there is a lack of incentive under this rate of return based approach for companies to increase efficiency. This has led to a cost plus culture, and thus in order to ensure reasonable rates, the regulatory process has become increasingly resource consuming and intrusive.

The trend towards consolidation within the water and wastewater industry and the increasing involvement of large international companies will necessitate a shift in the emphasis of economic regulation in order to facilitate business development, while maintaining the high customer standards which the current system has ensured.

#### *Environmental Regulation*

The special nature of the interaction of the water and wastewater utility with its environment, and the public safety associated with drinking water standards means that water and wastewater utilities are also subject to strict environmental regulation. The main national body is the Federal Environmental Protection Agency. In New Jersey is the NJ Department of Environmental Protection, which is a department of the national agency. Its water department (NJ Water Supply Administration) responsibilities cover the following areas:

- To ensure that drinking water supply systems meet the federal and New Jersey Drinking Water Standards,
- To ensure that surface and ground water diversions do not exceed the sustainable yield of available water resources,
- To protect the ground water resources of the state through proper well drilling activities,
- To help protect the surface and ground water resources of the state through development and implementation of New Jersey's source water assessment plan; watershed planning and management strategies,
- To administer the Drinking Water State Revolving Fund and other funds to finance the costs of drinking water infrastructure improvements needed to achieve and maintain compliance with the Safe Water Drinking Act, and to implement other drinking water initiatives,
- To ensure the proper construction, operation and management of drinking water supply systems,
- To help identify water supply needs and issues and develop plans for their resolution, and
- To ensure the proper response to water supply drought emergencies.

### New Jersey State (US) Regulation Framework for Water & Sanitation Services - Year 2001

