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Public water and sewer services for sustainable development

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Explanatory Memorandum
Committee on Sustainable Development

Summary:

Water is an essential public good and guaranteeing the availability of sufficient quantities of good quality water is a major challenge for human societies and the sustainable development of the planet.

Determined public action in managing water and sewer services is a vital investment for the future. The Congress calls for a genuine culture of responsibility which reasserts local and regional authorities' role.

The complexity of water-related problems tends to make it more difficult to take decisions on water management models. However, legal responsibility for services should be maintained as the closest level possible to citizens and decisions concerning water must involve the private sector, NGOs and citizens as users.

The Congress invites local and regional authorities and the organisations which represent them to mobilise their forces to prepare for the 5th World Water Forum in order to highlight the fundamental role of local and regional authorities in the organisation of public water and sewer services and to ensure that their freedom to choose between different management models is respected.

R: Chamber of Regions / L: Chamber of Local Authorities
ILDG: Independent and Liberal Democrat Group of the Congress
EPP/CD: Group European People's Party – Christian Democrats of the Congress
SOC: Socialist Group of the Congress
NR: Member not belonging to a Political Group of the Congress



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Introduction

This report focuses on sustainable management of (drinking) water, sewage and water purification. This means a high-quality supply that is affordable for all concerned, without passing on the cost to future generations and without the risk of leaving a legacy of unmanageable situations.

The objective of this report is to trigger a Europe-wide debate on practical strategies and policies which aim to improve the sustainable development and management of water and sewer services in European local and regional communities.

More than a billion people in the world have insufficient access to clean drinking water. Unless there is a change of policy, the United Nations expects this number to increase by dramatically. Because of industrialisation and population growth, total water consumption increased nine times during the last century. Demand for drinking water is growing approximately twice as fast as the growth of the population and over the last two decades the cost of water for users has continuously risen. Local and regional authorities have a major role to play in the management of water supply and sewer services regardless of the management model chosen.

This document outlines the history of the current situation in Europe. It describes the diversity of organisational approaches used to shape management of water provision. It provides a summary of the challenges for the future and outlines an anthology of the direction of solutions encountered in different European countries. This report also makes proposals on the paths for a sustainable water supply without suggesting a universal solution.

1. The key role of elected local authorities

A quick comparison of the quality of public water and sewer services worldwide would place Western Europe – despite the wide range of situations it covers – squarely at the top of the list. This is partly due to a history of high population density and comparatively scarce water resources, which precluded the option of recklessly exploiting plentiful and distant resources in a headlong rush into the future, as some continent-sized countries have done. But it is also due to the cardinal role played by local authorities throughout the phase of establishing public services which started at the end of the 19th century; local authorities also gained from the invention of treatment technologies that allowed them to exploit the water of rivers running through towns and cities; and in practice, they struck a dynamic balance between financing infrastructure with public funds and gradually developing charges to user-consumers.

From the end of the 19th century, city authorities, followed by associations of municipalities (joint boards, *syndicats intercommunaux*, *zweckverbänden*, *consorzi*) generally took over and developed systems first “invented” by private concessionaires or citizens’ associations. It is true that the public/private issue was the dominant paradigm, especially in France and the United Kingdom. Liberalism made the initial development of the networks possible, but with fee-paying services which were all the more costly because their customers lived only in the affluent areas; the outcome was a selection based on money which did not resolve the sanitary problem.

In Europe as in north America it was no doubt the lack of capital, especially cheap capital, that put private companies in crisis and sapped confidence in this initial concession-based approach to water service management, once elected representatives and hygiene specialists made access to water a public health issue instead of a mere luxury or amenity.

Conversely, because their development in the long term required considerable confidence, for many years thereafter all urban services were marked by municipalism, a sort of welfare state before its time: city authorities had access to low interest loans (via the local savings banks, which they controlled) and even to state subsidies, which reduced costs; and in continental Europe these services were a fine example of subsidiarity at work, with on the one hand the sharing of management tasks between central, local and intermediate authorities and on the other, the solidarity and community dimension of relations between people living on the same territory: when cholera broke out, death affected even the wealthy in the smart neighbourhoods. Bacteriology, discovered by Koch and Pasteur, meant that drinking water could be treated at a time when there was little medical expertise in dealing with these epidemics. The corresponding techniques then made it safe for towns to distribute

water obtained from rivers, thereby consolidating the local character of the services, while making it possible to develop the idea of billing the service users for the volumes consumed. Cities were quick to invest in sanitary arrangements. Open sewers were readily replaced by closed underground systems. With regard to water purification as part of water-supply policy, it came relatively late, after the arrival of the industrial revolution with all its negative consequences for the quality of the aquatic ecosystems. The demands placed on restoring the quality of water resources led to public water purification.

2. The context: the European Water Framework Directive

Yet as a result of the European Water Framework Directive (EC 2000/60), public services are subjected to new forms of pressure which pose a challenge to the sustainability of local public management, and this in turn calls for new solutions. Crudely outlined, the Directive requires member states of the European Union to adopt integrated management based on river basin districts in order to recover the quality of the aquatic environment – “good ecological status”, or at least “good potential” – by 2015; but it also requires them to move towards a principle of economic sustainability whereby users must pay the full cost of water services; and lastly, it requires them to inform and consult the public about the measures adopted and strongly recommends that the public be directly involved in preparing decisions. This is a practical application of the ‘3 E’ of sustainability: environment, economics, and ethics. However, this now standard presentation tends to underestimate the strictly political dimension of water and river-basin management: good water resources management increasingly implies some decentralisation, and some private actors’ involvement, i.e. good governance.

One of the main problems then remains organising co-operation and governance between authorities at national, regional and local level, rather than the confrontations observed in some emerging countries. The river basins are not always located along the boundaries of local and regional authorities; sometimes they even cross national boundaries. As we shall see, one advantage of this co-operation is that it makes service management more sustainable by linking it to water resource management, an important principle underlying the European Water Framework Directive (EWFD). For example, the growing technical complexity of the management and principles of the EWFD seem to undermine the management role of local authorities, to which preference was given in the past, in favour of voluntary consortiums or centralised collaboration at regional level. And, conversely to water resources, water services can be privatised, or at least can undergo various forms of private sector participation. But one should not focus solely on the public vs private debate issue: following a thorough analysis of public water supply in Europe over a long period, we can distinguish other issues in services management. Despite its recurrence in the 1990s, public vs private nearly always takes place in connection with the question of whether centralised or decentralised government authorities should assume management of the provisions (scale). A further question concerns the choice between splitting the various public provisions or providing more integral management.

3. Public water supply in Europe: various types of management

Naturally, a comprehensive analysis cannot ignore the apparent contradiction between the “public” and “private” sectors, the concept that has forged the shape of water policies for a century and a half: it is part of the historic debate between liberalism and socialism, between the state and the market, which is specific to legal systems associated with capitalism. But here we clearly need to distinguish between water resources and water services. In most European legal systems, flowing water and the groundwater, i.e. all the aquatic ecosystem, is the people’s “common property”. It is no coincidence that French water law recently distanced itself from the Roman legal tradition, and of the 19th century attempts to incorporate it into the Civil Code (only publicly owned and privately owned waters): in 1992 it redefined water as common property, including groundwater. As in other countries, this trend calls for integrated and participatory management among policy makers and users, rather than planned multipurpose state management.

Water is not a ‘product’ to be traded, nor a global public ‘good’, such as air. This is because, on the one hand, it is difficult to ‘own’ (it flows); but, on the other hand, it is too heavy to escape the riverbeds (and is therefore area based and to be allocated within a finite number of stakeholders). Because of the nature of this good, exclusion on economic or other grounds is undesirable, and it is often

impossible: in Europe anyway, water resources cannot be privately owned and there are no water markets per se. The usual solution is to convene the stakeholders into a water users community, hence the importance given to integrated and participative water management. But governments often keep a control on these communities, to impose either equitable allocation rules or priorities generated from outside the river basin.

Besides effective water supply, water services now include waste water collection and treatment, needed to protect aquatic environments. Since this additional service more than doubles the water bill, a growing issue is the ability of consumers to pay for it. In this regard, demand management often also plays a role. However, reducing the demand might also create a financial crisis for water services: due to the importance of fixed infrastructure, supply and demand are linked and made mutually dependent, instead of competing with one another, as is the case in the free market. Some economists express this by qualifying water services as a club good: the club's infrastructure has to be maintained whichever the number of members. In the beginning, water services were usually strongly subsidized, so members of the club paid cheap fees. But when the assets have to be renewed and improved in quality, prices have to go up.

In many countries, in accordance with bookkeeping rules, the public sector is not (or were not) allowed to carry entries for depreciation or reserves in their bookkeeping. The result is that only operational costs incurred by the government-managed provisions are billed through to the customers. These provisions are therefore relatively cheap, but also less sustainable over the long term. From a bookkeeping perspective, one therefore sometimes sees an increase in combined public/private sector management of infrastructure. In some countries, one also sees changes in the budgeting regime for local and regional authorities, which allows formation of reserves, capitalisation and depreciation – or even makes them mandatory. Today, the water sector is still partly resisting the liberal model of European construction with the ensuing challenge to national monopolies and opening up to private capital and competition: where public services are concerned, this might result in privatisation together with “British-style” regulation by centralised independent administrative authorities. However, while some states have set up regulatory bodies of this kind, none have entirely followed the British example by privatising infrastructure. In many countries, public water and sewage provisions are jointly managed by the public and private sectors, often financed with public capital. Commercial or industrial companies are often responsible for implementation.

A variety of experiences

The member states of the Council of Europe have considerable experience with diverse types of management for water provision. A brief description of Great Britain, France, Italy, the Netherlands and the Russian Federation provides insight into the public and private sector choices, scale choices and compensatory measures.

In Great Britain, the water industry was privatised around 1990. In England and Wales, this resulted in regional monopolies. In an effort to improve efficiency, a type of marketing was introduced based on price regulation, in combination with benchmarking of performance, using the best company as reference. Based on the most cost-efficient companies, the Office of Water Services (OFWAT) sets maximum prices, making allowances for exogenous factors. Here, it was decided on a system of privatisation and market forces that compensates for the risks of monopoly and oligopoly formation (i.e. dependence, high prices and high profits) by means of several measures. From around 1995, there were demonstrable efficiency improvements. However, some people consider that these are not attributable to privatisation but were brought about by the compensatory system of price regulation and criterion competition. Since privatisation, there has been a steep increase in rates, partially due to massive investments undertaken at the request of the regulator. Company profits also rose substantially, which the OFWAT ultimately intends to cream off. Even so, the water companies have been slow to replace the old piping.

In France, the drinking water supply and purification is the responsibility of the municipalities and has recently received growing support from the *départements* (counties). Centralization and the limited financial autonomy of local authorities and lack of leeway in public bookkeeping have resulted in a new type of delegated management, the so-called leasing contract. There are two main types of contracts. The *'affermage'* is a short-term contract (around 15 years), involving operational tasks of extraction, purification and discharge. Local government retains ownership of the piping and installations and makes the investments. Less common is the *'concession'*, which used to run between

25 and 50 years. In this case, the company builds the installation, runs it and assumes the financial risk during the contract. At the end of the period, title reverts to the municipality and the company receives compensation, if necessary. With both types, price forms an essential component of the company's offer during the contract. In addition to the offer, some surcharges for investments and maintenance are sometimes offered. This has resulted in a fragmented landscape. A small number of large utilities companies remain, with executive staff on the payroll, along with a few small newcomers, and a large maintained number of utilities under direct labour management. The growing public pressure on municipalities and joint boards to exert tighter controls on the execution of the contracts by large companies, is the reason for the rise of the *départements* (Conseils généraux), which have always kept a tradition to financially support the smaller municipalities, and now take advantage of decentralisation laws voted in the 1980's to develop their own water services policy.

Italy was the first European country to introduce administrative restructuring of water management in 1989 and 1994. Italy, the so-called Galli Act has resulted in shifting direct local policy in favour of public-law enterprises working in 'optimum areas' (ATO, *ambiti territoriali ottimali*), which nearly always coincide with the provinces. Responsibility for investments, for example, lies with the authorities in the local water districts (the ATOs). It is possible to grant concession rights to private companies. The fact that the Italian water chain requires huge investments, in some areas in the quality of drinking water, to reduce losses from leakage and to increase purification capacity -- certainly plays a role in this. Average water rates in Italy are approximately 50 percent below the European average. Everyone agrees that the rates need to be raised to provide the tens of billions needed for investment. Consumer organisations endorse this, but conclude that transparency must also be increased.

In the Netherlands there has been a reversal of the initial privatisation. The 'new' draft Dutch law provides that only public-law entities (or private entities, if all shares are owned by a public-law entity) may supply drinking water services to consumers. The drinking water companies accounting of investments employs annual depreciation. The municipalities are chiefly responsible for water disposal. A huge effort is required in the Netherlands to replace obsolete sewer systems. Capitalisation in local bookkeeping, with annual depreciation, has recently been introduced. In particular, benchmarking / criterion comparison is used to improve efficiency. For the drinking water production and purification, this is well developed; for the sewer system there are initiatives. For drinking water, a comparison among companies that has been monitored since 2000 shows that, as a result of efficiency improvement, the price of drinking water per cubic metre and per connection has gone down in real terms. Some think that this could be even better, for example, by paying out lower dividends to shareholders in the drinking water sector. There are also high expectations with increased public transparency. Further, efficiency improvement is also pursued by coordination between water boards (responsible for purification, among other things), drinking water companies and municipalities (responsible for the sewer system, among other things).

Russia contains 30 percent of global fresh water reserves in lakes and its river water resources make up about 22 percent of the world reserves. During the Soviet period drinking water was funded by central government. Until the mid-1990s, water supply and sewer service networks were owned and maintained by industrial enterprises and it was not unusual to see private enterprises use the production assets intensively for five or six years without investing in modernisation of the equipment or the networks. Today, these public networks are being transferred to local authorities and are being maintained by specialized enterprises – *Vodokanals*. However, even if Russia is replacing annually some dilapidated water and sewer service networks, the state of the networks and facilities transferred is not always up to modern standards. The regulatory framework in water management is based on the Water Code of the Russian Federation that came into effect in 2007. At present the Russian Government is developing a new State Target Programme (STP) "Clean Water" which is due to carry on until 2020. Furthermore, many regions in the Russian Federation are undertaking their own initiatives to improve the performance of water supply and water disposal systems, but this is not the case for most municipalities. However, price regulation limits the room for maneuver in the sector and accompanying grants do not allow for sufficient modernisation of public water and sewer services.

A significant, contiguous finding on this overview from studies in Australia, Belgium, the UK, the Netherlands and Portugal is that the public-private debate is subordinate to the presence or absence of any incentives for efficiency in the system. The study shows the positive effect of incentive structures on efficiency. Moreover, the analysis points out that, in the absence of clearly structural incentives, the average efficiency of a utilities company declines in comparison. the average efficiency of a utilities company drops in comparison with provisions where incentives are present, because of a

regulator or benchmarking / gauge competition. Public management is not per se better or worse than private management. It appears to depend on many factors. In particular, the price per cubic metre is not as relevant as the yearly bill, and so the average size of the family should also be taken into account.

This underscores the observation that the most promising comparison is not between public and private sectors, but between corrective measures taken by both systems to manage the advantages and disadvantages. The scale advantages of privatisation and market forces easily result in oligopolies or monopolies that are difficult to reverse. The risks include more dependence and possible exclusion of interested parties. Public management also has potential drawbacks. As a public monopoly or oligopoly has few incentives for efficiency, it could easily result in low-quality service at higher prices.

4. New challenges

Despite relative success, public water and sewer service provisions face several new problems. Obsolete infrastructure needs replacing. Leakage losses need to be tackled. In some countries such as Great Britain and Italy, surveys suggest that these could be as high as 30 to 40 percent. In France, unaccounted for water is on average 28 percent, but that includes higher losses in the very small and extended rural water services. In the Netherlands, under favourable conditions, they only equal between 3 and 7 percent. Sewers and sewage works are often obsolete and undersized. The problem of water shortages in the Barcelona region, as occurred in the first half of 2008 illustrates the problem that many European regions will soon face. The European Water Framework Directive recommends that prices should cover costs. The costs and prices are rising, also because of more rigid environmental and health requirements. One even wonders whether the Europeans will be able to pay for their public provisions in the long haul! This also raises the issue of confidence in the provisions. It would therefore be useful to evaluate the points of attention for sustainable management of the water provisions, using the three 'E's that summarise the aim of the Framework Directive - economics, ecology and ethics. This leads to the following points of attention:

Economics

1. Financial resources: Do current financing methods, particularly water bills where they exist, suffice to maintain the technical infrastructure in good repair once the initial capital investment has been made? Depreciation and provisions for renewing the infrastructure should account for an important part of the full cost recovery pricing recommended by the Commission; otherwise periodical subsidies will again be needed.
2. Investment volume: What additional investments need to be made to improve the services' environmental and public health performance? The European Directives on drinking water, sewage collection and treatment, and lately on the aquatic environment, combined with older or more specific national policies and require further substantial investments. Furthermore, the extent of these investments is affected by the consequences of climate change.
3. Financial mechanisms and incentives: If all these investments and rising operating costs are included in people's water bills or rates (the latter not linked to the amount used), will users still be able to pay them and will they accept? What attitude will the elected managers of the services take under pressure from the public and the media? This is becoming a crucial question at a time when the rising price of water is becoming an issue, in the United Kingdom and France among others, where large private firms are prime targets for criticism. Here, too, the question is relevant as to whether the points of attention outlined above should affect the funding of the water chain, not only for users, but also incentives could be considered for the providers, irrespective of whether they are public or private enterprises.

Ecology

4. Connection between water services and water resources: in our large metropolises, despite the quality of water and waste water treatment technologies, the interactions between both is increasingly important and needs territorial solutions, for example, at intake points for and with discharging wastewater and overflow water. A simultaneous management of water services and water resources

at regional level is needed in order to identify and overcome future problems due to quantity requirements (drought and flooding control), including quality requirements (long term policies to protect both, health and the environment). Drinking water in Sweden and Finland, for example, is cheaper than in the densely populated part of Europe. That is especially because of the much cleaner groundwater and surface water in these countries. It illustrates yet again that only looking for efficiency in the water supply, without looking at the interaction with water resources, is a less promising approach.

5. Climate change: What are the effects of climate change on the water chains in diverse regions in Europe in the shorter and longer terms, and what are the implications for the efforts to be made and for management?

Climate change has repercussions on the aquatic ecosystem and water industry and on their mutual relations. Periods of drought become longer and more intensive. Conversely, precipitation becomes more frequent and fiercer. Low-lying deltas face increasing drainage problems because of the rising sea level. This necessitates extra investment in a sturdy, resilient aquatic environment capable of retaining water in periods of drought, with controlled storage and discharge in periods of extreme precipitation, without uncontrolled inundation resulting in personal and economic damage; otherwise, this would be at the expense of the water chain which should not be forgotten. The sewer systems must be recalculated and adjusted in terms of storage and discharge capacities. Loss of water from the drinking water network must be reduced and, where possible, the chain more closed.

In Europe, the available water resources, the type of water management and financing of the drinking water infrastructure differ from country to country. For example, in countries, where there is presently enough fresh water like in the Northern part of Europe, the need to take restrictive actions to reduce water use is not as urgent as in the more densely populated areas in Western Europe. However, as a result of climatic change, an abundance of available water in the near future might decrease in these countries, and therefore water resources management should also take into account the effects of scenarios with diminishing water availability.

Ethics

6: Transparency and participation: What are the possibilities for providing better information to interested parties about the effectiveness and efficiency of the water provision, involving them in its management?

Considering the undesirability of increasing rates that erode popular support for the water supply, there should be increased transparency in the management of the water provision. This means that the development in effectiveness and efficiency, along with the occurring side effects, should be easier to follow. The public demands greater transparency, more participation and immediate evaluation. The Framework Directive is clear about the desired increase in the participation of customers and providers in the water chain and in the policy and management of that same chain.

5. A few responses to the challenges

We start with potential solutions around water services and water resources, followed by observations with respect to types of management:

- The first concern is to conserve water and combat leaks. Minimising leakage in parts of Europe requires huge investments to reduce the sizeable loss due to leakage. Not the technology but the funding is the problem here.
- Conserving water is possible by not using drinking water for low-quality applications. The cascade principle could be applied here.
- Also, there are countless applications in which usage could be reduced through changes in behaviour. The water released through savings made by existing users is very often much less expensive than any schemes for additional supply. It thereby serves to satisfy growing demand while postponing more costly investments.

- In addition, users can also change their behaviour to reduce costs – for example, by not flushing medicines, baking oil, organic waste and paint residue into the sewer system.
- Demand management also needs to be kept under control, knowing however that in a fixed-cost economy, lower consumption means less income, while expenses remain virtually unchanged; this often implies an increase in the unit price in the short term, in the hope of being able to reduce the size of the infrastructure to be managed in the long term.
- To cope with chronic shortages, local authorities sometimes resort to so-called "non-conventional" techniques such as re-using rainwater or even waste water and desalinating seawater, particularly by means of membrane technology. Once mastered in terms of sanitary safety, these techniques are often costly to operate but less costly in investment terms than the standard water supply methods - whence their importance in dealing with peak demand, as in summer. Because of increases in scale, new technology will soon become less expensive.
- It is important to encourage the use of new techniques, but they must go hand in hand with novel managerial solutions and arrangements decided on in partnership by local, regional and national authorities.
- The new communication technologies make it possible to reduce the size of the infrastructure by managing it in "real time". Duty staff realised the advantages of this system a long time ago.
- Where sewerage is concerned, an important new avenue of innovation lies in controlling rainwater in and around towns and cities, to reduce the size of the networks to be managed. Rather than building oversized receptor facilities, the idea is to flood where it does no damage, to store rainwater temporarily and in passing to draw off the pollutant charge so that it will not run directly into the rivers, where it would cause anoxic shocks.
- Another possibility is to disconnect the rainwater flow from the sewer system by means of separate drainage systems. In the Netherlands this is now a requirement for new construction areas. With this approach, clean rainwater could be used for drinking water storage as ground water and for irrigation purposes. France opted for separate drainage systems in middle of the 20th century.
- More generally, sustainable management has led to integrated and therefore area-based management of the demand for water. In the Netherlands, water is treated as a spatial regulating principle, both regionally and locally, by planning spatial functions. Water aspects are resolved at regional level. Related functions such as the natural environment and water ecology are combined, wherever possible. Extra attention is given to urban water because of the role that water plays in embellishing the living environment. The expected effects of climate change play a role in this explicit alignment with environmental planning.
- In several European countries, local authorities and public service managers have signed contracts with farmers to extend the area of their protected drinking-water catchment areas. The compensation paid to the farmers is criticised because it increases the price of water, so that rather than the polluter it is the polluted that pay. We must not forget, however, the simple fact that there will never be a policeman behind every farmer, so it is better to help farmers practise less intensive forms of agriculture, which may earn them quality labels, especially when it is a cheaper solution than the headlong rush towards increasingly complex forms of treatment.
- As the American specialist James Salzman says, it is sometimes more useful for society to invest in natural capital than in built capital. Some German *Länder* and Dutch provinces feature a wide range of partnerships between water suppliers, public authorities and farmers, joining forces to recover water in ways that are also conducive to biodiversity. But partnerships of this kind can equally be envisioned for a new approach to protecting towns and cities against flooding, by "giving rivers more room" in rural areas.
- Progress with soil science has also cast a favourable light on decentralised sewerage techniques: in most Mediterranean countries, in France because of the comparatively low population density, and also in Ireland, the Nordic countries and the new member states, and even in German *Länder* such as Bavaria and Lower Saxony, a substantial proportion of homes are serviced by a septic tank or connected up to simplified sewerage systems. We now have the wherewithal to manage these facilities collectively, without using sophisticated network technology. In large cities, we can even identify the boundaries beyond which networks must not be extended. As collective and decentralised services are inter-related, local authorities should cover them all. That is what the association

Solidarity Water Europe is seeking to put into practice in small towns in Bulgaria and Moldova, with the support of the Council of Europe and various bilateral co-operation agencies.

Faced with these challenges, local and regional authorities and governments have first acknowledged the need to organise all sorts of equalisation measures when very large but infrequent investments are at issue. They have opted for these co-operation approaches rather than outright centralisation. European countries have in fact adjusted to this problem of replacing the initial subsidies by introducing various forms of cross subsidisation.

- Some, as already mentioned, have opted for geographical concentration of their services, sometimes leading to centralisation, with Belgium on the one side and the United Kingdom on the other, and Italy being somewhere in between. France also seems to be taking this position. Portugal has devised a flexible form of consortium between central government, represented by a national firm, *Aguas do Portugal*, which channels national and European funds, and the urban municipalities concerned. This allows them to share drinking water production and waste water treatment, and therefore equalise the costs of modernising major infrastructure, while leaving the member municipalities in charge of water distribution and waste water collection.
- Others opted long ago for horizontal integration, which means pooling the variable financial and investment needs of different local public services and using a single meter-reading and billing system: a case in point is the well-known German *Stadtwerk*, a horizontal municipal enterprise which also occurs to a lesser extent in Austria, Switzerland and northern Italy. Historically, this system started when gas and water services were bracketed together and shortly afterwards coupled with electricity and public transport (which was electric at the time). Co-generation in power plants then allowed heat networks to be developed; more recent additions are the waste collection and treatment service, using incinerators, and waste water management. Most of these *Stadtwerke* are now private firms, albeit usually owned by the public authorities. There are initiatives in the Netherlands to establish water-chain companies from which drinking water, sewer systems and purification could be managed integrally.
- Another possibility is equalisation over time, which means setting aside and pooling provisions, as well as setting up mutual assistance schemes, water banks and so on. The French *Agences de l'eau* (river basin authorities) are typical of this approach and are particularly useful in a country where the utilities have historically remained small, due to the small size of municipalities, which is itself enshrined in the Constitution. In a way, the *Agences* force water users to make financial savings, as it were, and they return this money to elected local authorities in the form of subsidies and zero-interest loans when those authorities make investments beneficial to the environment and public health.
- Some countries and service-organising authorities have maintained various forms of social averaging out, which involve making the more affluent pay part of the cost of the public service provided to the poorer members of society. Some suggest providing a certain volume free of charge, or introducing a progressive charge where the unit cost increases the more water a client uses: while these methods are often regarded as a panacea, there is a strong need for more sociological surveys to check their social efficiency on the field.
- The latest key word in water management policy, however, is demand management, with user participation, which begins with budgetary transparency. In the Netherlands, for example, the water boards and municipalities set the annual water rates, based on actual costs. Reserves are accumulated for unexpected costs and long-term investments. The inhabitants of municipalities or regions have a say in this. It also requires the introduction of a series of performance indicators to facilitate discussion between the authorities and the technical operators, and with the public. One of the important benefits of the British privatisation experience is that authorities developed these indicators and applied them on a comparative basis to the private firms covering the country. In its public system, the Netherlands is building an equivalent in the form of gauge competition.
- Last but not least, it is good to mention the valuable spin off that occurs in bilateral cooperation projects within Europe in the fields of drinking water, sanitation and sewerage. The next project may serve as an example of the many initiatives, which have been developed in this perspective. In Romania, the province of Teleorman is one of the lesser developed regions in Europe. The situation with regard to drinking water and sanitation, especially in rural areas, is harrowing: a

relatively very low percentage of the population has access to clean drinking water and proper sanitation. Also in the cities, the situation is not yet what it should be: the sewerage and water systems are in a worse state because of delinquent maintenance. Furthermore, the nitrate content of the groundwater is so high that it gives rise to cases of "blue baby disease."

In 2005 the province of Overijssel in the Netherlands, together with five eastern Dutch water boards developed a project for cooperation in the water sector with this Romanian Province. As a result, for instance, an innovative water purification system was recently installed by a private company from Overijssel.

This project will be continued in the period 2008-2011 and is in its design and intention completely in line with the Millennium Goals, notably improving the water supply and sanitation to an optimum level in 2015. The programme includes the drafting of a comprehensive master plan of drinking water and wastewater for urban and rural areas that will serve as a platform for soliciting co-financing of improvement projects from EU funds (ERDF) and Romanian national funds (national environment fund).

Conclusion

The example that much of Europe offers the world shows that involving responsible local authorities in the provision of services is a cardinal asset for their sustainability. But their involvement needs to be redefined because of the long-term management issues surrounding services, which are now mature and often in need of a different relationship to resource management. In addition, we are confronted with new challenges such as climate change, which also has repercussions on water services and related costs. This calls for multi-level governance. This entails a significant point about the future roles of governments in sustainable water provision, which cannot be given consideration without first looking at the aspirations, requirements and challenges.

From the analysis, the observation follows that the most promising comparison is not between private and public management, but between the corrective measures taken by both systems to minimise undesirable side effects. Modernising towards sustainable water provision management could further focus on the correct scale, desired integration and distribution of tasks between regional and local managers. At regional level, the shaping of policy with respect to internal parts of water provision (water-supply policy) and alignment with water-system policy could be very promising. Implementation and feedback could be shaped well at local level, taking into account local circumstances and interests. Alignment between both levels is crucial.

Solution directions from various European countries could be thought through, considered and applied as a means of tackling the problems identified. As directional principles, the challenges categorised according to the three 'E's and the potential solutions grouped around water services / water resources and management could prove instrumental. Learning the lessons of best practice between European countries could also help. Transparency and benchmarking / criterion competition could also further the involvement of the public.

One of the major challenges for local and regional authorities is to secure, at the interface between public services and water resources, an interpretation of the notion of cost recovery that enables them to play their political role as mediators in achieving more satisfactory compromises. Pricing water services up to the level of actual cost prices should be explored and shaped. This would also entail further work on the initiatives in the area of fund formation and depreciation of investments to enable integral cost-price calculations. At the same time, the possibility would continue to protect certain user groups, as long as compensation is transparent and accepted by everyone. The private sector would continue to play a role in water services provision, at least in technology innovation. But modernised public management also has a future.

However, integrated management calls for increasing confidence between all those concerned, and a joint learning process.

There is still a great deal to gain.