

LUÍS-MANSO, Patrícia ; FINGER, Matthias ; ALLOUCHE, Jeremy

**The evolution of the water sector in Europe: an
institutional analysis of possible scenarios**

Ecole Polytechnique Fédérale de Lausanne
Chair in Management of Network Industries

August 2005 **MIR-REPORT-2005-003**

Keywords : Water sector, liberalisation, scenarios, institutional implications

Abstract

In this paper we present six scenarios about the possible evolution of the water supply and sanitation sector in Europe, considering both liberalised and non-liberalised environments. The scenarios were developed around three macro-storylines, namely (1) pressure for more competition and private sector participation; (2) opposition to liberalisation and pressure to return to direct public or community management; and (3) maintenance of the status quo. We then define the institutional framework of each scenario taking into account the specificities of the sector. The institutional framework aims at illustrating the relative positioning and changing power attributes of the main actor groups. We conclude this institutional analysis of the scenarios by assessing their viability based on three criteria, in particular stability, efficiency and accountability.

Table of content

1. Introduction.....	1
2. Scenarios on the evolution of the water sector	2
2.1 Tendered market (scenario 1)	3
2.2 Tendered market with strong regulation (scenario 2)	4
2.3 Administrative regulation (scenario 3)	4
2.4 Outsourcing (scenario 4).....	5
2.5 Direct public management (scenario 5)	6
2.6 Community management (scenario 6).....	7
3. criteria and indicators	7
3.1 The stability criterion and its main indicators.....	7
3.2 The efficiency criterion and its main indicators	8
3.3 The legitimacy criterion and its main indicators.....	10
4. Institutional implications of the scenarios	11
4.1 Tendered market (scenario 1)	11
4.2 Tendered market and strong regulation (scenario 2)	11
4.3 Administrative regulation (scenario 3)	11
4.4 Outsourcing (scenario 4).....	12
4.5 Direct public management (scenario 5)	12
4.6 Community management (scenario 6).....	13
5. Conclusions.....	13
References	14

Acknowledgements

The authors would like to thank all the partners of the European research project for their valuable input for this research (UNESCO-IHE : Meine Pieter von Dijk, Marco Schouten ; Université de Paris VIII : Pierre Bauby, Sylvie Lupton ; TU Delft : Aad Correljé, Delphine François ; ENGREF : Laetitia Guerin-Schneider, Serge Garcia, Lise Breuil ; University of Bocconi – IEFÉ : Antonio Massarutto, Massimi di Domenico, Vania Paccagnan, University of Birmingham – IDD : Andrew Nickson, David Musco ; Ecologic : Andreas Kraemer, Eduard Interwies, Britta Pielen, Nadine Herbke ; Université catholique de Louvain : Frederic Varone, David Aubin ; University of Zaragoza : Pedro Arrojo, Isabel Almudi).

1. INTRODUCTION

While other network industries such as telecommunications, electricity, and transport have undergone significant changes due to a European liberalisation process, the water sector has not been until now subject to the same rules regarding the European policy of liberalisation of services. The objective of this paper is to present six scenarios on the possible evolution of the water sector in the European Union (EU), considering both liberalised and non-liberalised environments, as well as their institutional implications.

Before addressing these questions, it is important to define some basic concepts referred in this paper: (i) the water sector; (ii) scenario; (iii) liberalisation; and (iv) institutions.

1. The *water sector* is restricted in the scope of this paper to water supply and sanitation (WSS) services, also called the artificial water cycle. WSS services are limited to the supply of drinking water and the collection and treatment of wastewater. It is focused on services for urban and rural uses. In particular, it excludes the transfers of raw waters over long distances and irrigation.
2. The term *scenario* means internally coherent and credible stories about alternative futures (Euromarket, 2005a: 5).
3. *Liberalisation* refers to a process by which competition is introduced in situations or sectors thus far characterised by monopolistic aspects. Its rationale lies on the recognition that, in principle, competition is more prone to achieve efficiency than monopoly. In general liberalisation leads to more Private Sector Participation (PSP).
4. The concept of *institutions* is used in a broad sense and includes all relevant actors, and in particular the (formal and informal) rules and norms governing their relationships (Finger, 2005: 275). Institutions are viewed as codified power structures that shape the behaviour of the actors involved. Simultaneously, actors may be capable of reshaping the institutions within which they operate by forming strategic alliances (Crozier, 1963).

The identified scenarios are the result of a three-year research project named “Water Liberalisation Scenarios in Europe”, and which is funded by the European Commission (<http://www.epfl.ch/mir/euomarket>). They were developed considering both liberalised and non-liberalised environments, and taking into account the specificities of the sector.

It is generally agreed that the water sector displays the four following main characteristics:

1. *Nature of the good*: merit and quasi-public good. It is a merit good because its social benefits exceed the private benefits given its (environment and public-health) externalities. Also, the important externalities and social objectives may, in practice, limit excludability.

Hence, when there is sufficient infrastructure capacity, water services are possibly transformed into a quasi-public good¹ (Euromarket, 2003: 124).

2. *Natural monopoly*: the fixed (largely sunk) costs represent up to 70% of the total supply costs for domestic uses (Gee, 2004: 38) and thus a single supplier tends to be more efficient than multiple, competing ones. The introduction of competition has therefore been limited to competition for the market. However, new ways to introduce other forms of competition are currently debated, whether via benchmarking or third party access (Gordon-Walker, 2002: 46).
3. *Local nature*: the high transport costs in relation to its market value make the water services local in nature. It has indeed been estimated that transport costs per 100 km represent about 50% of the wholesale cost of water (as compared to 5 percent for electricity and 2.5 percent for gas) (Gee, 2004:38).
4. *Low elasticity of demand*: the variability in demand resulting from a price change for primary uses of water is close to zero since these are essential needs of the user and few substitutes are available (Euromarket, 2003: 127).

The paper is structured into three main parts. Firstly, chapter two presents the six scenarios identified in the project and the corresponding institutional frameworks. Secondly, chapter three identifies the three criteria and their indicators. And finally, chapter four focuses on the institutional implications of the scenarios.

2. SCENARIOS ON THE EVOLUTION OF THE WATER SECTOR

The Euromarket project has identified and described six scenarios on the evolution of the water sector in Europe (table 1), which represent what is plausible but not necessarily what is either desirable or probable (Euromarket, 2005a: 10).

Table 1: Scenarios on the evolution of the water sector in Europe.

SCENARIOS	
Scenario 1	Tendered Market
Scenario 2	Tendered Market with Strong Regulation
Scenario 3	Administrative Regulation
Scenario 4	Outsourcing
Scenario 5	Direct Public Management
Scenario 6	Community Management

The scenarios were developed along three macro-storylines, namely:

¹ Public goods display two particular characteristics: non-rivalry and non-excludability.

1. *Pressure for more competition and private sector participation* by a whole series of actors, such as public authorities, Directorate-General (DG) Competition, DG Internal Market, multi-utilities and other private operators (scenarios 1 and 2);
2. *Opposition to liberalisation* and pressure to return to direct public or community management (scenarios 5 and 6); and
3. *Maintenance of the status quo* as a result of the possibility that these two drivers cancel each other out (scenarios 3 and 4).

The following sections provide a short description of each of these scenarios as applied in 2020 (Euromarket, 2005a). The scenarios are described via story telling in order to develop plausible pathways from the current (i.e., 2005) to the future end states (that we call storylines).

2.1 Tendered market (scenario 1)

The first scenario is a tendered market scenario. The central features of this scenario are:

1. *Obligation to tender*: competition for the market *every 5 years*;
2. *Least costly bid*: obligation to retain the least costly bid.

The major focus of this scenario is the consumer market although this has of course important knock on effects on the supplier market. Its main characteristic is the existence of strong competition, which is created through the shortening of the length of delegated management contracts. There is a compulsory bidding procedure organized every five year by the local public authority, as spelled out in a European Directive.

The local public authority is thus obliged to retain the least costly bid. Due to the short length of the contracts, it is assumed that it is the local public authorities which are responsible for the major investments. The market is not unbundled; drinking water markets are integrated (extraction, treatment, transport, distribution, and customer service), as are sanitation markets. Most contracts take the form of delegated management contracts, mostly lease.

Large private operators essentially dominate the European market. This can largely be explained by their considerable experience in this particular type of contracts but also by their very high technological expertise, their large financial capacity, as well as their management know-how. Small and medium-sized companies also remain in the European WSS market but these are slowly being taken over by the large ones.

This scenario is the result of two main driving forces, namely the lobbying of trans-national corporations (TNCs), on the one hand, and the desire of the EU to introduce more competition in the sector, on the other. The large TNCs have gradually withdrawn their investments in developing countries and are now mostly focusing on the European market. At the EU level, following the elections in 2009, the EU Parliament and the Commission are more inclined to introduce more competition in the WSS. The main assumption in the storyline is that social resistance will be passive or rather not powerful enough to countervail the liberalization movement.

2.2 Tendered market with strong regulation (scenario 2)

This scenario mainly focuses on the consumer market. Its central features are:

1. *Obligation to tender*: regular opening of competition for the market;
2. *Long-term contracting* (10 to 15 years); and
3. *Independent regulator*: compulsory introduction of regulator.

The legal basis setting the framework of the scenario is the European Directive that defines the obligation (1) to compete for the market every 10-15 years, and (2) to establish independent regulators. National contract law provides the detailed context.

The public authority – local or regional - is the responsible entity for the service. The larger the responsible authority and its technical capabilities, the more balanced the bargaining power with the operator is. The scale of the responsible authority is not necessarily modelled on the scale of the service – for example the authority can be in charge of several services on different networks, and take advantage of this for setting a comparison process.

The responsible authority remains the legal owner of the assets even if, in concession contracts, the infrastructure is financed and owned by the operator until the end of contract. The responsibility for investment depends on contractual arrangements between the authority and the operator.

By means of the obligation to tender for delegating the service, there is the same mode of competition across all EU countries – competition for the market. Delegation contracts can take various forms but the most frequent are concession or lease contracts. The decision on the type of contract is taken by the public authority.

Markets are not unbundled and they are mostly dominated by private operators. The firm operates the integrated service yet the scope may vary: water supply and/or sanitation services, and possibly other environmental network services.

In terms of regulation, *ex ante* regulation (in order to choose the more efficient operator) is established by competitive bidding. *Ex post* regulation (in order to give incentives for best performance) is exercised by regulatory authorities that control price and quality (through performance indicators). The establishment of these authorities is compulsory, and they should be independent both from responsible authorities and public/private operators.

2.3 Administrative regulation (scenario 3)

The third scenario is an administrative regulation scenario. Its central features are:

1. *Benchmarking* as the key competition process; and
2. *Diversity* in the *type of operators* in Europe.

This scenario is characterized by benchmarking as the key competition process in the main monopoly markets. Benchmarking can take two polar forms. First high-powered benchmarking with centralized regulation (Pole A) is mainly applied under private monopolies that are subject to a strong external and independent regulating authority at central level, which is also in charge of conducting the benchmarking and of enforcing its results. On the basis of data and information compiled through the benchmarking process, the regulating authorities determines the tariffs, budgets, prices and investments that companies may charge or carry out.

Second, medium-powered benchmarking with decentralized regulation (Pole B) prevails in those countries, where the organizational structure of the sector is characterized by maintained municipal influence. It comprises extensive information gathering and interrogation of practices by an independent benchmarking authority. Participation is compulsory for all operators. A summarized and condensed selection of this information is published, which exerts public pressure on companies.

The storyline is characterised by pro and anti liberalisation forces cancelling each other out and by growing administrative intervention. The financial pressure on municipalities led either to the participation of the local private sector or to the creation of autonomous supra-local bodies. The financial pressure on operators has also increased due to the use of increasingly sophisticated monitoring equipment and new health/environment assessment techniques that identified an ever-increasing range of new pollutants. Furthermore, the implementation of the Water Framework Directive (WFD) also highlighted the need for large investments in sanitation services. All these factors had therefore an important impact on water bills. Consumers, as well as the EU, therefore pushed for more transparency and it was in this regard that new benchmarking practices were introduced.

2.4 Outsourcing (scenario 4)

This scenario mainly focuses on the supplier market. Its central features are:

1. The majority of operators *outsource* part of their tasks to external sub-contractors;
2. Large *variety of management models* across Europe, ranging from direct public management to full divestiture.

In the fourth scenario – called “outsourcing” – European operators have decided to outsource part of their tasks (from metering, via maintenance of the infrastructures, to the handling of the customers’ complaints) to external sub-contractors. A large variation developed in respect of the width of outsourcing contracts. Nevertheless, unlike under delegation contracts, revenue risks are generally not transferred to the winning bidder.

Some of the member states have kept their water services under direct public management, other member states work with concessions to private operators, and other member states are mainly characterized by regulated monopolies. Whatever the differences of the current state of the WSS market may be, all have two underlying trends in common namely the drive to: efficiency and specialisation.

Outsourcing was seen as the major answer to the growing pressure of achieving greater efficiency and innovation, as a result of the growing investments needs in the sector (e.g., resulting from the WFD, increasing security concern) and the higher demands for specialisation. Outsourcing has thus come to be seen as a promising means to internalize scale and scope advantages via the use of sub-contractors, which serviced a number of operators and areas.

Consultancies and subcontractors with a high expertise offer their services, in competition with each other. These firms show a tendency to concentrate, combining the different knowledge aspects in the field and reducing the number of players available. Competition authorities have their responsibility in fighting the potential oligopolist tendencies in the supplier market.

The difference with the previous scenarios lies in the fact that there is some dissatisfaction with regulation (regulatory failure, cost of regulation) and that there is growing financial pressure to seek more efficient operations.

2.5 Direct public management (scenario 5)

The main features of the direct public management (DPM) scenario are:

1. *No competition* apart from traditional procurement arrangements;
2. Each operator acts as a *local monopolist*; and
3. The ownership of the operator is exclusively *public*.

The local operator is awarded the responsibility to provide the integrated water services to the community, i.e.: to operate as the only provider. Its focus is on the efficient provision of a high quality public service to the entire community. The public authority has the complete responsibility for the operation of the water services, for the investments, but also the relationships with the users. Contracting out is generally restricted to large turnkey (design and build) infrastructure provision and to the high technology domain. Competition for finance may also be obtained through bond markets.

The most important actors in the sector are the customers and local authorities, which are both operators and regulators. There have been no EU liberalisation directives in the water sector. EU activity is restricted to the enforcement of public health and environment standards, as well as to non-discriminative measures in procurement contracts.

There is no (independent) regulatory authority. The protection of customers' interests as well as the guarantee of adequate capacity investment is assured by public ownership and management of the network. Apart from environmental and drinking water quality issues, which are established at the river basin area, each operator acts as a regulator in its region.

DPM is not strictly a return to the old public management model as it incorporates various innovations in technology and in management structures (e.g., more flexible accounting standards, flexibility in work contracts). Moreover, public water operators have modernised their governance structures in order to increase public participation in water management. There are no direct subsidies, except for infrastructure development in isolated and less developed regions. In compliance with the WFD, full cost recovery is implemented.

2.6 Community management (scenario 6)

The sixth scenario is a community management scenario. Its main characterising features are:

1. *Communities of interest* own and manage the infrastructure; and
2. *No competition* in/for the customer market.

Communities of interest – e.g., local communities, agglomerations, users groups, associations of industry and private users – retain strategic control over the entire water system, as well as decide the service level and the corresponding investments.

The local community does not forcibly operate the whole integrated services. Normally, sanitation services are managed by individuals (i.e., septic tanks) but new technologies enable some communities to set up a decentralised system for wastewater. Regarding the operation and maintenance of WSS, there are two alternatives: the community may be involved in the day-to-day operation and maintenance or it can delegate this task or some other aspects to a professional. In some rare cases, the operation and maintenance is based on voluntary work. Contracting out is generally restricted to infrastructure provision or for technological expertise demanding tasks.

The institutional arrangements for this particular scenario may vary from voluntary organizations (e.g., user cooperatives) to water management associations formed by landowners, private enterprises or public corporations. Customers may also own water asset or can contribute to the WSS management through representation in water company boards. Public participation is surely the main distinctive element of this scenario.

Community management differs from the public management model in the sense that the community participation includes ownership of the services, cost sharing, operation and maintenance of WSS. It helps to decentralise decisions concerning water services management, by transferring responsibilities to communities. It can be a way for an effective water management when centralised water provision is not efficient. It can also result from a crisis in public finance, mistrust in the public authorities as managers of water infrastructures, and it is possible because new technological developments allow for a more decentralised water production and treatment.

3. CRITERIA AND INDICATORS

The institutional implications of the scenarios are assessed on the basis of a set of criteria – stability, efficiency and legitimacy – derived from organisational, transaction cost, and governance theories. The following sections derive these criteria and define the corresponding indicators (based on Euromarket, 2005b).

3.1 The stability criterion and its main indicators

The institutional framework of the water sector is considered a dynamic system of organisations that differ in terms of goals and which operate in changing environments. Each scenario hence corresponds to a specific set of organisations operating within a defined institutional framework, which is prone to

be affected by change. In the specific case of the WSS sector, changes in the environment might stem from liberalisation pressures, water-related policies (e.g., stricter environmental standards), financial pressures, as well as ideological shifts. The environmental changes affect primarily the rules (i.e., institutions), yet via the rules the actors and their strategies are also affected.

If we are interested in analysing the institutional implications for the scenarios, stability emerges as an important criterion. The stability of the scenario pertains to the sustainability of its institutional framework in a context where organisations under permanent power struggles might redefine priorities and strategies and possibly, as a consequence, the rules of the game.

For practical reasons, we have derived from organisational theories the following indicators to assess the stability criterion: coherence, balance of power and conflict resolution.

Coherence: Coherence pertains to the definition and allocation of the institutional functions, which means organisational separation of institutional functions. It is important that institutional functions do not overlap. For example, policy making, regulatory and operational functions should be distinguished and clearly defined. Moreover, operational and regulatory functions should not be dependent upon political interference. And finally, operational functions should be dependent upon the respect of the regulatory framework; and separated from political direction and control.

Balance of power: The WSS sector is a dynamic system of organisations that differ in terms of goals. It is therefore important to analyse for each scenario whether there are organisations that enjoy considerable discretion and protection from possible interventions which enables them to look after their own interests. In each of the three markets considered in the institutional framework (i.e., customer, supplier and resources markets), the study looks if there is one (or more) actor(s) more powerful than the others. A balanced system of power means that each organisation responsible for specific institutional functions in the system is checked by the others, so that one organisation is not the final arbiter of all powers.

Conflict resolution mechanisms: In the context of changing environments, organisations must adapt and change, which is likely to lead to a redefinition of priorities and (eventually) goals, as well as to a redistribution of resources. As a matter of fact, change affects the power relationships among the actors, and consequently it threatens the status of some actors. There is therefore a strong need to manage potential ruptures and crises (e.g., in the cases there is a new mission to pursue). We check for each actor/organisation which are (if any) the existent mechanisms to solve conflicts of interest with other actors/organisations.

3.2 The efficiency criterion and its main indicators²

Institutions seek to achieve efficiency – minimising comprehensive cost – inclusive of both production and transaction costs. The efficacy of economic institutions should be judged on a systemic basis considering both ex ante and ex post transaction arrangements.

² The content of this section is based on a chapter written by David Musco in Euromarket (2005b).

To develop a complete set of efficiency indicators to evaluate the scenarios, we have focused on two levels: the nature of individual transactions (within our institutional framework), and the nature of the generic institutions of governance. The indicators are: level of transaction costs, adaptability and incentives to perform.

Level of transaction costs: In a general view, transaction costs relate to both motivation (to align actors' interests) and coordination (of agents' actions) costs. Governance is an exercise in assessing the efficacy of alternative modes of organisation – namely Markets, Hybrids and Hierarchies – to economise on transaction costs (Williamson, 2005: 35). Hence hierarchies (e.g., public/private/social enterprises), Hybrids (e.g., delegation contracts) and Markets are alternative forms of organisation for managing the very same transaction.

In order to characterise the transactions according to their information problems/contracting hazards, one needs to focus on each individual transactions (e.g., between customer and operator; between customer and responsible body; between responsible body and regulatory body). The key information problems associated to transaction costs have been grouped into:

11. *Information asymmetry:* creates adverse selection (leading to *signalling/screening* costs);
12. *Non observability* of agents' action: creates a moral hazard (leading to costs of *monitoring and incentive/penalty schemes*);
13. *Non verifiability* of information (leading to *audit* costs/costs due to *misrepresentation* when audit too costly);
14. *Information uncertainty:* creates the need for incomplete contracts (leading to complex contract *construction, negotiation, monitoring/ renegotiation* and *dispute resolution* costs).

Adaptability: Uncertainty increases the frequency of adaptation. In the discrete governance forms, market and hybrid governance represent two polar types of adaptability (Williamson, 1991: 280). Market governance supports high exit flexibility and low idiosyncratic investments adaptation, i.e. autonomy, whereas hybrid governance supports high modification flexibility and high idiosyncratic investments adaptability, i.e. cooperation.

Incentives to perform: According to Williamson (2000: 599), a governance structure reshapes incentives (ex ante and especially ex post incentives). The academic literature argues that well-designed and well-implemented market-based instruments generate high-powered incentives to perform and require limited administrative controls. On the other hand, command-and-control instruments are frequently criticized because of their high administrative costs and low-powered incentives.

3.3 The legitimacy criterion and its main indicators³

In the context of this paper, legitimacy of an institutional arrangement is not necessarily political regime legitimacy, but rather the "legitimacy of specific structures and procedures through which policy is being produced" (Scharpf 1997: 14). This means the "general capacity of particular policy-making institutions to produce policy choices that are likely to approximate the common good" (Scharpf 1997: 15). Legitimacy can be regarded along two ways: (1) input-oriented: legitimacy derives from the agreement of those who asked to comply; and (2) output-oriented: it refers to substantive criteria of *buon governo*, in the sense that effective policies can claim legitimacy if they serve the common good and conform to criteria of distributive justice.

Good governance can be regarded as a source of legitimacy. According to the Commission's white book on good governance (European Commission 2001: 8), "governance means rules, processes and behaviour that affect the way in which powers are exercised at European level, particularly as regards openness, participation, accountability, effectiveness and coherence" (considered as principles).

The two first principles concern the input-oriented legitimacy of public management, which depends on process openness and public participation (democracy understood as government by the people). In contrast, the three other principles focus more on output-oriented legitimacy (democracy understood as government for the people). In our assessment, two over the three indicators related to output-oriented legitimacy are already retained in the proposed assessment criteria of stability and efficiency, respectively coherence and effectiveness. As such, we chose to build the criteria of legitimacy on the three remaining indicators, one output-oriented (accountability) and two input-oriented (openness and participation).

Openness: In order to reach good governance, organisations among the institutional arrangement should work in an open and transparent way. The broad public should have access to reliable information and be able to scrutinize the decision-making process. Such openness requires active communication and information provided in accessible language. An active communication implies the availability of detailed information to the public and access to working documents and final decisions. It also means that citizens are aware of the procedures and can locate at any time which step the decision-making process has reached and the periods within which they can intervene (e.g. time schedules of the consultation processes). In addition, available information should be adapted to local preoccupations and needs.

Participation: The process should be formally institutionalised at all steps of decision-making and at two levels. First, participation must involve experts according to clear and transparent mechanisms within each organisation. Second, participation should be opened to the broad public. In addition, the range of participation goes from consultation to co-decision. We consider that a decision-making process is participatory if there is at least a consultation of the interested parties and the broad public.

Accountability: the respective roles of organizations in the decision-making and implementation processes need to be clear. Each of the organizations on the institutional framework must explain and take responsibility for what it does at whatever level.

³ The content of this section is based on a chapter written by David Aubin in Euromarket (2005b).

4. INSTITUTIONAL IMPLICATIONS OF THE SCENARIOS

The present chapter presents the institutional implications of each scenario on the basis of the criteria and indicators identified above. The results presented are organised in terms of the strong features and main challenges of each end state. These results are based on a more comprehensive analysis detailed in Euromarket (2005b), and which has included illustrative case studies.

4.1 Tendered market (scenario 1)

In institutional and organisational terms, one can see that the major advantage of the *tendered market* scenario is its relative stability and, more importantly, its efficiency. Transaction costs are relatively small because transactions are mainly organised in the market through competitive bids. Moreover, the short length of contracts increases the flexibility of the framework and creates incentives to perform.

The major challenge clearly concerns the low level of public participation but participation could be increased if the local public authority decides to involve the different stakeholders and, in particular, consumers in the planning of long term investment for the sustainability and improvement of the water supply and sanitation system as a whole.

4.2 Tendered market and strong regulation (scenario 2)

In general, the strong features of the *tendered market and strong regulation* scenario pertain to its high levels of efficiency and stability. The level of efficiency is related to high levels of adaptability of the framework and especially to incentives to perform. These incentives come on the one hand from regular tendering processes (i.e., competition for the market) and on the other from regulation (e.g., price-cap mechanisms and benchmarking). As stability is concerned, the main strengths of this institutional framework come from the balance of powers between actors and the existence of conflict resolution mechanisms.

The main challenges of this institutional framework relate to the potential incoherencies arising from the overlap of responsibilities between the public authority (negotiating and signing party to the contract) and the regulatory entity. It is very important that the legal framework clearly allocates roles and responsibilities between the different actors, and that the corresponding level of resources is made available to properly execute the allocated functions (e.g., human and financial resources to the independent regulator). It is also very important to minimise transaction costs because the high number of actors involved in the framework may raise them to costly levels to society. These costs should be internalised by the system through their allocation to the actors that are better positioned to cope (and minimise) them. Finally, one must mention the need to improve public participation throughout all the chain in the institutional framework, in order to improve its legitimacy.

4.3 Administrative regulation (scenario 3)

The fact that the *administrative regulation* scenario can encompass multiple configurations (e.g., diversity of types of operators) limit the assessment of the scenario in terms of stability, efficiency and legitimacy because some of these criteria depend on the local context. We have nonetheless tried to identify some qualities and challenges.

One of the main features of this scenario is that bureaucracy costs are limited thanks to specialised agencies. Suppliers are oriented towards performance and constantly improve their management and practises (not only the financial ones). Efficiency is set as a priority in the sector management. The public benefits from a great openness and participation, notably a very high level of openness (information available to the public).

The main challenge pertains to the fact that accountability goes through binding benchmarks organised by public bodies, not necessarily fully independent. Accountability rules must be specified in the law (clear objectives, indicators of performance of public companies, liability vis-à-vis a public authority). Public control through shareholding is not sufficient. Also, procedures of conflict resolution must be set for the different relationships between organisations belonging to the WSS sector. Citizens' involvement can be improved, beyond information dissemination.

4.4 Outsourcing (scenario 4)

The conclusion taken in this section in terms of stability, efficiency and legitimacy are mainly related to the supplier market and cannot be extrapolated to the entire institutional framework. This is because the *outsourcing* scenario was constructed in such a way that it can coincide with several organisational structures that are characteristic of other scenarios. In this sense, the exhaustive assessment of the institutional framework depends on the knowledge of local cases. One nonetheless presents conclusions iterated exclusively from outsourcing-based relationships.

In general terms, high levels of efficiency are the main quality of this scenario. A competitive supplier market creates high incentives to perform, which can still be increased by the wording of the contracts. Moreover, short term contracts make the framework rather flexible to accommodate changes. The scenario is also considered as relatively stable, especially due to a clear definition of functions and roles as well as defined conflict resolution mechanisms in the supplier market.

Its main challenge relates to the possibility that competition in the supplier market is constrained due to a tendency of outsourced firms to concentrate. The competition authority must pay special attention to such oligopolistic trends. The restriction of competition in the supplier market has important consequences in terms of the incentives to perform. There is also the problem related to the loss of internal competencies of the operator and its consequent dependency on a limited number of outsourced firms. This may lead to the capture of the operator. In such a context, both the flexibility as well as the incentives to perform would decrease.

4.5 Direct public management (scenario 5)

The main qualities of the *direct public management* scenario pertain to the fact that these systems are built on a strong legitimacy. In each case, suppliers are accountable to local authorities with a more or less important degree of public involvement and participation. Mostly, legitimacy comes from the dominant position of the local authorities which at the same time control the supplier (formally, at least) and are accountable to the voters/customers (at least through elections).

The main challenge of this scenarios is to make sure operators are accountable to the local authorities (e.g. through the establishment of management contracts between the suppliers and the authority).

Also, the technical expertise of the local and upper level administration should be high in order to conduct an effective monitoring of the operator's activities, particularly in terms of cost of the service. The balance of powers between the dominant actors of the sector might be weakened by the operators' monopoly on technical expertise. Suppliers may be used to advise the local and regional decision-makers and regulators and be tempted to retain information or hide issues that infringe their particular interests. In addition, it could be useful to develop incentives for the suppliers and their managers, not necessarily focusing on financial incentives, but including more qualitative preoccupations in terms of environmental protection, social equity, and quality of the service.

4.6 Community management (scenario 6)

The fact that the *community management* scenario can encompass multiple forms of the social enterprise (e.g., cooperative, mutual) limit the assessment of the scenario especially in terms of stability and efficiency. We have nonetheless tried to identify some qualities and challenges that may be generalised to the end state.

The strong feature of this scenario is that it is characterised by high levels of legitimacy. With certain caveats it also has good stability characteristics and can, with the introduction of appropriate mechanisms, develop reasonable levels of efficiency. Social enterprises therefore offer an interesting and viable alternative to public and private enterprises in the provision of water services.

The main challenges relate to the fact that transaction costs are generally important and should therefore not be neglected. Also, for individual small social enterprises stability may be undermined by the exit of active members.

5. CONCLUSIONS

The scenarios on the evolution of the water sector in Europe presented in the paper can overlap. This is especially the case of *Outsourcing* and *Administrative Regulation* scenarios, whose competition processes may coincide with different forms of organising the sector. This has rendered difficult the assessment of their institutional consequences because they ultimately depend on the chosen organisation of the sector.

In terms of the storylines⁴, there are strong similarities between *Outsourcing* and *Administrative Regulation* (which focus on links outside the operator circle) and between *Tendered Markets* and *Direct Public Management* (mainly built within the operator circle). We have therefore decided to compare these scenarios together.

On the one hand, it is interesting to first look at the *Outsourcing* and *Administrative Regulation* together because these two scenarios can occur with a mixture of operator types. The strong features of these scenarios pertain to the high levels of incentives to perform, created by the competition level in supplier market in *Outsourcing* and benchmarking in *Administrative Regulation*. Their main

⁴ For more details on the storyline, please refer to Euromarket (2005a).

challenges pertain: (1) in *Outsourcing* to the possibility that competition in the supplier market is constrained by a tendency of firms to concentrate, and to the loss of internal competencies of the operator; and (2) in *Administrative Regulation* to the fact that accountability depends on benchmarks organised by public bodies not necessarily fully independent, and to the low level of public participation.

On the other hand, it is interesting to look at the *Tendered Market* (both scenario 1. and 2.) and *Direct Public Management* scenarios together because they are contrasting especially in the nature of the operators that predominate. These contrasting scenarios have necessarily different institutional implications. Firstly, the strong features of *Tendered Market* scenarios pertain to the efficiency and stability-related indicators, while in *Direct Public Management* they are related to strong legitimacy. Secondly, the main challenges of *Tendered Market* pertain to legitimacy, especially in what concerns public participation, while in *Direct Public Management* they pertain to the potential lack of incentives to perform.

Finally, *Community Management* is possibly the most complex scenario in that it embraces both changes to the nature of the operator (from public/private enterprise to social enterprise) and associated adjustments in both the operator-supplier and operator-regulator relationship. The strong feature of this scenario is that it is characterised by high levels of legitimacy. The main challenge relate to the fact that transaction costs are generally high.

The purpose of this paper was to analyse the institutional implications of the different scenarios. The aim was not to make judgements on the scenarios neither to recommend any one in particular, but it was to assess them across a set of criteria including various indicators. The identified scenarios are theoretical constructions on the possible evolution of the water sector in Europe, which means that the organisation of the water sector and its consequences in 15 years' time will as well depend on the specific characteristics of local systems. We mean by this that any of the conclusions presented in this report should not be extrapolated to all the situations. These conclusions pretend to improve the knowledge set of policy-making actors, namely calling their attention to important issues that are related to particular features of the scenarios.

REFERENCES

CROZIER, M. : 1963, *Le Phénomène Bureaucratique*. Paris: Editions du Seuil.

Euromarket: 2005a, Identification and Description of Plausible Water Liberalisation Scenarios. Deliverable 5: <http://www.epfl.ch/mir/euromarket>.

Euromarket: 2005b, Analysis of the Institutional, Legal and Organisational Implications of the Scenarios. Deliverable 9: <http://www.epfl.ch/mir/euromarket> (forthcoming).

Euromarket: 2003, Analysis of the EU Explicit and Implicit Policies and Approaches in the Larger Water Sector. Deliverable 1: <http://www.epfl.ch/mir/euromarket>.

European Commission: 2001, *European Governance. A White Paper*, COM (2001) 428final.

FINGER, M.: 2005, "The New Water Paradigm: The Privatization of Governance and the Instrumentalization of the State." In *The Business of Global Environmental Governance*, D. Levy and P. Newell, eds. Cambridge MA: MIT Press.

GEE, A.: Summer 2004, Competition and the water sector. EC Competition Policy Newsletter; 2: 38-40.

GORDON-WALKER, S., Marr, S.: 2002, *Study on the application of the competition rules to the water sector in the European community*. Brussels: Competition Directorate-General.

SCHARPF, F.: 1997, *Games real actors play: Actor-Centered Institutionalism in Policy Research*. Boulder: Westview Press.

WILLIAMSON, O.: 2005, *The Economics of Governance*. Berkeley: University of California.

WILLIAMSON, O.: 2000, The New Institutional Economics: Taking Stock, Looking ahead. *Journal of Economic Literature*; 38 (3): 595-613.

WILLIAMSON, O.: 1991, Comparative Economic Organization: the Analysis of Discrete Structural Alternatives. *Administrative Science Quarterly*, 36(2): 269-296.