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B.I. The Current State: Issues and Trends in the WSS Sectors (EPFL)

ANNEX B.I The Current State: Issues and Trends in the WSS Sectors

This paper wishes to analyse the issues and trends in the water supply and sanitation sectors (WSS) according to the findings of Deliverable 1 to Deliverable 4. This paper is divided into three main parts. The first one identifies the main structural characteristics, basically since the early nineties, which are unlikely to change in the next ten-fifteen years. The second part focuses on emerging trends that are currently affecting the WSS sectors. Our last part wishes to point out future possible events whose consequences could change the storyline of scenarios and that, therefore, one should keep in mind.

1. Structural characteristics

The WSS sectors exhibit four major characteristics that until now have not been called into question.

The first of these characteristics is that the sectors displays strong natural monopoly features. The duplication of the water and sanitation infrastructure is too costly and makes no sense in economic terms. Competition may be introduced within the infrastructure but not between the different networks. However until present, the characteristics of the sector does not make viable the competition in the same networks and the competition is more properly for the market.

The second major point is that WSS have local characteristics. There are some possible economies of scale but the transport of water remains too expensive and may raise important quality problems. In economic terms, some operators have estimated that it makes no sense to transport water over a long distance.

The third major point is that WSS have strong merit and quasi-public good characteristics.

Finally, water is a vital element that has no substitute. In this regard, there is also clearly a human right and sustainability dimension.

In the last years there have been increasing technological requirements and higher environmental norms.

2. The WSS today

A variety of different institutional arrangements can be found in the EU. However, we can identify four main generic types:

1. Direct public management (by municipalized operated utilities).

2. Delegated public management under public or private law (e.g. corporatized public, multi-municipal associations, co-operative companies, public trading companies, including companies with minority private shareholding).
3. Delegated private management (contracts with private parties).
4. Direct private management (full divestiture).

Overall, the majority of European population (about 55 per cent) is supplied by public companies, followed by private (about 35 per cent) and mixed owned (almost 10 per cent) operators. Second, about 45 per cent of the population is supplied by medium sized operators (i.e., supplying between 100'000 and 10'000'000 inhabitants). Small operators, which are the majority in nominal terms, supply about 35 per cent of the population and, finally, large operators account for 20 per cent of the inhabitants. However, it should be noted that medium and local operators are not all completely independent and some partnerships with larger ones exist. However, this is very difficult to quantify.

In terms of regulation, the eco-systemic vision of water resource management is still developing. The implementation of the WFD should reinforce this trend. For the near future, certainly, environmental requirements will further increase.

3. Emerging trends

Comparing the different actors' interest, strategy and policy is highly difficult but one can establish a first picture on some possible emerging trends at the European level.

a) Larger management structures

In water supply, water has been traditionally managed by the different local political units, usually municipalities, and each of these units were responsible for supplying water. The strong urbanisation process and the subsequent increasing proximity between municipalities have led a growing number of them to question the traditional mode of management in favour of larger management structures. This reasoning relies on the financial benefits of economies of scale. One can now see in many European countries a strong growth of inter-municipal structures (e.g.: Belgium, France, Germany, Italy) or of new regional structures (e.g.: Netherlands, Spain, Portugal, England & Wales). In the case of sanitation, this trend was less clear in the different reports but one could imagine that the same logic could be applied to this sector.

b) Transparency

All the different actors are interested to have more ***transparency*** in the sector but for different issues and reasons. For the local and national public authorities, as well as regulatory agencies, the necessity to access financial, economic, social and technological information from the operator in case of delegation contracts is of course a major objective.

The consumers are generally satisfied with WSS services but they do not have much information and knowledge about the sector. Corruption scandals in some countries have led consumers to be more suspicious about the sector and consumer associations

across Europe are pushing for more transparency for two main reasons. The first one is to better understand the way the sector is managed and the second one is to have a better control over price mechanisms. Both of them are clearly interrelated. Some government bodies have tried to involve more the consumers in the decision making process, at best through consultative bodies in France or in the UK, although one must acknowledge that these are still very limited.

The operators are also calling for more transparency but in a different way. Firstly, the operators would like to anticipate the regulatory policy in the short-mid term to better plan their management strategies. Secondly, and with respect to EU competition rules, there is an interest, and in particular for larger operators, that bid for WSS contracts are open to competition and that information on the state of the water system should be made available. Finally, operators are also inclined to be more transparent as part of a public relation strategy to enhance the confidence of the clients, whether the municipalities, the governments or the consumers.

c) Autonomisation

The European WSS sector is clearly dominated by non-autonomous direct public management. Nonetheless, there is a clear trend, especially in large urban areas, to give more ***autonomy*** to the operators. The high degree of technicality and need for professionalisation of these sectors nowadays may offer a possible explanation of this trend. Moreover, methods of new public management also encourage this drive towards more autonomy, as well as larger management structures (point a).

d) Competition

It is important firstly to stress that unlike other network industries, ***competition*** in the WSS is still very limited. Competition for the market is the main form of competition. Many specialists are very sceptical about the real possibilities in introducing competition in the market. The only country which has introduced this type of competition is the United Kingdom but first results seem to indicate that the possibilities and dynamics of this type of competition are limited, at least for the moment.

In terms of competition for the market, it seems that there is a trend pushing for shorter terms in delegation contracts in order to introduce more competition. Associated with this, is a trend towards unbundling and rebundling of the several segments in the water chain, either to establish measurable and controllable units, or to achieve economies of scale and scope. Another trend is the introduction of ***benchmarking*** measures in many European countries so as to create competition through information. This is already the case in countries like Germany, Italy, Netherlands, and the UK. The Commission is also looking at the possibility of creating a European benchmarking system (for more details, see Activity B – Ecologic's draft on the analysis of the recent trends towards liberalisation at EU Level). However, it should be noted that so far benchmarking initiatives are clearly limited to the water supply sector and not sanitation.

e) Liberalisation of other network industries

The ***liberalisation of other network industries*** and in particular electricity and gas is clearly a major trend across Europe that has an impact on water supply. However, this impact may go in two opposite directions. On the one hand, it may indeed reinforce the specificity of the water supply sector compared to other industries. On the other hand, it may trigger some transformation in the legal status of water operators and, in this regard, it is very much linked to the trend towards more autonomy.

This fact has no clear impact on sanitation.

f) Private sector participation in sanitation

Private sector participation in water supply is more developed than in sanitation, especially in Southern Europe. However, the high capital needs for wastewater treatment plants are currently leading to more open gates for private financing. In fact, many Northern European states like Austria, Belgium, Ireland, Netherlands, and Scotland are encouraging ***private sector participation in sanitation***.

4. Impact of possible Future Events

a) Application of Water Framework Directive

The Water Framework Directive is currently being implemented but it is too early to evaluate what type of impact this directive will have on the water sector.

For instance, the Water Framework Directive calls for more public information at the river basin level. In this regard, the development of river basin agencies will certainly trigger some major changes in some European countries. The public responsibility on implementing the new ecosystem approach will impose the shift of integrating local and regional WSS under the general basin framework management.

The other main interrogation about the implementation of the Water Framework Directive is the application of the full cost recovery principle. One expects water prices to rise across Europe but it is difficult to evaluate currently what could be the impact of such a measure.

b) EU Competition rules

The general directorates for internal market and competition have recently looked upon the water sector and are willing to introduce more competition in the sector. This position was echoed in the recent Internal Market Strategy for 2003-2006. However, the European Parliament voted against the fact that water should be included in this strategy.

Behind all this lies the fact that there are many debates at the European level on the nature of water services, whether they should be considered as a service of general interest or a service of general economic interest (for more details, see Annex A.II.2 –

Ecologic's draft on the analysis of the recent trends towards liberalisation at EU Level). Depending on the outcome, this will have important consequences in terms of the application of competition rule in the water supply sector.

c) End of EU Cohesion Funds

In our view, the end of EU Cohesion Funds has been an underestimated issue. At the moment, most of southern European countries and Ireland benefit from large subsidies coming from EU funds. In most countries, these funds are nearly coming to an end and there is again a pressing need for capital.

d) Competition rules WTO, GATS.

The Doha and the Cancun Ministerial Conferences have shown many divergences over how to proceed with the General Agreement on Trade and Services (GATS). It seems for the moment that these divergences have clearly blocked the agenda and that one cannot really figure out how this situation is going to evolve. However, and despite strong NGOs protest, water supply remains part of the GATS agenda and if the agreement gets accepted, one should expect important consequences on the way water supply is currently managed. Whether these changes are possible within the next ten-fifteen years is clearly another matter…

5. New EU Member States

All the countries that joined the EU in 2004 are going through significant restructuring processes, with an emphasis on decentralisation. Nonetheless, the ways in which the different member states are approaching restructuring is significantly different.

Firstly, there is the group composed by the Czech Republic, Hungary, Poland, Romania, Slovakia and Slovenia. In 2005 there is widespread private sector participation in the Czech Republic. Private sector engagement in the management of water systems is also developing in Hungary, Poland, Romania, Slovakia and Slovenia, especially through concession and lease contracts.

Secondly, the group comprising Bulgaria, Estonia, Latvia, Cyprus, Lithuania, and Malta has limited or virtually no private sector participation. It is therefore closer to the DPM end state.

B.II. EU Scenarios

ANNEX B.II.1 Delegation Contracts

1. Introduction

Delegation contracts have developed in EU countries like France in the past twenty years. We have imagined this model at EU level, but with two different storylines and end states (1a and 1b). The first storyline and end state (1a) is characterized by the emergence and implementation of a directive obliging competition for the market and invitations to tender every 10-15 years. This storyline also integrates the emergence of independent regulatory authorities. The second storyline and end state (1b) is more extreme than the previous one. This scenario results from an amendment of the former 2009 directive (imagined in 1a) that becomes more stringent with the change in European Commission and European Parliament that are even more dominated by the right wing, and that promote the liberalisation of the water sector. This leads to an amendment of the directive: every 5 years, the responsible authority will be obliged to set up terms and conditions, to establish a European invitation to tender and to retain the least costly bid.

2. B.II.1.1 EU End State

Both EU end states 1a and 1b differ from all other end states and storylines as they stem from a deliberate EU policy promoting competition for the market. Regarding end state 3, the latter is different from 1a, as there is no deliberate liberalisation policy towards the promotion of competition for the market and delegation contracts in this end state.

B II 1.1.1 End state 1a) Delegation contracts and strong regulation

End state 1a) can be characterised by the following traits:

1. Nature of competition and market
EU is composed of a majority of delegation contracts (60-70 %), composed mainly of lease contracts and concession contracts (to a lesser extent). This predominant model is based on compulsory competition for the market every 10 to 15 years. Municipalities are responsible for the water and sanitation sector, and obliged to organize an invitation to tender, but have the choice to select whichever operator they wish.

Monopoly power remains as contracts are sufficiently long for operators to benefit from monopoly power during the contract, and it appears clearly that there is a strong need of control of the operator's activities through *ex post* regulation. In this model 1a,

independent regulators are implemented in all countries (this is compulsory). Operators are therefore now regulated after the signature of the delegation contracts, and must hand in performance indicators to regulatory authorities. The latter also check data through direct controls (this means that information does not only rely on data provided solely by operators). Regulatory authorities control the water price and the quality of service (drinking water and wastewater treatment quality standards, leakages in networks, water cuts, water shortage). The respect of public service obligations is insured: disconnection is forbidden, (and "self-disconnection" is also prohibited); social funds must be put into place in all countries; social tariffs *can* also be implemented.

2. Operators

The firm can operate at different scales (local or regional) according to the scale of service. The national or transnational company as well as a small local firm (rather on small rural services) can compete for a water service for two main reasons: i) it is already locally established with contracts for neighbouring services and can benefit from scale economies, ii) this is not the case but the service is sufficiently important to generate high profits and to give the opportunity to set up a regional operation centre in anticipation of other future contracts. The firm operates the integrated service (e.g. production/treatment, stocking/pressurisation and distribution in the case of water supply). However, the scope is variable: the firm can operate water supply and/or sanitation services, and possibly other environmental network services (waste collection). Hence for a given region different operators will control different parts of the system.

One can go into more detail to characterize end state 1a by the following traits: operators manage more and more integrated water schemes (sewer maintenance, sanitation and drinking water) especially in towns and cities. Contrary to end state 2, markets are not unbundled. In rural areas, the sector is more based on public management modes as this is deemed less profitable for large operators: even if there is an obligation to tender, private operators offer the less interesting bid on purpose so as to loose the bid (higher prices). The operators are mostly TNCs (Veolia, Suez, Saur, RWE…) : some smaller private companies have merged with these TNCs.

3. Institutional Arrangements

The public authority is responsible for the water and sanitation service and can be local (municipal or supra-municipal) or regional. The more important (and so with higher technical capabilities) the responsible authority, the more balanced the bargaining power with the operator is. The scale of the responsible authority is not necessarily modelled on the scale of service. The authority can be in charge of several services on several networks even in a unique town, and take advantage of this for setting a comparison process. The responsible authority remains the legal owner of the assets even if, in some cases of concession contracts, the infrastructure is financed and owned by the operator and finally returns to the public authority at the end of contract. The responsibility for investment depends on contractual arrangements between the authority and the operator. In the same way, the responsibilities for the maintenance and the renewals are addressed in the design of contracts.

4. Economic Factors

The operator is responsible of tariff collection and bears the risk of non-payment. Price setting should cover all costs associated with provision of WSS services. Tariff can be negotiated between the responsible authority and the operator at the beginning of the contract. In order to reach more efficiency and instead to limited the revenues of the operator (with a specified rate of return on its investment or more generally a cost-plus approach), the prices are charged for long periods of time according to adjustment rules (or indexation formulas). *Ex ante* regulation (in order to choose the more efficient operator) is established by a competitive bidding. The responsible authority can propose a menu of contract to force the competitors to reveal their private information. Moreover, in order to help responsible authorities to choose better, Member States are also subsidised through a new EU fund (called *SGEI fund*[1]) established to help local/regional authorities and Member States to train and employ personnel in order to assist local authorities during the bidding process so as to better understand and negotiate the conditions of the contract in order to make the best possible choice. Subsidies can amount to 30 to 50% of total investments: this also enables water prices not to rise too much.

As mentioned before, *ex post* regulation (in order to give incentives for best performance, i.e. the optimal level of effort to reduce costs) is exercised by an independent regulatory authority, that controls price and quality (through performance indicators). It has the power to sanction operators, and is independent both from responsible authorities and public/private operators.

5. Social Factors

Several associations of users could be active but their involvement is only consultative. On the other hand, public representatives can sit to the council of the responsible authority and give their views at the time of delegation process.

6. Environmental Factors

Environmental regulation is set at the national level by an entity under the responsibility of the Ministry of Environment. One of these missions is to transpose the European directives on waters quality into national law. The assumption here is that pollution continues to be important which leads to increasingly complex quality standards.

7. Other Factors

Instruments are mostly prescriptive (quality standards…): there is an EU directive in 2009 on competition for the market with the obligation to tender every 10-15 years. There is also a new incentive instrument: funds helping municipalities to better understand the bidding process so as to make the best choice (new EU fund called SGEI fund). The obligation to implement an independent regulatory authority is also integrated in the amended directive of 2009.

[1] This is also one of the outcomes from the SOS movement described before, and is also used to subsidize other services of general interest in order to encourage better ex post regulatory control over operators.

B II 1.1.1 End state 1b) Delegation contracts and extreme competition

End state 1b can be characterized by the following way:

1. Nature of competition and market
Resulting from a deliberate European liberalisation policy, the situation in 2020 is characterized by a series of obligations decided at EU level (under the form of a directive) that are imposed upon every responsible authority (municipalities or other entities according to member states) of the drinking water and sanitations sectors: *every 5 years, the responsible authority will be obliged to set up terms and conditions, to establish a European invitation to tender and to retain the least costly bid.*

Under these conditions, "in house" management (public management) existing in member states will suffer important constraints, and will progressively diminish and disappear, as the responsible authority will very often be in front of another company offering the cheapest contract (social dumping…) that wins the bid.

This therefore leads to a predominance of delegation contracts in all member states in 2020. The market is characterized by an oligopoly of a few large European operators that master technological processes, economic aspects and benefit from economies of scale, scope and vertical integration. These companies benefit from a 'contained' form of competition, high enough not to be bothered by EU competition law, but limited in order not to engage into destructive competition (which would make all companies worse off). Some small and medium-sized companies also remain, but do not have significant influence in the market.

In some cases, complaints against big companies are lodged (either before the national competition authorities, the DG competition or the courts) because of the violation of competition rules. The county court or the CJEC sometimes decide to cancel the attribution of a market, but this concerns rare cases.

Responsible authorities have reduced privileges and responsibilities. First, they have lost their freedom to choose whichever operator they please, as they are obliged to select the least costly contract during the invitation to tender. Second, they tend to loose the capacity to manage technological processes and economic aspects that are the basis of the terms and conditions, although these are under their responsibility.

Drinking water markets are integrated (extraction, treatment, transport, distribution and costumer service), as are sanitation markets.

2. Operators
In most cases, subsidiary companies of large European companies (Suez, Veolia, RWE…) win the bid and take advantage of the monopoly during the 5 years of the contract. Other small and medium-sized independent companies also remain, but they do not have a strong influence.

3. Institutional Arrangements
Responsible authorities (municipalities, regional/local authorities...) remain as before according to national tradition and history. But they have lost most of their responsibilities because of European rules that organize the market, and/or because of the progressive loss of their technological and economic expertise.

4. Economic Factors
Through their integration in the market, operators acquire growing technological expertise and knowledge on costs, which enables them to beat municipalities/régies and smaller operators during the invitations to tender, and make substantial profits that are superior to other economic sectors, as the management system (delegation contract every 5 years) is not as risky.

The fact that contracts are short justifies the liberal point of view according to which markets regulate themselves as competition is introduced regularly enough. Regarding *ex ante* regulation, no support is given to municipalities as they are obliged to select the cheapest bid once the terms and conditions have been specified. Contrary to end state 1a, no ex post regulation is added, and there is no independent regulatory authority.

5. Social Factors
Social aspects are under the responsibility of the responsible authorities, that can include (or not include) provisions in the terms of the contract.

6. Environmental Factors
There are stringent environmental standards and policies that must be applied in all countries, and be integrated in the terms of the contract and invitations to tender. Quality standards are more and more stringent (also because pollution of resources is still important, and new potentially toxic substances enter the water cycle), and large operators also favour this trend as it represents an advantage to them compared to their smaller competitors.

7. Other Factors
Instruments are mostly prescriptive (quality standards). There is an EU directive in 2009 on competition for the market with the obligation to tender every 10-15 years. This is then modified through an EU Directive amendment (in 2013, to be applied by 2016), leading to the actual end state: every 5 years, the responsible authority will be obliged to set up terms and conditions, to establish a European invitation to tender and to retain the least costly bid.

3. B.II.1.2 EU Storyline

1. Pre-conditions: 2005 – 2009

2005: the European Commission publishes a report on the evaluation of the water sector at the beginning of 2005. It mentions that anti-competitive measures are greater than justified, and exclusive rights are considered to be too long. It does not propose

any directive, but notes that it would be preferable to 1) limit the scope and duration of exclusive rights; 2) develop more transparency.

This report is also followed by three phenomena that enforce more competition for the market: 1) TNC lobbying; 2) new Member States; 3) the GATS movement.

1) TNC lobbying

2005 : *Debt crisis of water TNCs leading to a change in operators' strategies (critical event)*
Operator strategies are evolving[2] as they face huge debts: they invested in concession schemes (with heavy investments) in developing countries (ex: Brazil), and were obliged to change their strategy. This is particularly the case for the French TNCs (Suez and Veolia) which now turn to lease contracts[3]. Most TNCs[4] fear the risks involved in developing countries and focus their strategy on the European one.

2005-2009 *Intensive lobbying of private companies at EU level (critical event)*
TNCs lobby intensively at EU level in order to encourage competition *for* the market. This leads to the formation of an EU explicit policy (which takes the form of a white paper) promoting competition *for* the market, driven by DGs Competition and Internal Market. The white paper defends the need for more competitiveness and quality of water services and other network industries. It emphasises the fact that a competitive environment enhances the best possible price-quality service. This is also supported by the European Commission (following the logic of its former Green Paper on PPP).

2) New Member States

2005-2009 (and following years) New EU entrants face important investments and technological and high expertise constraints in order to conform to quality standards regarding urban wastewater treatment and drinking water. Some countries (Slovakia, Poland, Hungary, Lithuania, Czech Republic) experience important pressure to conform to EU directives: some have to renew their infrastructure which is in a poor state (Slovakia, Poland) and the lack of public funds (for example in Poland) leads to the development of concession contracts. Part of the investments can be met through the EU cohesion funds that enable these countries to invest in infrastructure. These same countries do not have sufficiently qualified personnel and know-how to manage water services through local authorities, which incites them to delegate the services to

[2] See article of the newspaper *Le Monde* of 29th January 2004.
[3] The private company rents the facilities to the local authority, and is responsible for operation, maintenance and management of the service. The local authority, which remains the owner of the system, is responsible for capital expenditures for new projects, debt service and tariffs and cost recovery policies. The private company is responsible for operation and maintenance expenditures as well as billing, collecting and financing management work. Leaseholders must pay the municipality/local authority a rental fee included in the price of water or wastewater services fixed in the contract, billed and collected by the private company. Lease contracts are generally set up for a period of 7-12 years.
[4] Other water companies (like RWE in Germany) do not have the same debt problems, and can invest in infrastructure. These companies can be interested in promoting concession contracts.

private companies[5]. Elder Member States still have to face increasing technology and know how requirements to conform to the urban wastewater directive and drinking water directive, which can encourage the development of delegation contracts, as local authorities do not have the personnel and know how to manage the services themselves. Moreover, the European Bank for Reconstruction and Development imposes loans (like the World Bank) on the conditions of PSP participation.

3) GATS movement

This trend is also influenced by the GATS negotiations and also the World Bank recommendations promoting greater liberalisation of the water sector.

The 3 issues raised above lead to a directive proposal that is launched in 2008 to impose local/regional authorities responsible for water management an obligation to tender every 10-15 years, in order to promote competition for the market. The French model of delegation is often seen as an example of competition for the water market. However, the directive exerts great stress upon countries as the same mode of competition is imposed throughout the EU, so that the principle of *intuitu personae* observed in France that establishes the free choice of the local community independently from the criterion of price is forbidden.

The principle of *intuitu personae*

This is the principle of free negotiation, with mutual agreement, between the executive of the local community (that decides the mode of management of the water service) and the operator in charge of the water service.

In France, this is a specificity of the procedure of delegation compared to the field of the public procurement. It finds its foundation in the history of the relationship between the community and the operator. Due to the incomplete nature of contracts (long term contracts subject to unforeseeable contingencies, complexity to spell out all the tasks), the objectives are specified (ex: objective of continuity of service) but not the means to achieve these objectives (like in procurement contracts). The delegation of the management of the water service rests on the idea of sustainable partnership. Because all cannot be envisaged by the contract, the operator and the local community will have to make common decisions involving them mutually. Such a division of responsibility supposes that the community is in position of confidence regarding the operator.

This is why the rules of strict competition do not apply in this case. At the time of the first delegations, the private companies were local contractors. The rule of confidence was all the more natural as imbalance between operator and community was less marked.

[5] This could be imagined for the Czech Republic, Romania, Hungary, Slovenia, Slovakia and Poland, as there is already more private involvement that has developed with the decentralisation process, and could be envisaged with the need to comply to standards, the poor infrastructure, coupled with the lack of public funds and the lack of municipal know-how to manage water services (see Intermediaries report, 2003: www.irs-net.de/intermediaries/). Other countries like Cyprus, Lithuania, Malta and Turkey are still characterised by the quasi non existence of private sector involvement, and this is therefore less probable for these countries.

The directive proposal promoting competition for the market meets some resistance in elder Member states notably from UK and the Netherlands. In Germany, the new federal government (Christian-democrat) foresees the difficulties responsible authorities (mostly managed by social-democrats) will have to face, and agrees on the directive proposal. But the UK is the country the most against this sort of policy as this would question its former management system. However, more countries vote for this proposal than against it (qualified majority): this is due to a collusion of new member states that are in favour of the further introduction of competition and delegation contracts, as they are faced with important constraints to conform to drinking water and sanitation directives. The directive is therefore voted and agreed upon in 2009 (before the change in European Commission and Parliament) and it must be applied by 2012 by all Member States.

Hypothetical directive on competition for the market

In order to promote competitiveness and quality of water services, public authorities responsible for the organisation of water and wastewater services are under the obligation of setting up a tender based on competitive bidding every fifteen years at the very most, in order to select the best bid (quality-price wise).

Ex ante regulation to control the establishment of competitive bidding must be ensured by national authorities responsible for competition rules, and will also be controlled by DG competition, so as to ensure that competition is enhanced and effective.

Ex post regulation obligations are not included in this directive, although Member States have the leisure to create independent regulatory authorities.

****

What must not happen at this stage:

- There is no ex post economic regulation of operators, also because there is no explicit lobbying of NGOs, consumers and public authorities.

- Municipalities and local authorities responsible for water and wastewater management do not acquire knowledge and increasing expertise to manage the water services themselves. They actually lose technical competence. No EU provision is included to enhance public management in the directive proposal.

What must happen:

- Dissatisfaction exists as local authorities/NGOs feel there is a lack of transparency and water prices are felt to be too high (in the continuity of statistics of Eurobaromètre, 2002), but it is not yet sufficiently expressed through EU level public protest movements and active lobbying. The reason why in this first phase there is no independent regulatory authority is mostly because private operators are considered to be the most powerful and influential actors and it is in their interest to have the least possible constraints, while the other actors are deemed passive.

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2. Story Weaving: 2009- 2014

During this phase of increasing delegation contracts and setting an oligopoly dominated by big European multi-service companies, there is a possibility of two evolutions leading to two different end states (1a and 1b).

1a) Delegation contracts and strong regulation

The growing consciousness of municipalities/local/regional authorities, NGOs and some consumers (to a lesser extent[6]) develops regarding the lack of transparency of delegation contracts, and suffer from not being able to control the operator once the contract is signed. Local/regional authorities do not have enough personnel and expertise to properly control the operators and water prices are deemed excessively high. This growing frustration is felt in numerous areas in the EU, and is supported by NGOs (consumer associations…). Left wing and green political parties of different countries also join this movement.

This movement is also nourished by the growing experience of NGOs (consumer associations and anti-globalisation associations) and left wing parties regarding the liberalisation of other services of general economic interest in the EU (and also past experience in the US[7]): regarding for example telephone liberalisation, consumer associations feel that independent regulatory agencies are not always acting in their interests[8] and do not always feel that there is enough information once a consumer has contracted with an operator (not enough information regarding the bill, the quality, and terms of the contract). They also complain that service (reparation, resolution of line problems) has sometimes declined due to lack of qualified personnel (competition can be based on price to the detriment of quality: cost cuts are based on cuts in personnel, leading to line problems/trouble reports that are not taken care of in due time). The perceived failure of the liberalisation of other network industries justifies citizens' demand for more *ex post* regulation of operators regarding quality standards and service provision, *and more transparency*.

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[6] It is presumed here that the power and influence of individual consumers is much weaker than organisations such as NGOs (especially consumer associations) and municipalities and other local/regional authorities responsible for the organisation of water services that are much more aware and knowledgeable on wastewater and drinking water management and organisation. This hypothesis is based on a recent European study on the perception of citizens regarding services of general interest: it was noted that many citizens did not know who was the company in charge of water treatment and distribution, and had much less knowledge of the reality of the price than for electricity or gas supplies. The study explains this ignorance as follows: "This derives on the one hand from the large proportion of individuals for whom the cost of water is included in the co-ownership charges, rental charges or even – in some countries, it seems– in local taxes and, on the other hand, from the low level of the cost when all the household expenses are taken into consideration (at least in the well-off and middle social categories)." (European Commission (2003), *European consumers and services of general interest. Qualitative study in the 15 Member States and the 10 countries acceding to the European Union in 2004*, p. 83). Therefore, the assumption of consumer passivity is based on the fact that many consumers are ignorant and unaware of main issues regarding water services, and this is unlikely to change in the next 10 years.

[7] See for example Banerjee A. [2003], « Does incentive regulation 'cause' degradation of retail telephone service quality? », *Information Economics and Policy*, vol. 15, pp. 243-269; Clements M. [2004], "Local telephone quality-of-service: a framework and empirical evidence", *Telecommunications Policy*, vol. 28, pp. 413-426.

[8] This is a simulation of what is actually developing in some countries like France.

Different left wing parties[9] (that by this time have come to power in an important number of EU countries) and NGOs unite by 2013 in a protest movement at EU level called SOS: Save Our Services. This movement does not only concern water and sanitation services but all services of general economic interest. In 2014, this movement manifests in Brussels and different EU capital cities, asking for more transparency, more information to consumers, control of operators, more evaluation and sanctions for breaches in contracts, and the introduction of regulation of water operators to ensure the full accomplishment of the delegation contracts.

Parallel to this movement, the European Commission is also very interested in developing evaluation of performance for services of general economic interest[10] and plans to launch an "EU evaluation of performance of services of general economic interest" (every two years). It defends the establishment of independent regulators in the water sector at national level that control and diffuse performance indicators of different operators. Private operators are not enthusiastic about this policy (for their own freedom of management). However, they are interested in knowing the performance of other competitors and are also "inclined to be more transparent as part of a public relation strategy to enhance the confidence of the clients, whether municipalities, the governments or the consumers"[11].

A debate on regulatory authorities emerges regarding the establishment of a new policy on the obligation to put into place independent regulatory authorities to control operators in charge of drinking water and sanitation services. This is held in Brussels in 2014 (the European Forum on Regulatory Authorities for Water) and groups all interested parties. This time, not only operators but NGOs, local and regional authorities and political parties are present and exert pressure for more regulation. The discussion first is based on the possible types of regulation, as the box below describes:

Different systems of regulation

Regulation of the water supply and sanitation sector can have different objectives and there can be different systems of regulation. Regulation can concern competition, monopoly, environment or public service obligations, and can combine one or more of the following functions:

- Regulation can exist to control competition; this can be organised through national or European entities that often intervene *ex post* (leading to different inefficiencies).
- Regulation can exist to introduce competition in a sector formerly organised in the form of a monopoly. This regulation, considered as asymmetric, controls former monopolies and is often conceived as provisional, and is regarded as useless once full competition is introduced.

[9] Left wing parties have been favoured in presidential campaigns in some countries of the EU mostly because of growing unemployment and rising poverty, combined with the lack of a "social" Europe that citizens severely criticize.

[10] See the section on benchmarking in the internal Euromarket document (Activity D) "Analysis of recent trends towards liberalisation at EU level", by Britta Pielen, Eduard Interwies and Nadine Herbke, 14 July 2004, pp. 14-15.

[11] See internal Euromarket document (activity C) " Issues and Trends in the water supply and sanitation sectors", by EPFL, 2004, p. 3.

- Regulation can be introduced to assure that competition does not provoke negative effects (under investments, quality deterioration, extra profits…).
- Regulation can exist to control competition *for* the market, when responsible authorities decide to organise an invitation to tender.
- Regulation can exist to control the access of different operators to infrastructure and networks that are marked by the existence of natural monopolies.
- Regulation can be also aim at ensuring the respect of public service obligations or service of general interest or universal service, and ensure the equilibrium between these obligations and competition.
- An (advanced) economic regulation can consist in fixing water prices and/or ensuring the financial balance of the firms (by way of fair return on invested capital).
- In the context of information asymmetries, a form of regulation can be set up to provide some crucial information on activities of firms concerning their performance, technical factors, prices…
- Regulation can support the local community in its tasks of monitoring: to give guidelines and recommendations on delegation contracts for instance.
- Regulation can be based on regular and autonomous evaluations of the performance of services.
- If there exists an external advice office, the regulator can supervise it by defining minimal competencies or even to accredit advice offices.
- Regulation can include the role of arbiter or mediator in case of disputes or even to denounce abnormal situations.
- Regulation can also include environmental and social aspects
- The regulatory authority can be implemented at national, local, sectoral level, and must be independent from operators and public authorities. This authority must intervene ex ante or continuously in order to assure the good functioning of the sector.

Regarding delegation contracts in the drinking water and sanitation sector, the following project is agreed upon in 2015 between all actors of the water sector (governments, local/regional authorities, NGOs, operators). Due to the SOS movement, operators feel obliged to accept independent regulators to gain popularity and legitimacy. The forum is followed by a European directive proposal of the European Commission, that is based on the commonly agreed upon project:

1) The different levels of regulation and the allocation of tasks

The regulatory missions could be organised at the community level, intercommunal (group of municipalities) level, at regional or national level. Member States are free to organise regulation at the level they wish: there is an obligation of results, but the way to operate regulation at national level respects the subsidiarity principle. Each Member State must collect information regarding all delegation contracts in order to be able to provide European Commission with the necessary information for its "EU evaluation of performance of services of general economic interest". A debate also

emerges on a European level regulation, with the possibility of a coexistence of different regulatory levels.

When the local authority decides to entrust the operation of its water services to a private (or public) operator, this is done within the framework of a multi-annual contract defining the rules and commitments that the operator must comply with. This relates to the terms of the expected services (e.g. operation, renewal of infrastructures) and the price of water paid by the users. The main problem of this type of organisation is related to asymmetries of information between the two parts. By dissimulating its true costs and its actions to manage its activity effectively, the operator can increase its rents.

For technical, historical and cultural reasons, it seems natural that the informational deficit met by the local authorities responsible for the organisation of WSS services as well as the users are dealt with at the local level. However, the national or regional level can also bring an interesting relay. As regards incomplete information faced by the local authority, two types of solutions arise. At the local level, the community can call upon the technical expertise necessary to the follow-up and the monitoring of the service. The local community could benefit from advice and assistance from specialists such as private advise offices or even public offices[12]. The technical and economic diagnosis of the services would allow an estimation of the operation costs as well as room to manoeuvre concerning investment. This information appears particularly crucial at the time of negotiation when fixing the price of water at the beginning of contract.

In addition, at the national level, a solution to the informational problems between local community and private operator could consist in the definition of missions of regulation. Firstly, an authority of regulation could propose tools. It could encourage the use of indicators of performance defined at the national level with the representatives of the various public and private stakeholders. It could also propose models of terms and conditions which would enable the local regulators (local communities) to benefit from national studies proposing solutions on the key points of the delegation contracts. Moreover, this national authority could be a forceful actor in a national negotiation on the contents of the annual report of the operator presenting the financial and technical elements of water service. Finally, this authority could have important means of investigation, and would be able to collect data on the characteristics and the performances of the services. One can also consider the opportunity to define, at the level of the national regulator, a mission of control of the offices advising the communities in order to guarantee their competencies and independence.

The respect of public service obligations (availability, continuity, affordability) will also be ensured by the independent regulatory authority. The latter ensures the respect of two obligations imposed at EU level: 1) the obligation in EU countries to prohibit water cuts related to unpaid bills by poor households; 2) the obligation of social funds to help population.

[12] In France, the DDAF, decentralised services of the Ministry for Agriculture, provide technical and competition advises to the small rural communities.

If prices exceed a certain threshold and quality does not respect standards, the regulatory agency could sanction the operators (economic sanctions that cannot be indirectly paid by consumers through the water bill). Moreover, this criteria (price and quality indicators) once controlled would be centralised and then communicated to the public (fulfilling the requirement of transparency for the users) through an annual report of the independent agency (available through internet and municipalities or regional authorities): inefficient operators will therefore also be sanctioned through their tarnished reputation (sunshine regulation), which creates an interesting incentive scheme. In order to bring more clarity in the water bill and to establish comparisons between services, the regulator could fix rules of presentation of the tariffs and average invoices.

2) Independence and credibility of the regulator

The regulatory authority can be subject to the influence of the government, the political circle, special interest groups, and private operators. Under these circumstances, it is not the guarantor for general interest anymore.

This regulatory agency must be independent (from all stakeholders including public authorities and users); have sufficient and qualified personnel and be credible (and able to implement credible threats). Since the regulator can never be completely independent of the executive power, it is important that it has at least objectives of equity and impartiality. Hence, this authority must have great freedom to achieve its missions.

The independent authority's activities can be controlled *in fine* by government, to ensure that there is no collusion between regulator and operators, and guarantee that controls are done.

1b) Delegation contracts and extreme competition

In the second case, the new European Parliament and the new European Commission in 2009 are even more dominated by right wing parties, leading to a more extreme liberalisation policy. This is encouraged by the following actors:

- Large operators defend the advantages of delegation contracts, and the benefits coming from their expertise in order to face environmental requirements and drinking water safety;
- Some new Member States like Czech Republic and Poland underline the importance of investments, expertise and know-how to conform to EU standards (drinking water directives and wastewater treatment directives) and ask for the encouragement of competition for the market;
- The GATS negotiations leading to enforce the opening of markets in a context of world-wide liberalisation.

Debates in the Council of Ministers and the European Parliament also converge towards more control over the choice of responsible authorities regarding management options. France also encourages the opening of markets and the introduction of competition for the market, expecting that French TNCs will take advantage of this policy. German TNCs like RWE are also interested in this policy (and are also interested in concession contracts), and so is the new German federal government (Christian-democrat) that foresees the difficulties responsible authorities (mostly managed by social-democrats) will have to face. The UK government and industry is thoroughly against this sort of policy. However, positions against this policy do not outweigh the defenders of this new path, also supported by European institutions in favour of more competition in the water sector (and promoting efficient services provided at least cost), like in other network services.

At the end of 2010, and under the initiative of DGs Internal Market and Competition, the European Commission adopts a directive amendment of the prior directive consisting in setting up the following system: every 5 years, each authority responsible for the drinking water and sanitation sectors (municipalities…) has the triple obligation to: 1) establish terms and conditions; 2) establish a European invitation to tender every 5 years; 3) select the least costly contract.

This system depends on the invitations to tender, and on the quality and completeness of the terms and conditions that must include all aspects regarding the service such as quality, standards, public service obligations, investments and other economic aspects. Regarding competition, the latter exists *for* the market during invitations to tender that must be sufficiently regular to promote competition (every 5 years). There is therefore no need for specific regulation other than national and European competition authorities.

This mode of organisation and regulation enables its designers to integrate -or avoid- measures progressively elaborated in European treaties and laws regarding "services of general economic interest": measures regarding cohesion, public service or universal service obligations etc. are under the responsibility of local authorities (municipalities, regional authorities…), that must integrate these in the invitation to tender and in the terms and conditions of the contract.

After long debates in different European institutions, the amendment is published in 2013 (after the constitutional Treaty that gives guarantees to local authorities), and must be applied (after being transposed in national legislation) by the 1st of January 2016 in all Member States.

In both cases 1a and 1b, the movement towards delegation contracts is encouraged by two major interlinked elements:

1) There is no significant change in the state of water resource pollution which is considered still unsatisfactory regarding nitrates and pesticides, and chemical substances (agricultural and industrial pollution). Not only does pollution of given pollutants not decrease, but new pollutants emerge due to new industrial biological, chemical and organic innovations that enter the water cycle through sewers and

natural resources (ex: micro-organic pollutants, heavy metals, new pesticides…). This leads to the necessity of creating new standards and concentration limits in water and wastewater treatment for these new substances, that are also increasingly taken into account at international level (World Health Organisation standards). This sustains and enforces the need for growing water quality and urban wastewater treatment in the future (both for water coming from underground water or rivers). An amendment of the drinking water directive is introduced in 2009, and there is also an amendment of the wastewater treatment directive in 2011: both are characterised by more criteria to introduce the treatment processes.

2) Local/regional authorities responsible for water and waste water management are less and less inclined to cope with drinking water and wastewater treatment as they lack sufficiently trained and the required number of personnel. Therefore, they tend to rely more and more on private operators' expertise and technology (new treatment processes and hyper qualified personnel for managing and accounting), and competitive bidding is mostly won by private operators[13].

3. To the End State: 2016-2020

1a) Delegation contracts and strong regulation

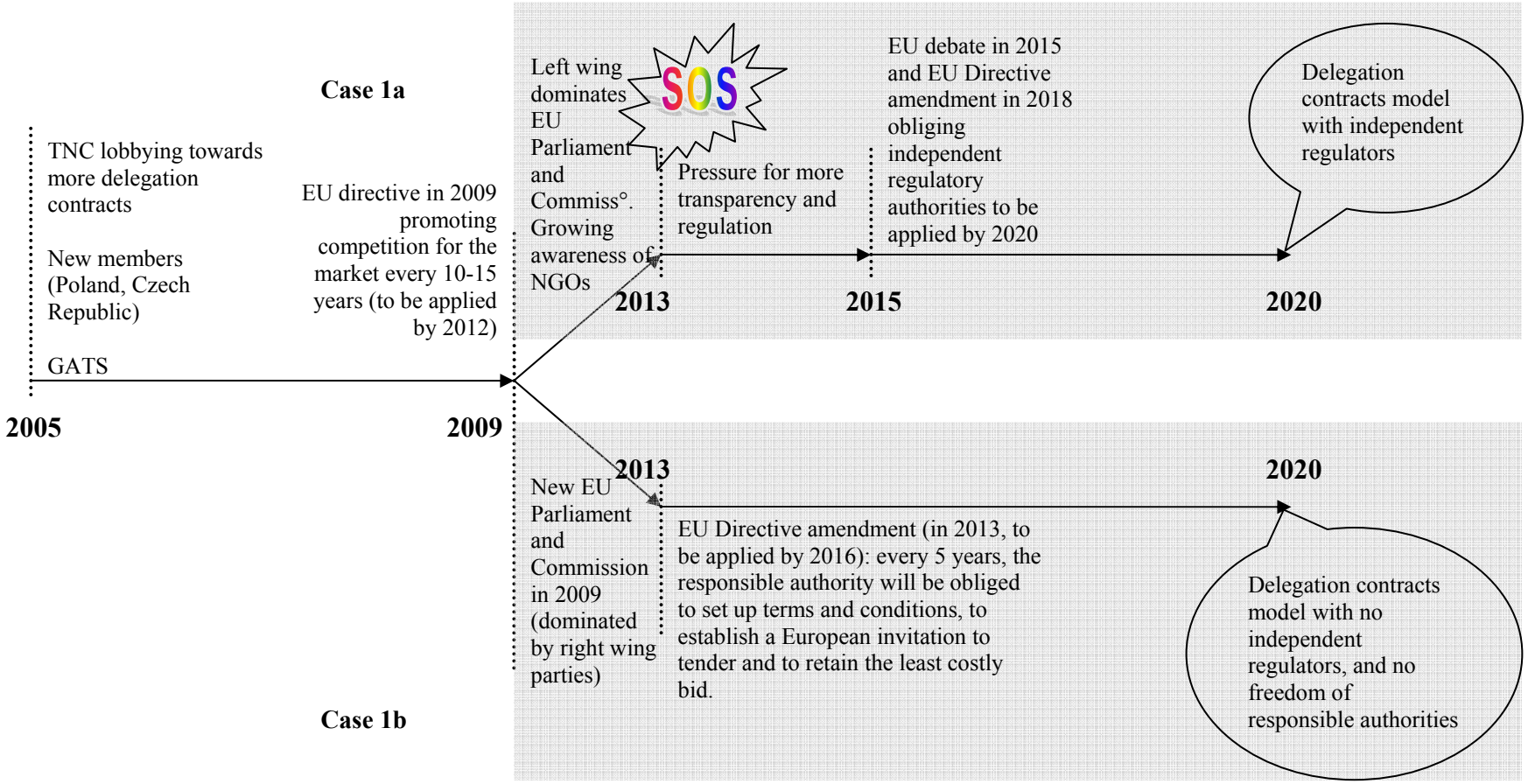
The agreed upon project of independent regulators for delegation contracts in 2016 is transformed into a directive amendment in 2018 to be applied by 2020. Independent regulators are established and financed by Member States, and important EU subsidies exist through the new EU SGEI fund (see end state description for more details).

1b) Delegation contracts and extreme competition

Transpositions into national legislation are difficult in several Member States, in particular federal States, and in countries where public management (the Netherlands) or total privatisation (England) are predominant. Nonetheless, the new directive is finally applied. Some delays are given to countries for compliance so that by 2020, there still exist other management modes, and some municipalities/local authorities resist and stay with public management.

The following figure can help understand the two evolutions (1a and 1b) of the water and sanitation sectors:

[13] One could imagine that some local authorities participate in the bidding process and win the bid as they are sufficiently numerous (ex: intermunicipal management), experienced and well organised to manage the service efficiently themselves.


Case 1a
TNC lobbying towards more delegation contracts
New members (Poland, Czech Republic)
GATS
EU directive in 2009 promoting competition for the market every 10-15 years (to be applied by 2012)
2005
2009
Left wing dominates EU Parliament and Commiss°. Growing awareness of NGOs
SOS
Pressure for more transparency and regulation
2013
EU debate in 2015 and EU Directive amendment in 2018 obliging independent regulatory authorities to be applied by 2020
2015
Delegation contracts model with independent regulators
2020
Case 1b
New EU Parliament and Commission in 2009 (dominated by right wing parties)
2013
EU Directive amendment (in 2013, to be applied by 2016): every 5 years, the responsible authority will be obliged to set up terms and conditions, to establish a European invitation to tender and to retain the least costly bid.
2020
Delegation contracts model with no independent regulators, and no freedom of responsible authorities

ANNEX B.II.2 Outsourcing

1. B.II.2.1 EU End State

1. Nature of Competition

Both at the level of the responsible entity, as well as at the level of the management entity, the use of outsourcing contracts can be an effective way of water services management, no matter whether the operator is publicly or privately owned. Public authorities, at the level of the responsible entity, may maintain control over the water services provision, while at the same time benefiting from competitive procurement and the specialised expertise of sub-contractors. At the level of the management entity, public and private operators also may benefit from outsourcing as it allows them to access specialised knowledge of external firms and realise economies of scale and/or scope.

Consumer Transaction Market

There is still a high degree of variation in Europe in respect of the competitive character of the consumer markets. In most member states, the supply of services to large industrial consumers and of some rural households are already open to competition. Competition for these consumer market segments can occur through various mechanisms – such as insets, self supply, retail, the operation of on-site treatment facilities and cross border supply. Common carriage has also been introduced in a limited number of Member States. In a number of member states, delegation of the operations to private operators through tendering has become a common solution. Elsewhere, public or mixed operators carry out the tasks of water supply and wastewater treatment at arms' length distance from the local or regional authorities. Some municipalities have kept their roles as being responsible for proper water services and being the operator of the delivery of these services. So, the whole of the spectrum of ownership and control is present.

Supplier Transaction Market

Common among all European operators is that they all have decided to **outsource part of their tasks** to external sub-contractors. Outsourcing can be carried out, either as competitive public procurement for large lumps of activity, or via the direct procurement of specific tasks of a limited dimension. The latter form of outsourcing has been common practice for ages. Yet, outsourcing large lumps of activities has become important only lately. This occurred when operators began to realize the possibilities to realise economies of scale and scope by outsourcing larger lumps of activity to one subcontractor. Considering the sectoral characteristics, specifically for operators in the water sector realizing economies of scale and scope can not be taken for granted. Water operators are bound to operate within relatively strict constraints, in respect of their geographical width, the components of the water value chain covered and the segments of consumers serviced. This was a consequence of the, by and large, local/ regional character of the service provision, the variations in the way water supply and sanitation services were dealt with in the several national legal

systems and the differences in timing in which the several components and consumer segments had been open up – or not – to private involvement. As a consequence of the relatively moderate size of these supply constituencies, only in a few instances the operators were able to achieve the full potential advantages of scale and scope. Hence, outsourcing might provide one of the few alternatives water operators can turn to if efficiency improvements are demanded.

Of course, traditionally, sub-contractors had been carrying out all kinds of material supply and civil work contracts, technical assistance and services. Yet, gradually, under the pressure to achieve enhanced efficiencies and innovation, outsourcing came to be seen as a promising alternative, in which the **scale and scope advantages were partly internalized via the use of sub-contractors**, which serviced a number of operators and areas. Thus, the operators where able to achieve the economies sought, while sharing the resulting rents with the sub-contractors involved. Generally, the operators maintained control and/or ownership over the infrastructure, but many activities, like infrastructure and equipment construction, operation and maintenance, chemicals supply, bulk water supply, management, administrative, customer and public relations and financial services were outsourced, to a certain degree.

Professional consultancies with a high expertise in these fields - and often with experience in other sectors like energy and telecommunications – began to offer their services, in competition with each other. Also low cost new entrants from the new Eastern European member states provided an interesting alternative for operators as subcontractors, since these suppliers managed to offer cheaper service provision through the use of less expensive labourers. Competitive markets developed for the different types - and bundles - of services. Strong rivalry in the several segments forced sub-contractors to ferociously compete on price and quality. Even larger (multi-utility) operators participated in this competition, by offering their experience, services and unused capacities to colleague operators.

A **large variation developed in respect of the width of these outsourcing contracts**. The picture did vary substantially across the continent – some member states relying on a few large outsourcing contracts whereas operators elsewhere relied on a myriad of smaller contracts for a variety of specific activities. Most common, throughout public as well as privately operated systems, became service contracts for short periods (from six months to two years) with precisely defined tasks, covering services ranging from the design and building of facilities, installing and/or reading meters, monitoring losses, repairing pipes, and operating and/or maintaining specific stations, and administrative tasks, to the provision of staff cars. But sometimes all encompassing management contracts were sub-contracted too, particularly in the form of **operation and maintenance contracts**. This involved the transfer of the responsibility for the design, construction, operation and maintenance (of a part) of a service or system to a third party, at a fee for performing the tasks agreed for a longer. Pre-defined performance targets (e.g. level of water losses, connection of users) are taken into account, sometimes as the basis for the remuneration of the sub-contractor.

Nevertheless, unlike under delegation contracts, in the context of outsourcing, the **revenue risks are generally not transferred to the winning bidder**; “it is the criterion of the right of exploitation and its corollary, the transfer of the risks inherent

in the exploitation, which distinguish public contracts ('or outsourcing') from concessions"[14].

Water Resource Transaction Market

In respect to competition on the water resource transaction market, a variety of arrangements can be observed all over Europe, by and large reflecting the situation by the end of the 20th century. No major events or developments did occur, so there was no real need for shifts in the **water use rights** to the several parties allowed to exploit the resources. In some very specific cases, competitive tendering processes over the right to abstract water (or discharge wastewater).

2. Market

We argue that this storyline is one of non-events: NO dramatic and critical events have happened and the main economic drivers are a function of the long term underlying trends, already present in the first decade of the 21st century.

This implies that overall **water use has remained more or less stable**. The capacity of the water supply systems is sufficient and the maximum degree of coverage has been reached in most of urbanized Europe. The WFD has caused a near complete connection to central sanitation systems, or to effective de-central solutions.

Yet, in a number of member states, either **excessive rain and water precipitation or draught** is causing difficulties in water management. It is still unclear, however, whether the main cause is climate change, or whether it is the increase in hard surfaces, like roads, estates, and business parks plus the reduction of the absorption capacity of natural areas that is causing these problems. Nevertheless, water supply and sanitation systems had to adjust their operations, via additional investment in the replacement of groundwater by surface water, in storage facilities and in the management of wastewater.

It also became clear that the sanitation systems in quite a number or Europe's larger cities required a fundamental overhaul. Many of the systems in the city centres had been build in the late 19th or early 20th century, making use of rivers and canals for the removal of water. This situation became untenable and required a modernization, a main element of which was decoupling - **the separation of the waste- and the rainwater systems** -, to reduce the amount of water treatment capacity required and to provide for alternative run-off options.

3. Operators

As stated above already, a variety of **different arrangements** can be found in the EU with different sets of operators involved. The four generic types are:

1. Direct public management (by municipalized operated utilities).
2. Delegated public management under public or private law (e.g. corporatized public, multi-municipal associations, co-operative companies, public trading companies, including companies with minority private shareholding).

[14] CEC Green paper on PPPs

3. Delegated private management (contracts with private parties).
4. Direct private management (full divestiture).

In respect of the **type** of operators, the situation of the early 21st century was continued, the majority of European population (about 55% of all of Europe) in Northwest Europe is supplied by public companies, followed by France and the UK by private (about 35% of all of Europe) and mixed owned (almost 10%) operators. Secondly, about 45% of the European population is supplied by medium sized operators (i.e., supplying between 100,000 and 10,000,000 inhabitants).

In respect of the **scope of the operators**, in some member states, the incumbent operators are fully integrated - supplying all water and sanitation services and managing all assets. Elsewhere, bulk water supply, distribution and/or sewage collection and treatment can be fragmented in various configurations, whereby delegated public and private companies provide those services via public concessions or concessionary contracts with responsible local authorities. In some member states multi-utilities have gained considerable importance. Generally, the relative number of staff of the operators has declined, as a consequence, firstly, of outsourcing strategies and secondly as an inherent improvement of the efficiency, via innovative application of technologies and the use of ICT.

In respect of the **area of operation,** the incumbent operators tend to serve large populations (500.000-1.000.000). They are either city focused or have large geographic boundaries that relate to either water resource zones or cover provinces or several smaller municipalities. However, some smaller operators survive as they are run very efficiently and offer a "friendly" local service. Small operators, which are the majority in nominal terms, supply about 35% of the European population and, finally, large operators account for 20% of the Europeans. The WFD has provided an impetus to restructure WSS services on the basis of river basins. Yet, this approach is not practical in all areas. So, in a number of member states the administrative boundaries of municipalities and provinces still predominate.

4. Institutional Arrangements

A large variety in institutional arrangements can be observed, as is outlined above, in which the responsibilities for investment decisions, financing, operations and maintenance are shared between public and private bodies in many ways. The general pattern over all these arrangements is that a large number of tasks and functions of the operators is **outsourced** to external private and public firms, via **tendering procedures**. The scope of outsourcing has been described above.

The EU, responding to the fact that municipalities or municipal enterprises increasingly awarded subcontracts to external firms, **lowered the threshold values** beyond which contracts have to be awarded through public tendering by 2008. As a consequence, subcontracts assigned by operators were increasingly subject to European procurement law and had to be put out for tender at the European level. In order to comply with these new EU requirements, municipalities or municipal enterprises experienced a growing need for assistance in relation with the outsourcing process and the further development of related management processes.

To facilitate this development, a number of specific arrangements did develop. Indeed, outsourcing via tendering requires a **high level of competency** in respect of technological, economic, legal and other issues, both from the tendering operators, as well as from the bidding firms. Generally, tendering procedures require rather specific knowledge and insights in the different stages of the process, as well as in the later stages of operation. In the first stage, this essentially comes down to the ability of the tendering operator to establish a sound and realistic programme of requirements and objectives. Thereupon, the evaluation of the several bids requires specific skills and comparative insights in respect of, for example, financial, technical and services performance. In the operation stage, monitoring becomes an important issue, to keep the contractors to their promises and to maintain coordination between the several elements of the systems operation.

There is a clear demand for specialized insights and knowledge and a need arises for overview, in order to overcome the **information asymmetry** between the tendering operators and the specialized sub-contractors and consultancies. Moreover, as in the energy and telecom sectors, these consultants show a tendency to concentrate, combining the different knowledge aspects in the field and reducing the number of players available. This need for support in subcontracting will require (international) cooperation between the operators, including the development of generally applicable **indicators** and **benchmarks** to evaluate the relative performance of contractors and knowledge centres to provide the necessary overview.

Depending on the structure and organization of the sector, various **regulatory concepts** are being applied. In the essentially public systems, without major private participation in natural monopoly segments, economic regulation is not considered necessary. National supervisory authorities, or councils, normally carry out environmental and hydrological control. The political accountability of the water supply authorities and their control over the main aspects of operation and performance, including the setting objectives, remains in place. In those cases where private operators are involved in monopolistic activities, economic regulation is necessary, in addition to water specific supervision. Regulatory agencies, either for water or for utility services in general, become responsible in setting and safeguarding the economic conditions, objectives, means and tariffs. Indeed, the pressures brought about by the regulators will be the main drivers in forcing efficiency upon the private operators and thus stimulate them to out-source. Yet, as argued above, a national of European body for support to public procurement procedures was considered helpful in securing comparability among the sub-contractors. **Competition authorities**, of course have their responsibility in fighting the potential oligopolist tendencies in the supplier market.

5. Economic Factors

Above we argued that this storyline is one of non-events. No dramatic and critical events have happened and the main economic drivers are a function of the long term underlying trends, already present in the first decade of the 21st century. Economic growth in the EU has thus remained weak, in the face of competition with China and India. This, in combination with the EU stability pact and a drying up of the EU structure funds for the 'old' member states has maintained a considerable pressure upon the **public budget**.

Moreover, as argued above, in most member states considerable **investments** had to be made to implement the requirements of the EU WFD and to fight the consequence of excessive water precipitation or drought. Additional investments in water supply and sanitation systems, thus, increased the costs to the operators and authorities. As a consequence of the WFD, by and large, these costs were recovered via charges to the several types of users and beneficiaries of the supply and sewerage systems.

As a consequence, a continuous political pressure existed to enhance the **efficiency** of the public sector at large and to offer public services at a lower, cost-related tariff. A large variety of arrangements had been put in place to force the several types operators in the relevant sectors to enhance their efficiency, including forms of regulatory control, benchmarking, etcetera. This pattern was of course also visible in the water sector and – as was shown – different member states had different structural and economic solutions.

In respect of outsourcing, it is crucial that the operators remained in charge of the **risk of exploitation**. Indeed, the responsible authority pays the sub-contractors a fee for their involvement in the different activities of the whole service, and its revenues comes from the provision of water services at a charge to the users. Price setting should cover all costs associated with provision of WSS services, but the authorities could freely decide to cross-subsidise segments of the water sector, consumers or specific geographic regions.

Of course, the unbundling of services, according to different activities and tasks, allows for a precise definition of targets, standardisation of costs for in- and outputs and the establishment of relatively clear technical parameters from comparison. This, in combination with competitive bidding with a transparent process for screening potential bidders allows for the **selection of adequate firms**, on the basis of the best price.

An element of crucial importance, however, became the **transaction costs**. Traditionally, the costs involved with transacting and coordination, including the costs of gathering information on transactions, and for the monitoring and the enforcement of contracts, had been internal to the overall organization of the water sector. In the newly emerging context, however, these costs were explicitly quantified and allocated to the public authorities responsible for coordination, the operators and the tendering sub-contractors. It is not difficult to imagine the important costs of transaction related to the need of coordination over a number of actors with conflicting interests and to the growth in the number of contracts, each of which with different design. A main element, of course, was the information asymmetry between the tendering public water supply companies and the specialized sub-contractors and consultancies, active at a variety of locations.

6. Social Factors

Since many of the water sector operators remained under direct or in-direct political direction, social factors with regard to the WSS were balanced within the **political domain** and subsequently included in the ‘marching orders’ to the operators. Even in

respect of the concessions to private companies, the minimum social aspects (like water supply to the poor) were included.

In most EU member states, the demand for efficiency improvements had inspired the establishment of **consumers' organizations** and councils addressing the broader set of former utility services. The several segments of consumers, domestic households, small, medium-sized and large business users and the agricultural sector had their own organizations that took into account the specific demands and characteristics of those sectors. As such, they operated as lobby groups *vis á vis* the national governments, political parties, other lobby groups, specific water sector organizations, the regulator (if any) and their increasingly influential mother organizations at the EU level in Brussels.

Driven by the 'market' orientation of other utilities, like the energy sector, also the water operators have professionalized **customer relations services**, while consumer representatives often have a consultative status in the boards of the (publicly owned) companies. In liberalized systems, customers were represented via their consumer/lobbying organizations, which achieved an increasing level of professionalism via expert involvement and the recourse to consultancies. Operators pay fines to customers for failure to achieve agreed service levels. Unresolved disputes are referred to the relevant economic regulator.

7. Environmental Factors

Environmental impacts of water use, diffuse pollution, water hygiene and safety, flood control and the avoidance of over-extraction of water have remained important issues. In a number of member states, either **excessive rain and water precipitation or drought** is causing difficulties in water management. It is still unclear, however, whether the main cause is climate change, or whether it is the increase in hard surfaces, like roads, estates, and business parks plus the reduction of natural areas that is causing these problems. Depending on belief, ideology and practical considerations, some member states maintain that climate change is a main driver and consider the whole associated set of problems in the context of the CO_2 -emission abatement policy. Member states located in the flood planes of Europe's rivers tend to have a more pragmatic view and try to achieve a workable implementation of the WFD inspired river basin approach, involving the upstream member states in attempts to reduce and delay the water flows. Main solutions in this respect are the construction of up-stream reservoirs and overflow areas and the re-plantation of hilly areas with trees and other types of vegetation.

With the increase in water precipitation and rainfall, local sewerage system had become overburdened. Frequently, dangerous situations as the flooding of rivers and rainfall caused overflows of the systems containing unpurified wastewater. This situation became increasingly untenable, requiring a decoupling - **the separation of the wastewater and the rainwater systems.** This separation, of course, also reduced the overall amount of water treatment capacity required. It, however, also moved the initiative for water management investments towards cities and the authorities responsible for spatial planning.

General aspects of environmental performance, established at a national or supranational level, are checked upon by an environmental agency. But, a clear eco-systemic vision on water resource management is still developing, supported by the WFD. In some member states this tendency is stronger than in others. Moreover, there is a marked difference between those member states with a lack of water, in the Southern parts of Europe, and those with excess of water. In the first type of member states efficient water use is stimulated on a micro-level, through pricing strategies and campaigns to reduce water consumption and wastewater pollution, whereas the solutions in the latter types of member states are much more directed towards international and intersectoral cooperation between different types of bodies, striving for measures in the field of spatial planning and hydrology.

8. Other Factors

The general success of the use of outsourcing contracts in other governmental and former utility sectors is an important driver for the implementation of these practices in the water sector. In some sectors, in some member states, structural change was successful (telecoms, health, education), and in others it has run into trouble (gas, spatial planning). Nevertheless, outsourcing has proven a consistent success in most sectors, in all kinds of member states. Particularly, since international tendering has become the norm, the number of potential bidders has increased significantly. The involvement of companies from the new Eastern European member states is in this respect notable. These companies managed to make use within a relatively short time of their increased market access opportunities and their competitive advantage as a low cost supplier. Therewith, competition has become a credible threat, improving the quality/price relationship of the bids significantly. It has also led to an increase in scale and a specialization of the bidding firms.

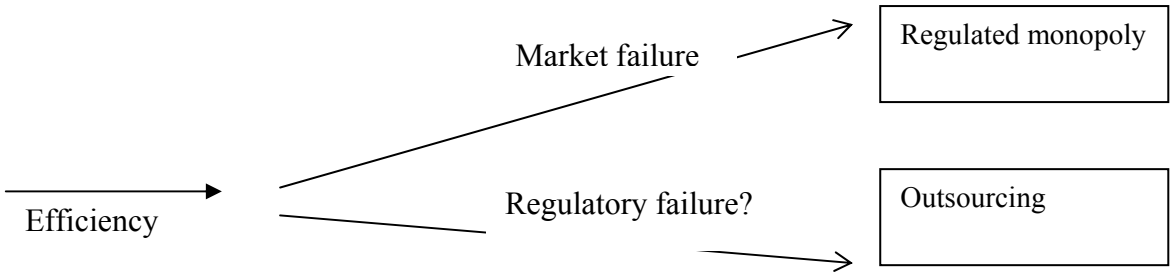
2. B.II.2.2 EU Storyline

The key emerging driving forces are a 'business as usual' pattern of development in most EU member states and increasing municipal financial pressures that stimulate the use of efficient public procurement strategies.

This a story of non-events: what happens to the European WSS market if there are NO dramatic and critical events? What if member states keep afloat on the waves of the underlying currents and trends that can already be seen today?

The underlying current central in this scenario is the drive towards efficiency. This scenario assumes that efficiency will result in an 'outsourcing scenario'. However, although this drive is a necessary precondition for this scenario, this scenario is not the inevitable result of the drive towards efficiency. Alternatively, the drive towards efficiency could also result in a '**Regulated Monopoly' scenario**.

Both end states, 'Regulated Monopoly' and 'Outsourcing', can be viewed as different evolutionary paths, with their own logic and path dependence. The choice for an end state can be induced by a critical event. Regulatory failure may result in a preference for outsourcing, while market failure may result in regulated markets. But such events are not necessary. The relation between the two end states 'Outsourcing' and 'Regulated monopoly' is shown in the figure below.



1. START 2005-2010: Business as usual

The institutional make up of the WSS in the member states varies considerably. Some of the member states have kept heir 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 and other member states are somewhere in between. 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 Specialization**.

The drivers behind efficiency are, firstly, that **more investments** are needed. The need for investment is a result of:

- Modernization of the WSS sector (e.g. development of new technologies such as ozon-ization)
- EU directives (some member states need to invest in order to meet the quality standards as indicated in the WFD, the Drinking Water Directive or the Urban Wastewater Treatment Directive).
- The shift from ground water to surface water (the use of surface water is more expensive that the extraction of ground water)
- Increase in scale which requires investment in physical infrastructure
- Investments in sanitation
- Making the WSS terrorist-proof

A second driver towards efficiency is that, in some member states, this need for investment is combined with **financial stress** of the municipalities. Thirdly, governments and the WSS develop **benchmarking initiatives to increase the** transparency in performances.

All member states adopt different strategies to achieve efficiency, e.g. in member states where municipalities own the WSS increasingly award subcontracts to external firms for specific service segments of the WSS (such as maintenance or accounting). Other member states strive for greater transparency, with the idea that this will lead to improvement of efficiency.

The increase in efficiency is largely aimed at lowering the costs. The reason for the emphasis on this aspect is twofold: in member states where municipalities own the WSS, the combination of financial stress and the need for investment results in an acute need for improvement of profitability and efficiency: more needs to be done with less money. Secondly, the benchmarking initiatives that the WSS and the governments show, are not yet sophisticated enough to incorporate all aspects of efficiency. Other efficiency aspects, such as technical ability, service levels and reliability issues are not yet a major issue. With the refinement of the benchmarking systems in the later stages, these aspects will gain importance.

Another underlying trend is **specialization,** which is connected to the first trend: gains in efficiency are achieved, amongst other things, by means of specialization. Another driver towards specialization is the increased **technological complexity**, which has augmented the number of typology of activities that water systems should carry on

(e.g. laboratory analysis). In Italy, for example, in 2005 the management activities were very basic and they do not require specific skills and expertise. Outsourcing is only limited to basic services like civil work supply, technical assistance and service contracts such as reading meters, billing, repairing pipes and so on. In these cases, the form of the contract is rather simple, as it defines, in a clear and indisputable way, the tasks delegated to an external entity. In this way, the increased technological complexity has augmented the number and typology of activities that water systems should carry on.

Most member states consider outsourcing as an option to improve the efficiency in their WSS and, simultaneously, meeting the need for specialised knowledge and experience. Outsourcing is more prevalent in some service areas than in others. At this stage, the combination of the demand for specialism and efficiency affects mostly the customer services and pipe inspection. Both are a result of economies of scale. In later stages, we will see that more areas will be affected.

Member states adopt outsourcing in different degrees and in different ways. In some member states, outsourcing is already quite far at the end of this period, in other member states, there is much discussion on improving efficiency and the need for outsourcing, but these discussions have not yet been materialized. In yet other member states, municipalities or municipal enterprises increasingly award subcontract to external firms for specific service segments of the WSS (such as maintenance or accounting). There are also member states where there is not a great shift towards outsourcing at the end of this period.

Thus, at the end of this stage, all member states are either discussing the possibilities and potential of outsourcing in the light of improving efficiency, or they have already started to outsource activities, such as billing or metering. Only a few member states, have already adopted far-reaching forms of outsourcing, beyond the non-core activities, including management contracts.

2. MIDDLE 2010-2015: More outsourcing

During this period, outsourcing is extended to more operators of water and sanitation services, and, within operators, to more areas beyond customer services. There are five driving forces behind this expansion. The first is **benchmarking**, secondly **early successes** of member states that have adopted extensive forms of outsourcing, thirdly, **new EU legislation** on outsourcing, which expands outsourcing from the area of customer services to that of management, and, finally, the increase in **demand for specialization**. The elements are discussed below.

The spread of outsourcing is helped by the increasing popularity of **benchmarking**. The benchmarking results help to identify the benefits of outsourcing. The results show lower overall costs and they specify which activities deliver the best efficiency gains, as a result of outsourcing, namely billing, meter reading and other customer services.

The national policy makers, who develop policy to increase efficiency gains in those companies that have not yet outsourced the customer services to the degree that enables significant efficiency gains, pick up these results.

The benchmarking results are introduced in the public debate. Public opinion was already in favour of public oversight of 'the first necessity of life', but consumers were aware of the disadvantages associated with direct public management. Outsourcing seems the solution: public oversight, combined with private sector outsourcing. Some newspapers call it 'the third way'. In most member states, consumers prefer outsourcing as the solution for the WSS sector.

Another effect of the benchmarking results is that they show the **early successes** in member states that adopt extensive outsourcing, beyond the customer services. These successes are transferred more to other member states.

The EU is also a driver in growing popularity of outsourcing. The EC is convinced, through the benchmarking results, that outsourcing is the way forward. But if outsourcing becomes increasingly common practice, all member states should have access to it, not just the national companies. In order to achieve this, the **EC lowered the threshold values** beyond which contracts have to be awarded through public tendering by 2012.

As a consequence, subcontracts assigned by municipalities are increasingly subject to European procurement law and had to be put out for tender at European level. In order to comply with the new EU requirements, municipalities or municipal enterprises experienced a growing need for assistance in relation to the outsourcing process and the further development of related management processes.

As a result of the new EU tendering legislation, and the ongoing drive towards more efficiency and specialization, all member states make increasing use of outsourcing. This leads to incremental changes in the WSS market, such as for example a substantial decrease in employee numbers. Smaller and bigger firms in outsourcing contracts do most of the work. The member states that are characterised by delegation make use of outsourcing contracts that have become more sophisticated over the years, thanks to professional assistance from the SGI- expertise centre to the municipalities. This leads, in turn, to a change in strategy of the Trans National Companies, as mentioned below. They prefer outsourcing contracts to concessionary contracts. Member states that practice community management, make use of subcontractors for billing and metering, as well as maintenance. There are a few member states under direct public management, which try to bring incentives into the system such as 'voluntary benchmarking'; to improve the efficiency of the system. The industry develops those benchmarking systems, because they prefer self-regulation to a pre-set system of benchmarking, a threat which is implicit, but real.

The three drivers (benchmarking, the early successes and the EU legislation) result in the expansion of outsourcing in two ways. In the first place, more member states adopt outsourcing. Secondly, outsourcing is not only adopted in customer services, but also in other activities: for example, tasks where a high level of know-how or specialist equipment is required, or highly labour intensive tasks; and both for the

tasks that require management know how (such as drawing up the concession bids) and technological know how.

We have seen that in the former period, outsourcing was mainly the result of economies of scale. In addition to that aspect of efficiency, outsourcing is now extended to pipe inspection and maintenance (as a result of economies of scale and specialist technical advantages), new builds (as a result of involving financial expertise to allocate risks more efficiently), water treatment (as a result of patent protection and technical knowledge).

This development towards more outsourcing, together with accession of the new member states to the EU leads to **internationalization** of the WSS. Low cost companies from CEE move into water outsourcing market in a big way. They have highly technical engineering staff with good language skills. The internationalization is quite revolutionary in the sense that WSS used to be closed sectors. The internationalization has as side effect that new practices from the CEE are being introduced in older member states.

Dynamics in outsourcing shape the WSS market. One important dynamic is that the WSS becomes **more technical** than in the previous years. **Climate change** plays an important role in this respect, as does **diffuse pollution**. Technical solutions are sought to fight these problems. This encourages the drive towards using specialised private companies to deal with these issues. Private sector companies invest in R&D to develop technical solutions. Some technical breakthroughs provide private companies with a competitive advantage and allow them to capture large parts of the market. Once this competitive advantage is established, it is hard or impossible to reverse this change.

Another dynamic is that subcontractors develop services not just for the WSS sector, but also for other utilities. One could say that they have developed into **multi-utility subcontractors**. For example, they provide billing services not only for water companies, but also for gas and electricity companies. This development increases the efficiency of the subcontractors, but it has also another side effect: **information asymmetry**. As in the energy and telecom sectors, these consultants show a tendency to concentrate, combining the different knowledge aspects in the field and reducing the number of players available. This need of support in setting up outsourcing arrangement requires international cooperation between public utilities, including the development of generally applicable indicators and benchmarks to evaluate the relative performance of sub-contractors and knowledge centres to provide the necessary overview. There is talk about this problem at this stage, but no solution is achieved during this period.

A third dynamic is that the **TNCs change strategy**. These companies used to focus on full-blown concessions. But since they have a choice between outsourcing and concessions, they opt for the first. The reason is that concessions with their associated capital risks are less attractive than outsourcing arrangements, in which the responsibilities remain with the authority instead with the TNC. This dynamic supports the further development of outsourcing arrangement, while, at the same time, it diminishes the support for concession arrangements.

3. END 2015-2020: Definitive choice for competition instead of regulation

The trust in regulatory bodies in a number of member states is put to the test after **disappointing results in terms of efficiency and effectiveness of the regulatory framework**. The cost of regulation increases continuously as a result of the tendency to involve the regulator increasingly with operational decisions and also as a result of the fine-tuning of the benchmarking system. The growth of the benchmarking system is not paralleled with the performance: despite the growing regulatory framework, operators still manage to show strategic behaviour: they escape their duties that are less visible, tangible or measurable, such as long term investments, especially in innovation.

The general disappointment is supported by series of smaller and more serious **regulatory failures.** In some member states, the private companies were able to build excessive profits under a well-developed regulatory regime. The excessive profits were accompanied by maximum price increases. In some member states, this led to consumer unrest.

Another example of a regulatory failure had to do with water quality. Some member states experimented with the introduction of common carriage. In two cases, this led to a situation where the quality did not meet the minimum standards. Although no serious incidents happened, the public opinion lost its confidence in regulatory decisions.

The trust in regulatory frameworks diminishes in favour of market mechanisms. The reasoning is that despite the increase in cost and manpower in the regulatory framework, it is still unable to prevent increases in price at times of excessive profits and to guarantee safety of drinking water, as described above.

Several options for the organization of the WSS were discussed in the public debate, but two options received most attention: direct public management and outsourcing. Politicians followed the general public opinion that outsourcing was the favourable solution. After all, it combined direct public oversight with efficiency, whereas most member states had experienced the disadvantages of direct public management, especially those associated with a lack of efficiency.

In the public debate, some politicians used outsourcing as a panacea to the recent regulatory failures: let the market do automatically what you cannot achieve by strict regulation. But outsourcing is not a cure to all either. The following problems are generally acknowledged:

- An issue in the outsourcing system is that there is a clear demand for specialized insights and knowledge and need arises for overview in order to overcome the **information asymmetry** between the tendering operators and the specialized sub-contractors and consultancies. As in the energy and telecom sectors, these consultants show a tendency to concentrate, combining the different knowledge aspects in the field and reducing the number of players available. This need of support in subcontracting requires international cooperation between public

utilities, including the development of generally applicable indicators and benchmarks to evaluate the relative performance of contractors and knowledge centres to provide the necessary overview. In combination with various regulatory concepts, a European body for support to public procurement procedures is established, in order to secure comparability among the sub-contractors. This body is called the Expertise Centre (see below).

- Another recurring problem of outsourcing relates to **the risk of non-performance of sub-contractors,** underlining the vulnerability of the operators: they remain responsible for the output of the subcontractor, whether they fail or succeed. Again, there are no serious incidents, but cases have been reported where operators did not meet the quality standards and where the health risk was real and present. There where other cases were billing was inaccurate and consumers were put at a disadvantage. More serious were the cases of people being disconnected based on a faulty billing system.. The operators sued the subcontractors, but they were not successful. The jurisdiction was consequent: the responsibility (and thus the risk) was still with the operator, not with the sub-contractor.

The incidents so far are still controllable, but operators fear that they will be sued by consumers, or fined by the regulator one day, if a serious incident happens. Therefore, operators want to strengthen their grip on the subcontractors. In their view, a lot could be gained in improving the contracts. To face these incidents the major stakeholders in the water sector and join forces:

- The government is setting the framework in which water companies can operate and define clearly their legal responsibilities towards service provision. The government wants to be this specific to avoid that the operators will need to face major legal claims for drinking water pollution, and at the same time the government wants to guarantee its clients' the level of service they can expect as a minimum from the operators.
- Unions are getting more and more involved in the sector, seeking to avoid lay offs through proposing alternative arrangements in the form of job security based outsourcing contracts.
- The public water companies followed to incidents with failing sub-contractors with great interest and internalised the legal risk avoiding procedures that can be learnt from that precedent in their own outsourcing contracts.
- The private companies also want to cover their risk so they are very motivated to be precise in the contract design.

Based upon the common consensus of the major stakeholders in the water sector a standardized, legally tight, outsourcing contract is developed for all possible non-core services in the water sector. This standard outsourcing contract receives a specially designed certified accountants' approval and ISO certification. Since its' introduction it becomes highly popular in the water sector. The procedure of outsourcing becomes smoothened and contract officers feel more confident in involving private parties. The standardised outsourcing model also gains worldwide attention after a series of articles in major opinion makers as the Economist, the New York Times, and the

Water Policy Magazine. The legal product is exported world wide and heavily propagated by the World Bank in developing member states.

In addition to the emphasis on contracts, there are also institutional changes. Important is the establishment of the **Expertise Centre on Water management**. This expertise centre serves the following aims:

In the first place, public ownership lacks the incentives that exist in a market to work efficiently. This expertise can be seen as a countervailing power: by gathering numbers and figures and publishing the benchmarks, it helps to improve the efficiency of the WSS.

Secondly, the Expertise Centre provides the expertise to the political bodies that are responsible for the operators. In a privatised context, this knowledge is available in the market. In a public context, the politicians are entirely dependent on what the authority tells them to decide. An expertise centre can provide the politicians with information in addition to and independent of the operators.

Thirdly, the Expertise Centre helps in the process of standardization and professionalization as described above.

Fourthly, the Expertise Centre facilitates chairs in European business schools in order to understand the role and the management of private sector involvement in utilities sector in general, and with special attention to the WSS. The result is that a cadre of public officials emerge form business schools, with a thorough understanding of the WSS.

Lastly, the Expertise Centre gathers information on issues of a supra-regional nature. We have seen before, that one of the risks of public procurement is that the operators tend to ignore these issues; since they do not fit with the level they operate on, which is the municipal or regional level. Although the Expertise Centre has no formal power, in this episode it proves that it is powerful in putting environmental issues on the agenda successfully.

ANNEX B.II.3 Regulated Monopoly

1. B.II.3.1 EU End State

1. Nature of Competition

Consumer Transaction Market

This End State is characterised by **benchmarking as the key competition process** in the main monopoly markets. In 2020 benchmarking takes two polar forms (see Figure 1).

Pole A – High-powered benchmarking with centralised regulation

This type of benchmarking is mainly applied under **private monopolies** that are subject to a strong **external and independent regulating authority** at a **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 (the applied regulating approaches include price-cap, rate-of-return or investments). Furthermore, companies that do not adhere to the binding targets resulting from the benchmarking process can be held liable and punished. The independent regulating entities are generally also in charge of handling competition complaints by actors. While high-powered benchmarking with centralised regulation is mainly operated under private monopolies, it is also introduced in a few Member States in combination with publicly owned operating entities (see Figure 2).

Pole B – Medium-powered benchmarking with decentralised regulation

This benchmarking process prevails in those countries, where the organisational structure of the sector is characterised by **maintained municipal influence**. Medium-powered benchmarking comprises extensive information gathering and interrogation of practices by an **independent benchmarking authority**. Participation is compulsory for all operators. a summarised and condensed selection of this information is published, which exerts public pressure on companies. In most cases appropriate measures for improving company performance are also publicly recommended. The benchmarking authority is endowed with its rights (for information collection, publication and recommendation) by law. In addition to being used by the benchmarking authority, the information gathered through the benchmarking processes helps the national **abuse control authorities** to target their work on possible violations of competition law or cases of excessive pricing.

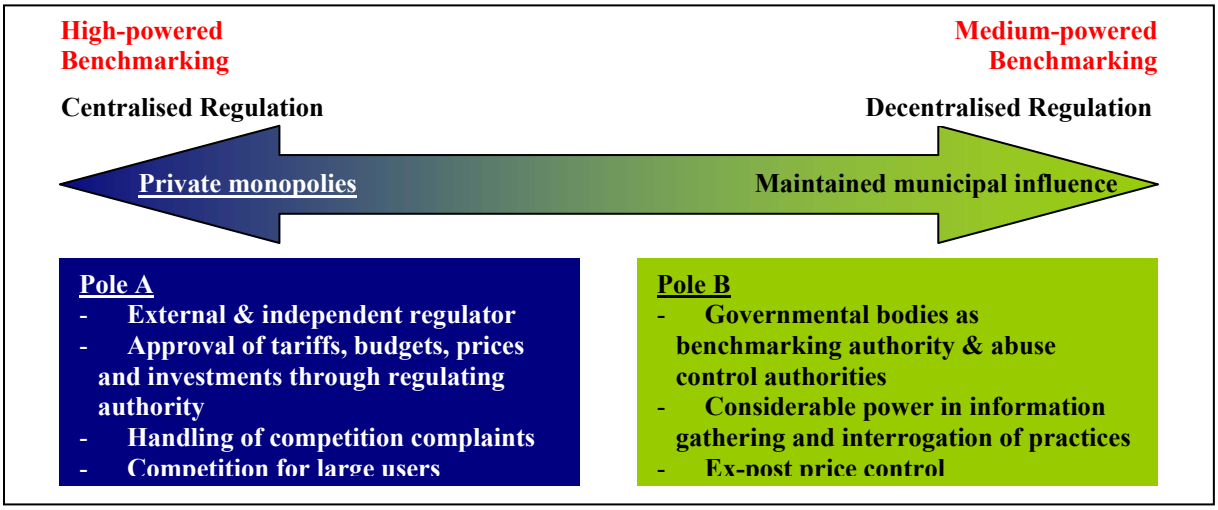
The main differences between pole a and pole b relate to:

- The ultimate power conveyed within the benchmarking entity for enforcing the results of the benchmarking process.
- The way the benchmarking results are used (price/revenue cap or publication of results along with recommendation of appropriate measures).

- The extent to which other regulatory functions are fulfilled by the benchmarking authority (or through other entities as under pole B).

The interplay between the prevailing benchmarking process and the accompanying degree of economic regulation can be visualised along the spectrum displayed in Figure 1.

Figure 1: Spectrum of benchmarking and economic regulation



Under Pole A there may, furthermore, be **competition for large users**, which can occur through various mechanisms – such as insets, self supply, retail, and cross border supply. Common carriage has only been introduced in a limited number of Member States. Most Member States however have ongoing concerns with the concept of common carriage, especially with respect to water quality issues and the cost consequences (e.g. stranded assets) for the remaining household customers. New entrants are generally required to obtain a licence from the regulator in order to operate in the newly opened market segments.

Supplier Transaction Market

The supplier transaction market in this End State is mainly **integrated**. The main service aspects remain with the operator, who retains overall management responsibility and decides when it is more cost efficient to contract out minor non-core service elements.

Water Resource Transaction Market

In those Member States with private monopolies (under pole A), **tradable water licensing regimes** have been installed to free up water resources required to either self supply or obtain third party service delivery. Tradable consents are also introduced in these Member States. However, there are a number of Member States who have not introduced such systems as they are worried about the environmental consequences and fear being accused of "selling off water rights".

2. Market

Demand is generally flat after a period of decline across the EU. **No new major demands** for water have emerged and there is some spare capacity in the supply systems. In Member States where demand actually falls, there is over-capacity in water supply and this necessitates an increase in unit prices, due to the high fixed costs of the sector. Some Member States are becoming increasingly prone to droughts as a result of **climate change** and this is resulting in pressures to reduce leakage and diversify water resources. Climate change also has an important impact on sewerage capacity as a result of increased variability and higher intensity of rainfall across the EU. The sewerage network is operating under increased pressure and investments are required to upgrade capacity and provide for alternative run-off options. Furthermore, some rural areas, **depopulation** poses system over-capacity problems in some Member States.

There is a **low degree of fragmentation** in the sector and integrated operators tend to supply all water and sanitation services and manage all assets.

In the majority of Member states **connections have reached the maximum level** considered economically viable (between 95% and 99%) for water supply and sanitation services, noting that self supply and decentralised solutions are still important in the rural areas of some Member States. **Service quality levels are generally good**, partly as a result of performance evaluation with formalised procedures (and associated guaranteed service levels and, in some Member States, associated fines paid directly to consumers for failure to comply). However, the **technical requirements** of maintaining good quality water at high availability continue to be an important factor in ensuring the need for a high level of operator professionalism.

3. Operators

The type of operators ranges from private companies to highly autonomous municipal undertakings. They are generally organised under private law with capital being either private, public or mixed; assets are owned by the operators. The **area of operation** is either city-focused or extends to larger geographic boundaries that relate to water resource zones or cover several smaller municipalities. However, in some Member States, smaller operators survive as they are run very efficiently and offer a well-adapted local service. In many Member States, a concentration process of operators has eased the co-ordination of the implementation process of the Water Framework Directive (WFD).

The primary **objective of operators** is the efficient supply of a vital public service, whilst simultaneously satisfying consumer needs. In the case of private operators, profit maximisation under adherence to the given framework is the strategy chosen and “profit or exit” strategies are followed. Operators are able to implement cost recovery and to design tariffs that comply with paying for use. Operators carry the risk of non-payment by consumers. The **involvement in other utility sectors** is frequent and multi-utilities have become a prominent feature of the water sector of many Member States.

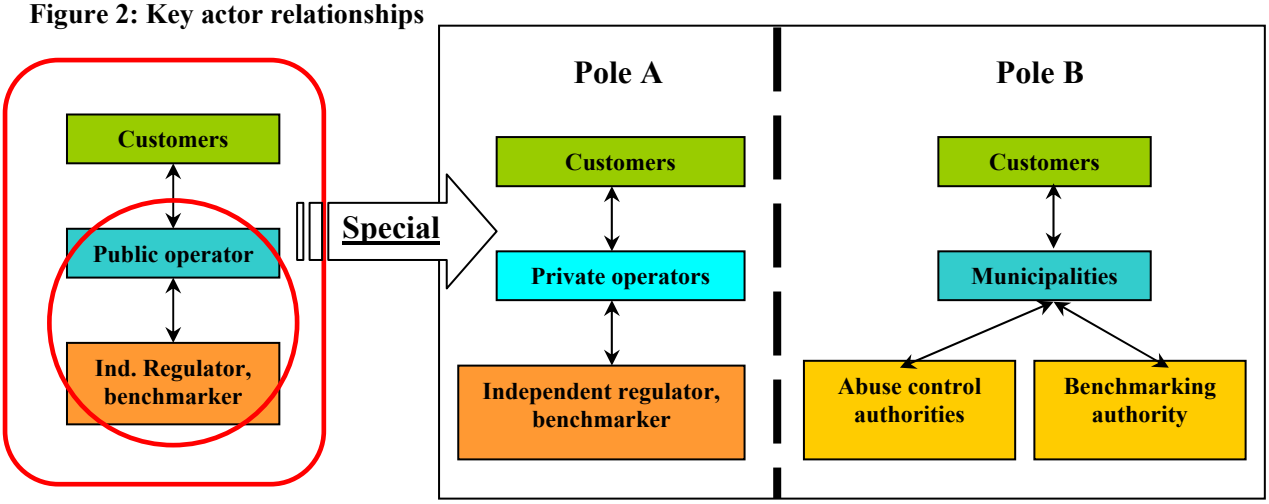
4. Institutional Arrangements

Under Pole A (*undertakings subject to high-powered benchmarking and centralised regulation*) of Figure 1, the **key actor relationships** exist between (mainly private) operators, centralised regulators acting also as benchmarker and customers (see Figure 2). The operators have management autonomy with respect to appointments, investment decisions and financing. However, consumer service levels and budgets, prices and tariffs are largely controlled by the regulator. The responsible entity for service provision is the private operator.

In those Member States, where high-powered benchmarking with centralised regulation is introduced in combination with publicly owned operating entities, the main actor relationship exists between customers, public operators (instead of private operators) and an independent regulator acting also as the benchmarking authority (see **special case** of pole A in Figure 2).

Under Pole B (*undertakings subject to medium-powered benchmarking and decentralised regulation)*, the key actors are customers, municipalities, benchmarking authorities and the state through abuse control authorities (see Figure 2). The municipalities are shareholders in the operating undertakings. Generally there is some level of private involvement. The operating undertakings have management autonomy and are accountable to the shareholders. The responsible entity for service provision is an elected government body, typically at the municipal or the regional level.

Figure 2: Key actor relationships



From the European level, there have been **no liberalisation directives** in WSS and EU activity has been restricted to the promotion of benchmarking initiatives. The EU has sponsored a pan-European water regulators network and provides assistance by certifying regulating entities across Europe. Through the EU Constitution, important support has been given to the position of municipalities in providing essential public services. Generally, however, changes in the WSS sector have mainly been driven by cross Member State forces such as the financial malaise of municipalities, customer pressures for greater efficiencies and the desire by public authorities to gain economies of scope and scale.

All groups of **policy instruments** are made use of across the EU. However, there is a reliance on incentive and informative instruments.

5. Economic Factors

The EU-zone remains in the **economic doldrums**. Economic growth has been low with some notable exceptions. Debt levels remain high and there is continuing pressure to reduce it. The prevailing ethos that customers should pay for the services received remains in tune with WFD principles.

Tariffs are based on cost causality. Volumetric charges are the main component of customer bills, which reflect long run marginal costs (LRMC) and the need to ensure that consumers retain control of their bills and are given incentives to reduce demands. Social tariffs are in place but these have been mandated by the central governments and are targeted at the most needy (i.e. poorer families and people with health problems that require higher water use). Disconnections are banned and there are guidelines when payment is being pursued courts.

There is **full cost recovery**, including environmental and resource costs in those countries where a practical approach has been determined on how to account for them. There are no direct subsidies, but indirect subsidies (e.g. to agriculture) remain. Furthermore, there are important regional cross subsidies from urban to rural customers as a result of the continuing agglomeration of smaller municipalities.

Most new **investments** have been made by 2020 and the focus is on renewals. However, important investments had been incurred through climate change, and these are in some Member States still ongoing by 2020. Bond financing has emerged as an important source of funding for publicly owned companies. Even private companies now heavily rely on bonds.

The **economic efficiency of the system** has improved through regulatory controls and benchmarking; Under private monopolies (Pole A), the introduction of regulatory controls on allowable costs, discriminatory tariffs, customer service targets has improved the economic efficiency of the system. Excesses are shared between consumers and shareholders/managers. Under maintained public influence (Pole B), the establishment of compulsory benchmarking exercises has achieved important efficiency gains and led to increased transparency. Through concentration processes, economies of scale and scope could furthermore be realised. Finally, the strengthening (staff and finance) and the extension of the functions of the abuse control authorities has also helped to increase the efficiency of service provision.

6. Social Factors

As service quality has improved, the current (2005) discrepancies in **customer satisfaction** across the EU have been reduced and most member States show an improvement in the level of satisfaction with the services.

In those Member States where the municipalities' influence prevails **liberalisation is not viewed as desirable** for the WSS. However, some competition in peripheral markets is considered achievable and beneficial. In these Member States, there is also a general antipathy toward full private sector ownership - as long as a good service is provided at reasonable prices. Nevertheless, it is deemed productive to choose an effective combination of municipal influence and private sector expertise through delegation arrangements. The regard for consumer interests is secured through the municipalities' **democratic legitimisation**. Furthermore, consumer representatives often have a consultative status in the boards of the (publicly owned) companies.

In those Member States where private monopolies have been installed they are viewed as the only possible remedy to the problems that were inherent in the preceding arrangements. **Customer representation bodies** have been established to provide a clearer voice for customers (now that the municipal representation has been diluted). These bodies operate on a regional level covering several operators. They deal with complaints and can lobby the independent regulator/government on behalf of customers. They are staffed by experts who can provide advice on operator responsibilities. Operators pay fines to customers for failure to achieve agreed service levels. Unresolved disputes are referred to the relevant economic regulator.

Generally, while **consumer associations** are more powerful than before and co-ordinate themselves at EU level, they only have a consultative status. Yet, they have become more powerful in EU policy making.

7. Environmental Factors

Climate change has been a driver for some important ongoing investment needs, which were associated with temporary price rises in most countries. There remain problems associated with **diffuse pollution**, which could partly be reduced through the implementation of the WFD (i.e. implementation of the polluter-pays principle, recovery of environmental and resource costs, adequate contribution of water uses to the cost of water services" (Article 9 of the WFD)). Diffuse pollution added to the need for investment, which still prevails in 2020, in particular due to the historic legacy of soil pollution.

Furthermore, environmentally-friendly behaviour was stimulated through the obligation on operators to provide **technical advice to customers** on how to reduce water demands and wastewater pollution. The costs for this service are charged over the general water bills. There are some government subsidies supporting these services directly.

8. Other Factors

EU liberalisation policies have had mixed success. In some sectors they have proved successful (e.g. telecoms), in others they have run into trouble (e.g. gas). Part of this trouble is related to the reluctance of some member States to fully implement Liberalisation Directives. This mixed success has dampened down the demand for more extensive liberalisation in the water and sanitation sector. Nevertheless, **multi-utilities** have become a prominent feature of the European water sector. **Network**

connections remain the norm. There is no technology revolution that breaks the power of the monopoly nature of the distribution network. However, houses that do "self supply" are free to do so without facing exorbitant "connection" charges when the main operator network is used as back-up. The position (relative to the responsible entity) of the regulator/ the abuse control authorities and its/their powers are enshrined in national/regional legislation. Overall, the water and sanitation sector displays a **high media profile** by 2020.

2. BII.3.2 EU Storyline

1. START 2005-2010: Key emerging driving forces (especially pubic attitudes against unregulated water liberalisation, increasing municipal financial pressures, supporting EU liberalisation policies and increased technical complexity) **continue to stimulate the need for greater use of high-medium powered benchmarking and the introduction of independent regulators/benchmarkers.**

Public Attitudes against liberalisation (without adequate regulation) became harder. The first indication of the general lack of consumer support across the EU for greater liberalisation in the water sector was highlighted in a little known Eurobarometer report that was published way back in 2003. This report indicated that whilst there was little knowledge of the status of their own operator there were "hardly any expectations regarding the liberalisation of water supply services". Indeed this hypothesis was "widely rejected and [is] even seen as an aberration for such a basic and essential resource".

EU consumers saw water supply (and presumably sanitation) as "a service of which all aspects should remain managed, or at least *very strictly controlled*, by the public authorities[15]". The results of these consumer market surveys were supported by some high profile demonstrations against the possible liberalisation of water and sanitation services in major cities in Scandinavia in 2006. Never before had such action been seen on the streets of Stockholm and Helsinki.

These public attitudes have generally hardened across the EU over the intervening years (see results of Eurobarometer consumer survey published in 2008) - especially following some high profile failures (both drinking water quality and financial irregularities) in both more highly liberalised WSS markets outside the old EU15 (most notably within the new EU members from Central and Eastern Europe) and those Member States with extensive direct public management. These failures, starting in around 2008, undermined public confidence in both the traditional forms of direct public management and greater unregulated private sector participation, especially through outsourcing. *See Swiss storyline for example of possible financial irregularities in direct public management.*

Indeed in the more liberalised Central and Eastern European markets (where operations have typically been outsourced to both local and international private companies) the responsibility for the failures to supply water of potable standards was

[15] In the UK there was also some opposition "to the idea of direct (public) management by the municipal services, which they feel do not have the requisite technical skills".

never determined. This reinforced the need to maintain a vertically integrated monopoly so that lines of responsibility (re providing a vital good for human consumption and protecting the environment) were clearly maintained. In addition liberalisation in some other sectors (eg railways) did not prove entirely successful as unbundling led to fragmentation and major co-ordination problems. Public attitudes were also influenced by the aggressive lobbying of stakeholders (eg trade unions) who could be adversely affected by any moves towards greater liberalisation (see below).
Underlying social changes also provided for some interesting contradictions on the role of the nation state. For example, whilst consumers wanted more individuality and more of a say in how they ran their affairs, they also wanted greater protection (with possibly greater market regulation) from their national Governments.

Hence, today in 2020, the general public continues to supports the concept of strong (and possibly independent) public economic/environmental regulation of a monopoly (private or public) WSS service provider. The public also typically support the provision of these services by large integrated and efficient monopoly operators - that are today typically majority owned by public bodies (provinces, municipalities). But this support remains only as long as their rights as consumers have been reinforced following loss of direct municipal control.

However, despite this general anti-liberalisation position across the EU, in some Member States, a number of the monopoly owners/operators are now, in 2020, fully privatised. These moves (toward greater privatisation by a number of municipalities) were in Member States where the public attitudes were more flexible to the involvement of private capital in the sector. However, these privatised monopolies were (and still are) heavily regulated with specific legal duties/rewards enshrined in primary national legislation to protect consumers and investors alike.

Note: Public/political opinion is important in six of the eight individual Member State storylinesto this end state – public protests/NGO activity and municipalities in favour of greater regulation (France), public acceptance of regulatory status quo (UK), public perception of corruption scandals (Switzerland), a national debate on liberalisation (Netherlands) and social mobilisation for lower prices (Belgium and Spain).

Municipal Financial Resources came under extreme pressures and led to the increased need for divestment of water supply and sanitation services. Social protection expenditure was important even in 2004. At this time between 20-35% of GDP (or typically 50-65% of Government expenditure) was spent on social protection. And over 80% of this was on public pensions and health (split pretty evenly) – the remaining 20% being on unemployment, family and housing. Public expenditure on education added a further 5-10% of GDP – social protection and education thereby accounted for between 25-45% of GDP across the EU.

The two mega social trends - ageing (along with improvements in medicine via biotechnology) and the declining fertility rate (partly as a result of life style changes) - continued to impact on social protection expenditures up until present day ie 2020 (increasing the absolute level substantially). A full-blown pensions crisis never materialised in the EU. However, public pensions (drawn from taxation revenue) did

create significant pressure on national Governments to reduce public expenditures to essential items and increase the level of overall taxation. Increasing education requirements (as a fundamental source of national competitive advantage) have maintained expenditures at the high levels experienced in 2004, despite the declining number of younger people overall.

Furthermore the impact of climate change has been severe and public monies have more recently (2010-2020) been used to reduce reliance on fossil fuels by massive public investment in public surface transport (especially trains) and renewable energy (typically embedded in local communities). Municipalities have been taking the lead in improving the housing stock to improve energy efficiency of this sector. These public actions were a result of major institutional "failure" to move away from the heavy EU reliance on carbon based (ie coal/oil/gas) electricity generation and fuels between 2000-2010.

Some Member States were also badly affected by the gradual withdrawal of EU aid for water infrastructure investments (ie via Cohesion Fund). In addition the generally poor economic performance and the need to follow EU monetary policy placed considerable pressure on public deficits and the need to reduce them (see below).

Following the example of Greece, some Member States also went through major local government restructuring (substantially reducing the number of municipalities) in an attempt to provide critical mass to both finance and provide these vital social/environmental protection services. This had a knock on effect for WSS with the local government restructuring often being accompanied by associated moves to a more formally regulated autonomous regional WSS sector – normally public, but under private law.

This huge municipal expenditure on social protection (pensions and health), education and energy (public transport, renewables and efficient energy use in households) has also led to substantial pressure to reduce public expenditures in other areas, including (in some Member States that have not were not yet applying full cost recovery principles at this time) water supply and sanitation. In addition the need to raise local taxes to deal with higher social/environmental expenditure placed greater pressure on municipalities-operators to keep water bill increases to a minimum.

Indeed these mounting financial pressures within local authorities led to some high profile municipal bankruptcies - both in 2006 and more recently in 2010 (although in some Member States the municipalities were bailed out by central Government financial support). These financial failures undermined public confidence in the ability of municipalities to manage the major investments required for a good quality WSS service.

The poor financial situation led to the main credit agencies downgrading municipal ratings. This, in turn, had important consequences for the financing of water investments by municipalities – especially those that were under financial pressure. The finance that was available also became more expensive – stimulating the need for water reform.

This financial pressure on the municipalities had the effect of ensuring that WSS services were being (or at least the public authorities were seen to be doing something) delivered as efficiently as possible and encouraged the instigation of benchmarking and, in some Member States, the introduction of independent regulatory bodies to drive economic efficiencies out.

These increasing municipal financial pressures also led to some municipalities selling off their water and sanitation companies to the private sector in order to gain much needed revenues. The water privatisations (both partial and full) were also supported by liberalisation activity in the other network sectors – particularly energy. The water entities were typically sold to local energy companies thereby forming local/regional multi-utility companies. The establishment of an independent regulatory body generally accompanied such privatisations. The multi-utilities were generally regulated sector by sector. A number of these high profile municipal sell offs occurred in 2009. *See Italian and Dutch storylines for an example of the relative importance of multi-utilities.*

Note: This driver and outcome was identified in three of the eight Member State storylines. Municipal financial pressures forced a "sell off" in the Netherlands, Italy and Germany (case A).

Need for Municipal Managers to focus on other areas (relating to social protection, housing and transportation) and recognition that WSS skills inadequate for major investment task at hand led to further divestment and concentration. The increasing need/expectations for social protection (re helping the aged, healthcare), improving the housing stock in terms of energy efficiency and education (including kinder garden to allow greater participation of parents in the workforce) meant that municipalities increasingly focused their over stretched managerial activities here, and less so on increasingly technical WSS sector.

In addition there was an additional municipal focus on urban regeneration and job creation. This was partly a result of the need to generate more cash from local taxation in order to pay for investments in social protection. From 2005 all of the major utilities (energy, water, district heating etc) were increasingly managed at arms length from the municipality.

Municipalities also recognised the need for economies of scope/scale (up to a certain point). Following an exodus of older experienced WSS staff during 2005-10 many policy makers (central and local) began to recognise the need for more professional management with a more distinct career path in a more prestigious and identifiable water industry. In effect they realised that they needed to attract and retain the best staff to confront some of the major problems (and associated investments) that were emerging. This was best achieved by granting more autonomy to the larger public operators.

EU policy review on liberalisation remained neutral but supported the need for modernisation and independent/compulsory benchmarking. No new activities were brought underway until the new post-Prodi European Commission became fully

operational at the beginning of 2005. The EU review of the water sector was then published in early 2006.

The resulting proposals in terms of liberalisation were quite conservative. The EU took quite a strong line on maintaining /enhancing competition for large industrial users (who had lobbied intensively for such a policy). However there was no major "pro liberalisation" policy for the domestic sector. The EU recognised the local monopoly status[16] of the sector but also highlighted the importance of economic regulation and consumer protection. To this end they launched some high profile pilot initiatives – firstly a network of EU water regulators, and secondly a major pan EU benchmarking study. The EU also launched a number of competition act investigations as a means of establishing legal precedence in the field of concessioning. One example was an investigation into the outright legal ban on private sector involvement in the sector in some countries. The European Commission also started to investigate the existing EU water concessioning market following complaints (from a Czech water company) that the TNCs were abusing their dominant home positions (to restrict market entry).

Hence, under the pretext of the subsidiarity principle, the EU backed away from any formal fundamental measures to promote liberalisation in the European WSS sector. Ultimately it was left to the individual Member States to decide on the best way forward in restructuring their water and sanitation services. This need for greater (or at least more transparent) subsidiarity was reflected in the difficulties that were witnessed in Member State referendums on the new EU constitution. The resistance to greater involvement of the EU in "local matters" was also evident in the Eurobarometer polls of EU citizens.

In the 2006 strategy document, the Commission called for increased transparency, in particular with regard to private sector involvement. Furthermore, it indicated that it would in the future push more towards realising the sectors inherent modernisation potentials. However, more radical liberalisation approaches were not completely ruled out. The ongoing threat of EU intervention (through a major liberalisation Directive) in the sector also promoted discussion for much needed institutional restructuring in some Member States.

As noted above, the EU financed a first pan-European benchmarking activity in 2007. The pilot project was based on the IWA System and has an emphasis on accounting for the quality of the service provided. The results from the pilot also showed the EU that ownership (private or public) was not a fundamental feature in determining economic efficiency in the water industry – it was the nature of the competition processes adopted, and (more importantly) how well these competition processes were implemented that mattered. This supported the EU's earlier decision not to directly intervene in the sector via a major pro-liberalisation Directive (similar to those introduced for the energy sectors).

This EU pilot activity also promoted the use of benchmarking in some of those countries where it had not already been established (in reaction to the sector's

[16] Supported by some high profile economic studies on these issues.

ongoing restructuring). In fact compulsory benchmarking was already being introduced and expanded upon in some Member States. This was partly as a response to the ongoing perceived threat of greater liberalisation through wholesale privatisation or concessioning (which remained on the political agenda in some Member States up until 2015). This move towards increased benchmarking of public operators was supported by operator managers (and some trade union representatives) - as it was seen as a strategic means of limiting greater private sector involvement.

The regulator network was also launched in 2007. It was similar to the Madrid {gas} and Florence {power} forums in the energy sector. Initially the EU sponsored regulator network was not a huge success. It was initially used by the EU to provide technical assistance on water matters to failed states and was largely dominated by observatory regulators (ie without much regulatory power). However, as time progressed it became an important forum for discussing benchmarking activities and competition act related issues. This network also became a major source of influence/constraint over further possible EU liberalisation actions in the sector.

Note: *EU policy important in majority of MS storylines: [Regulatory Bodies Directive (France, 2010 and Spain)], Liberalisation policy (Netherlands), EU Benchmarking activity (Germany Case B, UK), Large user competition (UK, 2006), Promotion of transparency in costs/prices/tariffs (Germany).*

Increasing technical complexities of WSS sector reinforced the need for institutional change and forced bills to higher levels. The technical aspects of WSS increased at an enormous pace between 2005-10 – the onset of climate change, the increasing impact of diffuse pollution (resulting from historic soil pollution now reaching groundwater aquifers), and the increasing environmental/health standards (drinking water standards were further tightened in 2008 following new evidence on the long term health impacts of nitrates in drinking water). The use of increasingly sophisticated monitoring equipment identified an ever-increasing range of new pollutants that were being highlighted in the media. The presence of endocrine disruptors was the first of many health scares to be taken up by an increasingly investigative media (in search of the next big environmental issue, following the climate change phenomena). These developments increased the need for further investments in water supply infrastructure across the EU. *See Switzerland storyline for importance of media.*

In addition the water framework directive (WFD) had important implications for investment in sanitation services. These were largely stimulated by strict interpretations by national environmental regulators of the ecological status requirements implied by the WFD. Hence there were huge quality related investments on sewage treatment – to reduce BOD/Suspended Solids to levels below that required by the Urban Wastewater Treatment Directive and to remove residual industrial pollutants from associated trade effluent discharges. These would be in addition to those investments in the sewerage system, that would largely be stimulated by the impacts of climate change (re preventing sewer flooding).

Water bills continued to rise between 2005-2010 as a result of these investment needs and increased application of the “cost recovery” principles (required under WFD).

Increasing water bills (and the associated political fallout) persuaded some municipalities that it would be more appropriate to relinquish responsibility/control to more arm length public bodies and to introduce independent regulation (or at least to introduce more transparent benchmarking approaches to minimise the impact on bills of ever rising investments). This general policy was supported by a number of national consumer associations. These associations responded to increasing consumer complaints about bill rises by claiming that greater efficiency was required and that greater benchmarking may provide this. *See Belgium storyline foran example of the pivotal role of consumer associations.* In some municipalities (especially those under financial stress) the opportunity to "sell off" and pass on the responsibility for the expected water bill increases to the private sector (and their regulators) proved to be too enticing.

The failure of existing institutional arrangements to deal with the increased technical complexity was highlighted by numerous European fines for: not complying with the revised Drinking Water Directive, failing to reach the deadlines for the Urban Wastewater Directive and not fully implementing the WFD. This led to greater investments which put even more upward pressure on customer bills. *See Dutch storyline for potential of EU fines to highlight institutional failure.*

There was some reticence by some municipalities to give up some of their responsibilities/powers in WSS. However, the two preceding drivers - the resulting freeing up of municipality finances (and senior management time) to focus on other "social protection" issues such as health plus the increasing technical complexity (see above) and the ever increasing water bills (fallout for which was being dealt with by the newly created regulatory/benchmarking authorities) did provide some comfort for the loss of direct municipal influence on the water sector. Municipal resistance to change was also partly overcome by placing municipal members on boards of the new larger public operators. Some municipalities also continued to have agency agreements for operating the local distribution and local sewerage networks. However, these were gradually terminated over time as the newly formed autonomous operators strove to gain full integration.

The new independent regulators/benchmarking authorities were initially viewed with suspicion by some municipalities, and the more arms length relationship with the operators did not suit all municipalities.

As part of long-term strategy TNCs gradually withdrew from Western Europe (and focused on opportunities in Central and Eastern Europe), but the TNCs were aggressively regulated in their remaining home EU markets. The large TNCs never fully recovered from the downturn of the global WSS market between 2002-04. These TNCs essentially stopped participating in major investments (through concessioning arrangements) in the EU and beyond, and focussed instead on offering low risk services (eg outsourcing, management contracts, extending to leasing arrangements) in a number of countries in Central and Eastern Europe. Economic regulation was much lighter in these countries (as there was much more reliance on competition for the market, without the regulatory structures that had been recently introduced in Western Europe). This lack of regulation was attractive to the TNCs.

In Western Europe, with the exception of parts of France/Spain (where strong regulatory powers were introduced through new regulators) and England/Wales (where independent central regulation remained intense) - the home countries of the leading TNCs - the TNCs had essentially withdrawn from the remaining EU15 concessions market by 2008. This followed internal strategic reviews in 2007. However, the TNCs were prepared to bid for ownership of shares in some leading city "sell offs" in the old EU15 - but only where regulatory structures guaranteed appropriate returns on their equity investments.

Even now, in 2020, the TNCs consider that operating conditions (both public and political opposition) are still too hostile to relaunch a substantial concessions/affermage (or even management contracts) service in the old EU15. This public opposition was partly a result of some high profile corruption scandals that emerged in some fast liberalising markets in CEE between 2005-2010. This hostility was evident in a number of public demonstrations when the TNCs attempted to break into the "profitable" Scandinavian market in 2006 (see above).

In those Member States that had extensive concessioning in 2004 there was an interesting (and unexpected) move toward greater regulation between 2005-2010. The municipalities increasingly felt that they could not negotiate with the TNCs on an equal footing. As the sector became more complex the information asymmetries became more important. This was compounded by a gradual loss in qualified staff from the municipalities.

Following extensive lobbying from their municipalities these Member States established national/regional "regulators" (noting that these bodies were not like those established in other countries like England and Scotland) to provide independent support to the municipalities. They also looked after consumer complaints and investigated anti-competitive behaviour by the dominant TNCs. The first regulators were established in 2007. As time progressed these well trained regulators (with increasing access to an array of EU benchmarking data) increasingly (re)negotiated contracts on behalf of the municipalities. However, the contracts remained a local affair - between the municipality and the private company (typically one of the home TNCs). [*See French and Spanish storylines for an example of the imposition of regulation on a concessioning market.]*

Following some high profile financial failures of some local operators within the private sector there was also strong support from both the financial markets and consumers for more aggressive protection/control from independent economic regulators in these concessioned markets. This supported similar demands from the municipalities.

Power of Trade Unions remained relatively strong across the EU and acted as an important countervailing power to the (declining) influence of the TNCs. The trade unions remained an important actor (within the EU) whose primary aim was to protect their members' interests. They continued to lobby aggressively against any form of liberalisation, as they feared this would lead to major job losses (irrespective of possible gains in economic efficiency and associated consumer benefits). They

continued to fund lobby groups such as PSIRU to attack the tactics/performance of the main TNCs and any pro-liberalisation policies/initiatives.

The trade unions also lobbied against extensive industry restructuring (eg corporatisation) of the existing public operators and the introduction of independent regulatory targets for the same reason (ie to protect their members jobs).

However, job losses from the water sector have occurred across the EU as a result of ongoing industry restructurings – namely consolidation and the drive for economic efficiency (as highlighted by benchmarking or as mandated by the newly created regulators). These job losses were not to the levels that would have probably been experienced following other liberalisation pathways (see scenarios 1 and 2), or indeed full-scale privatisation.

The trade unions recognised this fact and in 2010 public service unions and some autonomous public operators signed some high profile agreements to redundancies (most being voluntary, but some being forced) and to change working practices. But this was only in return for improved remuneration, job protection for remaining employees, and additional training.

2. MIDDLE 2010-2015: European policy, abuses of monopoly power, the implementation of the WFD and consumer pressure (household and large user) continue to drive the process of institutional reform

EU reviews of cost recovery and drinking water quality promoted the need for further increased transparency and encouraged further benchmarking activity. The implementation of the WFD requirements constituted another driving force for change at the EU level. According to the principle of cost recovery of Article 9 of the WFD, assessments of cost recovery levels had to be provided in the economic analysis by the end of 2004, while cost covering water prices had to be established by 2010 at the latest.

Up until then, water prices could be fixed at politically acceptable levels and the price could be kept artificially low through government subsidies (direct and indirect). Often enough, prior to 2010 water prices were below the effective costs for providing the service. The implementation of the cost recovery principle made the costs involved in the services' provision more transparent and effectively over time eliminated the subsidy policy that was followed by some Member States.

This general move toward fuller cost recovery, along with the continuing high level of investments (see above), meant that EU customer water bills were rising at over 5% p.a. (above inflation) in 2012. This reinforced the need for greater operator efficiency – possibly through greater price regulation and/or benchmarking – to respond to growing consumer interests/concerns.

The drive toward greater transparency in cost recovery was aided by a major study (launched by DG Environment in 2010) to check on the progress that was being made

under Article 9. This highlighted that, even in 2010, there were still important direct subsidies involved in WSS services, especially in more rural areas.

After a further 5 years (2010-2015) of adaptation and extensive monitoring through the Commission[17], water prices better reflected the true costs of provision – including environmental and resource costs. Accordingly, in a number of Member States water prices had risen significantly above the 5% p.a. EU average. In these countries various consumer groups reacted with severe public criticism. Hence, the pressure towards rationalisation/modernisation increased even further. In response to these consumer pressures, compulsory benchmarking was introduced in more Member States.

Furthermore, intensified pan-European benchmarking activities were called for by household consumers and their representatives, as they demanded an objective evaluation and comparison of the price paid across the EU in relation to the service quality provided. The European Commission acted as a facilitator here and, in 2012, invested millions of Euro in the development of a European-wide applicable benchmarking system. This effectively built on the results of the pilot benchmarking exercise that was launched back in 2006.

Health scares in the food sector also increased the relative importance of the water sector in consumer's eyes. Indeed, in 2010, DG Consumer provided for increased transparency in the sector by forcing the publication of information about the quality of drinking water. This exposed some surprising water quality problems (especially in some major European cities) that further increased the demand for more transparency and greater independent regulation. DG Consumer began to encourage Member States to establish new regulatory bodies to help protect consumers and to fight for compensation when services fall below agreed standards.

The growing importance of climate change also increased public awareness of the sector and the need for more transparent regulatory oversight.

Water Framework Directive (WFD) underpinned major structural changes in scale and integration of water supply and sanitation operations across the EU. The WFD encouraged public authorities to consider integrated water management (ie water supply and sanitation) at the water basin level and this indirectly led to some Member States restructuring their water supply and sanitation services on the same geographic basis.

Research (published in 2010) illustrated the superior economic performance of larger operator bodies, not based on municipality boundaries. In many cases, water supply areas were enlarged in order to make use of economies of scale. Some countries even underwent a major restructuring process, where municipalities were merged into much larger entities. In these cases, the boundaries of river basin districts were taken as the reference frame, in order to facilitate the implementation of the WFD and to limit the high administrative and transaction costs that are otherwise associated with moving to theses boundaries within the Directive's implementation process.

[17] Via a series of Member State evaluation reports

A change to river basins for water resource management (in this case stimulated by the WFD) can have a profound long-term impact on the institutional arrangements for water supply and sanitation. This impact was observed in England and Wales following the establishment of water basin authorities in 1963. However, this impact did not occur in France where similar water basin authorities were established at the same time and municipal based operators predominated until recent times.

In many cases, the boundaries of the supply areas now in 2020 correspond to the hydrological boundaries relevant for WFD implementation, i.e. the river basin district boundaries. However, in a number of Member States, the division of water supply areas (according to administrative boundaries) remains intact. Hence, we observe that while there is a general EU trend towards larger service areas, small operators occasionally survive as they are well adapted to local needs and are run very efficiently.

The economic requirements of the WFD (re cost recovery and cost reflective tariffs) also persuaded national public policy makers in some Member States to provide incentives that encouraged the formation of more independent and integrated public WSS companies. These were duly formed across the EU between 2005-2015. Typically they were under private law.

Abuses of monopoly positions stimulated the demand for greater economic regulation. As the operators became larger there were increasing concerns (from both policy makers and the general public) that they would abuse their position as local monopolists. This led to greater demands for the establishment of independent regulatory authorities.

These demands became louder after some major problems emerged with the way in which these larger/more autonomous operators had been outsourcing some of their core functions to the private sector. These problems came to light after a major health scare in one Member State that was caused by the contractor dumping neat aluminium sulphate directly into the water supply system (as had happened in the UK some decades earlier). It turned out that the contractor had no experience of the water sector and had been awarded the contract on “the lowest price”.

In addition there was growing evidence of both anti-competitive behaviour by some of the largest private operators (re granting outsourcing contracts on preferential terms to associate companies, setting preferentially low prices for large users who were now open to competitive supply in some Member States) and problems with the low levels of competition (including allegations of collusion) in the emerging outsourcing market (2011).

In the early years (2005-2010) the emerging outsourcing market was relatively buoyant. However, it was recognised quite quickly that there were inherent flaws in the outsourcing market system. Essentially, despite some operator concentration between 2005 and 2010, the operators in the outsourcing market were still quite fragmented and they lacked any real buyer power (at a national level). This was in contrast to power of the suppliers. As a result of:

- the procurement practices adopted by the operators (eg pre-qualification favouring existing large and reputable companies – especially after the big health scare, and increasing contract aggregation to reduce administration costs); and
- the prevailing market conditions (steadily growing demand, substantial incumbent advantages), supplier power was high and rising.

The unbalanced buyer-supplier relationship led to relatively poor levels of competitivity (and hence value for money) and claims of tacit collusion in the bidding process (especially where the suppliers were similar in nature and competed against each other on a regular basis). Greater regulation was therefore introduced to try to manage these problems away. These early outsourcing experiences also highlighted the relative efficiency of existing in-house operations and the benefits of maintaining economies of scope (which were essentially fragmented by the nascent outsourcing process).

To market test the potential for, and success of, outsourcing where these markets were nascent, or non existent, national benchmarking initiatives were used (or established). In some cases benchmarking revealed that some non core operations were best outsourced. However, this did not become the predominant form of competition. Outsourcing activity reached a general plateau of around only 10% of revenues by 2012. The demand for greater economic efficiency was largely met by the greater use of benchmarking in house operations (and not by greater competition "for" supplier markets).

This proved to be a more reliable and transparent mechanism for driving operator improvements and did not expose the sector to the market failures identified above and the loss of integration (following extensive outsourcing). In addition the transaction costs associated with benchmarking-regulation proved to be less onerous than those that were involved in managing the rather complex outsourcing process.

Limited direct competition emerged as result of industrial lobbying, but common carriage remained controversial. In many Member States, by 2010 industry lobbying of national governments (and in some Member States recommendations of newly formed economic regulators) led to the introduction of limited competition for both large industrial users (via geographic insets, self supply, retail competition, and cross border supply), and for new connections to the network. The relative success of energy liberalisation also supported limited moves to open up the market for large water users. It was also promoted by DG Competition.

The impact of competition for large users was to reduce prices. This led to household customer demands for similar reductions (see below). This in turn led to greater pressure for greater regulation/benchmarking to force out further efficiencies. *See Belgium storyline as an example of possible knock-on impact of limited large user liberalisation.*

The introduction of competition in limited niche markets (eg large users) also introduced (or reinforced) the need for greater regulatory oversight - to both set up and monitor the new competitive framework. The lower prices being offered to large

users prompted further calls for a review of EU cost recovery as there are concerns about cross subsidisation of industry by household customers.

Common Carriage (CC) - and the associated trading of water abstraction rights - has only been introduced in a limited number of Member States, despite its successful (if somewhat slow) introduction in England and Wales in 2005. Indeed by 2010 only 5 common carriage agreements had been signed in England and Wales. While in some Member States operators turned out to be active promoters of common carriage and tried to exert pressures on their government/regulating agency to follow the common carriage path, other operators were reluctant to engage in common carriage due to the risks associated with it. Despite legal safeguards they feared that they could be held responsible (especially by the public) for the activities that have been imposed on them by another company (out of their reach).

In 2020 most Member States continue to have ongoing concerns with the concept of CC - especially with regard to water quality issues and associated cost consequences (eg stranded assets) for the remaining household customers. Furthermore, the transaction costs associated with establishing CC remain high (preparation of complex access codes). Where common carriage has been introduced these technical and administrative "problems" have generally resulted in a slow start-up phase with low initial take-up rates (see England as an example).

Consumer power rapidly became an important factor in the water sector - partly stimulated by liberalisation elsewhere, water bill rises and the public participation requirements of the WFD. Whilst there was no major move by the EU to liberalise the water sector, liberalisation in the other utility sectors had an important knock on effect. Householders became more aware of their legitimate rights as fee-paying consumers (eg compensation for poor service quality, benefits of price competition). Whilst consumers had become greener (partly as a result of the emerging impacts of climate change) year on year bill rises created pressure to control costs by whatever means possible. This led to consumer demands for both greater efficiency (via more transparent benchmarking and the introduction of independent economic regulators) and more consumer representation especially in the major investment decisions that were perceived by consumers to be being made by apparently invisible technocrats.

From around 2010 consumerism and consumer protection became an important countervailing factor to the environmentalists and their demands for an ever-cleaner water environment. From this time consumers were formally consulted on the future investment options and their associated costs and were able to complain to independent bodies about the level of service they were receiving.

These independent customer representation bodies were widely established by 2013 in order to provide a clearer voice to customers (especially where direct municipal representation - as a result of regionalisation - became increasingly watered down). These bodies now generally operate on a regional level, covering several operators. They deal with complaints and can directly lobby the operator on behalf of customers. Operators (irrespective of ownership structures) can be made to pay fines for unsuitable service levels and if disputes cannot be resolved the regulator (or ombudsman) has the right to step in.

In some Member States, during the initial restructuring of WSS services, there was first a sharp decline in consumer satisfaction with the level of service provided (uncertainties, fear that the new regulatory systems would not deliver an adequate service, environmental and health concerns, etc.). However, once the new system had become firmly established, consumer concerns decreased. Across the EU, there is now (in 2020) a tendency towards increased consumer satisfaction with the provided services, partly because consumers feel that they can exert an influence through participation activities and feel represented by the consumer committees.

Public participation in the water sector increased throughout the EU between 2005-2010 - facilitated by the requirements of the WFD and as a response to the sector's restructuring. From 2010 public consultations (as a consequence of WFD) were increasingly acrimonious and there was again a demand for regulatory oversight to protect consumers from "unwarranted" expenditures. Awareness of the provision of public services also rose - in some countries as a consequence of negative experiences with cross-boarder leasing deals. This increase in participation and awareness stimulated more demand for increased transparency and hence more benchmarking and/or independent regulation.

3. END 2015-2020: International experiences and longer term macro-environmental drivers (poor macro-economic performance, increased social engagement, rural depopulation and climate change) reinforce structural shift towards independent benchmarking and/or independent economic regulation

Positive international Experiences of benchmarking/regulation well known across EU. There were a number of high profile European success stories of independent regional public operators providing excellent service at low prices, some with oversight by an independent regulator (eg independent regulatory controls through price capping in Scotland started to deliver substantial benefits to consumers in 2015).

The regulatory system in England and Wales with its high powered benchmarking system (of private operators) also continued to tread the fine line between maintaining investment levels and keeping bills to manageable levels (whilst at the same time encouraging further operator efficiencies). The 2014 periodic review proved to be as successful as the ones conducted in 2004 and 2009. *See English storyline.*

After some initial delays between 2005-2010 countries in Southern Europe (eg Greece, Italy and Portugal) enhanced their existing nascent regulatory systems. This proved to be extremely successful (2015-2020) in driving out efficiencies within the sector. This success on mainland Europe provided a further stimulus for other Northern Member States to establish their own independent regulatory/benchmarking systems (2015-2020).

Some of the voluntary benchmarking systems also proved to be relatively successful, although once made compulsory (with the results being made public) the efficiency gains were much more noticeable.

Climate Change impacted both directly and indirectly on WSS. The practical effects of climate change (some EU areas suffered high intensity rainfall episodes whilst others saw the start of a year long 2 year drought) started to be noticed across the EU on a large scale as early as the summer of 2004. These problems became worse (major interruptions to water supplies, sewer flooding of households) over the intervening years and the lack of foresight by some municipalities resulted in some high profile consumer protests as services faltered.

Major investments to combat these problems were initially curtailed until there was a crisis of confidence in the existing institutional arrangements in around 2015. At this time it was realised that major additional "quantity related" investments were required (and these would be in addition to the "quality related" investments identified to comply with the WFD). At the same time it was realised that substantial central government investment was also required in renewable energy production and transport to try and mitigate some of the problems that were now being encountered. The associated financial requirements on central budgets indirectly impacted on WSS (see above).

Investment levels to deal with climate change reached peak levels in 2015. Severe droughts and floods appeared to overwhelm the system in a number of countries at the same time. An Emergency EU water summit was held in 2015 to discuss the "way forward". The result was the instigation of a climate change fund to help the poorer Member States combat the problem.

The droughts and floods affected some countries more than others. Indeed it seemed that those Member States that had moved to larger (river basin based) autonomous financially independent operators (but regulated to ensure transparent economic efficiency) had performed well in responding to the crisis situation. A number of these same countries had also successfully managed massive investment programmes to comply with the Urban Wastewaster Directive.

The increasing pressure on water resources (to cope with increasing variability in rainfall patterns) encouraged further consolidation of operators in order to increase the number of individual water sources and hence spread the risk of local water shortages. The different water sources were integrated at a regional level to provide increased protection. These changes occurred on a major scale in a number of the seriously affected Member States in 2016 following the EU summit.

Historically institutional change in WSS sector has been associated with spurts in demand and the inability of the existing institutional arrangements to deal with the change. Here there was no change in demand but a sudden and major change in the conditions of supply. This created the conditions for important institutional change in a number of Member States (ie especially in those that had failed to deal with the crisis situation in 2015).

Poor Macro-economic performance and greater Social Engagement encouraged public sector restructuring. The EU economy remained uninspiring (despite the economic success of enlargement) as China took over as the main global economic

powerhouse. National public deficits remained under pressure and this had important ramifications for local authority expenditures and how local authority investments were "handled".

There was a growing demand for a further tightening of the compliance with community wide targets that limited the size of the fiscal deficit of Member States (MS) (Maastricht criteria). This also impacted on the budget constraints municipalities face. Furthermore, the long envisaged economic upswing did not materialise. As a result, the number of the unemployed further increased, exerting a further strain on public budgets.

As a consequence, municipalities continued to search for ways to distance themselves from water sector related debts and investment needs (pressures for saving costs at the municipal level; short term financial relief) to avoid their bankruptcy. The complete expiration of financial transfers from the EU Cohesion Fund further increased the pressure on municipalities that formerly received such funds.

The formation of more autonomous public operators (under private law) was one consequence. Indeed, despite the tight macro-economic conditions these regional operators had no problem in tapping into the international debt markets for bond financing. Some high profile bond issues were launched in 2017.

Social engagement improved at local, national and EU levels. There was a renewed interest in the efficient provision of utility services and increased consumer demands for a say in what goes on. This was supported by the WFD (which played up the importance of public consultation). This increase in transparency about the scale and reasons for the investment highlighted an increasing tension between the main stakeholders – namely consumers and environmentalists (about the extent of environmental investments) and consumers/environmentalists and farmers/industry/energy (about who pays for diffuse pollution and the consequences of climate change) – see above discussion on growth in importance of the consumer.

Rural Depopulation and Decreased Demand for Drinking Water. In some Member States, depopulation became a major driving force for change in the water sector. The unfavourable job prospects in rural areas together with a change in life-style (the country-side is no longer considered attractive for permanent location) caused many young people and families to relocate away from rural areas to the city centres.

While the trend of an ageing population is omnipresent throughout Europe, it is even more prevalent in the countryside and leads to a further drastic population reduction over this period. These deserted areas became less and less attractive for SMEs; shops and businesses closed down, reducing job opportunities even further. In consequence, the demand for water decreased significantly. As a result of these developments, the supply network in rural areas was often highly over-dimensioned and ill fitted for meeting the curtailed demand. In some cases, less than 25% of the available capacity was being used. Parallel technical developments established improved water saving techniques in household water fittings (eg washing machines, dishwashers, etc.). This led to further reductions in the amount of water required per household.

Due to the high percentage of fixed costs in the water price, the reduction in demand led to a significant increase in unit-prices, which was automatically passed on to consumers. Some facilities had to be closed down. The impact on prices encouraged further institutional restructuring to incorporate these adversely affected rural areas into larger geographic areas embracing cities and larger towns.

Independent Benchmarking and Independent Regulatory Bodies become increasingly important as 2020 approaches. In order to increase transparency, raise efficiency and make best use of rationalisation potential, benchmarking activities are now in place in the majority of Member States. This development had also been stimulated at the European level.

To further increase rationalisation potentials, regulating/benchmarking bodies were introduced to co-ordinate benchmarking activities within the sector and help to protect consumer interests. Furthermore, they were pivotal for increasing transparency and highlighting inefficiencies. The regulators also had an important control function through their "oversight function" of approving prices, budgets and tariffs.

The prior experience with regulatory/benchmarking activities varied significantly across the Member States. Accordingly, some countries struggled more than others in achieving stable and independent regulation/benchmarking. This development was also dependant on the regulations that were formerly in place – how used were the sector participants to this form of organisation. In some countries, longer periods of adaptation periods were required. Experience exchange initiatives were launched by the CEC in 2019 to help overcome some of these initial teething problems.

Today, in 2020, these responsible agencies (regulatory/benchmarking) generally operate nationally. However, in some Member States they operate at the regional level. The economic regulators/benchmarkers are independent and funded from customer bills.

ANNEX B.II.4 Direct public management- "A New Vision of the Public *Realm"*

1. B.II.4.1.EU End State

Public ownership and in particular the direct management of services by the responsible authority can be a way for an effective water management. The local communities ensure the direct control of the management of their water services, choosing not to delegate the provision of the service, and publicly financing the required investments in the infrastructure. There is no independent regulatory authority. This direct public management is the way thousands of WSS are run in France by small municipalities. Such an end state also fits a multi-services management (water, energy, transportation, waste etc.) as observed in German "Stadtwerke", as well as other forms of local public authorities such as the regional public organisations (i.e.: Netherlands).

1. Nature of Competition

Consumer Transaction Markets

In the case of direct public management, there is no competition in/for the customer market or for various service inputs. The local operator is awarded - normally by decree - the responsibility to provide the integrated water services to the community, i.e. to operate as the only provider. There exists no niches open de facto to competition and where some categories of customers can escape. Municipalities do not have to adapt to such an evolution towards competition. Competition is only apparent through traditional procurement arrangements, most notably for specific large-scale infrastructure developments.

Supplier Transaction Markets

Concerning the supplier transactions, given that the municipality is not specialised in all activities, it can be possible that some operations are outsourced. In this case, competition can either directly occur "in" the market across the board of required supplier inputs, or "for" the market by way of limited contracting out. However, contracting out is generally restricted to large turnkey (design and build) infrastructure provision and to the high technology domain (e.g., GIS, control of the pipes). Competition for finance may also be obtained through national and international bond markets.

Hence competition, whilst limited in the operational sphere, is still potentially important within certain markets – most notably infrastructure provision (turnkey contracts) and finance (municipal bonds accessed by municipal banks). Various specialised equipment and consumables (e.g. chemicals) may also be obtained through standard competitive supplier markets.

Water Resource markets

Competition on the resource market does not occur. The municipal operator controls some springs and wells and ensure a safety in raw water provision without appealing to market.

2. Market

The local community operates in general the whole integrated services, i.e. water supply and sanitation services, but this is surely not the sole option. Furthermore, municipal multi-utilities (e.g. German or Swiss "Stadtwerke") are possible.

In complement, the municipalities do not proceed to a segmentation of the market for domestic use, and all customers are treated in the same way (they can all have access to the service). The tariff can nonetheless be based on a volumetric system, a policy that includes the existence of gradual water pricing for social considerations.

The rate of connections is close to 100%, noting that self-supply remains in isolated areas. Consumers are in general satisfied with the overall performance of the water systems and they consider getting a good value for money for the provision of water supply and sanitation services.

3. Operators

Each operator acts as a local monopolist and all of their customers are captive. Its focus is on the efficient provision of a high quality public service to the entire community. Local public authority (the commune, district of communes or regional authority) and operator are the same entity. The ownership of the operator is then exclusively public. The public authority has the complete responsibility for the operation of the water services, for the investments, but also the relationships with the users (e.g. water billing and the collection). For example the employees of the *régie* are municipal agents with a very strong local knowledge and having a public status.

Various forms of organisation are feasible for the management of water services under direct public ownership. However, the management of service as an internal entity, defined by a set of accounts, is a plausible alternative since this mode of organisation has a long tradition in numerous countries (see for example France, Germany, and Switzerland). In fact, this type of institutional arrangement existed in all the 15 EU member states except for England & Wales in 2005.

Operators are mainly local. However they can be organised at a higher scale in particular cases, i.e. inter-municipal, but the legal responsibility and political will ultimately lie in the different municipality concerned. Regional organisations are another alternative. Overall, this higher scaling process has in many cases increased economic efficiency, which together with good accountability standards and transparency enable the implementation of total recovery plans.

4. Institutional Arrangements

The most important actors in the water sector are the customers and local authorities that play both the role of operator and regulator. Important controls have been assumed for environmental issues by other authorities, namely at the river basin level. There have been no European Union (EU) liberalisation directives in WSS. The EU activity is restricted to the enforcement of strong public health and environment standards, as well as to non-discriminative measures in procurement contracts. The introduction of more competition in the WSS as spelled out in the Internal Market Strategy has been abandoned after the European Parliament refusal.
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.

5. Economic Factors

Although there are still important budgetary constraints in 2015 in the EU, especially at the local level, Maastricht criteria were considerably relaxed by the end of the last decade (2000s). There are nonetheless strong requirements for keeping municipal budgets balanced.

Tariffs are structured according to volumetric charges, and disconnections are banned. Furthermore, they are based on cost recovery (operational and environmental costs) and there are no direct subsidies, except for infrastructure development in isolated and less developed regions. Finally, direct public management makes it possible to operate local public services all together, which means that a local public authority can cross-subsidy its services as long as the global budget is balanced, financially speaking.

The EU liberalisation processes in other network industries, such as telecommunication and energy, has not directly influenced the development of competition in the water sectors. In fact, the liberalisation of other network industries was not at all a driving force for WSS sectors but rather a counter force by reinforcing their main specificities.

6. Social Factors

Customers normally trust the public operator and consider it provides a public service to the community. As long as water services are provided with good quality and at affordable prices, few questions about economic efficiency and financing are raised. Nonetheless in the past there was an uprising in civil society movements, especially in regions where there were poor quality of the water services, recent price increases in the WSS sector, and/or big problems in other liberalized sectors at local level.

Public water operators modernised their governance structures in order to increase public participation in water management. In complement to the consultation mechanisms set up by the basin authorities, citizens/users are involved in the

management of the operators and influence decision. The boards of directors are accountable to them, a measure that creates a counter-power bounding mismanagement and corruption.

7. Environmental Factors

The river basin authorities are responsible for environmental regulation. They also recommend the building or adaptation of the sewage and treatment systems in close collaboration with the water operators in the interest of the resource. In some cases, public operators are merged and their territory fits with the river basin, an arrangement that includes resource management into the consideration of the WSS sector.

8. Other factors

Direct Public Management does not preclude innovations in technology and management structures. Municipalities may group together to form multi-municipal entities, allowing more flexible accounting standards, e.g. depreciation, constitution of financial reserves, flexibility in work contracts. This process of bringing together the municipal services also seeks a better integration of the networks that would improve security in supply. Thus, even a shift back to direct public management does not necessarily avoid innovation. Furthermore, multi-municipal entities may join together their research efforts in technological innovation.

2. B.II.4.2. EU Storyline

Some municipalities in various countries are already at this end state, i.e., Direct Public Management (DPM), and its storyline is based on the maintenance of the status quo (high satisfaction levels of DPM in comparison to private provision; relation based on mutual trust). This is the case in Switzerland where WSS markets are characterised by direct public management. No form of competition or sector specific regulation exists.

In the context of Direct Public Management, the state of affairs in 2005 is that customers normally trust the operator and consider it provides a public service to the community. As long as water services are provided with good quality and at affordable prices, few questions about economic efficiency and financing are raised. Moreover, due to the confidence given by customers to direct public water operators, politicians refrain from taking any action towards changing the current situation. Indeed, it is really the politicians that decide at the end.

Cases where direct public management is already the most important mode of management are subject to a first storyline (pathway 1) - ***"Everything's fine with public sector"*** – that describes the progressive introduction of innovations in public sector management. Other storylines are built on critical events needed to arrive at the endstate (pathway2).

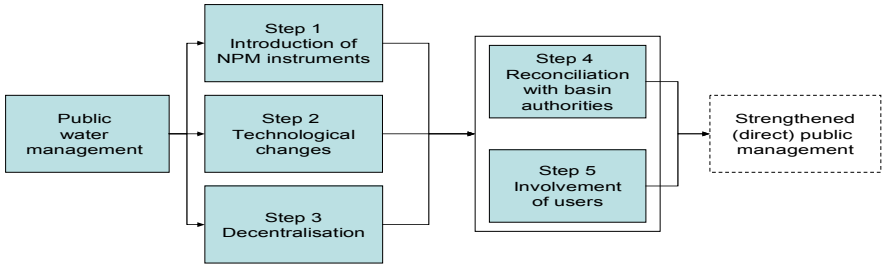
Pathway 1: "Everything's fine with public sector"

In this first sequence, the public management of water services is reinforced by a series of adaptive innovations. The sector does not face any external shock or major disruption and benefits of a great confidence among the population. This sequence is an evolution towards an improved and strengthened direct public management.

The first sequence is divided as:

- Step 1 (2005-2007): Public water companies introduce New Public Management tools in their organisation. They also explore different pathways for their development and rationalisation, e.g. outsourcing of peripheral activities (e.g. management of customer complaints), grouping of municipal services in multi-utilities, flexibility in finance and work contracts;
- Step 2 (2005-2010): Technological change occurs, that make efficiency gains plausible through decentralisation of service provisions. End-of-pipes solutions limit investment and maintenance costs of the networks. For instance, small chlorination units can be installed to treat water at the entry of hamlets (i.e. groups of housings in less dense areas) as well as biological treatment plants;

Figure 3: Sequence 1: "Everything's fine with the public sector"



- Step 3 (2005-2012): Inspired by the subsidiarity principle; national authorities empower local authorities and grant them with more autonomy and responsibility. Institutional reforms are set up with the goal to enhance capacity-building at the local level. Water management is decentralised at the municipal level in situations where local management brings more efficiency. In some countries, this process of re-empowerment goes along with a re-financing of the municipalities and, by extension, of the operators themselves;

- Step 4 (2012-2015): As a result of the implementation of the water framework directive (WFD), river basin authorities were set up and attempts to integrate every aspect of water resource management at river basin scale were made. Their permanent monitoring of the status of the resource designates them as co-ordinators of water management issues. Rather than keeping a permanent monitoring of the effects of the decentralised systems of wells and treatment plants, the water operators entrust the basin authorities

with this task. The basin authorities recommend the building or adaptation of the sewage and treatment systems in close collaboration with the water operators in the interest of the resource. In some cases, public operators are merged and their territory fits with the river basin, an arrangement that includes resource management into the consideration of the WSS sector.

- Step 5 (2012-2017). The WFD also recommends more public participation in water management. In complement to the consultation mechanisms set up by the basin authorities, water operators modernise their governance structures. The citizens/users are involved in the management of the operators and influence decision. The boards of directors are accountable to them, a measure that creates a counter-power bounding mismanagement and corruption.

As such, in 2020, public water operators succeeded in improving their management methods in the absence of any external shock, being mature enough to consider the evolutions in technology, regulatory environment, institutional structure and aspirations within society. These reforms allow gains in efficiency and enhance trust in citizen's confidence. The direct public management model is thus strengthened. Organisations are modernised both on technical aspects and daily governance.

Pathway 2: The turn to Direct Public Management

In the cases where there are management structures other than direct public management, there is a need for a different pathway. We have then selected a few critical events according to necessary and sufficient conditions (i.e., critical events) that would lead to DPM. These conditions are:

- Accident or act of sabotage or severe natural disaster;
- Scandal of corruption;
- Strong social mobilisation;
- Innovation in public sector management.

We wonder which combination or logical sequence would drive best to the end state. These different conditions could be designated as departure points. The most important thing in the imagined processes is causality. We will build causality first by identifying different models that bring sequences to the process and second in trying to combine these different “models” or “ideal-typical development paths” in one likely process. These “models”, four in total, are driven either by external events or by voluntary actions of the actors’ involved (e.g. social pressure for re-municipalisation). We identify four “models”:

- "Restore security/safety";
- "Get rid of corruption";
- Calming down the crowd" and;
- Benefit from innovation".

These “models” are coherent in them, but can easily be combined into a single causal scheme that would accelerate the process towards the end state. This combination,

presented in the ***"Multiple conjunctural causation"*** storyline, remains credible and can be considered the main story line towards direct public management end state.

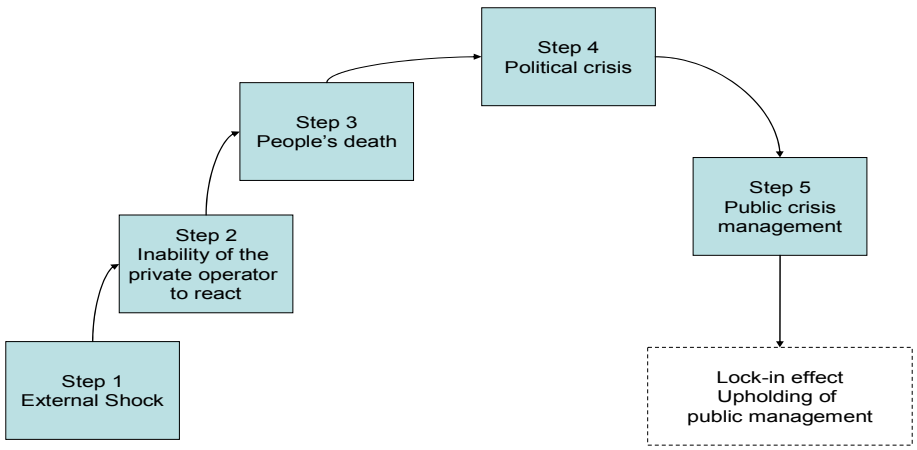
"Restore Security/Safety"

In this sequence, the departure point is a terrible external event. This event can result of an accident or an act of sabotage. We identify five steps leading to the end state (see Figure 2):

- Step 1: An external shock is the first necessary condition that could lead to DPM. The outcome is independent of the behaviour of the involved actors, except perhaps the (private) operator that falls down by inaction or neglect. This external shock can be an accident or an act of sabotage. As an accident, we imagine that the quality standards of drinking water are overthrown and pathogens are present in high concentration into tap water or a lead-poisoning. Consumers are not informed of the situation and water provokes disease amongst a large fraction of the population and even death of the youth and the elder. The other form of accident would be an act of sabotage, e.g. a terrorist movement attacking the infrastructure and injecting poison in the network. Any of these external shocks may have trans-national consequences for example through large rivers such as the Danube.

- Step 2: The disease shows that the (private) operator neglected maintenance and supervision and threatened the safety of the network. Furthermore, it is unable to manage the hazard and fails to react appropriately and/or on time. Several reasons may justify this failure, such as a lack of staff and know-how, and an attempt to cover up the accident in order to avoid potential retaliations;

Figure 2: Sequence 2: "Restore Security"



- Step 3: The hazard is provoking people's death that alerts the opinion and generates anger against the operator and the institutional arrangement;

- Step 4: A political crisis occurs. The local politicians initially do not know how to react and fail in calming down the discontentment;

- Step 5: Soon after, they react and take direct control of the network. They organise a crisis management, e.g. with the army, fire (wo)men, technical services of the municipality. The (private) operator is put aside, expropriated in a certain extent, or decided to break off the concession contract;

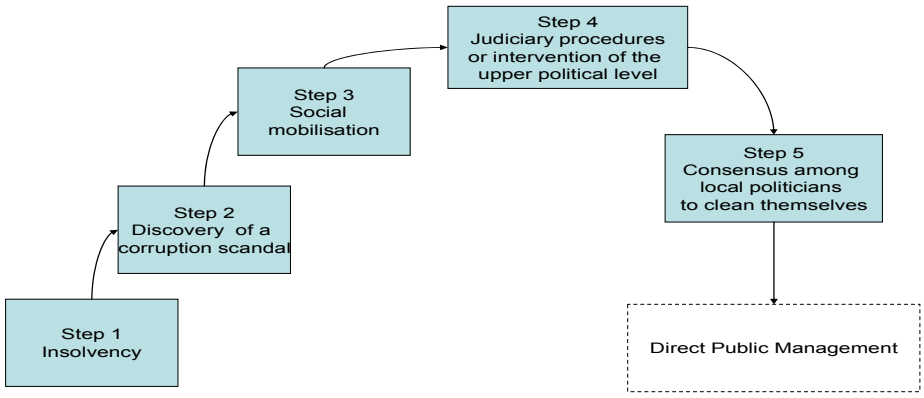
End state: By lock-in effect, this direct management is maintained and progressively the system is turned into direct public management.

"Get rid of corruption"

In this sequence, a scandal appears that precipitates a change towards DPM. The condition is the occurring of an insolvency of the (private) operator (see Figure 3).

- Step 1: The operator falls into a situation of insolvency. This results from a lack of cash (virtual bankruptcy) with a high level of indebtedness;

Figure 3: Sequence 3: "Get rid of corruption"



- Step 2: The scandal appears when the situation, hidden before, is revealed, either by denunciation (e.g. Enron) or following a control of the Treasury (e.g. Vivendi Universal);

- Step 3: The population mobilises and claims for a change in the institutional arrangement. It denounces the corruption of the local elites;

- Step 4: Actions are taken at upper level, either judiciary or administrative procedures, against the local elite. The national State intends to sanction the local politicians;

- Step 5: The local politicians react pro-actively and, after having accused the guilty operator, they immediately declare that WSS services should be under DPM.

"Calming down the crowd"

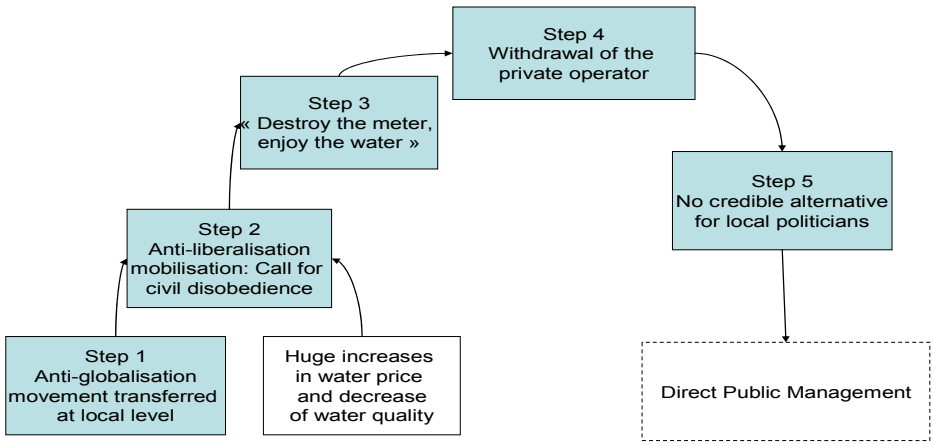
This sequence is driven by subversion. The condition of the process is the emergence of a social protest (see Figure 4):

- Step 1: The anti-globalisation movement is spreading at national level, developing through global protests against, e.g. the EU or the WTO. It gives birth to local organisations that co-ordinate protest action. According to the ideas of the World Contract for Water (Petrella), these local movements demand that water (re)-integrates the public domain. This movement is further popularised through the initiative of UNESCO with the support of the Dutch government to draw up an international convention on water as a public good;

- Step 2: The activists among the movement are calling for a mass mobilisation against liberalisation and for civil disobedience. The protest is concentrated against water management. This call is heard by a population fed up with the poor quality of the water services and/or recent price increases in the WSS sector and/or big problems in other liberalized sectors at local level (e.g. breakdown of electricity distribution network);

- Step 3: Protest is spreading and people attack the infrastructure. The mains and the meters are destroyed;

Figure 4: Sequence 4: "Calming down the crowd"



- Step 4: The private operator resigns because of the uncertainty of the situation. It refuses to manage the crisis and to adapt its behaviour;

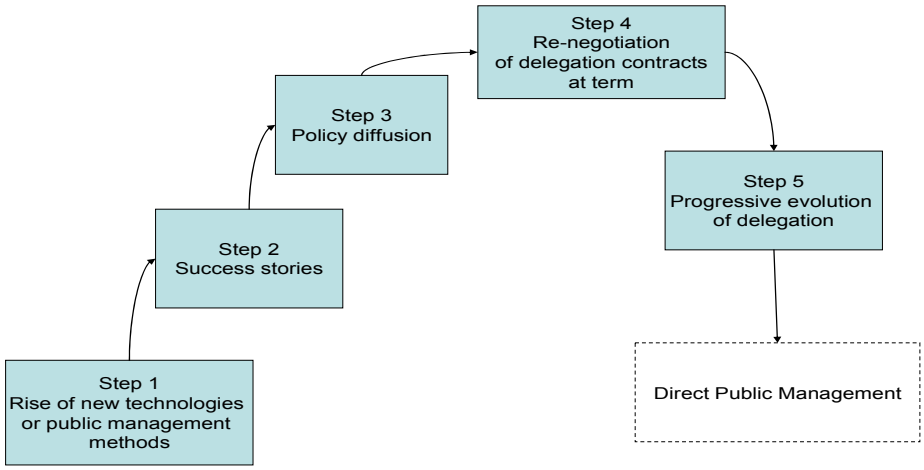
- Step 5: Politicians are overtaken by events and do not see any alternative than to turn to DPM.

"Benefit from innovation"

This sequence is more evolutive, even if it does build on a prerequisite. Here, the condition is the apparition of new technologies or management methods at the benefit of the municipalities and, through benchmark activities and voluntary emulation processes, the (international) diffusion of best practices among municipalities (see Figure 5):

- Step 1: A new technology or new public management methods are appearing that make possible a more efficient direct management of the WSS services by the municipalities;
- Step 2: These innovations are experienced successfully in some particular places;
- Step 3: The good practices are made popular into forums such as OECD, Associations of Cities or EUREAU. More and more municipalities are interested in the innovation;
- Step 4: Progressively, when time has come to re-negotiate the concession contracts the local public authority introduces the innovations;
- Step 5: Progressively, the local public authority recovers control of the WSS service.

Figure 5: Sequence 5: "Benefit from innovation"

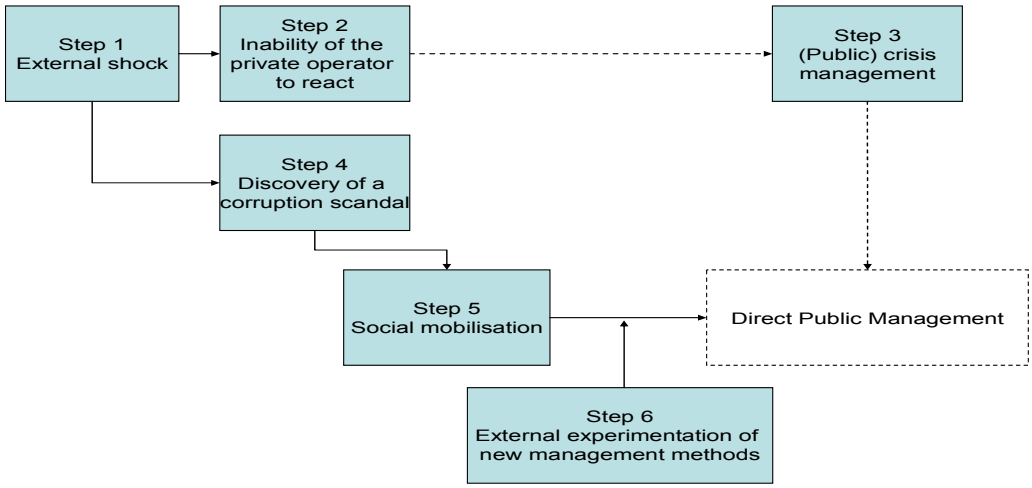


Combined sequences: "Multiple conjunctural causation"

The current section presents the main storyline for DPM, and it is constructed on the basis of the main critical and triggering events identified in the previous sections. In 2005, there was considerable evidence on positive experiences in terms of consumer satisfaction and economic efficiency of WSS services directly managed by

municipalities. Regarding the cases that are not under direct public management, we propose the following "mapping" of a process leading to the end state (see Figure 6).

Figure 6: Combination of sequences: "Multiple conjunctural causation"



'Multiple conjunctural causation' is the central feature of Qualitative Comparative Analysis (QCA) (e.g. Ragin 1987). This implies that: (1) most often, it is a combination of independent variables, 'conditions' in QCA terms *(our initial events and triggers)*, that eventually produce a phenomenon to be explained, the 'outcome' in QCA terms *(our end state);* (2) several different combinations of conditions may very well produce the same outcome; and, (3) depending on the context, 'conjuncture' in QCA terms, a given condition may very well have a different impact on the outcome. This implies that different *causal paths* – each path being relevant, in a distinct way – may lead to the same outcome. Hence, by using QCA, the researcher is urged not to "…specify a single causal model that fits the data best…", but instead to "…determine the number and character of the different causal models that exist among comparable cases." (Ragin 1987: 167). By adopting the QCA logic the different sequences presented above can individually reach the end state of DPM. The combination of the main conditions of these different sequences should steer the process towards the end state. The main problem is to find out the causality scheme between the different conditions, i.e. corruption, disease, cost rise, social protest and public management innovation.

1. Start 2005-2010: "Mismanagement of an External Shock"

This process is developing from an external shock ("must happen" event). The operator fails to avoid an accident or an act of sabotage that provokes a contamination in the network, disease in a large area of the municipality and death. The fragilities of the water systems revealed by acts of sabotage (namely terrorist acts) are particularly critical events in terms of the consequences they trigger and their rapidity. The external shock can also be the failure to prevent major damages and network disruptions from a severe natural disaster (step 1). Since the beginning of the 21st century, Europe has been increasingly exposed to low probability-high consequence negative events, namely related to climate change (e.g., floods, droughts, pollution problems). This external shock may have trans-national consequences through large rivers such as the Danube. Even in cases such as England, where the initial state

(2005) is characterised by very distant features to this end state, such an incident (or a combination of events) may set off a serious of events completely altering the state of affairs.

Any of these events are highly covered by the media, especially in what concerns serious damages and casualties, which triggers immediate reactions from civil society. Active citizen involvement increases in the broad "anti-globalisation" movement and there is wider support for its strong message in favour of public control of global water resources, in a context of past price increases related to private participation in the water service.

In addition, the operator fails to react to the disaster ("must happen" event). It is unable to take the safeguards measures that would bind the disaster and limit the number of victims and, in addition, it fails to communicate with the population and the public authority and does not co-ordinate action with the rescue services (step 2). In consequence, public authorities (e.g., municipalities; sector regulator) set up a crisis management of the WSS network in order to relieve the situation (step 3). The (private) operator is put aside. It is also feasible to think that the public authority sets up a crisis management of the system after the (private) operator decides to leave. The continuous enforcement of stricter environmental and public health standards in drinking water and sanitation systems has raised the pressure to increase capital investments and has made the application of the cost recovery principle more difficult. The operator is not interested in increasing its investments in an increasingly risky yet low return activity and decides to take the external shock (that may not be its direct responsibility) as a reason to abandon the sector (or the concession).

2. Middle 2010-2015: "The power of social movements"

In complement to this inability of the operator to face the crisis, the civil society discovers a scandal of corruption involving the (private) operator ("must not happen" event) (step 4). This scandal mobilises the population and a social protest develops (step 5). Trade unions join the protest in an attempt to recover the power lost during the liberalisation processes, which had inevitably led to important job losses in the past. Moreover, the context resulting from the incidents and the corruption scandals seriously increases the risk perceived by investors, and the conditions in capital markets significantly worsen.

The social movement claims the need for public control of water service, increased public participation and transparency. They maintain their position and present alternatives to (private) delegated management that were experienced with success in other municipalities (step 6). Public authorities are pressed by the strong citizen involvement in the issue and its expected reflection in the turnout and results of coming elections. They decide to apply these (public management) innovations to put WSS services under DPM (end state).

In effect, the dominance of left wind movements in politics, may lead to the incorporation of certain features related to specific demands from civil society movements against profit making in services of public interest. Considering the fact that France hosts the main TNCs in the world and its market is therefore controlled by

these large private operators, protests may well take a considerable dimension here. Furthermore, France may also suffer from external events related with terrorist incidents and climate change, which highlight the vulnerability of any country and further incites social movements to fight for more public involvement.

This is also supported at EU level through a change in majority of the Parliament and European Commission: the left wing is predominant. A general EU movement emerges (NGOs, local/regional authorities, left wing and green parties) against private companies' profits and lack of transparency that leads to the creation of a directive in 2010 controlling water prices and extra profits of water operators. This is fiercely contested by TNCs and private operators, but the EU institutions prefer following the social protest movement which has gained importance, and enables them to found a more social Europe. This is badly requested by the citizens with growing unease against prior EU policy, which was based on economic criteria, without properly tackling unemployment, social inequity and public issues.

The German case provides extra insides on the event of relaxing policies at the EU level regarding liberalisation. In effect, German municipalities reacted reluctantly to pressures at EU level towards a stronger integration of competition elements in the European water sector and mandatory public procurement, along with a strict interpretation of in-house services. They felt that it challenged the autonomy of municipal organisation and interfered with the communal right to self-administration.

The decision to turn to DPM has a low political cost for local politicians and it allows them to distance themselves from the corruption scandal, in which some of them were supposed to be involved. Such a decision is made possible because the dynamics and decision power remain at a national and sub-national level. Moreover, the EU has never classified water as a "service of general economic interest" nor has set any directive to liberalise the sector.

3. End 2015-2020: "The turn to DPM"

The (new) public operators set as objectives the efficient provision of public services to citizens at a reasonable price, guaranteeing at the same time the long-term quality of the water systems. Their main strategies rely on the enforcement of the sense of connectedness with the population; on long-term investment policies; and on the specialised technical and local know-how. The serious events that occurred in the past have redirected the priorities of public authorities, which consequently facilitate the access of the operator to additional financial sources, such as funds from specialised agencies (e.g., for the environment).

The public operator's business plan clearly defines the financial requirements for operating, maintaining and investing in the network. There is an effort to include several elements related to the sustainability of water services, such as an assessment of the capital investment requirements for extension and modernisation of the network. The majority of the information is made available to all customers in a very transparent way, which also augments the customers' willingness to pay to have a high quality service.

ANNEX B.II.5 Community Management

1. Introduction

Community management and more generally self-organizing form of WSS management have developed in the last decades in addition to supply-driven water service policies in some areas and activities[18]:

a) Rural and disperse population, through direct involvement of users;
b) Groups of firms settled in the same area;
c) New urbanisations in the surrounding of cities or tourist urbanisation specially along the coasts;
d) Direct ownership of customers of WSS companies or customer involvement in company governance.

The basic assumption is that when central government fails to provide water services for all citizens, the provision of services could be based on the direct initiative of people and users. This is the case when users require a specific system of water or wastewater treatment. The new technologies based on semi permeable membranes (inverse osmosis, nano and micro-filtration…) and the decentralised systems for sanitation and even recycling waste water allow the possibility of developing this model for individual users and communities more or less isolated. In addition, it made it possible, i.e. for industrial users, to benefit from a specific system of wastewater treatment.

Furthermore the citizens' mistrust towards both private TNCs and public bureaucracy leads to new formula based on direct control of the WSS by the Community.

2. B.II.5.1 EU End State

The community management model differs from the public management model in the sense that community participation includes ownership of the services, operation and maintenance and cost sharing of WSS. It helps to decentralise decisions concerning water services management, by transferring responsibilities to communities. It can be a way of effective water management when centralized water provision is not efficient. In this scheme, water supply is delivered by projects in which full responsibility for WSS management is on the community level: it is the community that takes strategic decisions, concerning the level of service and financing. 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 aspects to a professional (Schouten and Moriarty, 2003).

[18] In certain cases it developed in pre-industrial era, on the basis of codes precedent to the French Revolution.

1. Nature of Competition

Consumer Transaction Market

In the case of community management, there is no competition in/for the customer market or for various service inputs. The community itself is responsible for the provision of water services: water supply is normally community managed, whereas sanitation is controlled and managed at the level household level (i.e. septic tanks) in low level density populations and by common decentralized systems in cases of more concentrated population.

Moreover, a segmentation of the market does not exist, in the sense that all the members of the community are involved in the WSM and all have access to the service.

Financing of WSM depends upon the community organisational arrangements. The community is collectively responsible for cost recovery. This could mean that all expenses are divided between the members. A volumetric system, especially for small communities, could be expensive to be introduced. Both possibilities such as a volumetric system with individual meters or a shared payment in proportion to owned property could be introduced.

In the British CM model, there is a clear separation between asset ownership and operation. Water companies are fully debt-financed, thus reducing cost of capital and allowing surplus being reinvested in water sector.

Supplier Transaction Market

As stated above, for some activities (such as design, construction and provision of some services) the community has not a sufficient know how. In this case, competition can either directly occurs “in” the market, for some inputs, such as materials for long term O&M, or “for” the market by the way of limited contracting out, in designing and built services. However, contracting out is generally restricted to infrastructure provision or for technological expertise demanding tasks. Communities retain strategic control over the water system and private partners bring efficiency and technical know how, on the basis of contractual arrangements.

In the British CM model WSS management is outsourced.

Water Resource Market

Competition on the resource market does not occur. The community has control over the raw water and is able to provide the service autonomously. Problems could arise when the quality of the raw resource deteriorates or the number of users increases (without a sufficient increase in the supply). Some institutional mechanisms could be introduced to regulate the access to the resource (i.e. water markets or concession rights by public authorities).

2. Market

The local community does not forcedly operate the whole integrated services, i.e. water supply and sanitation services. Normally sanitation services are managed by individuals (i.e. septic tanks) but, at present, and more in the future, these communities or industrial firms have decentralized systems with new technologies available in the market.

3. Operators

Generally speaking, the communities have the complete responsibility for the operation of water services and for financing. However, in practice, it is recognised that some form of external assistance in operation and maintenance is needed. Especially, in the first stage of CM development some institutional support is crucial for capacity building. "Rural communities should be able to carry out tasks such as regular preventive maintenance, tariff collection, book-keeping and sanitary inspections. However, when there are major repairs, when specialised tools and major system components are required, or there is a breakdown of the management structure, some level of external assistance will usually be required" (Lockwood, 2004).

The community retains the ownership of the infrastructure, and is responsible for investments needed for pipe maintenance.

In the extreme versions of Community Management, the WSM is based on voluntary work. Normally O&M entails the contracting out of some tasks (see below, competition in the supplier competition market).

As we said before, this kind of model refers to rural communities and to groups of firms sharing infrastructures and services but also new urban areas in peripheries of the big cities or tourist areas. As a consequence, the scale is at municipal or supra-municipal level. In the British model, the scale continues to be regional and, in some cases, local.

4. Institutional Arrangements

The community is itself the owner of the water system (collectively) and it is responsible once it is installed. There is no (independent) regulatory authority with respect to economic issues. The municipality delegates to the community the provision of the service.
The CM is based on the participation of the community in the provision of WSS, in different ways:

- WSS is organised into voluntary organisations (i.e. user co-operatives);
- Customers own water assets or can contribute to WSS management through representation in water company boards;
- WSS is a responsibility of water management associations formed by landowners, private enterprise or public corporations.

This should assure the protection of costumers' interests as well as the guarantee of adequate capacity investment. As stated above, some institutional support is needed at the first stage of CM development, regarding the definition of roles and

responsibilities, as well as financing mechanisms. In case of direct control of the community on operation and management tasks, the training of the people responsible of WSM is crucial. This external assistance could come from local-level state agencies, private sector and local NGOs.

In the British CM model, water asset ownership is separated from the day-to-day maintenance. In the Welsh Water Case, the former was sold to a non-for-profit company (owned by its members and limited by guarantee), whilst the latter was contracted out. In this form of management, the regulatory authority continues to exist.

5. Economic Factors

Financial resources are needed to finance the infrastructure maintenance and operate the system. Generally speaking, some other costs occur to allow the community to acquire the necessary skills to participate and make decisions. These costs are higher when the WSM becomes a more complex task.

Investments are a community duty. The source of financing depends upon the community decisions. If the household users are responsible for cost recovery, then they can apply water tariffs or direct contribution to attain cost recovery. Otherwise, they have to rely upon the financial help from central or regional government, through loans or grants. Since some forms of community management have a public law status, they are eligible for public subsidies.

In the British CM model, source for financing is found through bonds, instead of through equities.

6. Social Factors

Public Participation in strategic decision-making is a distinctive element of the community management. It is not easy to implement and could entail transaction costs. Elected officials could also represent Communities in other institutions (i.e. Local and regional Public Institutions, River Basin Authorities).

7. Environmental factors

The community has to comply with EU and national standards, for what concerns drinking water standards and sanitation. In some cases, it could be possible that external supply and management of water services is provided. Public Health in this case, related to the quality of drinking water, continues to be under the control of local or regional public authorities. With respect to environmental standards related to the conservation of aquatic ecosystems the WFD establishes public control through basin authorities. Furthermore, the basic quality of the service, public health and environmental aspects can be controlled by Public Regulators.

Public Authorities restrict the spread of self-supplying or community management WSS systems on the grounds of:

- (1) Their difficulties to comply with environmental standards;
- (2) The need to control water withdrawals (for the protection of the quantitative aspects of the resource).

3. B.II.5.2 EU Storyline

1. START 2005-2010: Technological improvements and the spread of decentralised systems: WSS closer to final consumers

The provision of good WSS to disperse population and rural areas presents problems for public institutions and private operators, since they do not present a high degree of profitability. This, together with the relatively technical simplicity of these services, led to the spread of Community Management Model. In Mediterranean countries, like Spain, the linkage between irrigation and urban supply, especially in rural areas, offered another opportunity of extending this model in the irrigation districts. In fact the water irrigation had a strong tradition on Community Management. The possibility of covering the urban services by extending the water irrigation management model to the urban services in collaboration with the rural councils grew with the availability of new decentralised technologies. In fact, the farmers of these irrigation districts, who were the majority of the population in these rural areas, had a long tradition of community management for their irrigation water and owned in many cases the supply networks and canals in the area. The availability of decentralised systems for urban water services at affordable (and diminishing) prices enhanced the possibility of assuming the WSS under community management in these areas. Even if the community management was at that time more widespread in the developing countries (as consequence of inefficient and corrupt governments) some examples could be found in Europe (i.e. Switzerland, see Saladin, 2003).

Even being autonomous management under community responsibility, the basic guarantees of quality and public health continued to be controlled by the public (with regulation being a public responsibility).

In many of these cases the sewerage and sanitation system used to be also autonomous under Community or self-management. In the cases where users were connected with the centralised urban sewerage network, the interest of working under separated sanitation systems (for improving depuration efficiency) led to increase the autonomous industrial sanitation systems under Community or self-management.

Furthermore the increasing level of water quality demanded by the citizens questioned the chlorination for drinking water. An alternative for improving the quality was to use domestic inverse osmosis. Under these circumstances, the extension of this kind of domestic technology augmented the opportunities of developing autonomous community systems for the different typologies of users mentioned before. This phenomenon in 2005 was already developed in California.

The trend towards separating sewerage systems in order to improve the efficiency of sanitation also favoured the separation of industrial sanitation plants, which were shared by different firms located in the same area (if the typology of returns allows the common treatment).

With respect to large industrial users or groups of firms settled in the same area, the supply came very often from underground resources through private wells. Under the tradition of this self-supply model many of these industrial users can use the market option to get raw water or drinking water for improving the price or the quality of the service.

The rapid growth of urban areas, especially along the coastal areas (tourist development) was exceeding the capacity of the growing municipal networks. Under this circumstance many of these new urbanisations assumed the option of building their own systems under common management[19]. Three reasons operated pushing ahead this trend:

a) Shorter time for implementing the service
b) Lower costs than other alternatives
c) Better quality of the services under the best available technologies

Apart from rural or industrial settlements (or for self-supply and sanitation), a community management model could also be identified in case of centralised water services. In England and Wales, where there had been a great debate on the opportunity to separate O&M from capital expenditures, eventually selling the asset by creating a non-for-profit "community mutual" (Bakker, 2003), where consumers own water infrastructure and operation and maintenance of the system is on the private water operator.

Until 2005, the cost of decentralised systems based on new technologies (inverse osmosis, sanitation and even recycling) was high and affordable just by high economic position householders. However, more and more, these technologies were more and more efficiency driven and their prices decreased. The extension of this market reduced much more the prices of this kind of decentralised new WSS technologies.

At the same time, the expansion of existing network was no longer feasible, as these entailed increasing marginal costs of provision, thus vanishing economies of scale. The availability of decentralised new technologies under diminishing costs (in this case the technological development and the growing market lead to lower prices), together with the diseconomies of scale in centralised macro-networks, gave greater opportunities to this kind of decentralised approach. In this context the possibilities of developing community management models grew.

2. MIDDLE 2010-2015: Financial Crisis is spreading and can not be solved through public or private capitals

In 2010 some local communities started to express a strong preference towards the development of decentralised systems, which made it possible to avoid the construction of new systems (thus reducing investments in water infrastructure). This preference was also boosted by mistrust towards public institutions. Citizens felt that both public authorities and private companies, for different reasons, were not able to provide a good quality service at affordable price. This was also a consequence of decentralisation policies, experienced in several countries all over Europe. Economic theory, following the Oates theorem (1972)[20], states that decentralised provision for certain public goods maximises the social welfare, more than a centralised one. In water services this solution was possible until 2010 only at higher costs, as the

[19] In case of islands, for example, desalinisation treatment capacity can be managed in form of co-operatives of users.
[20] Oates W. (1972). Fiscal Federalism.

available technologies, together with the cost structure, did not allow the spread of decentralised solutions (especially in the sewerage and sanitation systems). Decentralised solutions made it possible for local communities to choose the most suitable technology for their own needs.

Finally, the uncertainty from global and incontrollable events, such as terrorist attacks increased the security control of water resources. This could represent another driver towards the choice of decentralised systems, as it decreases the interdependence between water systems. The investments necessary to comply with EU directives, together with those needed for pipe maintenance pressed countries all over Europe.

Transfers from the Central Government to local authorities no longer represented the financial sources available to implement such investments. Even if the Stability Pact was revised, allowing public expenditure to cover investments, national budgets were very constrained by the impossibility to increase taxes (for citizen opposition). As a consequence, central government cut transfers to local authorities, which were not in a position to invest in the water sector.

At the same time, private investors were not willing to enter into the water service primary market, as tariff increases (necessary to cover investments) were opposed by citizens, which felt that these prices increases augmented company profits rather than quality of the service provided.

The limitedness of financial sources boosted the search for cost effective solutions, both in public or private management entity cases. Some water private companies and public owned companies decided to transfer ownership of water services to citizens. Public institutions decided to involve citizens in water company governance. All these solutions were intended as means to make the water services closer to citizens and, as a consequence, augmenting the willingness to pay for the provision of these services.

Moreover, this direct ownership allowed the decrease of the capital costs as:
(1) Long-term depreciation, consistent with the life of the water infrastructure, made it possible to distribute the capital cost for along period of time and, eventually, to decrease annual capital costs;
(2) The non-profit feature of water companies avoided the profit distribution deriving from rate of return on capital invested, entailing a lower cost of capital.

Apart from the financial aspects, the search for cost effective solutions led to the development of decentralised technologies that allow in some cases less investments in water infrastructure.

3. END 2015-2020: Involvement of WSS consumers in company governance through ownership or representation

Whilst in the past the CM model developed a residual form of WSS management in areas not served by centralised water services, in 2020 a development of this form of management is considered a way of dealing with governance problems derived of the increasing mistrust of citizens towards both, private operators and public bureaucracy.

As a consequence, an increasing involvement of citizens is experienced:

- (1) Through ownership;
- (2) Through participation in decision making.

The rationale for this increasing involvement of users is for making all users responsible of decisions concerning WSS management. Moreover, the learning process (experienced in environmental decision making in the last years) eased citizen involvement. The implementation of the Water Framework Directive and of the Aarhus Convention increased citizens' interest in being involved in environmental decision-making (thus in WSS decisions) and their ability to participate actively in participatory planning procedures. As a result we saw the better coordination at a local level of the different social groups. Finally, the opposition to private sector involvement entailed that they preferred to remain responsible for strategic decisions regarding WSS management.

As underlined above, the development of decentralised systems pushed the water systems closer to citizens, who at the same time showed a higher willingness to pay to maintenance costs of water systems.

Following this reasoning the main determinants of the citizen involvement in WSS strategic decisions were determined by:
(1) The crisis of individualism, which entails that people feel satisfaction in engaging in public activities (rather than only in private consumption). As a consequence, individuals wish to have a word on decisions regarding the provision of water services;
(2) The learning process experienced in environmental decision making involvement. The implementation of the WFD and of the Aarhus Convention increased citizens' interest in being involved in environmental decision-making (thus in WSS decisions) and their ability to participate actively in participatory planning procedures. This is eased by the better coordination at local level of the different social groups;

The opposition to private sector involvement: citizens prefer to remain responsible for strategic decisions regarding WSS management.

Under the pressures coming from the financial crisis of public institutions, the governance problems and the diminishing interest of the private sector on getting involved in the primary WSS market (low profitability), two paths could appear:

(1) The individualistic view
(2) The collective view

In the first path the deterioration of basic WSS services could be solved at different levels depending on the economic capacity of the communities. Thus, the individual solutions, especially in drinking water quality, would be a relative privilege not affordable to the poorest sectors. With respect to sanitation the poorest regions would induce global problems for ecosystem conservation. This trend would increase the inequalities between the individuals and communities depending on their paying capacity.

In the second one, public institutions under the pressures of citizens, would guarantee the basic quality of the WSS, providing support to the poorest sectors. Under this support the new decentralized technologies would be available for the whole society.

4. B.II.5.4 Conclusions

Community management, in 2020, is introduced or maintained for several reasons:

1) Traditionally WSS has been managed in this way, due to inefficient WSS management (both public or private) and mistrust in public institutions.
2) The community opts for this kind of WSS management, due to inefficient WSS management services (both public or private) and mistrust in public institutions.
3) In many cases the diseconomies of scale in large and growing urban areas make cheaper and more efficient decentralized systems with new technologies, favoring the growth of community management models.
4) Ideological reasons and governance problems.

Concerning the first reason users are able to continue to manage the service themselves, in an efficient manner. In the second case, communities could decide to move from a centralized WSS management service (publicly or privately provided) because they feel that C.M. is more efficient. In the third case municipal and regional authorities could be interested to decentralize under this model, the water services in new urban areas.

In 2020, the intellectual interest for this kind of management had rather an unexpected success and community management started to expand in urban areas (following the British CM model), as well as in rural areas (following the traditional CM model). Alternatively, this could be the result of a return to associations or co-operatives formed at a local level, responsible for service provision and asset maintenance.

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B.III. Member State Storylines

ANNEX B.III.1 Belgium

1. Introduction

The WSS sector in Belgium faced a process of regionalisation at the same time as the country conducted its political reform in 1980. The national water company split into two regional companies as well as the water divisions of the administration. Since then the three regions have diverged in their water management models. As such, it is necessary to approach the question of scenarios for the future "region after region". We will first present the main driving forces of recent changes in the WSS sector and in a second time the likely evolution of the sector. We will conclude on the potential events that could bring major changes in the next ten-fifteen years.

A series of driving forces have pushed for change in the water sector in the recent period. Initially, as already mentioned in the introduction, the **regionalisation process** affected much the WSS sector. Since 1974, Belgium is devolving competencies to the Regions in the water sector. The process is formally settled in 1980. Water management is given to the three Regions, i.e. the Flemish Region, Walloon Region and Region of Brussels-Capital. The federal State only keeps residual competencies (price control, ionisation standards, etc.). Even if most river basins are trans-regional, nowadays, the three Regions carry on their reforms autonomously, according to their own regional interests.

The second driving force is the obligation to conform to **EU directives**. EU water law developed at the same time as Belgium was building and organising its regional authorities. The country was not much reactive in transposing and implementing the different sets of directives about the quality of surface water, standards of drinking water, and later the urban wastewater treatment directive. Belgium accused many delays in the transposition of these directives and was condemned several times. Much of recent policy developments in the water sector were conducted with the single aim to comply with the EU law.

At the same time, Belgium is put under a strong **financial pressure** in a context of economic recession. In the 1990s, Belgium made much effort to conform to the Economic and Monetary Union, involving cuts in public spending at all levels. For instance, the inter-communal associations in Wallonia made the plans for the necessary treatment plants, but had no public subsidies to build them. Money availability is a central issue in the water sector.

In the recent period, the different Ministers of the Environment declared their personal commitment in favour of public water management. Even when they belong to liberal **parties**, they systematically swear that they will not liberalise the sector. In Wallonia, the Minister insisted to insert in the 1999 water regional act that water is a "regional heritage". In the Region of Brussels-Capital, a reform under process is also promoted with the argument of guarantee of a public control on the WSS sector. At the same time, we observe several cases of privatisation. Maintaining a public control

on water management does not necessarily means that the WSS operators will remain fully public. However, the question is politically sensitive, particularly among the current regional coalitions, mixing the Liberals, the Socialists and the Greens. This commitment in favour of public control certainly puts aside any attempts to fully privatise the water sector. Forms of private participation or a restrained delegated private management are more expectable.

Water corporatism is strong. The water sector is led by corporations of civil engineers that work in the administrations, water companies and companies of public works. For a long time, these people were used to work without political interference, except on retail price, among public water companies. They do not specially favour solutions that would increase competition, even if they remain passive in front of (partial) privatisation processes. Water corporatism is not negligible as a driving force, but should be further studied. They are generally beneficiaries of the reform processes and their technical expertise remains precious for the public authorities.

The last driving force is the Governments' will to conduct an **industrial policy** in the WSS sector. They back their expectations on regional companies able to reach a critical size. These companies obtained modifications of their statutes that allow them to develop activities abroad, as consultants in construction works for instance. Politicians also hope that the current investments in the wastewater sector will benefit to regional construction companies and will contribute to a regional capacity building in the WSS sector. At the same time, public water operators are diversifying their activities, e.g. giving advises to the communes for sewerage or offering solutions to industries.

The unpredictable element in the transformation process of the WSS sector in Belgium is the interest that **water TNCs** could have for Belgian (regional) operators. In fact, Veolia is currently building the treatment plant of North-Brussels under a BOOT contract. Suez, for their part, showed an interest in the sector. In fact, these TNCs are already well implanted in Belgium, but rather operate in the provision of technologies (e.g. Degrémont-Suez for the engineering of treatment plants) or in the management of other utilities (e.g. waste management or production of electricity). Will they mobilise to enter the capital of merged regional companies?

In the present document, we imagine how Belgium could have reached in 2020 the end states elaborated by the EUROMARKET team for the European level. The narrator takes voluntarily the position of someone explaining the evolution of the water sector until that time.

2. B.III.1.1 Delegation Contracts – Conjunction of interests between the sector and the authorities

1. Pre-conditions: 2005-2009

The move towards concessioned markets in Belgium was conditioned to the adoption in 2009 of the Water Liberalisation Directive that opened up the sector to competition (2009-2012). The directive provides a framework for the opening of the water sector to competition (for the market) by the competent federal and regional authorities.

2. Story Weaving: 2009-2013

As a contextual element, this move benefited from the good experience in Brussels with the BOOT contract concerning the treatment plant of North-Brussels signed between a consortium constituted around Veolia and the Region of Brussels-Capital. The contractants respected their commitments and Brussels did not meet any difficulty in raising water taxation and paying the fees. The experiences developed in the late 1990s were then extended and generalised (lesson-drawing).

The regional authorities, with the tacit consent of the communes, decided to organise public tenders on wide contracts (2012). These contracts integrated the whole WSS sector at regional scale. Such a decision implied a complete reshuffle of the sector. It could not occur without the consent of the actors of the sector. In fact, this project met the interests of the private and public managers of the sector, as well as a call from the national banking sector seeking for low-risk inland investments. The managers expected to reinforce their positions by gaining autonomy from the politicians and avoiding political manoeuvres in investment planning. For instance, Wallonia privatised SPGE in order to raise access to capital. They learnt from the delays in implementing the 1991 Wastewater Directive that were never made up. From the private side, the TNCs already present on the territory (i.e. Severn Trent, Suez and Veolia) saw an opportunity to be the first movers with great chances of winning the call. They were particularly interested in these huge contracts as they enabled cosy relationships with their providers and guaranteed incomes of monopoly. However, they finally decided to set up consortiums to answer the call and thus share the risk.

On the same way that occurred in other network sectors (e.g. telecommunications, energy or postal services) in the 1990s and 2000s, the Federal State pushed forward an integration and privatisation in the WSS sector. The Minister of Finance saw the opportunity to get cash in selling the public assets. More precisely, the decision followed the regionalisation of the public debt, remaining above the 100% of GDP if aggregated. As a consequence, the Regions urgently needed cash to afford the service of the debt and reduce indebtedness.

3. To the End State: 2013-2020

Being part of a wide European movement, social protest against water privatisation was particularly acute in Belgium (2013). The numerous demonstrations that occurred in Brussels against the neoliberal policy of the European Commission affected the Belgians that saw similarities between the claims of the consumers' representatives of

the different Member States and their own perception of the situation. National consumers' organisations relayed the arguments against privatisation and mobilised their members in the main Belgian cities.

In order to calm down protestation, regional authorities agreed to enhance the monitoring of the conduct of public tenders. They anticipated the adoption of the revised Water Liberalisation Directive of 2018. The reform met broad support from the regulators. They found the opportunity to maintain their positions and reinforce their power. The Flemish water regulatory authority, created in the Regional Act of 24 May 2002 about water intended for human consumption, finally set up in 2006, expected an extension of its competence to benchmarking and decision-making on technical aspects. The former SPGE was split between a regulatory side, APRE (*Autorité publique de Régulation du Secteur de l'Eau*), and an operational side, SWE (*Société wallonne des Eaux*), as a result of the merger with the former SWDE. In Brussels, IBGE took more leeway from the regional administration and was constituted as the regulator of the whole environment sector.

Nowadays, there are only three remaining operators in Belgium, one in each Region. They are all private companies, constituted as consortiums of water TNCs with a minority shareholding of the communes, and they operate the integrated water cycle.

3. B.III.1.2 Outsourcing – Fine-tuning in contracting policies

1. Pre-conditions: 2005-2010

The evolution towards a rationalisation of the outsourcing in the Belgian water sector occurred after the adoption of a directive on public procurement and State aids (2006).

2. Story Weaving: 2010-2015

Until its transposition in 2010, operators and public authorities managed a large amount of contracts within the sector (e.g. management contract between the Flemish Government and Aquafin or between the Walloon Government and SPGE and SWDE, service contracts between SPGE and the Wallon operators, BOOT contract between the Brussels' Governement and Aquiris (Veolia), etc.). Both the authorities and the operators were displeased with some of these contracts that were not precise enough on technical aspects or on obligations of result, and at the same time too restrictive on planning activities or decisions on financing. In particular, SPGE made public that it managed fuzzy contracts and was missing the implementation of important technological improvements. As such, the sector had drawn the lessons from its former experiences of outsourcing.

The Regions are guided by different incentives to generalise the model of outsourcing. Wallonia was not fully satisfied with its former treatment policy (2000-2012) designed to tackle the delays in the implementation of the 1991 Wastewater Directive. They did not succeed in developing an innovative regional water industry, as initially programmed. The delegation of tendering to inter-communal associations, privileging regional enterprises, made them miss some important technological

improvements and enable them to effectively tackle the pollution of rivers. In Brussels, the Region was fully satisfied with the BOOT contract concerning the construction and exploitation of the North-Brussels treatment plant. It enlarged the experiment to the whole sector. In Flanders, outsourcing answered some unresolved problems, particularly in the treatment sector. Aquafin outsourced wastewater treatment in less densified areas, where they never really succeeded in reaching good yields. The shareholders and tributaries of Aquafin gave themselves the most important contracts.

This evolution was pushed by particular regional conditions. Flanders was facing water shortages to due a widespread pollution (with nitrates and heavy metals) of groundwater and the Scheldt. It pushed further a diversification of provision for years, but could not avoid being dependent from Wallonia. However this situation was finally deemed acceptable as water producers were privatised, i.e. separated from the Walloon authorities. Brussels remained in a similar situation of dependence, but was less affected as consumption was decreasing.

3. To the End State: 2015-2020

Nowadays, SPGE limits its activities to the management of contracts with inter-communal associations or private companies. The privileged links with the inter-communal associations, initially established in 1999 was cut. In the Region of Brussels-Capital, the communes abandoned the competence on water to the Region and CIBE was transformed into a provider of services. Water management is outsourced to CIBE in most extent, but CIBE does not hold a monopoly in exploitation anymore. At the same time, bulk water trading has drastically increased. Three main providers share the market: SWDE, CIBE and AWW. Relationships between the providers and the water suppliers have diversified and the improvement in the connections between the networks (e.g. Transhennuyère) allow common carriage for bulk water. The producers extended their commercial domain to bordering regions (Zuid-Brabant, Aachen, Agglomération lilloise), that is stressing the domestic bulk water market, at their own benefit.

4. B.III.1.3 Regulated Markets – Fight against depletion of aquifers and charming the industry

1. Pre-conditions: 2005-2010

The evolution towards this reform of the Belgian water sector was steared by the diversification of industrial water supplies. In the context of the implementation of the 1998 Drinking Water Directive (Regional Act of 24 May 2002), Flanders have authorised the creation of second water circuits, of grey water, for industrial uses. The widespread use of this measure was a reaction to the drinking water shortages of the years 2007-2009, during the floods. Flanders was facing resource depletion and finally decided to exploit polluted aquifers for industrial uses in order to limit resource dependence and reduce the costs of drinking water treatment. The development of second or grey water networks allowed new entrants into the water market, competing with historical operators for industrial supply. This competition led to a huge decrease in prices for big customers.

Following the Flemish example, Wallonia also decided to provide differenciated services to industries at preferential prices. The initial conditions were not the same. Wallonia was in a phase of economic reconversion and tried to be attractive to innovative industries, as mentioned in the government's declarations on policy orientations as soon as 2004. The local authorities were keen on incitating the settlement of new potential employers. They developed their policies of attractiveness through the inter-communal associations. The inter-communal associations manage the scientific and industrials parks. At the same time, they are local suppliers of the network services. As such, they proposed integrated packages to companies that would settle on their parks, including the hiring of parcels or buildings and also the provision of telecoms, gaz, electricity and water supply and sanitation. As a consequence, industrial water prices sharply decreased due to competition between the industrial parks.

2. Story Weaving: 2010-2015

Following this price decrease for industrial water, social mobilisation occurred for obtaining similar price decreases for domestic water supply and sanitation (2010). The regional authorities did not really know how to react to the social pressure, as they were aware that the retail consumers indirectly financed cheap industrial water and that water operators would not accept any decrease in prices. In order to find out a solution, *Test-Achats*, the Belgian association of consumers, proposed to introduce a compulsory benchmarking between the water operators. The benchmarking would push toward a transparency and rationalisation of the costs that might limit domestic price increases. The effectiveness of the benchmark had recently been demonstrated in the energy sector. The governments welcomed the initiative. The benchmark between the operators was proposed, and finally adopted in 2013.

The measure was compatible with the economic objectives of the Regions. As the Walloon as the Flemish Government saw there an opportunity to contain public investment in the sector or at least to reinforce its efficiency in a context of high regional indebtedness and cost overruns of the remedial treatment policies. The

evaluation of the former water treatment policies was not convincing at all, despite huge public investments and a rise of indebtedness (5 bio EUR spent over the period 1990-2009 in the whole country). In particular, Wallonia was facing the phasing-out from the European structural funds (objectives 1 and 2) that in the past contributed significantly to the financing of new treatment plants and drinking water mains (e.g. *Transhennuyère* project). Some spendings had to be rationalised. Walloon authorities were requiring a higher economic efficiency in the water sector. Notably, SPGE failed to regulate the sector because it was too much involved in construction works and operational activities as well as partially controlled by the operators. An economic regulator was set up, the CRADE (*Commission de régulation des activités de distribution et d'épuration des eaux*). CRADE runs the benchmarking for both water supply and sanitation on the Walloon territory. In Flanders, where Aquafin was also held responsible of overruns in the treatment sector, the water regulation authority finally found out its vocation with the compulsory benchmarking of both the supply and treatment activities. Set up in 2006, despite a legal birth in 2002, it pushed ahead for the adoption of the measures and realised its institutional take-off.

3. To the End State: 2015-2020

The regional regulatory authorities all have the duty to reach and accompany improvements in performance, a better service and more transparency within the WSS sector. Their competencies are the definition of missions of public service, investment plans, accounting standards, and benchmarking (i.e. competition by comparison). These objectives are operationalised thanks to the rationalisation and comparability of the operators' cost structure and an enhancement of the collaboration between these operators. On their side, the operators have the duty to apply the lowest possible operation cost and to participate to a cost comparison, a procedure that harmonises the cost structure between them. Standards established by the regulatory authorities are compulsory and their implementation is directly monitored and evaluated by these regulatory authorities that can revise them with a fast-track procedure in consultation with the operators. The results of the cost comparison are published in a yearly report, made public. After publication, the operators have two years to attain the cheapest cost in each segment, with derogations for specific situations and natural constraints.
Finally, if the organisational landscape of water management in Belgium was not reshuffled, the introduction of preferential rates for big customers, favoured a better command on spendings in the sector, and reduced pressure on the consumer's bill.

5. B.III.1.4 Direct Public Management – Back to Municipalities

The Belgian WSS sector evolved towards an overall direct public management following events external to the sector.

1. Pre-conditions 2005-2010

In consequence to climate change, important floods occurred during three successive years (2006, 2007 and 2008). They affected the whole country quite simultaneously. Despite the fact that their extent was not comparable to the floods of 1953 in terms of victims, for the first time ever, major cities where affected: Ghent, Liege, Maastricht in the Netherlands, and downtown Brussels. Main sewers overflooded and treatment plants stopped. These heavy rainfalls provoked a major pollution of aquifers and main rivers, with the washing of sewers and soils, a phenomenon that threatened the production of drinking water. The population, already affected by floods also faced water cuts for long periods. In fact, these events revealed that the operators, private as well as public, were unable to manage situations of crisis and that the investments realised in the 1990s and 2000s in the treatment sector by Aquafin and SPGE did not consider the expectations that climatologists made at that time.

Confronted to many questions and discontentment within the population, positions reflected day after day in the media, the Chamber of Representatives ordered a report to the Court of Audit. The report issued in 2010 highlighted true problems of mismanagement and corruption. Aquafin and SPGE were accused of being involved in a scandal of overbilling with bureaus of engineers and public works companies and of failures in the planning and supervision of works. In complement, the regional and public water distribution companies had shown negligence in tackling the problems of water cuts. Guided by cost efficience, they prefered to cut supply for long periods rather than intensifying purification and without setting up alternative supplies, e.g. with water tankers.

This overwhelming report of the Court of Audit constituted a basis for social protest. Consumers' and environmental associations organised common demonstrations and these appeals were followed by a large proportion of the population. This mobilisation was not sudden at all. Test-Achats, that took the lead of the contest, had already specialised in water tariffs and services since 2005. It had denounced water price increases for years, as it already did with other privatised monopolies (e.g. Electrabel, Belgacom or SNCB for the railways). On their side, Bond Beter Leefmilieu and Inter-Environnement repeatedly protested against the weak implementation of the WFD and the poor environmental results of the regional surface water policies, despite the considerable investments in wastewater treatment.

2. Story Weaving: 2010-2015

In reaction to the social protest, the communes took the lead and individually decided to withdraw from the regional companies and retrieve control of the water services. Organisation of the water supply and sanitation sector became the main issue of the municipal elections of 2012. Left-wing parties proposed DPM that gained support among the population and made them win the elections in Wallonia and in the main

cities of Flanders. The first commune that implemented the decision was Leuven as soon as in 2011, followed by Walloon cities with a strong tradition in self-supply: Liege and Charleroi. The solution spread fast as the communes saw there was an opportunity of refinancing. First, they obtained the return of the ownership on the existing network and second they received the regional subsidies for investments proportionally to their population, those formerly attributed to Aquafin and SPGE and kept unchanged.

3. To the End State: 2015-2020

As such some main cities led the process of (re-) introducing DPM, and smaller communes joined them within renewed and fully integrated inter-municipal companies in the years 2015-2020. This new impetus towards DPM challenged the organisation and management structures of the former public water services. This was encouraged by the gains in efficiency and effectivity of the companies that had kept DPM. These examples paved the way to the reform of the WSS sector. The model of DPM is now implemented at 75%, 15% remaining under public-private partnerships and 10% emerging as community management. The success of Belgian experiments in direct public management encouraged many local authorities within the EU to reform their WSS sector.

The scenario is likely to occur at the timescale of 2020. It would be triggered by an about-turn in the public opinion about the liberalisation process. Natural hazards would underline the deficiencies of privatisation in guaranteeing supply and safety and a management steered by profit-making. This combination of natural hazards and social contest would be exploited by political parties. The coupling of external events with political opportunism seems a necessary condition for a shift in the ideas favouring liberalisation en externalisation. The Belgium specificity appearing in this storyline is the strong anchorage of the Socialist Party (PS) in Wallonia, a party already involved in water management and which fears being accused of mismanagement and corruption like any privatised operator.

6. B.III.1.5 Community Management – Withdrawn attitudes in a context of liberalisation

1. Pre-conditions: 2005-2010

In early 2006, discontent is growing in the rural areas throughout Belgium. All the programmes of wastewater treatment of the late 1990s failed to effectively treat wastewater in less densified areas. The regional and local authorities, observing an exponential cost increase of the treatment programme, progressively renounced to the objective of 100% of houses connected to treatment works, being collective or individual. Connection to collective treatment was too expensive and subsidies to the installation of individual treatment works were too low to incite rural households to equip. In addition, the regional administration had failed in controlling the functioning of these small treatment works. Regarding the drinking water supply, the situation was not better for these rural areas. Due to a concentration of public subsidies to treatment, the connection of smaller networks, often fed with one single wells or a few pumpings in the same aquifer, to drinking water mains never really occurred or in a small extent. Drinking water operators, pushed to economic efficiency through benchmarking, delayed unprofitable investments. As such, rural villages were facing water cuts due to concentration of pollutants above the standards.

2. Story Weaving: 2010-2015

From these global discontentments within rural communities, two categories of actors emerged and decided to tackle the problems with water supply and sanitation by themselves. They were the affluent rurbans, recently settled in the peripheries of Brussels and Antwerp (commuter's communities) and the farmers settled on the territories of polders and wateringues (2010-2013). These rurbans were fed up with the poor quality of drinking water and the remaining agricultural pollutions. They were ready to pay more to improve the quality and effectiveness of the water services. Their action was based on a capacity of mobilisation, one category of people being educated, interested in the global improvement of their surrounding environment and having important financial resources to devote to this goal, and the second having been formerly self-organised for centuries with the capacity to raise tax on their territory. Farmers reactivated institutions fallen asleep after the tackling of the main water flood problems and the decrease in importance of agricultural activities. They wanted to keep control on rural areas, in particular under the threat of an environmental conditioning of agricultural subsidies, and were not ready to bear price increases from the drinking water suppliers, in particular the volumetric payment of water intended for agricultural uses (full-cost pricing). While developing rural tourism, farmers also needed to improve their living environment.

These community initiatives did not face any opposition from the communes, even if, in most cases, these communes were involved in the (*de facto*) monopolistic drinking water supply and treatment. First, the communes were happy to be discharged of investments in the network that the regional subsidies never fully covered. Second, influential citizens, either farmers involved in local affairs for long periods, or affluent newcomers bringing important tax revenues launched the initiative.

3. To the End State: 2015-2020

Nowadays, the community management of water services is widespread in Belgium, even if not necessarily integrated and not dependant on the national evolution of the sector.

7. Conclusion

We presented the respective storylines towards the five end states selected by the EUROMARKET leaders. All of them could be plausible, given particular circumstances. However, the major learning of this exercise was that no reform can happen without the interplay of three main driving forces: dysfunctioning in the operator's management; reactions of the local and regional authorities; and above all external pressure, either natural (e.g. climate change and floods) or political (e.g. new regulations from the European Union). Possibly, social protest could speed up a reform process, but certainly not being the main event.

ANNEX B.III.2.France

1. Introduction

Background: The French model of water supply and sanitation management is based on an important percentage of delegation contracts (lead by multinational operators), that have also increased with growing technical standards necessitating increasingly complex know-how and important investments that municipalities had difficulties in assuming alone. Delegation contracts concern 79% of the population served for drinking water supply (against 21% in *régies*), and 53% of the population served for wastewater treatment (against 47% in *régies*).

Lease contracts represent the most common form of delegation in France: the private company rents the facilities to the municipalities, and is responsible for operation, management and maintenance of the service. These contracts represent more than 80% of delegation contracts (88% of communes that delegate the service use lease contracts for drinking water services, and 85% of municipalities that delegate wastewater treatment services use this type of contract).

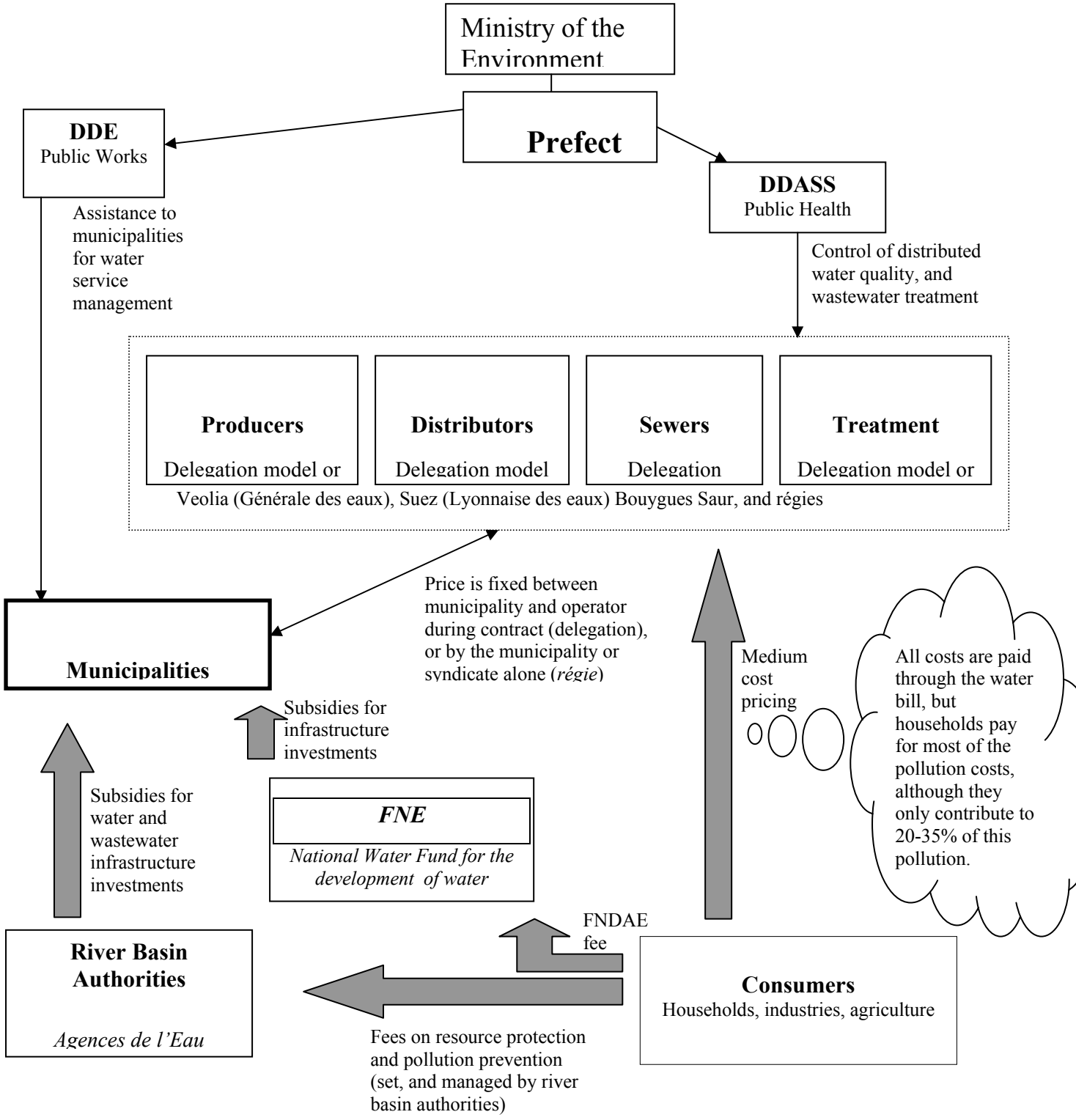
Contracts have to respect certain legislations (limits in contract duration and possibilities of contract extension). However, despite laws regulating delegation contracts, municipalities have difficulties to really control operators (know-how, complexity of bills…).

Concerning sewerage networks, these have been historically managed through direct management (régies), but delegation has expanded now representing half of the wastewater collection system.

Competition is *for* the market, and this competition is encouraged. Contracts have to respect certain legislations (limits in contract duration and possibilities of contract extension, obligation for invitation to tender). However, despite laws regulating delegation contracts, municipalities have difficulties controlling operators (know-how, complexity of bills…). Although contracts can be re-negociated in a shorter time lag, when this is so, only 5% of contracts change hands. This shows a certain inertia and irreversibility in the actual delegation process (Baert, 1999). Most times when there is a bid the only offer is the operator in charge of the contract in the past.

However, one cannot describe the French model without equally mentioning the importance of public management of water services with the existence of *régies*, that still detain 47% of the population served for wastewater treatment and 21% for drinking water (although the latter percentage has significantly decreased in the past years). The French model is also characterised by insufficient pollution fees paid by farmers, and important costs are borne by households through the water bill.

Figure 1. Organization of Water Actors in France



2. B.III.2.1 Delegation Contracts

NB: The storyline has been done for storyline 1a and not 1b. This is the same in all country storylines.

1a) Delegation contracts and strong regulation

1. Pre-conditions: 2005 – 2010

2005 -2009: *Debt crisis of water TNCs leading to a change in operators' strategies (critical event)*
Operator strategies are changing significantly (NB *certain fact*: see article of the newspaper *Le Monde* of 29th January 2004) as they face huge debts : they invested in total privatization schemes in developing countries, but realized that this strategy was wrong as returns only occur in the long term (compared to the electricity sector). Suez and Veolia are faced with important debts (and SAUR to a leaser extent) due to this strategy, and are now much more interested in lease contracts[21]. Therefore TNCs operate a change in strategy: they prefer delegation contracts (mostly lease contracts) in developed countries instead of investing in developing countries, and therefore want to expand their market in the EU, and this is not too difficult to imagine in France considering delegation contracts are already quite important at national level. They lobby at EU level to promote competition *for* the market leading a directive proposal launched in 2008 to impose the local/regional authorities responsible for water management an obligation to tender every 10 years, in order to promote competition for the market. The directive proposal promoting competition for the market is published in 2009 (and must be implemented by 2012).

2. Story Weaving: 2010- 2015

Delegation contracts develop in France with the new directive of 2009 on competition for the market, and this movement is enforced for one main reason: local/regional authorities responsible for water and waste water management are less and less inclined to cope with drinking water and wastewater treatment as they lack sufficiently trained and numerous personnel. Therefore, they tend to rely more and more on private operators' expertise and technology (new treatment processes and hyper qualified personnel), and competitive bidding mostly won by private operators. This is observed both on the drinking water and sanitation sectors (régies loose progressively the sanitation sector with the ongoing process of the implementation of the wastewater treatment directive).

During this phase of increasing delegation contracts, growing consciousness of municipalities and NGOs (like *Service Public 2000, ATTAC*) develops regarding the lack of transparency of the delegation contracts, and suffer from not being able to control the operator once the contract is signed. Local/regional authorities do not have

[21] This means that TNCs have lost one of their main argument to justify delegation, as they also do not want to invest, but prefer *managing* the service. Their only defence now is their technical know-how and ability to manage water services. *This would mean that the lack of public funds does not justify more private involvement as TNCs are not inclined to invest in infrastructure.*

enough personnel and expertise to properly control the operators and water prices are deemed excessively high. The left wing (Parti Socialiste, Partie Communiste) and green (Les Verts) parties join this movement in 2013.

This is also nourished by the growing experience of NGOs (consumer associations and anti-globalization associations) and left wing parties regarding the liberalisation of services of general interest in the EU and the dissatisfaction as far as quality standards and service provision, and *transparency* are concerned.

3. To the End State: 2015-2020

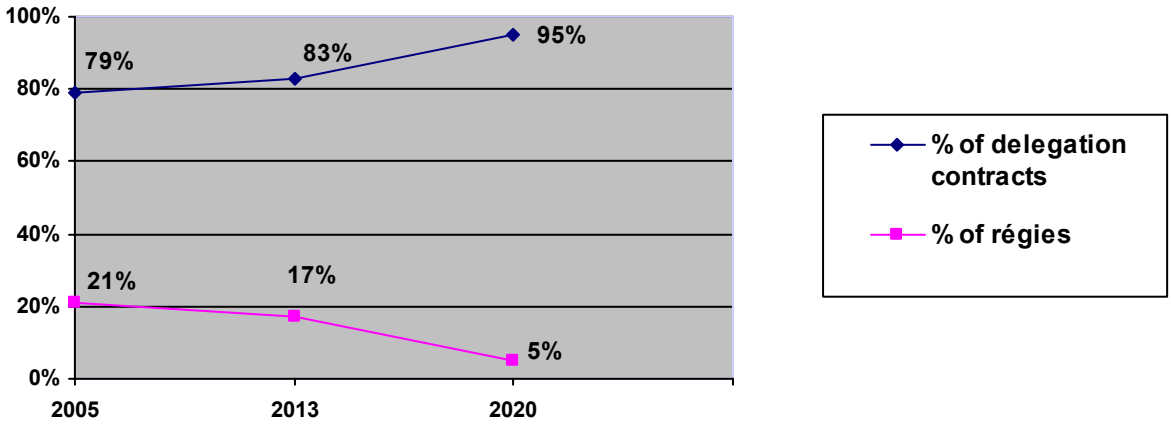
Due to this pressure at French and also EU level[22], regulation of operators is imposed through a directive amendment (of the former 2009 directive) in 2018 to be applied by 2020. Operators are now regulated (quality and price regulation) after the signature of the delegation contracts, and must hand in performance indicators to regulatory authorities (for more details, see EU storyline 1). The latter also check data through direct controls (this means that information does not only rely on data provided solely by operators).

During all this time span (2005-2020), France has a majority of municipalities that have delegated the management of drinking water and sanitation services to private operators, mostly TNCs. This is mostly due to the pressure form the directive, and also growing standards requiring extra expertise and know-how that municipalities often can no loner deal with.

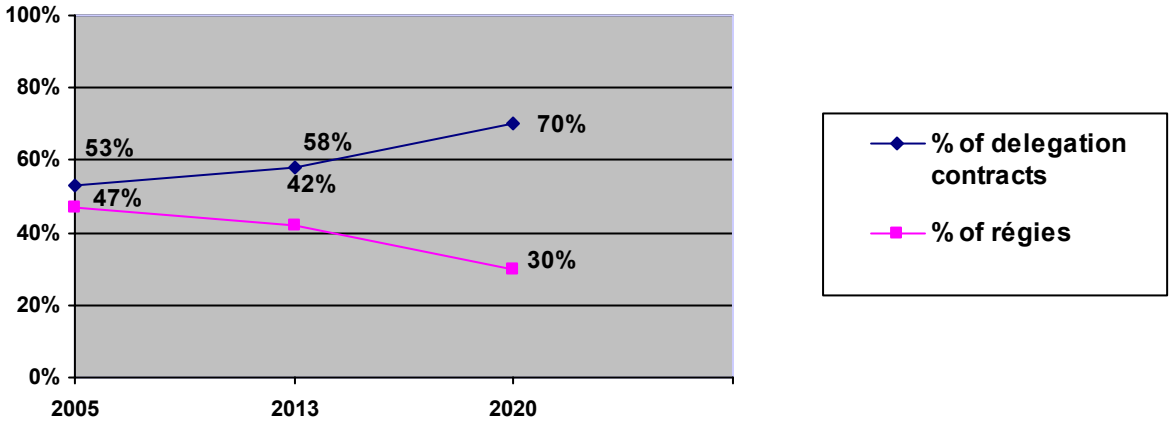
Here is the following graphic illustrating the change in France regarding delegation contracts and régies (public management).

[22] This movement is also followed by other EU countries, and a wide protest movement emerges in 2011 in different capitals of the EU organized by a conglomeration of these different EU left wing parties and NGOs, named SOS (Save our Services).

Evolution of drinking water management (2005-2020)



Evolution of sanitation management (2005-2020)



3. B.III.2.2 Outsourcing

1. Pre-conditions: 2005 – 2010

There would need to be significant change in order for the actual market to evolve towards unbundling and fragmentation of the water service (different service contracts for repairing pipes, monitoring losses, bills) in France, in the case of delegation contracts, the operator is in charge of the whole service, and unbundling would mean loosing the benefits of economies of scale, scope and vertical integration. Moreover, French TNC strategies are moving towards more *lease contracts* in the EU.

As for the municipalities, this would imply more coordination of different sub-services, and more qualified personnel to deal with this sort of management. Moreover, although the separation of different services is thought to enable more transparency, it could also lead to more confusion in the management of the water sector and the attribution of responsibilities in case of crises (as is the case for the telephone service in the US with unbundling: when there is a problem, operators tend to shift the responsibility to another operator in the service chain).
Therefore, this sort of organization could be deemed more costly for all parties.

The only natural monopoly that would remain would be the distribution network (sewers and drinking water network).

2. Story Weaving: 2010- 2015

For a change towards outsourcing via public procurement, one could imagine two driving forces (one at EU level, one at French level):

* at EU level, there could be an explicit policy towards promoting competition *for* the market, driven by DGs Competition and Internal Market, that promote the need for more competitiveness and quality of water services and other network industries through unbundling, defending the fact that a competitive and unbundled structure enhances the best possible price-quality service. The European Commission is also enthusiastic, as the European Commission is also very interested in developing evaluation of performance for services of general interest[23] , and thinks that the best way to have the best information possible is through the vertical disintegration of services. Therefore, the unbundling of the water services is defined and becomes compulsory through an EU directive in 2011 (discussed from 2005 and voted), to be implemented by 2013. This could also be encouraged by different private operators specialized in sub services, that have not been able to enter the market because of the predominance of TNCs on the market and the impossibility to compete for the management of the whole service.

* in France, in January 2012, there is a major scandal in a town (Toulouse) as there is a great leakage problem which is heavily covered by media: drinking water pipes suffer from insufficient maintenance and old equipment (and it hadn't been changed

[23] See the section on benchmarking in the internal Euromarket document (Activity D) "Analysis of recent trends towards liberalisation at EU level", by Britta Pielen, Eduard Interwies and Nadine Herbke, 14 July 2004, pp. 14-15.

in 40 years) and some parts of the distribution network are severely damaged. A local NGO, expert in water issues, reveals that 50% of water distributed was lost through pipe bursts or leakages in 2011. This is heavily diffused through the media. This leads to a national debate on the alarming state of distribution networks in France[24] and the need to promote more competition in different sub–services (pipe reparation, control of losses…) which would increase efficiency and avoid customers paying the bill for badly provided services.

This would lead to the disintegration of services, and TNCs and other private operators would compete for the market on different sub-services. There would be no independent regulator of operators, but operators are asked to fill in every year a report detailing how the contract was fulfilled.

3. To the End State: 2015-2020

The French end state would be characterized by a complex scheme of different operators responsible for different sub-services of the drinking water and wastewater management sector. Management contracts would be of about 5 years. TNCs would have most of the market, as they are sufficiently implanted in the market to offer various services, but smaller private operators would be more numerous than before, specialized in small "niches" of the market (ex: billing).

This scenario does not change the problem the responsible authorities have in France in managing and controlling operators after the signature of the contracts. Due to multiple contracts and no control through an independent regulator, responsible authorities have to trust operators' reports. There could be significant problems because the problem of asymmetric information is not resolved but transferred: before a municipality had to deal with one company for drinking water management for example, and could not understand all contract details and verify how the contract was executed. Now, the municipality has more detail on each sub-service, but does not have the *means* of controlling how it is efficiently executed as it is "invaded" by too much information and has no means to control directly the execution of numerous contracts.

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[24] This is plausible as the state of distribution networks in France is bad: according to the *Assemblée Générale des Canalisateurs de France*, the state of distribution networks is quite alarming: around 28% of water distributed was lost through pipe bursts or leakages in 1999.

4. B.III.2.3 Regulated Monopoly

1. Pre-conditions: 2005 – 2010

This scenario is perfectly compatible with the French water sector. One could imagine that the actual system composed of both *régies* and delegation contracts could be strongly regulated through the existence of an independent regulator. The existence of this regulator constitutes the main change in the former French water and wastewater sector. Several conditions are necessary for the establishment of this independent regulator: NGOs, local authorities (through the FNCCR and Association des Maires de France) and left wing parties lobby also at national around 2010. France's experience of delegation has left local authorities sceptical regarding their control over operators (in the case of delegation contracts) and NGOs also require a control of all management modes be they public or private, in order to develop more transparency, more information to consumers, control of operators, and more evaluation and sanctions for breaches in contracts.

2. Story Weaving: 2010- 2015

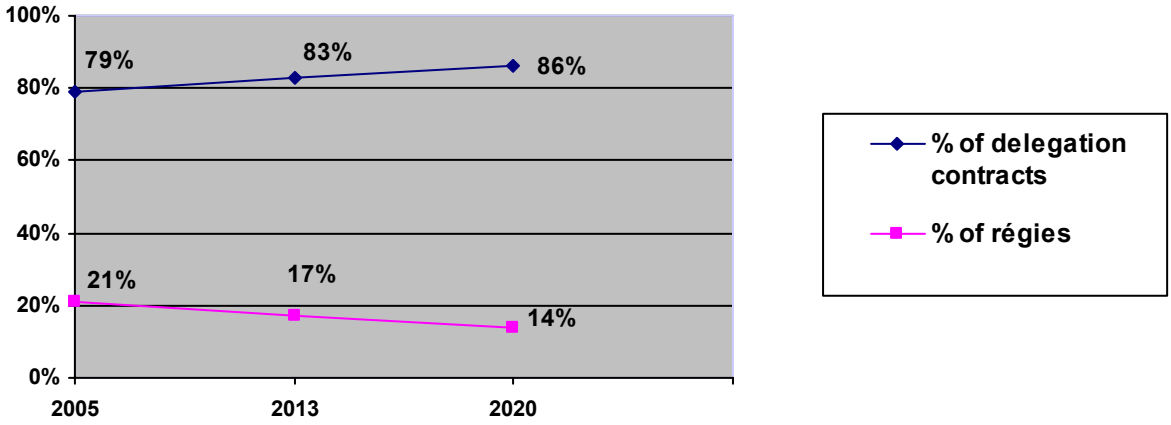
A protest movement emerges at national level in 2010 on the water sector and the dangers of monopolies without regulation (private or public). NGOs, local authorities and left wing parties (new left wing government) promote the development of an independent regulator, that is implemented in 2015 (control of price and performance indicators: respect of drinking quality and urban wastewater treatment standards, leakages in networks, water cuts, water shortage). The regulator assists municipalities in negotiating and renegotiating contracts, as the latter has more knowledge on different costs/prices/technologies, and helps the municipality in the price setting. The regulator can also propose models of terms and conditions which would enable municipalities to benefit from national studies proposing solutions on the different points of the contracts. The municipality can choose to discuss with the regulator on the terms of the contract, and the regulator can participate in the negotiations with the operator. However, the regulator does not make the final decision that stays in the hands of the municipality.

This debate is also present at EU level, as the European Commission would like more transparency and more evaluation of services of general interest.

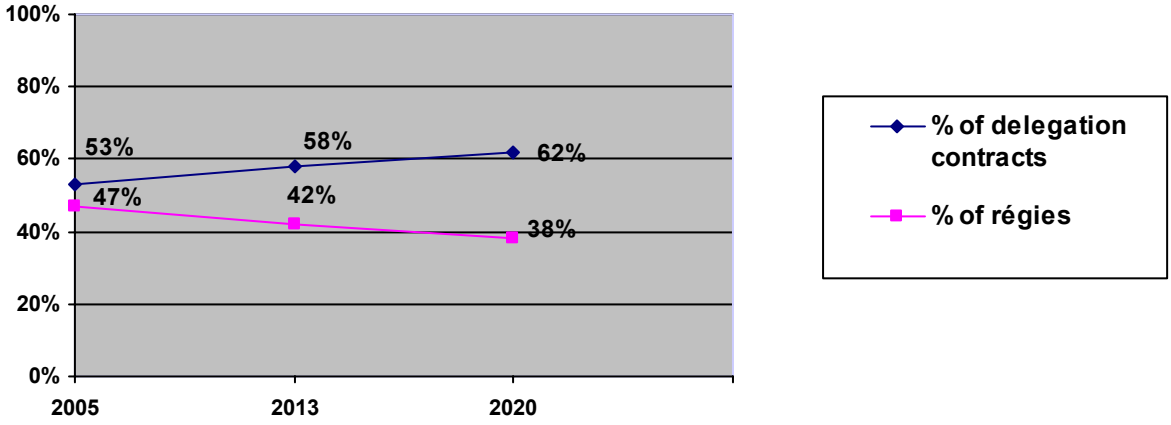
3. To the End State: 2015-2020

This institutional change does not profoundly change the distribution between delegation contracts and régies in France: the proportions stay the same, with a small tendency towards delegation contracts because of growing standards in wastewater treatment and drinking water that are better managed through delegation contracts because of the know how, experience and highly qualified personnel of private operators. What changes is the existence of an independent regulatory authority. As an example, here is the evolution of the percentage of private and public management in France for drinking water management:

Evolution of drinking water management (2005-2020)



Evolution of sanitation management (2005-2020)



What changes is the growing transparency regarding performance indicators through benchmarking and the European Commission's reports on the performance of the water sector on the EU. This provides companies and local authorities with important incentives to ameliorate water services, to the benefit of consumers.

5. B.III.2.4 Direct public management

1. Pre-conditions: 2005 – 2010

Driving forces leading to this scenario: 1) social movements against private company profits; 2) increasing know-how and learning of municipalities and responsible authorities
The return to public management of water services could be imagined with the following events and driving forces:

Rise of social protests in 2010 (anti-globalisation organisations and consumer associations) against extra profits made by private companies that could lead to consumers demanding companies to use profits only for water maintenance/infrastructure, and/or re-direct profits to consumers through a decrease in water charges… This in turn could render private sector participation less attractive and lead to more public sector involvement.

This follows the recent trend experienced notably through a social movement ("human chain") in France that was organized on the 1st of May 2004 by different associations and unions – Friends of the Earth, ATTAC, FO Vivendi et Filiales …- to demonstrate against private sector participation (against profits made by companies, against multinational monopoly, against working conditions and laying off, and for access to water by all).
2) The increasing know-how of municipalities throughout the whole period-2005 to 2020 that group together to have sufficient personnel and competent technicians to manage drinking water and sanitation services provides a strong driving force towards greater public management through régies. Moreover, new management methods facilitate the establishment of régies.

2. Story Weaving: 2010- 2015

Protest movements during 2010 in France lead to a change at national level regarding the water sector: municipalities, consumer associations, other NGOs and left wing parties push the government to promote public management as water is a public good and should not be considered as a profit-making business. This leads to a national policy in 2013 (*turning point*) enabling municipalities to handle water and sanitation services themselves through subsidies from the Fonds National de l'Eau (helping to train and recruit qualified personnel, facilitating investments…). A report by ATTAC is also published in 2011 on the profits made by French water operators, and this is diffused through the media: the reputation of some operators is tarnished, and some companies cut prices to increase social acceptance. However, this report incites municipalities to manage water and sanitation services themselves, as this can also increase the mayors' popularity.

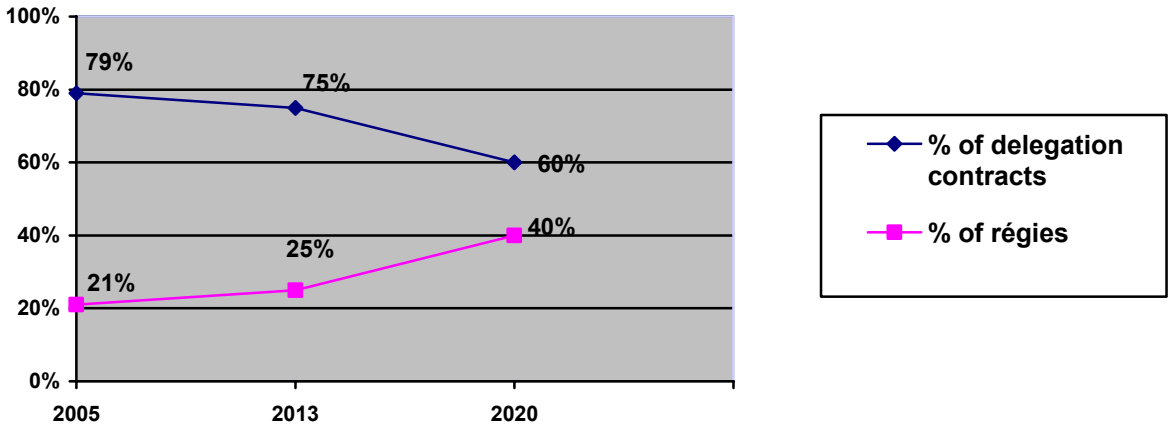
3. To the End State: 2015-2020

An increase in public management is noted in France both in the sanitation and drinking water sectors. Municipalities have gained increasing know-how and have sufficient personnel to manage the services themselves (communes also group to

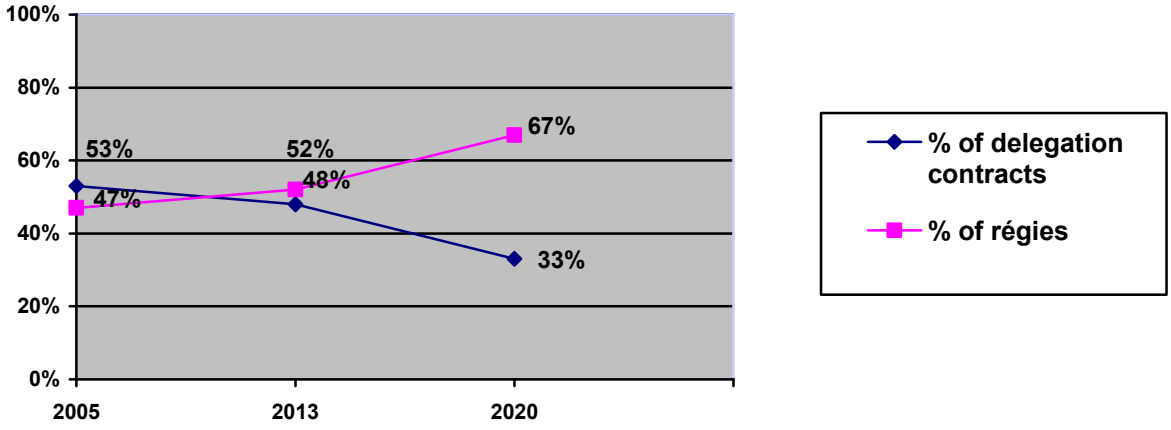
manage water services better), and after the end of delegation contracts, major cities return to public management. Moreover, the good implementation of the Water Framework directive leads to municipalities having enough funds to invest in infrastructure and not rely on concession contracts. This is also the case in other EU countries.

One can experience the following evolution of both sectors: in 2020, régies increase and manage 40% of the drinking water sector (compared to 21% in 2005) and 67% of the sanitation sector (compared to 47% in 2005).

Evolution of drinking water management (2005-2020)



Evolution of sanitation management (2005-2020)



6. B III 2.5 Community Management

This storyline is the most difficult to imagine in France, and could only concern limited areas and population. One could imagine this could develop in the following communities: rural areas with communal organization, social groups living in autarchy that have decided sharing life in common (communist groups, hippies, gay communities, religious communities and sects). Therefore, this could be envisaged, but it would be hard to imagine that this would be the major management mode in 2020. It is more likely to imagine that this would only be a marginal evolution in some specific areas

1. Pre-conditions: 2005-2010

A crisis emerges in 2010 due to different corruption scandals of water management concerning private operators, public operators, and implying also government. Media coverage is important on this topic, and there is a debate on the lack of transparency of water management, be it managed by public companies or private ones. Distrust in public and private management develops. Consumer associations and citizens living in small villages or in communities start thinking of alternative modes of management.

2. Story Weaving 2010-2015

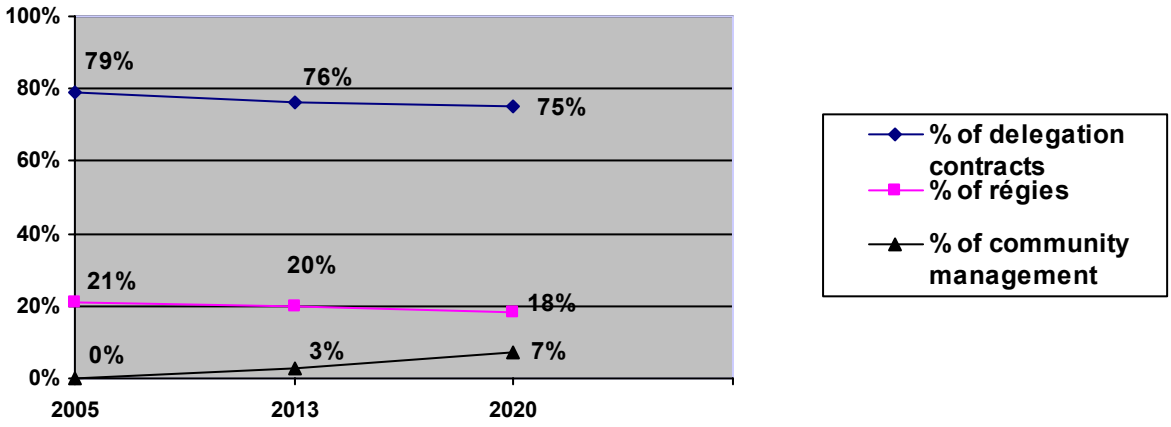
A new model of community management starts in a small village (Aumessas) which is widely broadcasted through media in France (other models in the EU are also diffused), and this model spreads in small villages, and communities. In these areas, water and wastewater starts being managed at community level. This is especially possible for small structures, with simple technology, requiring less know-how. One could imagine this easily for drinking water treatment coming from underground water as this is less complex to treat and manage.

However, this is still not the main trend in the whole water and sanitation market, still dominated by delegation contracts and régies. But this movement towards community management does lead to more transparency as consumers are distrustful, and more aware of what to expect of drinking water and sanitation services. Therefore, the development of community management influences public and private water management favourably.

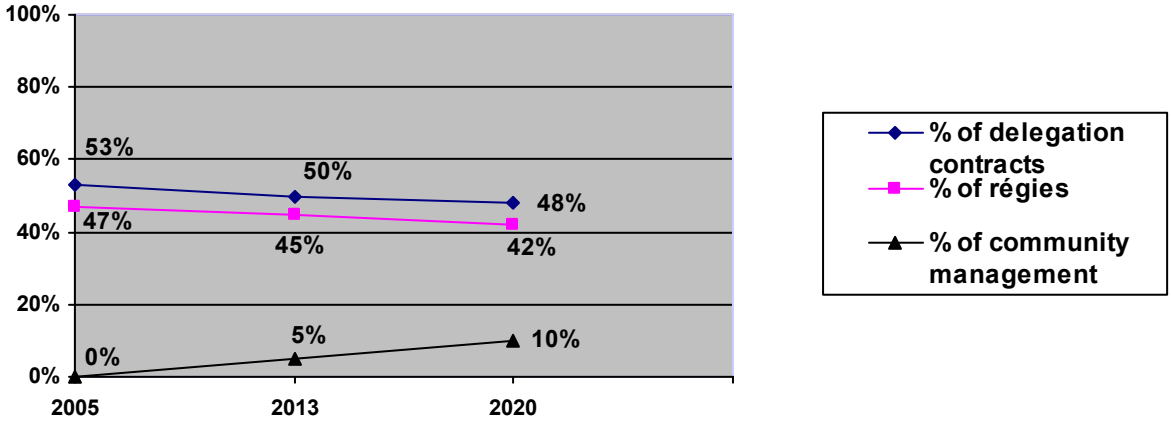
3. To the end State 2015-2020

There is a decrease in public and private management of water management from 2005 to 2020. Community management develops from approximately 0 to 7% for the drinking water sector, and from 0 to 10 % for the sanitation sector from 2005 to 2020.

Evolution of drinking water management (2005-2020)



Evolution of sanitation management (2005-2020)



ANNEX B.III.3 Germany

1. Introduction

The organisational structure of water management in Germany is characterised by local self-administration, with water supply and wastewater disposal under the responsibility of the local municipalities, resulting in a highly decentralised system with about 14,600 undertakings. A further distinction feature of the German water sector is the competition between different organisational arrangements (*Systemwettbewerb*): municipalities can choose between a variety of organisational arrangements for providing water and sewerage services to their customers. Furthermore, strong vertical competition on supplying markets (*Vorleistungsmärkte*) is characteristic of the German system.

After a long discussion on a potential privatisation or liberalisation of the German water and sewerage sector, a general understanding has been reached among actors that the optimisation and efficiency gains aimed at through liberalisation can better be obtained through reforms, i.e. a **modernisation** of the present system. In March 2002, the German *Bundestag* therefore passed the decision "Sustainable water management in Germany", which entails a strategy for modernising the water supply and sewerage disposal sector. A working group was established under the lead of the Federal Ministry of Economics and Labour (BMWA) for implementing the modernisation strategy. The constituent elements of the strategy (see below) will affect the organisation of the sector and may lead to shifts in the present organisational structure as well as to increased competition and private involvement, and should therefore be carefully considered and integrated into the development of German storylines.

Furthermore, before stating the possible German storylines for the five selected EU End States, some forces that are driving the developments in Germany should be highlighted:

1. The modernisation strategy stipulates equal fiscal treatment of water supply and wastewater undertakings, in order to help create economies of scale in this area[25].

2. Furthermore, the modernisation strategy process discusses possible ways in which the application of benchmarking methods on a voluntary and anonymous basis could be strengthened in order to demonstrate and improve the performance of German water and sewage undertakings.

3. In addition, the modernisation strategy examines the relaxation or annulment of the principle of locality (*Örtlichkeitsprinzip*). Currently, the activities of the municipal operators are limited to their regional supply area. Through a relaxation of the principle of locality they would be allowed to operate outside of these areas.

[25] Currently, the joint provision of these services is hampered by unequal fiscal treatment. Water supply is subject to a VAT rate of 7% independently of the organisational form of the service provider (public or with private involvement), while sewerage services are considered as a sovereign service which is not liable to VAT if it is provided by the municipality without the involvement of a third (private) party. In the case of the provision of sewerage services through an organisational arrangement under private law, the full VAT rate of 16% is applied.

4. There are pressures for saving costs at the municipal level. The unfavourable financial conditions of many municipalities exert influence on the organisation of service provision. As a result, trends towards increased rationalisation of service provision as well as higher private involvement can be observed.

5. EU policy trends favour increased competition in the water sector. The current "pipeline developments" at the European level indicate that the European Commission is increasingly looking for ways to heighten the European water sector's exposure to competitive pressures. These developments are carefully observed and analysed by the actor groups of the German water sector and, thereby, influence the German debate.

With regard to the German storylines for the different EU End States, it has to be considered that some of the End States provide a prolongation of the existing trends in Germany, so that the according storylines are easier to construct and more credible viewed from the present standpoint (End State II and End State III Case B). Other End States, however, are difficult to realise from the German starting point as they are located further away from the current structure of the German Water Sector (End State III Case A and End State V).

2. B.III.3.1 Delegation Contracts

1. Pre-conditions: 2005 – 2010

The trend toward private sector participation in the German water sector was intensified over the years because of continuously strained municipal budgets. Pressures at EU level led to a stronger integration of competition elements in the European water sector, which crystallised in 2007 into a strong preference for competition for the market through concessions. As a result of this pressure, a proposal for an EU Directive on mandatory public procurement for concession agreements was introduced in 2008, according to which contracts had to be awarded to the competitors with the best offer, i.e. the "best bid". The Directive was passed in 2009 and was to be implemented by 2012.

2. Story Weaving: 2010 – 2015

As the municipalities were responsible for designing the concession agreements, democratic legitimisation generally prevailed. However, once the contracts were signed, municipalities had only very few opportunities to exert further influence. As no new ways for the involvement of user associations were conceptualised, it remained to be of a consultative nature only.

In Germany, this type of compulsory public tendering challenged the autonomy of municipal organisation and interfered with the municipal right to self administration, such as the creation of inter-municipal associations (*Zweckverbände*), or other municipal co-operation and public-private partnerships. Accordingly, it was met by severe criticism from certain stakeholder groups. By 2013, the compulsory competitive tender for concession agreements started to drive municipal enterprises, generally Small and Medium sized Enterprises (SME), out of the market as losing the

bid meant they had to be phased out. In the aftermath, citizens' initiatives were started in a number of cities where consumers were uneasy with shifting their water and sanitation services provision from their local municipal enterprise to the bid-winning company. Consequently, and in the context of the national modernisation strategy, there was an increasing demand for a more lenient application of the locality principle (*Örtlichkeitsprinzip*), so that municipalities would be allowed to operate beyond their traditional municipal territory.[26] Pressure at federal level finally led to a modification of the respective law provisions at *Länder* level in 2015.

3. To the End State: 2015 – 2020

The fragmented German water sector, which was up to that time characterised by a highly decentralised structure and a multitude of different organisational arrangements (system diversity), underwent a concentration process. Along with this development, local needs could no longer be taken into account as easily.

More and more, the new tendering procedures created a large demand for support from municipalities to be on an equal footing with private firms and thus establish fair and transparent contract negotiations. Therefore a task force working group was set-up at ministerial level, which was responsible for conceptualising and co-ordinating intensified information and training services for municipalities. It also developed concrete assistance measures such as example contracts.

Furthermore, the technical scientific associations *German Association for Water, Wastewater and Waste* (ATV-DVWK) and *German Association of Gas and Water Experts* (DVGW) helped to cover the technical aspects that needed to be considered in contract negotiations, while the *Federal Association of German Gas and Water Industries* (BGW) and the *Association of Municipal Enterprises* (VKU) provided assistance to their members for the preparation of negotiations for instance with negotiation training or legal assistance.

In 2018, the European Commission demanded through an Amendment to the Directive that national regulatory oversight be strengthened in order to avoid abuses of dominant positions. In Germany, this demand was met by an increase of the staff capacity in the abuse supervision bodies.

By the year 2020, the former system diversity of the German water sector had been reduced, and concessioning arrangements dominated. In spite of the concentration process the sector had undergone, it was still characterised by a large number of operators. The formerly strong vertical competition was reduced.

[26] This aims at preventing that municipal undertakings that lose out in the bidding process also lose their right to exist.

3. B.III.3.2 Outsourcing

1. Pre-conditions: 2005 – 2010

The EU continued upon the path delineated for example by the internal market strategy 2003-2006 and the Green Paper on Public-Private Partnerships of exploring possible ways for increasing the European water sector's exposure to competition, and was increasingly opposed to a 100 % municipally controlled water service management. German municipalities were reluctant to part control over the provision of these services, though they also wished to profit from possible efficiency potentials.

Consequently, and in connection with the implementation of the national modernisation strategy, municipalities or municipal enterprises increasingly awarded subcontracts to external firms for specific service segments of the WSS (such as maintenance or accounting) from 2006 onwards, in order to lower their costs and comply with EU demands.

2. Story Weaving: 2010 – 2015

In order to push competition through outsourcing further, the EU lowered the threshold values beyond which contracts have to be awarded through public tendering by 2012. As a consequence, subcontracts assigned by municipalities were increasingly subject to European procurement law and had to be put out for tender at European level.

In order to comply with these new EU requirements, municipalities or municipal enterprises experienced a growing need for assistance in relation to the outsourcing process and the further development of related management processes.

3. To the End State: 2015 – 2020

Therefore, the *Federal Ministry of Economics and Labour* (BMWA) strengthened its efforts to provide guidance and offered concrete assistance such as example contracts. A working group was established in 2016 that addressed the growing need of municipalities and aimed at ensuring co-ordinated efforts in this regard.

Furthermore, the technical scientific associations *German Association for Water, Wastewater and Waste* (ATV-DVWK) and *German Association of Gas and Water Experts* (DVGW) helped to cover the technical aspects that need to be considered in contract negotiations, while the *Federal Association of German Gas and Water Industries* (BGW) and the *Association of Municipal Enterprises* (VKU) provided assistance to their members for the preparation of negotiations, for instance with negotiation training or legal assistance.

By 2020, the degree of outsourcing of water service elements had significantly increased and brought about important efficiency gains in the water service provision.

Looking backwards, one can say that the EU initiative of lowering the threshold values (2012) for public tendering had an important impact on the German water sector and initiated a substantial increase in outsourcing of water service elements.

4. B.III.3.3 Regulated Monopoly

Case A: Strong regulating bodies, price regulation

1. Pre-conditions: 2005 – 2010

From 2005 onwards, the trend toward increased private sector participation continued due to increasingly strained municipal budgets. In the ensuing years, the sector underwent a strong concentration process, through which the number of water and sewage companies was drastically reduced. As a consequence, municipalities increasingly lost their powers.

By 2008, the EU intensified its pressures for the introduction of competition elements in the water sector and a transparent presentation of costs, prices and tariffs. While various regulation approaches were discussed at the time, the European Commission visibly favoured the introduction of national state regulating bodies integrated in a network of European regulating bodies.

2. Story Weaving: 2010 – 2015

In 2012, municipal budgets collapsed in large parts of Germany, inducing municipalities to pass the provision of water services to private companies (material privatisation). Accordingly, public monopolies were replaced by private monopolies. Equal fiscal treatment, which had been discussed in Germany within the modernisation process of the water sector for many years, was finally introduced and led to a partial merging of water supply and sanitation services, i.e. to a renewed concentration process. In the following years (up to 2015), prices rose sharply due to the companies' increased market power.

3. To the End State: 2015 – 2020

In the course of the debate on federalism, competencies in the water sector were transferred from the *Länder* to the federal government in 2016. The latter finally decided to set up a central and independent regulating body in 2018, to keep prices and tariffs stable as well as to secure investments in infrastructure and assets and to protect consumers.

By 2020, the organisational structure of the German water sector had changed markedly.

Looking backwards, one can say that the collapse of municipal budgets in 2012 marked the essential turning point, which ultimately led to the establishment of private monopolies under independent and external regulation.

Case B: Strong municipal powers, compulsory benchmarking

1. Pre-conditions: 2005 – 2010

From 2005 onwards, the trend toward private participation and inter-municipal co-operation continued due to ailing municipal budgets, though communal powers remained intact. The number of WSS companies was reduced through a concentration process between 2007 and 2009. Nevertheless, the organisational system diversity of the German water sector prevailed.

By 2009, the EU strengthened its pressures for the introduction of competition elements in the water sector and for a transparent presentation of costs, prices and tariffs. While various regulation approaches were discussed at the time, the European Commission favoured the introduction of national state regulating bodies.

2. Story Weaving: 2010 – 2015

As a consequence, the German federal government and the *Länder* increased the staff capacity in the abuse supervision bodies from 2011 onwards in order to better comply with EU requirements. Additionally, comprehensive data on prices and tariffs were collected more systematically.

To secure their influence on the WSS, municipalities strove to prove the competitiveness of their service. Together with the German water sector associations, they demanded the adoption of voluntary anonymous benchmarking systems by 2012.

Several European Commission Directorate General at EU level initiated a "Benchmarking" task force working group in 2013, which surveyed the systems in place in European Member States and developed a pan-European system. The working group favoured a compulsory, public benchmarking with unified core indicators in the sectors of efficiency, quality of service, environment and consumer satisfaction.

3. To the End State: 2015 – 2020

In reaction to this development and in the context of the continuously followed German modernisation strategy, the *Federal Ministry of Economics and Labour* (BMWA) developed together with the relevant stakeholders a binding benchmarking strategy for the water sector in 2016, which included the publication of information on core parameters. The aim of the system was to increase transparency and efficiency in the water sector.

Looking backwards, one can say that the drive from EU level for increased competition (2009) as well as transparency in the water sector, as displayed by the European benchmarking task force (2013), influenced the direction of development of the German water sector markedly. By 2020, the formerly followed voluntary and anonymous benchmarking concept was successfully replaced by a high-powered successor. Furthermore, the European call for increased abuse-control was well accommodated through a continuous strengthening of the capacities within the conventional German regulatory system.

5. B.III.3.4 Direct Public Management

1. Pre-conditions: 2005 – 2010

Pressures at EU level directed at a stronger integration of competition elements into the European water sector gained importance in the political debate from 2005 onwards and mandatory public procurement along with a strict interpretation of in-house services was being favoured. German municipalities reacted reluctantly to this trend and felt that it challenged the autonomy of municipal organisation and interfered with the communal right to self administration.

2. Story Weaving: 2010 – 2015

To circumvent the anticipated consequences of possible further legislative proposals in this direction, German municipalities increasingly employed those organisational forms which were not covered in this debate for mandatory tendering procedures, i.e. the *Regiebetrieb* (direct labour), the *Eigenbetrieb* (semi-autonomous municipal agency) and the *Eigengesellschaft* (such as *Stadtwerke*). In 2010, it had been resolved at EU level that municipal enterprises such as *Stadtwerke,* which are to 100% in municipal ownership as well as municipal undertakings in the joint-ownership of several municipalities, were also to be classified as municipal undertakings to which the service provision could be delegated without public tendering.

The preceding trend toward private sector participation due to ailing municipal budgets turned to being regressive from 2011 onwards. However, many municipalities were still locked into existing contracts. At the same time, the reliable provision of water services strongly gained in importance in the public perception due to negative cross-border leasing (CBL) experience and increasing floods and droughts events (2010-2013). More and more, a democratic control over the services' provision was being demanded. This movement reinforced the trend towards self-provision by municipalities.

The strong competition on supplier markets remained unaffected by these developments. Furthermore, some service segments (such as maintenance or accounting) were still subcontracted to external firms, whereby the awarding was subject to public procurement rules.

In the beginning, the introduction of benchmarking procedures was hampered through the cash basis accounting system used by the *Regiebetrieb*. As however the necessity for increased transparency was being more and more recognised, the additional expenses incurred in changing to the new accounting system were accepted. To some extent this decision was also motivated by the need to comply with European demands for increased transparency and competition. This change in accounting systems, effected in 2012, set the basis for effective cost control and thereby for the introduction of benchmarking procedures.

3. To the End State: 2015 – 2020

In 2015, the relevant German associations for the water sector agreed on a common benchmarking concept, which largely built on the IWA approach, but also integrated benchmarking experience already gathered in Germany. While at first a voluntary and anonymous approach had been favoured by undertakings and associations, a compulsory approach was finally chosen. It allowed to effectively document the efficiency of the publicly managed undertakings, while simultaneously satisfying information demands by customers and politicians. In the beginning, undertakings had feared that competitively sensitive information would be exposed through the benchmarking process, but the prudent behaviour of the responsible institutions managed to resolve these reservations.

Looking backwards, the European drive for increasing competition in the European water sector through pushing for the introduction of mandatory public tendering instead strengthened the position of publicly managed undertakings in Germany. Simultaneously it initiated the need for increased transparency and furthered the introduction of benchmarking processes.

6. B.III.3.5 Community Management

1. Pre-conditions: 2005 – 2010

From 2006 onwards, solidarity and the idea of local communities as a centre of social life became once again important social values. German associations and co-operatives (*Genossenschaft*) also experienced a revival.

Simultaneously, the public participation process introduced by the implementation of the Water Framework Directive led to a heightened public interest for water sector issues as well as to better co-ordination and organisation of different social groups in the sector.

2. Story Weaving: 2010 – 2015

In 2010, due to abuse in Germany of the rule imposing compulsory connection and usage of water services (*Anschluss- und Benutzungszwang*) on providers and users,

the latter were granted the right to pull out of usage as long as the operator was a private firm.

In 2012, municipalities' financial crises reached new heights, which led in particular in East-Germany to the economic collapse of the provision system. The *Länder* and the Federal government increasingly had to intervene to secure the population's water supply. In this context, the state aimed at getting rid of this burden.

Simultaneously, a high judicial court judgement in Germany declared that municipalities only held infrastructural assets in trust but did not own them. Consequently, potential sales revenue had to benefit the connected users. This virtually prevented any sales to private firms.

3. To the End State: 2015 – 2020

As a result, associations or co-operatives formed at local level, and both the assets and the management of water provision and sewerage collection were transferred to them by the municipalities. In some regions theses associations were built on the structure of the already existing water associations. In connection with the implementation of the Water Framework Directive, the associations or co-operatives increasingly carried out their water management tasks following a river basin approach.

Looking backwards, the municipalities' financial crises and the high judicial court judgement regarding infrastructural assets led to the formation of associations and co-operatives which became responsible for the water supply and sewerage collection.

ANNEX B.III.4 Italy

1. Introduction

Background: In 2004 the Italian WSS were undergoing a reform which started in 1994, when the Galli Law (36/94) was passed. The institutional arrangement set up by this law constrained the evolution of Italian water services. All the scenarios described below consider both the water and sanitation services, since the law made it compulsory to organise the integrated water services at ATO[27] level (ATOs normally reflect the boundaries of the districts). The Galli Law was the most important reform of the water sector. The law imposed the constitution of ATO and the reduction of the number of operators at local level. It also established that a single operator should be chosen for each ATO through a competitive procedure. However, the law made it possible to safeguard the existing operators, provided that their management activities were reliable from an economical point of view. If the organisation was relatively constrained, the degree of private sector involvement had been the main determinant for the evolution of the market. The main driving forces are underlined below (see the evolution path) and will be considered when we identify the scenarios.

The initial state was highly constrained by the legislative framework. At the beginning of the 2000s, some decrees concerning the evolution of the utility sector have been passed. These decrees influenced the degree of competition in the Italian WSS. In particular, the General Utility Sector Legislation favoured the liberalisation of WSS, by establishing that ATO operator should be chosen through a competitive procedure. As an effect, it promoted the entrance of foreign WSS operators in Italian WSS market, and the expansion of Italian WSS operators outside their captive market. As a consequence, the legislative framework influenced the dynamics of the WSS Italian Market, by making the market more open.

By contrast the Law 326/03 seemed to stop this pro-liberalisation political position. Three possibilities in choosing WSS operator were possible:

- Delegation through competition for the market, where the operator was chosen through a competitive bid;
- Delegated public management (in-house), where the municipality owned the whole stake of the operator;
- Delegated public management, with selling of shares to a private operator, which was chosen through a competitive procedure.

The last two possibilities should not be seen as alternatives, since the third was an evolution of the second.

The legislative framework constituted a driving force, in the sense that the scenario in 2020 will fit with one of the management alternatives allowed by the law.

Another important driving force refers to the financial needs both for water and sewage systems. This was associated with the crisis of public finance that was un-able

[27] ATO was the acronym of optimal management area.

to cope with deficits for the provisions of public services in general. The Galli law introduced the full cost recovery mechanisms in order to set the tariff for water services. This method was slowly implemented throughout the Country. Many activities were still managed and supported by public funds.

The following table summarise the state of the implementation of the Galli Law in July 2003.

Table 1 – Management alternatives in ATO delegation

Types of WSS management	Total	%
Direct delegation to a Public limited company	25	66
Direct delegation to a Mixed limited company	12	31
Competitive bidding	1	3
	38	**100**

Source: Comitato di Vigilanza sull'uso delle risorse idriche (2004)

In the long run scenario, the envisioned most likely forms of WSS management are:

1. In-house appointment where the mixed enterprise (but with majority of shares in public hand) was in charge of operating the WSS;
2. Private company (national or international) which entered into the market after total privatisation or after a competitive bid;
3. Private multi-utility enterprise, where water was just one of the main services provided and the territory for the distribution of water was considered important for the distribution of other services such as gas, electricity, heating as well.

Driving Forces: The institutional arrangement set up by this law should be considered as the long term scenario for Italy. Establishing of the scenarios considers both the water and waste water services, since the law makes it obligatory to organise the integrated water services at ATO level (ATOs normally reflect the boundaries of the districts). As underlined in the previous section, the law establishes that a single operator should be chosen for each ATO. However, the law makes it possible to safeguard the existing operators, provided that their management activities are reliable from an economic point of view. The Galli Law affects the territorial WSS organisation, imposing that WSS should be organised at ATO level. As a result, the number of WSS operators will decrease[28], whereas their dimensions will augment.

If the organisation is relatively constrained, the degree of private sector involvement will be determined by the evolution of the market. The main driving forces are underlined below and will be considered when we identify the scenarios.

[28] From 8,100 municipal operators (in 1996) to about 100 ATO operator.

A first driving force could be identified in the **liberalisation dynamics affecting other utility sectors**.

In the last years the favourable attitude toward the multi-utility model causes the entrance of energy operators in water services (i.e. Italgas and Enel Hydro). This was consistent with a strategy of diversification in energy and environmental services. However, since 2002, the major energy operators (Eni and Enel) decide to abandon the water services, seen as non profitable. WSS is still of interest of some former municipal companies, like ACEA, AMGA Genova and Hera, which are growing on the national market.

Liberalisation laws in electricity and gas services boost a process of horizontal integration between utilities which are seeking to strengthen their position on the Italian market. Except for Acea (see WP3), the other utilities are starting to expand from their captive market, by acquiring neighbouring utilities. Since these operators are diversified (their activities cover energy, environmental and water services), WSS evolution could be influenced by the' dynamics of other utilities.

General Utility Sector Legislation of the last years favoured the liberalisation of WSS, by establishing that ATO operator should be chosen through a competitive procedure. This law promotes the entrance of foreign WSS operators in Italian WSS market, and the expansion of Italian WSS operators outside their captive market. The need to grow outside the captive market is boosted by the entrance on the Italian market of some foreign operators in the first competitive bidding for the minority stake of the ATO operator, like Vivendi and Suez in Tuscany.

The mixed public company is the organisational solution chosen by several ATO. The rational of this trend lies with the need of **technical and managerial expertise**. This requirement could boost the entrance of new operators in the WSS market, both domestic and foreign, which should help the municipality cope with the greater managerial complexity which characterized WSS industry. The private operator involvement could go in different directions: from the contracting out of single managerial tasks or facility construction to strategic alliances between municipalities and operators through the ownership of the shares.

The second reason for choosing a private partner through the selling of shares lays in the need for raising financial resources to invest in the water sector and other public services. The WSS constitutes a source of financial means for local authorities, which might be interested in selling their stakes in water companies to finance other municipal activities (e.g. street maintenance).

The **financial requirement** derives from the implementation of European Directives and the maintenance of existing assets. The implementation of Directive 271/91/CE

highlights the need for financial resources. A part from the sewerage services, even the water services would need investments to renew the network.

The following table highlights the financial requirements of the 41 Piani d'Ambito draw up until may 2004. The figures refer to 45% of population and concern the investments for the next 25-30 years (Comitato di Vigilanza, 2004).

Table 2 – Financial requirement of the Piani d'Ambito (2003)

	Total investments (€*1000)	**Total pro capite investment (€/in.)**	**Annual pro capite investment (€/in./y)**
Water services	9,427,647	403.86	15.70
Wastewater collection	6,916,587	296.30	11.75
Wastewater treatment	3,979,923	177.66	6.88
Total	**20,324,157**	**877.82**	**34.33**

Source: Comitato di Vigilanza, 2004.

The Galli Law, by assuming that water tariffs must cover total costs, make possible to introduce other financial schemes, other than endogenous means and subsidies, like the project financing (i.e. BOT). In this case, responsibility for investment lies in the private operator, which is guaranteed by the future cash flow.

The evolution path for the Italian case should be described imagining three theoretical critical events:

1. Following the lobbying activity from TNCs, the EU moved towards a greater liberalisation in water services:
   a. The introduction of liberalisation policies was opposed by citizens, who protest on the basis of the lack of a regulative framework needed to contrast the monopolistic power of WSS operators;
   b. Liberalisation was introduced with success and the WSS sector was highly competitive
2. The EU did not intervene with sector legislation, but the status quo was modified towards a greater strengthen of regulation or the increasing of the degree of competition in the supplier market (through outsourcing)
3. The WSS knows a crisis with a strong protest from consumers. The crisis was overwhelmed thanks to development of new technologies and innovation in WSS management:
   a. After this crisis citizens mistrusts the public institutions, and community management form of management developed;

b. The municipalities have a great role (through innovation in public administration) in overwhelming this crisis, and citizens prefer to rely on WSS public management.

In the next paragraphs we would test the plausibility of these hypotheses.

The starting point of our analysis was the way the Galli law was implemented. The choice of ATO operator (i.e. the provision of the service at sub regional level by a unique company) will be the triggering factor for the evolution of the management of the water systems.

The final outcome is dependent on the existence (or not) of a strong operator in a given area. Apart from the type of management, we will see the strong reduction of the over than 8,000 operators in the water system in Italy. In 2020 only one hundred operators are responsible for WSS provision.

2. B.III.4.1 Delegation Contracts

1. Pre-conditions: 2005-2010 - *Competitive bidding was chosen only for some ATOs*

In order to analyse delegation contracts widening, it is very important to consider the opposition by the local authorities. In some cases this opposition was tacit (not allowing the implementation of the procedures for the ATO constitution, as expressed by the law) or explicit, by strong and direct opposition to the law. In some cases in which municipalities were responsible of the WSS delivery through direct labour and they were no more able to provide the service (for financial and lack of know how), they decided to open up the market and go for competitive procedures for the delegation of WSS management.

In 2001 only in one case (Frosinone) the private operator was chosen through a competitive bid (see first alternative described in the initial state). In the other cases, municipalities decided to assign the WSS management to a company, where they retained the majority stake and sold the 40% of shares. In certain cases (see Tuscany) this partial privatisation was coincident with the search for an industrial partner, which could improve technical expertise. However, competitive bidding is widening in south of Italy (like Sicily).

2. Story Weaving: 2010-2015 *dissatisfaction towards incumbent operators pushed the delegation of WSS management – a regulatory framework was set up*

Following the EU favour towards competitive bidding procedures in choosing the private sector operator, in the following years there have been a general application of the bidding procedure to let the operators to manage the WSS in a specific ATO (like the Frosinone case).

In the delegated private management a WSS operator was chosen through a competitive bid and it was responsible for providing the WSS and, in certain cases,

financing the investments. The economic risk transferred to private operators was dependent on the delegation of responsibility for investments. The delegated private management should be chosen both for financial or expertise reasons.

The spread of the ATO operator choice through competition for the market have been boosted by the dissatisfaction with incumbent operators. There were many concerns about the activity of the appointed enterprise. Some ATO managements have been badly conducted and the multi-utility structure of some of them requires urgent revision of the regulatory process. The main institutional actors were the ATO's authorities, which had responsibility for appointing the enterprise in charge of operating the service, supervising the investments plans and quality of services provided. In some cases the local public authorities were very disappointed by the performance of the appointed operators and some judicial procedures were likely to occur.

Regarding the contractual form, there were two possibilities:

1. In the *concession* contract the appointed operator has the responsibility to organise and manage the necessary investments established in the Piano d'Ambito (a planning document drawn up by ATO);
2. *Affermage*, where the operator is responsible only for the management of the services, whereas investment financing belong to the municipalities, through a special purpose company (see the direct management end state scenario).

The tariff was set on the basis of a full cost recovery principle, as WSS could not count, any more, on public subsidies. On this point the strong opposition towards water tariff increases, experienced in previous years during the ATO setting, become stronger.

However, at the same time there were many concerns about the monopolistic power of the ATO operators in the captive market and the institution of a competent authority was requested. Due to consumers' protests, alternatives were the following:

- the Italian Energy Authority (AEEG) was considered for possible extension of its role over the water system;
- the existing WSS " authority" (Comitato di Vigilanza) powers were strengthen.

From a social point of view more concerns on quality of services and on tariffs charged were experienced by the citizens.

3. To the End State: 2015-2020 - *Free market was not widening – some delegation contracts with regulation*

In 2020, delegation contracts develop at ATO level because of:

- increasing number of ATO's operators chosen through competition for the market (likely in areas where existing operator were not strong);
- decision to go for a bid after inefficient incumbent operator WSS management.

It was likely that free market widened in areas where there was not a strong opposition toward private sector involvement (as experienced in 2013 in several EU countries).

In ATOs where WSS management was delegated, local authorities lobby to strengthen the regulatory powers of the Authority set up in the previous period.

In 2015 the delegation contracts represents **15%** of the total of ATO, especially in the South of Italy. If one now looks backward, one can see that the current situation can be explained around two main factors, the ***inefficient WSS provision by incumbent operators*** (with public ownership) and ***lack of social opposition*** towards the private WSS provision.

3. B.III.4.2 Outsourcing.

1. Pre-conditions: 2005-2010 - *Outsourcing was frequent for small operators*

At the first stage of WSS development, management activities were very basic and they did not require specific skills and expertise. At the end of the 90s, subcontracting involved basic services like civil work supply, technical assistance and service contracts such as reading meters, billing, repairing pipes and so on. These forms of outsourcing were still very frequent when dealing with small operators. In these cases, the form of the contract was very simply specified, as it defines, in a clear and indisputable way, the tasks delegated to an external entity. The risks associated with the delegated activity were very low for the operator who was in charge for managing these duties and receiving compensation.

First, the increased technological complexity had augmented the number and typology of activities that water operators should carry on (i.e. laboratory analysis). When the incumbent firm was able to manage many supplementary services, there was no need to outsource these activities. Otherwise, technology development became a key factor in explaining the increasing of outsourcing for some management activities.

Secondly, financial requirements for new investments boosted the built of PPP, like DBOF, in order to make the private sector to finance, build and operate single water facilities.

This was the case of the construction of the Milan waste water treatment plant. The municipality had awarded Ondeo Degrémont (Suez) for the plant construction and operation for a period of two years. The amount of the contract was of 100m €.

2. Story Weaving: 2010-2015 - *Outsourcing was widespread in ATOs where the incumbent was not able to deal with technological complexity (frequent in direct public management)*

The WSS business had evolved toward a more complex system and there was a great necessity to develop numbers of collateral activities. Subcontracting was a useful way to take advantage of professional firms with high expertise. Contracts could be run

from few months to longer period of time in many sectors regarding pipes (monitoring, repairing, maintaining stations), meters (installing, repairing and reading), plant security and so on. It was the case, for example, of contracting arrangement such as BOT and DBFO where single contract bundle together a wide range of specified activities. In these subcontracts the risks associated to revenues were partially transferred to the subcontractors.

Outsourcing widen in ATOs where the operator was a public owned company, incumbent in that market, which had not developed the technological expertise necessary to deal with EU environmental requirements.

This delegation process made possible the development of specialised companies (that operated collaterally to the main enterprise in the customer transaction market). In this way the primary market operator were relieved from certain activities focussing mainly on the core business. But, at the same time, problem of coordination between all the delegated activities sometimes emerged.

In other situations, the outsourcing activity was not accessible to all public and private operators. Due to the expertise of some public-owned or mixed companies, they become eligible for subcontracting in other territories contrasting private companies in the market. As a consequence, incumbent operators of the primary market could strengthen the position also in the secondary market.

Regulation in these cases was provided by contracts (normally this task will be a duty of the ATO incumbent of the primary market). The ATO's authority had a supervisory function on all such contracts. The authority had, in the meantime, developed a proper and independent role and it was able to set out a plan, to coordinate activities, to spread out relevant information. In this case, however, the Authority will have some managerial task outside the regulative functions. If the activities of the authority were not efficient many dysfunctions arise. In a more complex environment, the eligible authority was responsible of ex-ante regulation, in order to define and set properly the public procurement rules and ex-post regulation in order to evaluate the activity of the procured company.

3. To the End State: 2015-2020 - ***No major changes with respect to the previous storyline***

Concluding, in 2020 there is still an increasing demand for outsourcing of high technological requirements activities, where local incumbent had no the capacity to deal with this complexity.

In some cases outsourcing was chosen as a way to solve financing problems (the responsibility to cover investments was transferred to the constructor).

In 2015 outsourcing of some WSS activities will be present in **80%** of the total of ATO, in a very different range of activities (from invoicing to GIS). If one now looks backward, one can see that the current situation can be explained around two main factors, the ***need to cope with technological complexity*** (for operators which do not

have know how and expertise) and ***lack of financial sources*** needed for new investments (especially in waste water treatment).

4. B.III.4.3 Regulated Monopoly

1. Pre-conditions: 2005-2010 - *in most ATOs the WSS management was delegated to a mixed company*

Regulated markets resulted from direct delegation by ATO, where the mixed enterprise (with the municipalities owning the majority stake) was in charge of operating the WSS. Publicly owned or private companies operated WSS mainly at supra-municipal level, with a private law status, with scarce activity in other territorial contexts.

This was the case for the majority of ATOs (see table 1 in the initial state), where the municipalities chose as ATO operator a company which was the result of the merger of previous municipal companies, eventually selling a 40% of shares. Ownership was transferred from the responsible authority to companies publicly owned and subject to regulation. Some forms of greater partial privatisation were also considered (selling of 51% and more of firm's shares) but were not generally implemented nationwide. In some cases public opinion was adverse to WSS partial privatisation and such firms remain mainly public owned.

In other cases, the WSS was supplied by a strong local public-owned utility. This was the case of important water suppliers at city level, like that of ACEA.

These dynamics boosted by mergers and acquisitions at the beginning of 2000s involved major utilities in Italy[29]. Since these operators were diversified (their activities covered energy, environmental and water services), WSS evolution has been influenced by the dynamics of other utilities. Local utilities first reinforced their core business and then exploded their activities into a multi-utility direction, sorting from the original geographic spot in the attempt to increase the number of citizens supplied, type of activities and so on. In this context the market power of the operator was quite monopolistic and direct competition was not easy to attain. Regulation was strengthened in order to decrease the firm's market power (but only for the energy utilities) and benchmarking regulation was also considered substituting for direct competition.

Two examples of delegation to mixed companies in Italy

In 2003 **ACEA**, the multi-utility serving the city of Rome, was owned by the municipality that had the majority of stake (51%). As of September 1, 2002 an Acea subsidiary (Acea Ato 2 SpA) managed waste water services for the municipality of Rome. On August 6, Province of Rome and Acea Ato 2 S.p.A. signed an agreement

[29] Liberalisation laws in electricity and gas services boost a process of horizontal integration between utilities which were seeking to strengthen their position on the Italian market, expanding from their captive market, by acquiring neighbouring utilities.

regarding management of integrated water services to come into effect on January 1, 2003.

HERA gives a straightforward example of the reorganisation of public utilities in Italy, from a territorial and an organisational point of view. In November 2002, 12 former utilities experienced a merger, forming Hera Holding S.p.A, entirely owned by municipalities. The holding became the 2nd largest Italian utility, after ACEA and the first water services operator. Its core business covered energy and environmental services (electricity, gas, water and wastewater services, waste management). In June 2003 Hera experienced a partial privatisation through the selling of shares (38.7%) on the stock exchange. In 2004 it started to expand in neighbouring municipalities.

Tariffs were increased but not as much as the full cost recovery method will eventually require. The cost-plus regulation was still the main method applied.

In this context regulation influenced both water tariff setting together with investment plans. It was necessary to set out a regulatory agency either an independent national body or allowing a regional system of independent regulatory bodies. Regulation was very important and it was mainly attained through weak cost-plus regulation giving the firm low incentives to reduce costs and increase investments replacing old capital. Due to consumers' protests, alternatives were the following:

- The Italian Energy Authority (AEEG) was considered for possible extension of its role over the water system;
- The existing WSS " authority" (Comitato di Vigilanza) powers were strengthen.

The Galli law established that the control on ATO operators was effected by ex ante regulation, through contractual arrangements between the municipalities and the operators.

2. Story Weaving: 2010-2015 ***Strengthening of the regulatory framework***

During the second period, incumbent operators strengthened their position in the captive market, and start to enlarge their territorial base (like in the Hera case).

Alternatively, in the case of financial crisis or inefficient management, local authorities experienced public finance problems due to the lack of national budget transfers (as a consequence of the ceiling of public deficit introduced in the Maastricht Treaty). Many transfers were cut from national government and local authorities had to seek new opportunities to increase revenues. At the same time local utilities had the need to increase investments to ameliorate the quality of services provided. But financial support from the responsible authority was unavailable. Many local authorities decided to sell the majority stakes of their firms in order to have prompt cash available for regulation and the important role of introducing stronger incentives to minimise endogenous costs. This boosted the entry of new entrants (operators) into the market.

Price cap regulation was the likely form of regulation replacing the cost-plus regulation of the previous period.

The firms had more incentives not only to concentrate on the captive market but also to expand their businesses into other contexts. The dynamic of this sector leads towards the introduction of full cost recovery and firms were able to make the necessary investments.

Against the positive economic performances, the regulatory framework was strengthened. Consumers felt that ex ante regulation established by the Galli law was not sufficient to protect their interest. A major debate developed, in order to introduce in Italy some form of benchmarking. The private status of the WSS operators allowed the collection and analysis of data concerning the investments made and some other economic indicators. Regional Authorities were responsible for the collection of the data: the analysis was then made by the Comitato di Vigilanza which published the results annually.

3. To the End State: 2015-2020 - "***Regulated markets" remains the prevalent form of WSS management***

A regulatory authority had been established in 2015, in order to limit the monopolistic power of the local operator. Benchmarking was applied all over the country and there was a great debate on how to sanction less efficient operators.

We expect that in 2015 the regulated market scenario will represent **50%** of the total of ATO. If one now looks backward, one can see that the current situation can be explained around two main factors; the ***implementation of the Galli law*** (through the strengthening of local operators) and ***strengthening of regulatory authorities*** needed to limit monopolistic power of incumbent operators.

5. B.III.4.4 Direct Public management

1. Pre-conditions: 2005-2010 ***Direct labour in WSS provision disappears – financial transparency was required***

Given the specific goal of the Galli Law, in 2005 the trend for WSS management was toward the constitution of ATO where the activity was given to a single operator through various forms of contracts. Although the law had influenced the evolution of the Italian water sector since its approval in 1994, there were many local authorities that had still not agreed on the constitution of ATOs. There were many of such firms that, especially in local minor communities did not confer the assets to the management entity at ATO level. In these cases the local community had a direct control over the water services. Local authority had the responsibility for the operation of the water services, for the investments, for the relationship with citizens/customers.

Local authorities and operators were the same entity and the ownership was specifically public. The direct management model developed during this first period in another way. In the cases where local authorities were at the same time responsible entity and management entity (through totally public-owned companies) in a given

area, in order to avoid tendering for competitive procedures, they decided to form an in house entity (through the merger of local operators), which received the direct delegation for the provision of WSS at ATO level.

Direct labour was still present in some areas, especially for sewerage services, but it disappeared and the in house operator assumed responsibility for the whole water and waste water systems.

In all cases in which technological expertise could not be acquired through internal staff, direct public management still relied on contracting out because of lack of certain competencies. In fact, the increased technological complexity augmented the number and typology of activities that water operators should carry on (i.e. laboratory analysis). When the incumbent firm was able to manage many supplementary services, there was no need to outsource these activities. Otherwise, technology development became a key factor in explaining the increase of outsourcing for some management activities.

In particular, for what concerns infrastructure provision, direct public management went for some PPP schemes, relying on specialised companies. Even if there were some examples of corruption scandals (like the case of Milan BOT for waste treatment plant granted in 2000), private sector involvement developed.

The public had direct responsibility for these activities requiring that the WSS management should show clear and regular accountability. At the same time, because of local public finance problems, it was crucial that all the relevant information concerning water charges and financial resources became part of a transparent process. As it was not possible to rely completely on national and local taxes or subsidies and the financial support to finance costs, as a consequence water tariffs increased. In order to increase the degree of accountability, many operators publicly-owned started to set out a specific business plan for what concerned investment planning, financial resources, and quality of services. The creation of a separate accounting system was a crucial element to make the WSS autonomous under DPM. During the '90s, its absence caused problems of under-investments, as pipe maintenance was not judged a priority for local authorities (investments in other public services, like schools, were preferred). Every local authority, although pushed toward transparency of activities, had not the incentive to guarantee network maintenance, with a negative effect on future development of the water system, given the limitedness of financial sources. In order to guarantee infrastructure maintenance, operation of services was separated from asset management, eventually constituting a special purpose company. This arrangement was also favoured by citizens, who preferred the maintenance of asset ownership in public hands. This favour was a consequence of major protests against private sector involvement in the form of total privatisation.

2. Story Weaving: 2010-2015 - *In house appointments were widespread (see the special purpose companies created for infrastructure maintenance)*

The law concerning WSS was more stringent for local communities all over the country. Many ATOs had been organised and many ATO management entities

introduced. The reorganisation of the Italian WSS was not equally developed at national level. There were some areas where the investments necessary to restructure the system and to operate it, more efficiently, were huge.

In cases where the ATO operator had not been chosen, the direct public management persisted and some local authorities had the direct responsibility of the water and sewage system.

ATOs were instituted but in many cases there was not the political will to delegate the WSS provision to an operator external of ATO's boundaries. Local authorities continued to have control on the supply of the service, even if such management entities were financially autonomous. There were some concerns for water bill increases (social protests in some areas of the country occur). In order to prevent social opposition, local authorities considered also redistributive issues and limited tariff increases. This was particularly true in those parts of the country where the economic conditions of the population were not prosperous.

The Direct Public Management model developed also for the financing problems related to water infrastructure. From one side, local authorities had incentives to increase tariff according to the full cost recovery method. Special purpose public-owned companies could be established for the management of the water infrastructures. By law, the municipalities had the 100% stake. They had the sole property of water assets or can be responsible for making investments necessary to maintain the level of service. They gave the use of the assets at ATO operators, receiving a fee that was used to cover investments needed to comply with EU directives or for infrastructure maintenance.

3. To the End State: 2015-2020 - *Direct Public Management was frequent when dealing with infrastructure*

In 2015 direct public management as direct labour remained a residual form of management[30]. However, Direct Public Management was not disappearing: in house appointments were frequent in cases in which local public operators wished to continue to manage the WSS and thus merged together to avoid an external operator entering the market.

The selling of the minority of stakes to private operators was motivated by the search for financial means to cover infrastructure maintenance.

Floods experienced in the North-West and in the South of Italy highlighted that asset maintenance responsibility should be by local authorities (even if some forms of cross subsidy were put in place). This critical event entailed a widening of special purpose companies established for asset maintenance. Some ATO's decided to set the tariff system, in order to devote a percentage of the revenues to asset maintenance, thus introducing an ear marked tax. This arrangement allowed communities to lower the

[30] Please note that "residual" refers only to direct labour. DPM as in-house management had not disappeared.

cost of capital, by assuring them lower interest than that of capital market and splitting depreciation in a longer period.

In 2020 Direct Public Management will represent the **30%** of the total of ATO. If one now looks backward, one can see that the current situation can be explained around two main factors, the ***need for infrastructure maintenance*** (assured by the public ownership and ear marked taxes) and ***social preference*** towards the public ownership of WSS infrastructure.

6. B.III.4.5 Community management

1. Pre-conditions: 2005-2010 - *Community Management was a residual form of WSS management*

In 2005 Community management was limited to some experiences in mountain areas, where citizens organised the provision of water services collectively.

Individual wells, found in the northern part of Italy, can be considered similar to community management, as in this case the centralised water service provision was substituted by a self-organised management solution. In the wastewater treatment sector, some examples referred to septic tanks and other natural systems of wastewater treatment.

These forms of management were very rare, and derived from historical and morphological conditions. Between 2005 and 2010, some examples of a natural treatment system developed, an alternative to centralized wastewater treatment systems. However, community management did not develop in its traditional form, since national legislation was obliged to manage WSS at ATO level.

Certain communities grow up with respect to the increasing number of users and uses of water (especially in tourist regions), it becomes more difficult to manage the water resource and some form of coordination becomes necessary (i.e. regulation of access to water, definition of water rights). Such rights could concern specifically a certain structure such as a dam, a canal, and the pipes. The rights could also refer to, for example, the irrigation of a certain land, in certain hours in a specific season, and so on. As an alternative to rationing, decentralised water systems start to develop (i.e. desalination plants).

In the traditional form of community management, the service was free of charge and the necessary investments were self-financed.

2. Story Weaving: 2010-2015 - *"traditional CM" was accompanied with new forms of citizens involvement in water companies governance*

Whereas the "traditional form" of community management in the water service has become even more residual, after 2010 the high costs for the implementation of the 271/91/CE Directive in rural areas boosted the development of such biological form of wastewater treatment. Management of these systems was responsibility of local

communities rather than ATO operators. In all these cases, regarding the supplier market, it was likely that some activities were outsourced (this was because local communities were not specialised). As an evolution of complexity for the provision of certain services to communities, there was also the possibility that the activity would be delegated to a private operator. The necessary competencies to run the service require skills and technological knowledge that were not present at local level. In this case, external operators had the opportunity to run the entire business.

There was also the possibility of introducing some form of trading permits on the water use rights allocated to users in the community. The water rights owners would acquire or exchange permits according to their specific needs.

These new forms of community involvement allow citizens to appreciate participation in WSS decision-making, and boosted their demand for a even greater involvement, especially inside ATO operators. Apart from these decentralised water systems, customers wished for the possibility to participate in water companies' decisions. This had been the case for some public-owned ATO operators, which allowed some customers' represented to be seated in boards. Some in-house companies eventually considered the entry of consumers into the capital base of the water company, in order to raise financial funds.

3. To the End State: 2015-2020 - *Community management remains a minority form of WSS management*

In 2020 "traditional" community management, due to the Galli Law, becomes a residual form of management, as in the direct public management case. However, it developed in the last five years as a way to involve citizens in water governance, through representation or through property. This was especially the case in special purpose companies created as owners of water asset. As municipalities had no possibility of covering all investments needed for pipe maintenance with the fee operators paying for the right to use infrastructure, local authorities decide to transform these companies to be debt financed, in order to make the cost of capital cheaper and use the surplus in infrastructure financing.

We expect that in 2020 the community management will represent the **15%** of the total of ATO, especially in the North of Italy. If one now looks backward, one can see that the current situation can be explained around two main factors, the ***technological development*** (assured by the public ownership and ear marked taxes) and ***social preference*** towards the direct involvement on WSS decision-making.

ANNEX B.III.5 Netherlands

1. B.III.5.1 Delegation Contracts – the end of the PLCs

1. Pre-conditions: 2005-2010

The Dutch water supply and sanitation sector is under stress due to pressures locally as well as internationally. At international level, a major factor that is troubling the Dutch policy makers and the incumbent public limited water companies and water boards is the direction in which the European Commission is steering. The new directives, the Green and the White Papers from the minds and pencils of especially the European Directorates of Competition and the Internal Market are providing numerous challenges for the Dutch decision makers. The European Commission is increasingly targeting opening up the water and sanitation market to competition; after the Commission evaluated its' success in liberalization in other European networking sectors. The leading thoughts in Brussels are about how to crack this last bastion of gold plating monopoly. Continuously the Commission is checking and hammering on the fruits of competition and the importance of proper tendering between several bidders not only for non-core services but also for core business processes in the water and sanitation industry. Other European countries, especially neighboring countries as Belgium and Germany, have progressed further along the lines of these thoughts and their positive experiences have brought a lot of attention in the media and the scientific world. The knowledge and hands-on experience of the private, mainly French, water companies has gained a lot of recognition, and these companies are using their successful track record in lobbying to open the new markets as the Dutch water and sanitation market.

At local level, the Dutch water and sanitation market is also stuck between a rock and a hard place. On one hand, the water companies, the municipalities and the water boards have a substantial investment demand due to more stringent environmental legislation, especially in the field of wastewater treatment. While on the other hand, the Dutch economy is not recovering and high oil prices, lower gas export income and lagging consumption figures hit the Dutch economy hard. Many businesses are going bankrupt and unemployment figures are coming close to the all time low of 1 million unemployed. Tax revenues are decreasing and the government has implemented a stringent cost-cutting policy. The customers and politicians are less willing to accept tariff increases, partly due to media attention and partly to some gold plating incidents in the water and sanitation sector. There were some cases prominently portrayed in the media of managers of Dutch water companies and water boards that received million Euro bonuses and stayed in 5 star hotels in the Caribbean for so-called business trips.

The willingness to comply with the vision of the European Commission, combined with the convincing successes in the neighboring countries is therefore tempting many governmental authorities such as the national government, the provinces and the municipalities to start exploring the feasibility of implementing it in the Netherlands. The only existing case (Delfland) in the Netherlands of the DBFO for the wastewater treatment in the region of The Hague is often highlighted as that it is also possible in

the Dutch polder. Many consultancy reports and academic surveys are published to assess the feasibility and continuously the successes of Delfland, in other countries and other networking sector are given as a shining benchmark. Based upon these recommendations the public authorities are gearing up to design implementation paths of delegation contracts.

2. Story Weaving: 2010-2015

After 5 years these trends start materializing in a series of tenders from clusters of municipalities to provide water and wastewater services within their administrative boundaries. Public companies are bidding against private companies for the time-bounded contracts. In several public limited water companies, the management has undertaken a management buy-out to be able to truly compete as a private company. Foreign companies, as Suez, Veolia and RWE and entering the market and winning a substantial portion of the contracts. Also some Dutch public limited companies were able to win contracts. The Dutch public authorities are making sure that the tendering and bidding procedures are very transparent to be able to justify that the private operator are indeed able to offer lower charges for the same or even better service provision. In almost all cases, the winning bid in the tendering process indeed involves a lower water and sanitation tariff to the public. In political campaigns this is strongly brought forward to justify that the right choice was made. At the same time politicians are aware of the counter side of cheaper service provision and careful as they are, the national government is quickly transforming the existing knowledge center on PPP into a national economic regulator. Furthermore the Ministry of Environment received the explicit mandate from the Dutch parliament to act as a strong environmental regulator to ensure good environmental practices of newly established operators. The national government is of the opinion that an extra safeguard is needed to guarantee that the new private monopolies are not taking abuse of the situation at the cost of the client.

3. To the End State: 2015-2020

By 2020 almost all the service provision of water and wastewater collection and treatment is arranged through time-bound contracts, except in some cities, such as Amsterdam, where the public character is very closely interweaved with the local culture. The old fashioned public limited companies with an indefinite license to operate have ceased to exist, and have been replaced by time-bounded contracts managed by mostly private parties. The water boards core responsibility is now only targeted at surface water management. Wastewater treatment is completely handled by delegated time-bound contracts. Wastewater collection as previously handled by the municipalities is also in all cases managed through delegation contracts, often in combination with a wastewater treatment component.

2. B.III.5.2 Outsourcing – Satisfying efficiency requirements

Although there are no explicit major events taking place, some driving forces continue to trigger increased outsourcing arrangements in the sector. Specifically the need for efficiency due to financial constraints and continuous investment requirements triggers the Dutch water sector to seek economies of scale and scope. This leads to a growing involvement of specialized contracted companies assume responsibility of non-core business processes within the sector.

1. Pre-conditions: 2005 – 2010

In the first decade of the 21st century, the Dutch water sector was faced a tough challenge. The Dutch economy remained in a crisis implying financial tightness for the water sector. Public shareholders were asking for increased dividends from the water companies to add to the public budget. Furthermore new taxes were levied by municipalities: for example the domain taxes levied on the use of municipal domains for infrastructure networks. Also clients were becoming more critical about any possible tariff increases as they faced decreased purchasing power. On the other hand the water sector institutions retained a substantial investment requirement due to having to live up to the European Water Framework Directive and the European Drinking Water Directive. Hence, the sector was stuck between a rock and a hard place; on one hand limited financial resources and on the other hand substantial financial demands. Therefore the water sector was looking for efficiency gains. The alternative of involving the private sector was soon identified as the Dutch public and the Dutch politicians did not close their eyes for the substantial efficiency gains that are realized in the other sectors due to private sector involvement. Especially, since efficiency gains are highly demanded in the tight financial situation of the Netherlands. The main actions of the actors within the water sector were targeted at achieving economies of scale and scope. A whole range of actions is indicated, but the main actions are: (i) encouragement of mergers between water companies; (ii) the encouragement to establish water chain companies covering all processes from water abstraction to wastewater discharge; (iii) very specific actions as combining billing and collection efforts in an integrated water bill; (iv) outsourcing non-core activities to private parties. Especially this last activity is strongly highlighted as it hopes to increase the level of competition within the sector and to realize partly the efficiency gains as established in other liberalized sectors. The increase of competition in the sector is also in line with the stringent tendering rules as enforced by the European Directorate for Competition.

2. Story Weaving: 2010 –2015

The implementation of the reform agenda takes prominence after about 5 years when most institutions within the water supply and sanitation sector have assessed individually which of their non-core activities is best suitable to bring under a contract. Also the Dutch private sector and the foreign private sector are gearing up to make bids for the contracts. A whole diverse range of contracts is put to tender; from maintenance of the pipes, to BOT contracts for water treatment plants, to outsourcing of the cleaning of the buildings. The Dutch government is happy with the impulse this gives to the local Dutch businesses but less happy with the participation of foreign

companies. It tries to find ways to shelter the tendering from foreign companies but finds a great adversary in the European Directorate for Competition. A clear and transparent tendering is compulsory and the Dutch do not really find a way to solve this.

3. To the End State: 2015 – 2020

The Dutch WSS markets are characterised by outsourcing arrangements, by the municipalities, the waterboards and the public limited water companies. There is some competition for the supply of large consumers and no sector specific regulation exists. As such in 2020, within the Dutch water and wastewater sector you will find a very internationally blended mix of companies supporting the Dutch public limited water companies, the Dutch water boards and the Dutch municipalities. Not only the French transnational companies as Suez and Veolia were able to win numerous contracts, also low price suppliers from former Eastern Europe are very much involved in the outsourcing contracts. As they were cheap and tightly controlled by time-bound contracts, many Dutch contract officers chose for example Polish bidders to execute the service. The effect this reform agenda had on the client was quite large concerning the company they're dealing with. Previously they received water and sanitation services from three relatively small companies. Currently, in 2020 the customers receive the whole package from one provider. The effect on the customer concerning pricing and service delivery remains almost unchanged. The substantial transaction costs in the back office tendering, contracting and monitoring of all these different suppliers balanced the efficiency gains.

3. <u>B.III.5.3 Regulated Monopoly – far reaching liberalization</u>

In 2004 the drinking water market in the Netherlands can be characterized as public procurement. Strong EU interference and severe economical situation of the Dutch municipalities caused a driving force towards a far-reaching form of liberalization.

1. Pre-conditions: 2005 – 2010

In the Netherlands it is enshrined in law that drinking water companies that provide water to households, should remain in public hands. From 2004 onwards however, the tendency towards liberalization continues. Although the European Commission does not oblige liberalization in the WSS in the same way as the energy sector, the EC does stimulate transparency and liberalization. Liberalization is further stimulated by three developments.

In the first place, municipalities and provinces –the shareholders of the water companies- turn out to be in favor of far reaching liberalization. The severe economic situation they are in causes them to be in favor of selling their shares as soon as possible. The municipalities and the provinces organize a strong lobby to privatize the water companies. Secondly, the experiences in other privatized utilities offered a favorable opportunity. Both in the energy sector and the transport sector the overall experience with privatization was good.

Far-reaching European drinking water requirements were formulated. The public water companies did not feel capable of meeting these strict requirements and were willing to sell their companies to larger TNC's that had more experience with these new requirements. The willingness increased after the first round of European fines for not meeting the requirements as set in the European Directive.

A national debate followed, finally resulting in a system of limited direct competition in 2007. The operators are under private law and they are established at a regional level. Bulk supply and retail supply are separated. The scope of the provided activities is water supply, sanitation services and the collection of wastes. Some operators are part of multi-utility companies; others are solely engaged in water services.

The assets are in private hands. A distinct body regulates the operator. In the next part, we will see that this regulatory body has some start-up problems.

2. Story Weaving: 2010 –2015

The first years of privatization were difficult in the Netherlands. Especially the regulatory body finds it difficult to be effective. A benchmarking system was set up to reduce the asymmetry of information between regulator and the operators. However, the regulator turned out not to be prerogative enough and with limited staff and budget, it could simply not operate effective. The result was that prices went up, whereas the long-term investments went down.

Consumers were dissatisfied and the tenor for the public debate was that the 'fat cats' of the operators earned easy money. In the next years, the budget and regulator grew. It was now able to realize audits of the operators that made the regulator much more effective.

In these years, important developments in Central and Eastern Europe took place. Operators were privatized in a far-reaching way, but without the burden of older institutional arrangements. These countries started from scratch, and designed the 'most ideal' structure of the water sector. Dutch ministries paid visits to these countries to learn from their experiences. Especially the way that not only norms were specified in the Regulator's contracts, but also the requirements with regard to the process drawn to their attention.

During these years, the Netherlands had had a mixed system of operators that solely engaged in water services, and operators that were part of multi utilities. The annual benchmark showed that the multi-utilities were much more efficient than the operators in water services. This led to a new proposal of the Dutch minister of water management to introduce a market with multi-utilities only. This was stimulated by the system of a price cap: more efficient companies are more efficient and will be allowed to make more profit than the less efficient (i.e. water only) companies.

3. To the End State: 2015 – 2020

These years can be characterized as consolidation. The regulator is still gaining importance. It executes its yearly audits on the operators. The minister has managed

to reform all water-only operators into multi-utilities, which resulted in a considerable efficiency gain. Increase in the scale of companies is no longer possible, due to the fact that it would make benchmarking impossible. After these turbulent years, the minister can work to consolidate the status quo.

4. B.III.5.4 Direct public management - back in the public realm

Creeping natural disaster forces change water management. Innovations in public sector management and social reaction facilitate the continuation of Dutch water management in the public realm.

The Dutch WSS markets are characterised by direct public management, by the municipalities and the waterboards. There is some competition for the supply of large consumers and no sector specific regulation exists.

1. Pre-conditions: 2005 – 2010

In the first decade of the 21st century, Dutch water management was not only facing the implementation of the WFD, bringing about the need for investments in the municipal sanitation systems, but also the need to change the management of the water system in a broader sense. Some of the dykes and polders that had been constructed over the preceding 500 years had begun to slowly sink away, while large rivers were flowing more ferociously than ever. It became increasingly difficult to keep the water out, so the solution was "to live with the water". This required a fundamental rethinking of the water system, turning some polders into lakes, allowing more water in the cities and urban regions and leaving parts of the rural areas open to flooding by rivers and heavy rainfall. It of course also required important changes to the organization of the sewerage system and sanitation and – to a slightly lesser extent – the water supply systems.

2. Story Weaving: 2010 –2015

The WFD River-basin approach in a Dutch context became a "polder-model". In the debate about the public/private role in this new approach, the experiences with liberalization – particularly in the Dutch natural gas industry – and the lack of private parties with sufficient weight to take on the whole of the turf kept the water sector in the public realm. Indeed, a main effect of the situation was the renewed conviction that a very high degree of coordination was required to manage the complex Dutch water system, in which all elements and functions of the water chain where interrelated. In this context, the only way out was an enhanced integration of the three public bodies involved with the water chain, namely, the municipality – directly in charge of waste water collection and indirectly, as the owner of more or less autonomous water companies – and the water boards as the operators of the sewerage treatment plants and adjacent water systems. This cooperation took quite some time to develop, as these bodies had been relatively independent, literally for ages. To reduce the cost of investments and operation – aside from the usual public procurement practices – in some places experiments were set up with public/private partnerships to develop, construct and exploit the new "living with water" areas.

3. To the End state: 2015- 2020

The public/private partnerships to develop, construct and exploit the new "living with water" areas became a success. The natural attraction of living and building close to beautiful canals, lakes and even the sea, was actually converted into economic value, the revenues being used to finance the required investments in the water systems. A mixture of regional and (multi) municipal bodies were established under direct public management. If one now looks backward, one can see that the current situation can be explained around one main factor, the ***complexity of the management of the water chain in the Netherlands and the inescapable public good character, by nature***. Apparently, the force of these natural factors is so overwhelmingly strong that they drive cultural and socio/political trends and shape associated institutional structures.

5. B.III.5.5 Community management – Technology and People in charge

1. Pre-conditions: 2005-2010

In 2004, water management in the Netherlands can be characterized by public procurement. In the same year, major events led to a major shift in Dutch water management, eventually leading to a mixed system of public procurement and community management.

The starting point of the revolution in Dutch water management can be found in a new housing estate in the Northern part of the Netherlands. The area, called *VINEX North*, comprises of 3000 households. The inhabitants of the new housing estate form a closely-knit community, even before the newly built houses were delivered.
Major events in 2004 brought the community even closer. One key event was the terrorist attack in October 2004 on a large water company. Drinking water was polluted and the water company could not deliver drinking water to its clients for over a month. The first few days, households had to buy drinking water in bottles in the supermarket. Later that week, the water company bought water from other water companies and it arranged that drinking water was delivered to the homes through tankers.

This event stirred up the community of Vinex North. Some inhabitants of the community didn't want to be dependent on the water supply of big water companies that had proven to be vulnerable to terrorist attacks. Instead, they wanted to organize their own drinking water supply. Soon, all households within the community were convinced.

The activists went to the municipality and to parliament to claim their right to provide their own drinking water. However, Dutch law prohibited the community to organize their own drinking water and the new housing estate was delivered in 2006 under the system of public procurement.

The activists were not satisfied with the solution and developed a broader movement. Two additional events helped in the right direction. The first event was that a large water company that was part of multi-utilities company, found itself in trouble: a

major pollution incident occurred. The newspapers interpreted the incident in a univocal way: the reason was that the shareholders, in casu the municipalities, had extracted too much dividend over the years. Too little was invested and that is why the pollution incident could happen. Another event was a break through in *membrane*-technology that made a decentralized purification possible.

With these arguments, the community of Vinex North went to European Court to extort a verdict on the right to organize your own drinking water.

2. Story Weaving: 2010-2015

A long legal process followed in the next few years. Several Dutch and other European communities, who were also interested in community management, supported the Vinex North community.

Heavy rainfall in the years 2009, 2010 and 2011 and the predication that this would be the case in the middle and long term strengthened the arguments of the advocates of community management. Technologically and physically, community management was feasible.

In 2012 the verdict of the European Court came out: communities should have a right to organize their own drinking water, provided that regulatory bodies would oversee the quality of the management.

3. To the End State: 2015-2020

In 2015, Vinex North was the first community in the Netherlands with Community Management. 21 communities followed, their seize varying between the 500 and 4000 households. These communities have in common that they are physically distinguishable as an entity: either a new building estate or an old village.

The community operates directly water services. It operates the whole integrated service. The community owns the infrastructure. This form of ownership was chosen for its incentives to invest in and manage efficiently water systems. The institutional arrangement can be typified as rather independent from the formal local government institutions. The structure results in full cost recovery. The pricing is typified by a mixed system. None of the services have been contracted out.

In 2017 the first incident happened. A child became seriously ill. An investigation by the national Health Inspectorate showed that the drinking water in this community did not meet the minimum standards. This caused discussion in other communities. Was it safe to produce your own drinking water? A national debate followed, filling the headlines of the newspapers. The result was that 6 communities went back to a public water company. The other communities remained in the hands of the community.

Today, 2020, there are 17 communities that provide their own drinking water. Since 2017, no serious incidents have occurred with regard to the quality or the service of drinking water.

ANNEX B.III.6 Spain

1. Introduction

Some general considerations:

- With respect to the WSS in Spain, the basin authorities, Regional Governments and Municipalities have competencies that regulate different aspects. There is no co-ordination among the different Regions regarding WSS and there is no single nation-wide legislation. In addition, the basin authorities have a huge importance due to their long tradition in Spain (more than 100 hundred years)
- A good deal of the underground water is in private hands (wells from before 1985). The wells from after 1985 are under a concessionary regime and the concessionary rights can be transferred. The legislation for regulating the particular aspects of these transfers is still pending.
- In urban Mediterranean areas, demand has grown so much that recycling and desalination have become important elements in supplying this resource.

Some general driving forces:

1. The world-wide trend enhanced by the WTO induces diminishing financial resources and capacities for public institutions, such as municipalities. Given this trend, many city councils are looking at the option of privatising urban water services as a source of financial resources in the short term.

2. The liberalisation policy implemented by the EU is opening new perspectives.

3. The financial and technical capacity of the main TNCs, specially SUEZ via Aguas de Barcelona (AGBAR), that have entered in the national market are opening up a strong and highly influential private sector.

4. The discipline and equilibrium in public budgets is forcing public services, and specifically the water services, to reorganise under a new economic rationality.

5. Another important driving force comes from the social and political reaction in defence of the welfare state through public services, creating a growing political opposition towards privatisation processes.

6. The priority of guaranteeing the sustainability of aquatic ecosystems and the growth of standards levels for the water quality as public responsibilities reinforce the needs of technological capacities

7. The governance crisis all over the world asks for higher transparency and social participation in a new democratic framework (new governance).

8. The strong Spanish tradition in financing the WSS by the Public Institutions. As a result of this, the tariffs of these water services are low.

2. B.III.6.1 Delegated Contracts

1. Pre-conditions: 2005-2010

Given the mixed situation that Spain presents in terms of types of management, the Government should develop a law to establish a transitional period of adaptation in order to pay off the already existing contracts and to set a time limit for tendering out those services that are run by direct public management. This law would contemplate all the segments of WSS activity.

2. Story Weaving: 2010-2015

With strong competition, and without the possibility of subsidies from public institution, public companies would tend to disappear due to the pressure from the TNCs that are already settled in the Mediterranean Spanish Coast. These large firms would also have wide spaces in the markets of high technology (reuse and desalination) that would be very active under the perspective of strong competition. Furthermore, water markets would be activated (see Introduction) with the development of the law that covered the particularities aspects of the transfer of concessionary rights between users in the same basin.

3. To the End State: 2015-2020

The logic of business profit, together with the bad state of the networks in many of the territories in Spain, would lead to a rise in prices. This rise would provoke strong opposition on the part of public opinion because in Spain there is a long tradition of subsidies and low tariffs. The price increase would be associated directly with the intense liberalisation processes within Europe, generating “euroscepticism” caused by the social discontent associated with the loss of the advantages of the Welfare State.

3. B.III.6.2 Outsourcing

1. Pre-conditions: 2005-2010

The recent corruption scandals in the privatisation processes of Public Services have increased people's dissatisfaction. The quality of said services has not improved while the price has increased four-fold. Demonstrations, public protests and complaints have reached all levels of government, obliging the Public Institutions to develop a new management strategy. This leads to the elaboration of a new legislation in which the Public Sector's responsibilities are strengthened. To be specific, the new law includes an exhaustive list of the activities in which the private sector can participate, limits the length of contracts including the possibility of reversibility clauses, and declares rough water systems to be elements of strategic importance, leaving them exclusively under public management (via Basin Authorities). The laws to regulate Water Banks (following the California model) are also introduced. These Banks will be especially active in times of drought.

2. Story Weaving: 2010-2015

The new legislation framework has led to the re-negotiation of private agreements (in 2005 over 50% of the population were supplied by private operators and 5 years later this percentage has been reduced by half).

The rough water systems are now managed by public companies owned by Regional Governments as more efficient ways of management. The generalisation of the Urban Consortiums as co-ordinating elements at a basin level is now a fact. [31]

3. To the End State: 2015-2020

The above-mentioned process has been consolidated. And only 10% of the population is supplied by private operators, which now work in secondary markets. In this segment, the competition between TNCs is strong, but leaves space for small national companies highly specialised in specific inputs which offer a high quality production at low prices.

4. B.III.6.3 Regulated Markets

1. Pre-conditions: 2005-2010

The legal situation in Spain is characterised by not having a single nation-wide regulation or any central co-ordinating organism. Competencies are shared between the Autonomous Regions and the Councils, who decide independently the supply structure and management of the urban water services for their territories.

Therefore, the Government would have to establish the legal framework to define the new legislation and the fundamental aspects of the Regulating Institutions. These Institutions would have a wide spectrum of action in relation to regulating aspects (the negotiation and re-negotiation of concessions, contracts on behalf of the municipalities).

Thereafter, a transition period would have to be established in which the Institutions responsible for urban water management (Councils, Autonomous Regions and Basin Authorities) could choose between forming companies (public, private or mixed) or contracting out the tender for delivery of urban water services.

Given the distribution of competencies and the Spanish legislative tradition, regional regulating institutions would emerge at regional level, because many of the aspects to be regulated (sewerage, quality standards…) are, at present, the responsibility of the Autonomous Regions. Furthermore, it is probable that a basin level regulating body would appear to co-ordinate the different Regional Agencies.

[31] . The Consortiums are independent business entities, of a regional or provincial type. These entities already exist in some territories (Andalucia) and co-ordinate among themselves to fulfil general objectives relative to the territory in which they operate (tariffs, regulation of sewerage, quality standards…).

2. Story Weaving: 2010-2015

Because of the two driving forces that operate in this scenario (On one hand, the financial pressures put on the Councils, and on the other, the social requirement of low service prices) a critical uncertainty would appear:

If, from Europe, the financial capacity of the Public Institutions was strengthened and this financing was managed through public or mixed operators, these would have their spheres of influence greatly strengthened. Under this perspective, the predominance of county and regional operators in rural areas, and of metropolitan operators in urban areas, would continue.

Within this situation, the factors of technological competition and economies of scale would play an important role. The more the regulating organism requires strong measures of transparency, price restrictions, environmental restrictions, maximum contract terms (no longer than 15 years) etc… the more further critical uncertainty would be produced.

If the regulatory requirements greatly weaken the private business profits, the private capital may abandon the core of the WSS as a priority business and transfer its activities towards more segmented sectors of high technologies or secondary inputs where the profit margins are higher.

If, on the other hand, the requirements of the Regulating Institution permit adequate profit margins, the private sector will remain in the core business of the WSS.

3. To the End State: 2015-2020

Moreover, in this scenario, water markets managed by the regulator would be activated (as in California), which would be very active, particularly in the Mediterranean. The reason for this is that the most active demand, and that with the greatest payment capacity, is to be found downriver (on the Mediterranean coast), so that, in times of drought, Water Banks would be activated. The procedure would be the sale of concessionary rights in the hinterland to the coast and of those of agricultural use to urban and industrial uses.

5. B.III.6.4 Direct Public Management

1. Pre-conditions: 2005-2010

In this scenario, the Spanish government, in line with European objectives both in water service quality and in environmental standards, would strengthen public financing through public institutions.

A legal form of protection would be established which would declare raw water to be of "strategic interest" and would develop a legislation with strong restrictions on pricing policies, environmental controls and the reduction of the length of contracts. This would reduce private company profits and discourage future business.

Given the Spanish situation, where raw water is public and has been managed by Hydrographical Confederations, and urban water presents very different forms of management in different territories, it is difficult to imagine a path to achieve direct management through legislation. The coercive legal option would be widely opposed by some of the holders of already existing contracts.

2. Story Weaving: 2010-2015

On the basis of the structure described in the previous paragraph, in situations where there are already business structures (public or private) it would be difficult to undo what has been done and take the road towards direct management. In any case, if the regulating legislation brought about important decreases in the profit margins, the private capital would disappear from the business and move towards segments that are technologically intensive and of high economic benefits.

In cases in which there was already direct municipal management, this would change from being a non-autonomous service to being an autonomous one. This transition is what, in fact, is occurring at the moment in small and medium-sized cities (Zaragoza has an autonomous service and supplies a population of more than 700,000 inhabitants) answering the requirements of greater control and transparency in public finance.

3. To the End State: 2015-2020

The size of the management units of the urban water services would be supra-municipal in rural areas (tending to county size), and metropolitan in urban areas. The reasons are to be found in that there are supra-municipal entities ("mancomunidades"-supra-municipal communities-, counties, provinces…) that have traditionally managed, partially, some public services (eg refuse collection, sanitation) in an attempt to increase efficiency through economies of scale. From the point of view of a scenario that favoured the direct public management of water services, these units would be strengthened.

6. B.III.6.5 Community Management

In Spain, this type of management has been used traditionally in rural areas for the management of water for irrigation (Irrigation Communities, Valencia Water Tribunal). But away from the irrigation zones, it has rarely operated because the water supply is and has been traditionally been the obligation of the Councils. Therefore, this scenario, at first sight, would be not easy to generalise.

It could be thought however, that in the Irrigation Communities that cover great extensions (100,000 ha) and where most of the population (in rural nuclei or dispersed) are irrigators, Irrigation Communities could take on the management of urban water quite naturally, given their long tradition of management in their own territories. In these cases, the Councils would act as regulatory organisms of the urban management of the Irrigation Communities.

Community Management could also be developed successfully in the cases of large industrial consumers or neighbourhoods with a high payment capacity. This would be possible for two fundamental reasons:

- Their size, which would permit their searching for alternative options outside the general urban network (buying water rights from Irrigation Communities, for example).
- The existence of technologies that permit the decentralisation of the supply of urban water services (inverted osmosis to make the water drinkable, small sewage treatment plants). The cost of these technologies, although more and more affordable, requires a certain payment capacity on the part of the users.

In these cases, the Council would act not as a service supplier but as a regulating organism.

Under the conditions of this model, it would be foreseeable that it would extend to large industrial users and industrial estates (generally supplied autonomously from underground reserves) and to new, rapidly growing housing developments (especially coastal tourist housing developments, peripheral urban areas, and second homes).

ANNEX B.III.7 Switzerland

This paper analyses to what extent the five EU end states identified are likely or not to happen in Switzerland. However, beforehand, it is important to recall what the current situation described refers to in Water Supply and Sanitation (WSS) in Switzerland.

1. Introduction

Background: In terms of ***water supply***, the main mode of management is public management, being separated between non-autonomous operators (roughly 90%) and autonomous operators (the remaining 10%)[32]. One could say that the water supply systems in the whole country are in public hands apart from two minor exceptions[33]. The first one is the existence of a private operator in the commune of Zoug[34]. The second particularity is the existence of small-community based organisation in rural areas providing water supply to a small number of inhabitants (less than 10,000). However, like with other statistical figures at the national level, it is very difficult to provide a rough estimation of the number or even the percentage of these organisations with regards to the total number of operators.

In terms of ***sanitation***, the situation is nearly the same. Although most of the sector is characterised by public management, there are a few cases of private sector participation for wastewater treatment plants (i.e., Basle). Interestingly, these developments are relatively new and actually involve large multinationals through their Swiss subsidiaries (e.g., Veolia with Onyx). However, these changes are still very limited and private sector participation can not be currently considered as a main trend.

Overall, it seems that although WSS are currently very much similar, there are stronger driving forces for change in the sanitation sector. In fact, the entry of large French multinationals into sanitation shows that sanitation is perceived quite differently from water supply. Furthermore, water supply and sanitation are not managed together but under two different legal entities.

Driving Forces: ***Public Opinion*** is considered by the specialists of these sectors as the most important driving force. The strong vote against the possible liberalisation of the electricity sector during the referendum in 2003 has had a strong impact on political parties and the different administrations. In some ways, any initiative for network industries on the political agenda has been blocked and we will probably witness no major changes in any network industries in the near future. This is even more so the case for water supply. A recent survey done by the Swiss association of water and gas (SSIGE) showed that 76% of the people in Switzerland were against the privatisation of water supply services.

Public opinion clearly influences the orientation and the possible evolution of the water supply sector. We have already seen the role of public opinion in blocking every move towards more autonomy in the water supply sector. Public opinion and

[32] The percentages refer to the total number of operators and not to the populated served.
[33] These exceptions really represent a negligible percentage of the total population served.
[34] This example should not be seen as a possible trend as this situation dates backs to the 19th century.

local politics could also influence regionalisation since again water is conceived as something very local and that must be municipal driven (direct contact). In terms of sanitation, this driving force is perhaps much less present and one could imagine more open scenarios.

Overall, public opinion is very happy with the current status quo since it obtains good quality water for a perceived good price. Public opinion is therefore pushing for the maintenance of the status quo.

The second main driving force is the recent wave of ***legislation on consumable goods*** which have an impact on the water supply sector. The *Ordonnance sur les denrées alimentaires* increases the responsibility of water operators by holding the operator legally responsible in case of the contamination and/or deterioration of the water quality. This new bill also pushes for more transparency on water quality standards and procedures. It is believed that such law could push for more professionalisation. Indeed, in the case of small communes, professionals in water services could well be hired by fear of the legal responsibility that one has to assume according to this new law.

There are other limited (or more uncertain) driving forces. These are now discussed.

Two or three years ago, it was expected that the ***liberalisation of the electricity and gas market*** was going to affect in some ways water supply management. Indeed, electricity, gas and water supply services were usually regrouped in the same entity under municipal control and the change in the status of electricity and gas towards legal private entities could well have triggered some changes in the water supply sector. In fact, the liberalisation of the other network industries was not at all a driving force but rather a counter force by reinforcing the main specificities of the water supply sector. Public opinion was certainly a factor in stopping this change. There are in fact many examples where there was a strong resistance in changing the legal status for water operators. This was the case in Beinwelden where the local politicians were willing to transform the company managing network industries (including electricity, gas and water and other services) into a private law company. This company would still be under public control but, following the reaction of local citizens, special rules were adopted to water on pricing and on the decision process. This shows in fact how special water is perceived by a number of citizens in Switzerland.

The other driving force for which one has to handle with caution is ***financial availability***. There is no data available at the national level and one cannot tell whether this would constitute a driving force or not. Some specialists consider that this may be a problem especially in very small communes managed by non-professionals since the renewal of the infrastructure may have been omitted in the pricing costs. There is also a distinction to make between water supply and sanitation. Water supply, at least in theory, is financed through full cost recovery pricing. This information is very difficult to check (since the accounts of the commune for all its activity are not clearly divided) and it may be possible that there are some cross-subsidies between the different sectors or services within the commune. However, water supply services do not get any subsidies from the federal or cantonal level for the maintenance of the infrastructure. For the extension of the infrastructure, some

subsidies are available. For sanitation, this sector benefits from more subsidies at the federal and cantonal level. Therefore, one could presume that increase cuts in public financing at the federal and/or cantonal level might lead to some financial pressure and possible change.

The last limited driving force is ***regionalisation***. There are certainly some examples in some cantons but it remains for the moment too limited to consider it as a main driving force. It is true that the high segmentation of the market may rise important efficiency problems in economic terms and that is actually why most specialists consider that some form of regionalisation at the intercommunal level is expected and/or needed.

The five end states are now presented showing how we arrived to each situation looking backwards. However, it should be emphasised that some of these scenarios are more than unlikely. End states 3 and 4 appear fairly realistic; end states 1 and 2 unlikely yet possible, while end state 5 is the most unlikely.

2. B.III.7.1 Delegation contracts

The Swiss WSS markets are now quite competitive with the introduction of public bidding for every commune (i.e.: delegated management). Competition rules are ensured by an independent regulatory body – the Competition Commission – that is under the auspices of the Swiss Federal Department of Economic Affairs, and a new regulatory authority for economic regulation has just been set up. If one looks backwards in 2005, the current situation would have been seen as very unlikely.

1. Pre-conditions: 2005 – 2010

The situation was at this time completely different. Overall, WSS were under public management. The only changes during this period notably pertained to a certain professionalisation of the services, following the application of the 2002 law on consumable goods. Indeed, small communes, who feared the increased legal responsibilities this law gave them, preferred to turn to small engineering firms to ensure the maintenance of their water services. In large cities, water operators were autonomous and started to expand their activities to peri-urban areas.

Water and sanitation were managed separately except for a few large cities that decided to regroup these activities. The situation in both sectors was relatively the same except in small areas where there was a growth in inter-municipal structure for sanitation. Regionalisation for water supply was also encouraged through subsidies but this process failed due to the resistance of communes against cantonal control.

There were important changes in the political arena (although these were not seen yet as having a possible impact on the water supply sector). In 2007 the parliamentary elections changed considerably the Swiss position with regards to its entry into the European Union. The Socialist parties with the help of the liberals pushed the accession issue to the European Union after their victory at the parliamentary elections. However, although these political parties were in favour of accession, public opinion was still ambiguous in its position. It is important to recall that seven

years before (4 March 2001), the people and cantons gave a resounding rejection on a referendum to the initiative "Yes to Europe!".

2. Story Weaving: 2010 -2015

The situation started to change from 2009, although at that time there were no apparent changes in the Swiss WSS market. The change in fact came from the European Commission's stand on water supply services. This had no direct effect on the Swiss water market but was an important development to understand the current situation.

Indeed, by 2009, the European Commission had decided to adopt a new directive imposing that all municipalities - including those directly managing the services - to go for public bids at least every twenty years. This directive in fact was a follow up of the 2003-2006 Internal Market Strategy document, which has received a new impetus following the June 2004 European Parliamentary election. As we all know by now, this directive has clearly reconfigured the European water supply market although it went through considerable resistance. By 2012, the Directive was implemented in every member country's legislation and public bids became the rule all around Europe.

In Switzerland, these developments were followed with great attention although the Swiss water supply and gas association considered these developments as impossible to happen in the Swiss water supply market. Sanitation was overlooked at this period although it appeared that wastewater treatment was more and more expensive and this started to create financial problems.

With the left wing-liberal majority, a new impetus for the accession to the European Union came about and a new public campaign was launched emphasising the benefits of entering into the European Union fuelling important political debates that lasted until 2010. In 2011, a new referendum was organised where 52% of the population and a majority of cantons voted in favour of the entry into the EU. During the same period, the Swiss Government had entered into negotiation with the EU to fix the different conditions of entries.

In 2012, Switzerland became a full member of the European Union. The Swiss water market became under the EU water competition rules, which obliges municipalities to go for public bids at least every 20 years. The water supply market gradually opened up and competition between public and private operators first started in big cities (Zurich, Bern, Lausanne and Geneva). The only private Swiss water operator (Zoug) at that time benefited from this situation and started to expand rapidly. The fact that this operator was Swiss was a considerable advantage due to the tacit reluctance of many municipalities and politicians to let foreign operators enter into the market. For smaller towns and rural areas, the situation was different. Despite these competition laws, there were no real changes and in fact there is still not much development as of today. Public bids were respected but competition remains very limited since aggressive operators involved in the Swiss water supply market just concentrate their attention on large cities before considering any peri-urban developments.

These changes fuelled much fear, especially in large cities and in 2013 there was the appearance of social gathering and protest against new foreign operators. The population called for a return to public management. Politicians knew this would be impossible and rather emphasised, both at the national and European levels, the need for more regulation and transparency.

3. To the End State: 2015- 2020

In 2018, a new change in the water supply sector came about with the introduction of a new directive. Following social protest, national politicians pressed the Commission to introduce an amendment to the 2009 directive which set the obligation of creating an independent regulatory authority in each member country. This proposition was welcomed in Switzerland and we are currently (in 2020) witnessing the setting up of this new regulatory authority.

In sanitation, if one looks backwards, one can see that there were no major changes from 2005 to 2015. Indeed, the European Commission did not particularly intervene in this sector and it is really very gradually that new competition rules emerged at the cantonal level following the new investment needed in the sector. Industrial and agricultural development led to the development of new technologies since water was more and more polluted. This change triggered private sector participation because the different cantons had not anticipated the rising costs in this sector. Since large sums were involved, the Swiss competition authority considered that public bids were necessary for any private sector development. Nowadays, competition is developing in sanitation but mostly in a very sporadic and unpredictable way. Furthermore, this process only happens in very large urban areas.

If one now looks backward, one can see that the current situation can be explained around three main factors, the ***entry of Switzerland in the European Union,*** the ***new competition rules at the EU level for water*****,** and ***new financial needs for sanitation***.

3. B.III.7.2 Outsourcing

The Swiss WSS markets can be viewed as quite competitive and modern in that they benefited from new technological developments. Both markets are self-regulated.

1. Pre-conditions: 2005 – 2010

Since 2005, the 2002 federal law on consumable goods started to have important and unexpected effects on water supply management by introducing new forms of competition in small communes. This law in fact increased the responsibility of the operators, since they became legally responsible in the case of contamination and/or deterioration of the quality of water. The unexpected consequence of this clause was that it pushed for more professionalisation. In small communes, one could witness the emergence of small engineering companies responsible for the maintenance of water and sanitation services. This change really came from the fear of small communes to bear on this new legal responsibility. A new form of competition was emerging in the

Swiss water supply market with short-term contracts for small engineering firms in low populated areas.

For large urban areas, this law had no clear influence and water supply remained under public hands without any forms of competition. In these areas, the water supply market was highly protected and competition in this sector was not so much a priority within the political realm.

In sanitation, there were no special developments and sanitation remained in public hands apart from a few exceptions.

2. Story Weaving: 2010 -2015

Between 2010 and 2015, the main changes happened in the sanitation sector. The increasing use of chemicals in the agricultural and industrial sector led for new demands in terms of technology for wastewater treatment. Short term contracts were therefore offered around the country in order to upgrade the system with new available techniques. Large private multinationals therefore were much more present in this market compared to water supply, which witnessed no major developments during this period. Indeed, there were no dynamics of change as the water supply market was not subject to much technological change.

3. To the End State: 2015- 2020

Between 2015 and 2020, there was increasingly more pressure on the water supply market. The changes in the sanitation market affected water supply by an increase in new (foreign) entrants lobbying at the federal level. The Swiss water and gas association, after regrouping the major operators in these sectors were also pushing for keeping the status quo.

Currently, the debate resides on the benefits of introducing more competition with right wing politicians pushing for segmentation of the water supply market, emphasising the benefits of short-term contracts for large urban areas. At the moment, this form of competition only exists in small areas with small engineering companies. Large urban water supply operators are currently resisting this trend but for how long….

If one now looks backward, one can see that the current situation can be explained around two main factors, the ***unexpected consequences of the 2002 federal law on consumable goods*** and the ***new technological needs for wastewater treatment***.

4. B.III.7.3 Regulated Monopoly

The Swiss WSS markets have become over the last fifteen years more competitive. This can mainly be explained by the introduction of benchmarking rules at the federal level.

1. Pre-conditions: 2005 – 2010

If one looks at the situation fifteen years ago, one would be tempted to say that the WSS have not really changed. The only major difference is in terms of regulation. At that time, the sector was self-regulated. In fact, at this period, talking about competition in the water supply was a delicate issue. Public opinion was extremely fearful of any possible form of liberalisation of water supply services. In fact, the strong vote against the possible liberalisation of the electricity sector during the referendum in 2003 has had a strong impact on political parties and the different administrations. For many years, any initiatives for network industries on the political agenda were to be blocked. This was even more so the case for WSS, and especially for water supply. A survey done by the Swiss association of water and gas at the time showed that 76% of the people surveyed were against the privatisation of water supply services.

2. Story Weaving: 2010 – 2015

2011 constituted the main turning point in that the need for stronger economic regulation was really put forward through a price and corruption scandal. Until then, the only type of control in the water supply and sanitation sector was done by a federal institution, *La Surveillance des Prix*. This organism has been involved in many sectors and controls were done only if a relatively important number of customers started to complain about important price increases in their commune. The scandal happened in a large commune where the revenues of water were used to finance the predominant political party. Local politicians were well embarrassed by the scandal. Suspicious, the medias (i.e: the press, television) and civil society started to look more closely at the sector and the matter rapidly reached the national level as several irregularities emerged. Looking backwards, these irregularities had very little incidence but at the time created a big political debate. Most of the politicians then agreed to push the price control organism, *La Surveillance des Prix*, to introduce new benchmarking procedures at the federal level. Despite strong political intentions, the *Surveillance des Prix* was not given the sufficient additional resources to successfully perform this task as it had also to take care of all the other sectors. Anyhow, although this decision was at the time very serious, it seemed very unlikely that it would have remained for long as it would have challenged the central role of canton and the municipalities in water supply and sanitation services.

3. To the End State: 2015- 2020

By 2015, the director of the *Surveillance des Prix* declared that it would be unsuccessful in regulating the water supply operators if it did not receive more financial and manpower resources. At the same time, the Swiss association of water and gas (SSIGE), on behalf of the water operators, started to prepare an alternative

system since the local public authorities were resistant to any federal political bodies that could control water supply services. National and local politicians encouraged this initiative as they were not particular keen in releasing additional funds for the *Surveillance des Prix* and did not want to question the federal nature of the Swiss political system.

The system proposed by the SSIGE has started only recently as it took some time to put into place since it required beforehand a harmonisation of accounting methods at the national level. This new benchmarking system is compulsory and the information transmitted is open to the public. The main objective of this system is on price control and the SSIGE may issue recommendations to local authorities when the price is judged as too expensive.

In sanitation, the national association is also currently thinking about introducing benchmarking procedures following the water supply example.

If one now looks backward, one can see that the current situation can be explained around one main factor, the ***price and corruption scandal*** that created a new dynamic for introducing benchmarking measures in WSS.

5. B.III.7.4 Direct public management

The Swiss WSS markets are characterised by direct public management. No form of competition or sector specific regulation exists.

1. Pre-conditions: 2005 – 2010

If one looks ten years back, one can see that the water supply and sanitation markets have not changed much. WSS were managed by the public sector at the municipal level. The only major difference came from the status of some operators, as there was still at that time a relatively large amount of population served by autonomous public suppliers, especially in large cities. This was the case of Geneva for example. It seemed that public opinion was satisfied with water quality and water prices were not perceived as high in many communes.

There were also several initiatives pushing for regionalisation, especially in the case of sanitation. However, communes were reluctant to relinquish some of their power and mobilised public opinion against any regionalisation initiatives, whether in water supply or sanitation. Furthermore, the need for economies of scale was counterbalanced by new public management tools (such as new flexibility in finance and work contracts) that were developed at the communal level.

2. Story Weaving: 2010 –2015

The situation we find ourselves in now can mainly be explained by what has happened between 2010 and 2015. During this period, the liberalisation of gas and electricity took a new dimension in that a new law for both sectors accelerated the process of opening up the markets to competition. This had a clear incidence on water

supply and sanitation. From 2000 to 2004, some specialists expected that the liberalisation of other network industries could well accelerate a possible opening of the water supply and sanitation market. Now we can see that it is really the opposite that happened. The accelerated process of liberalisation of electricity and gas during 2010-2015 in fact acted as a counter force by reinforcing the main specificities of WSS. This can be explained especially by the public opinion reluctance to any changes in the water supply sector. In fact, all the autonomous water supply entities became under direct control since public opinion, as well as certain politicians, wanted to protect as much as possible this sector. Due to these reforms, water and sanitation were regrouped as it was thought that it was very complementary to manage both of these sectors under one entity, i.e.: the commune.

3. To the End State: 2015- 2020

From 2015 up to now, there has been no notable evolution. Water and sanitation are now under direct public management. In terms of regulation, the situation has actually not changed for the past ten years. The communes still fix the water and sanitation prices and full cost recovery practices are still encouraged. For more transparency and in line with the new public management tools used, accounts are separated to show the real costs of water supply and sanitation. Regarding customer complaints, the matter is referred at the end to the federal price control organism, *La Surveillance des Prix*. However, customer complaints have also been outsourced at the local level so as to better react and understand customer needs. Subsides at the cantonal and federal levels are available for the extension of the network.

If one now looks backward, one can see that the current situation can be explained around one main factor, the ***accelerated process of liberalisation of electricity and gas*** which reinforced the specificities of WSS.

6. B.III.7.5 Community management

Community management has existed for a long time in Switzerland but is now emerging as a possible alternative to public management.

1. Pre-conditions: 2005 – 2010

Community management already existed in 2005 in Switzerland. This was the case especially in very small rural areas. In fact, this type of management has been developing since the end of the nineteenth century where rural community in Switzerland decided to construct and improve the water supply networks.

Nonetheless, it should be emphasised that this type of management was more of an exception than a rule. No statistical figures existed on the percentage of community management compared to the rest but some specialists considered that this form of institutional arrangement represented less than 1% of the total number of population served. It was therefore a very negligible number.

2. Story Weaving: 2010 –2015

There were no important changes during 2010 and 2015. Community management continued to operate in small rural areas and it was not expanding into other areas. In fact, the situation stayed unchanged because the system appeared as quite successful and sustainable in terms of day-to-day management. In fact, this type of institutional arrangements started to receive increased attention from research bodies. Already in 2003, a NGO had published a detailed case study on one village, Wittenbach, and the way by which community water supply worked in Switzerland at that time. This publication is actually still available at the following website (http://www.skat-foundation.org/publications/pdf/Wittenbach.pdf). The idea of developing smaller networks that could function along this model reached a certain success in the intellectual community. Many debates focused on the necessity of developing new ways of living that could be more sustainable and the old motto "small is beautiful" was seen as the solution.

3. To the End State: 2015- 2020

The intellectual interest for this type of management had a rather unexpected success and community management started to expand in large urban areas. In fact, it is for the moment limited to an experimental town (circa 300 000 inhabitants) but one could imagine that if this example is successful, it could well spread to other major urban cities in Switzerland.

This was clearly unimaginable ten years ago but the town is now split into hundreds of community organisations. In fact, what happened was the City went bankrupt. We had known for some time that the canton had important public deficits but the situation became unexpectedly out of control. Reacting to this situation and doubtful about the abilities of the politicians to get out of this catastrophic situation, citizen associations were set up and new corporations emerged that decided to take on as one of their primary responsibilities, the management of the water supply and sanitation sectors.

If one now looks backward, one can see that the current situation can be explained around two main factors, the ***accelerated bankruptcy of one large city*** and ***the support from the scientific community.***

ANNEX B.III.8 United Kingdom

1. Introduction

Background: The Member State storyline for the UK will focus on England and Wales[35]. The existing institutional arrangements (appointed regional private companies, regional customer service committees and central, but independent, government regulators) are well established and are functioning relatively well. Hence any structural change (away from equity based companies and a regulatory regime based on RPI-X incentive regulation and comparative competition) will be viewed with concern.

Indeed the existing institutional framework is extremely difficult to change because of the way in which the then Conservative Government organised the privatisation process back in 1989. This is exemplified by the 25 year notice period that is required by existing appointees if they are asked to quit their statutory appointments.

Hence the storylines for England and Wales need to be set in this relatively constrained institutional context. The current Government and the economic regulator have also made it clear that they are seeking financial and regulatory stability for the companies over the next decade[36]. The Government's current policy aim is to retain vertical integration and continue with statutory rights and duties for the whole supply chain. This will help to achieve the current Government's objectives on public health, affordability and customer service.

However, this is not to say that there will not be major structural changes in the future (between 2005-2020, the period selected for scenario development) – especially over such an extended period. For example, over a five year period (between 1999 and 2004), there have been: major changes in ownership (five of the ten water and sewerage companies have changed hands – two transactions being stimulated by financial failure of the holding company, with another two being stimulated by the tough periodic review in 1999); major changes in both corporate and financial structure (eg level of gearing), and important changes in business strategy (eg extent of outsourcing, extent of diversification). As a consequence of these developments there is considerable diversity in corporate/financial structures at the beginning of the scenario period.

Following the results of the last periodic review in 1999 there were also a number of important proposals for institutional change (eg by Kelda to form a mutual – a form of community management, by Anglian Water to outsource most of its operations, and by Welsh Water to establish a non profit company with controlling Members). Whilst not all of these proposals were implemented, under similar market conditions they could be reintroduced on a much broader scale. In addition, there have been major evolutionary changes in the regulatory framework. These evolutions may continue after the current periodic review – which is to be completed by December 2004.

[35] Scotland and Northern Ireland are not addressed in this scenario building exercise.
[36] See DEFRA Directing the Flow: Priorities for future water policy, November 2002.

Indeed the announcement of the results of the current periodic review in late 2004 is a key event (probably one of the most critical events). This announcement occurs prior to the formal start point for the proposed scenarios (ie end of 2005). Decisions on equity returns, incentive mechanisms and efficiency targets will strongly influence future direction of the industry up until 2010, and possibly beyond.

The draft determinations have now been made public (August 2004) and average price rises over the next five period are expected at around 13% - less than half that requested by the companies. However, this provisional settlement, if maintained at around the same level as currently proposed (re draft determinations), will provide some stability to the existing institutional arrangements.

Driving Forces and Uncertainties: Before moving on to discuss the possible storylines for England and Wales for the five selected EU end states it is appropriate to first highlight some of the key (continuing) driving forces/uncertainties operating in England/Wales.

1. *Public opinion* (ultimately reflected in Government/Regulatory action) on the need to keep prices as low as possible. Currently the public thinks it is getting good value for money but this could change in April 2005 when the results of the current price review become apparent to individual households.
2. The final *scale and timing of the investment programme* for the industry as proposed by the Government (following advice from the independent regulators) during successive future periodic reviews (2004, 2009 and 2014) – noting that levels of investment are likely to remain at a high level for at least another decade.
3. Existing Appointees looking for *continued cost savings* as a result of regulatory pressure – from capital markets, improved technology/management, further downsizing and/or by contracting out[37]. The drive for cost savings is ultimately driven by investors through the price cap.
4. New entrants and large non-household customers *pressing* Government/ Regulator for more extensive liberalisation. Customer choice in suppliers for non-household customers is also being championed.
5. Existing Appointees and equity investors *pressing* Government/Regulator for more mergers to be allowed to allow revenue (and hence profits) growth.
6. Government *pressure on* regulator to protect certain vulnerable customer groups from high prices. This pressure may partly originate from public concern and certain NGOs.
7. *Continuing negative cash flow* (and uncertain scale and timing of future investment requirement) may continue to unsettle equity investors.
8. Major *pro-competition legislation* is being introduced in the UK (2005) and this could be supported by actions by the EU.
9. Favourable market conditions (eg low interest rates), financial innovation by banks (eg Artesian structures to gain access to bond markets) and briefings by Ofwat may (or may not) continue to reinforce interest in the water industry by *debt markets*. Water companies (with a low risk profile and a fairly predicable

[37] Selective outsourcing and market testing is already taking place across the sector as companies explore new ways of improving efficiency.

cash flow with regulatory protection) could continue to be attractive to debt investors (as well as equity investors interested in income yield).

10. *Government Concerns* that a move away from equity based companies could dampen incentives, transfer risk to customers, increase the risk of financial failure and limit company borrowing capacity.
11. External *macro-environment* (eg environment, political, corporate failure, terrorism) factors that could bankrupt the system (investment levels are known to be high currently but this will probably not precipitate institutional change without a major step increase in the required investment).

As noted above probably the key uncertainty is how the government/economic regulator will move on strategic issues such as: inter company mergers, pre-conditions associated with allowing institutional change (eg mutuals), scale of the investment programme, allowable equity rate of returns and measuring the future cost efficiency frontiers. The other key uncertainty is how the capital markets and the operators will then react to future government/regulator policies in these critical areas. Will shareholders exit if returns are restricted, will the operators seek to restructure their businesses and what form will it take, will takeover-merger fever bite, will the debt markets take on additional lending with potentially higher risks. These issues are difficult to predict as they involve very complex decisions. They may become much clearer following the announcement of price limits for 2005-09 later this year.

2. B.III.8.1. Delegation Contracts – A European Inspired Future

1. Pre-conditions: 2005-2010

The periodic review for 2005-09 was generally seen to be well balanced and ensured that well managed companies were able to finance their functions. The final determinations (of the 2004 periodic review) were similar to those published in the draft determinations – leading to a 13% increase in bills over the period. There was no consolidation in the sector. There was continued increase in bond financing.

Moves to open up the market by common carriage were a great success, partly as a result of associated technological developments. A number of large companies (from the energy sector) entered the market in a substantial way. These moves were supported by various EU initiatives aimed at liberalising access to large industrial water users by 2009. Following early successes the Regulatory Authority adopted policies to further promote competition (accounting separation, wider definition of avoidable costs under access pricing regime) and the Government gradually lowered the common carriage threshold to embrace the majority of non-household customers (say all non household customers above 20 Ml/d) and also new housing estates.

The existing appointees remained in place but aggressive competition forced service levels up and costs down to new lower levels. Appointees responded to competition by further unwinding cross subsidies that put additional pressure on household bills.

The existing regulatory framework continued to be fine-tuned and became ever more complex and costly to manage. More econometric modelling was introduced and

further adjustments to the price cap formula were made to sharpen competitive signals. In response, some companies increased their outsourcing (whereas others reduced it).

There was some increase in the use of European benchmarking data. However, the difficulty of making data comparisons across different Member States and the confidentiality issues surrounding its use meant that this form of international benchmarking was only used to support national benchmarking activities.

Following the price review in 2009, price reviews were extended back to the original concept – ie once every 10 years – partly to counter the increased complexity and partly to sharpen incentives. However, there were ongoing interim reviews for a number of companies as some issues such as bad debt and capital maintenance levels continued to cause financial problems.

2. Story Weaving: 2010-2015

However, by 2009 the industry had reached a general plateau in terms of cost levels (eg cost of capital, operating efficiency gains) and service performance.

BRANCH POINT BETWEEN STORYLINE 1 AND STORYLINE 3.

The existing method of monopoly regulation appeared to have exhausted itself. This created a major problem for the Regulatory Authority. They launched a major review of water (and sanitation) regulation in 2010. The objective of the review was to discuss how other competition processes - such as competition "for the market" - could be introduced into the sector thereby taking costs to new lower levels. Following some EU funded comparative studies the evidence from continental Europe appeared to highlight the superiority of this form of competition (but only if it is managed correctly).

Whilst the review recognised that competition for ownership (and hence control of the) Appointee represented a form of competition "for the market" it was felt that the competitive signals were too blunt. The major review concluded that there were potential major efficiency gains from returning the assets to public control and then offering concessions to manage the system on behalf of the Government (with regular and open competitions for this privilege).

However, unless multiple special administration orders could be obtained from the High Court (for a serious contravention of its duties) the current Appointees would continue to have responsibility for the proper performance of their statutory functions. The only way to break this arrangement was to invoke licence condition O. This stated that the only circumstance where a change can be made is where "the Secretary of State has given the Appointee at least 25 years' notice to terminate the relevant Appointment in relation to the whole of its area and that period of notice has expired".

At about the same time as the regulatory review had been completed (and with quite limited consultation), the EU introduced a proposed Directive on competition for the market and this was to be introduced by 2012. Despite extensive lobbying by several

Member States (including the UK and Germany) this Directive was adopted with minor modifications. Indeed an amendment in 2013 (to be applied in 2016) was made so that all concession contracts had to be rebid (every 5 years) with the lowest bid being accepted.

This EU Directive on competition for the market essentially forced the hand of Government of the day (noting that the policy supported the results of the major internal review of water and sanitation regulation).

3. To the End State: 2015-2020

So on January the 1st 2015 the then Secretary of State, Wayne Rooney (a leading member of the newly elected radical Conservative Party), issued notices to quit on all water and sewerage companies at the same time. The financial arrangements of the buy back were announced at the same time – and amounted to the Regulatory Asset Value of the company on the day of the announcement.

In one day the whole water and sanitation industry in England and Wales essentially became a suite of 25 year concessions - whereby in 2040 the ownership of these assets would be taken back into public control, and subsequently the rights to use them openly rebid. It was envisaged that the Regulatory Authority would then become the Government's specialist water (and sanitation) procurement/competition agency as well as its price renegotiation body. It was anticipated that pricing within the boundaries of the suite of new 25 year concession contracts would be reviewed by the Regulatory Authority every 5 years.

In the intervening period (from 2015 to 2040) the existing regulatory processes would continue as now (and a derogation was negotiated with the EU re Directive amendment application date of 2016). Periodic price reviews would continue every 10 years - but with a special focus on ensuring that capital maintenance levels were maintained at appropriate levels (in the run up to the handover date on 2040).

This storyline turns on the introduction of an EU Directive on competition for market and the recognition that the existing regulatory system had exhausted itself. As noted above the storyline to end state 1 is particularly difficult to develop from the current regulatory context in England/Wales (where Appointees have their monopoly rights enshrined in primary legislation and are protected by the courts from inappropriate Government action).

Note: One other plausible storyline would be to follow the pathway indicated for end state 2 and for single (all embracing) contracts to be let by the largely debt financed Appointees. However, a number of key risks (eg most notably water quality risks associated with drinking water and sewage discharges to the environment[38] - but also revenue risk and some financing risks) must remain under the current regulatory framework with the regulated Appointee. Hence this may not be seen as a true concession contract where most of these associated risks are transferred to the concessionaire.

[38] The Appointee is exposed to both regulatory enforcement action and the criminal law if fails in its duties to discharge their statutory functions properly. These responsibilities cannot be transferred to a third party via a concession contract.

3. B.III.8.2 Outsourcing – Reaching Tough Regulatory Targets

1. Pre-conditions: 2005-2010

The draft determinations for 2004 projected that household bills would rise by around 13% between 2005 and 2009. However, following interventions by the Environment Agency and the Secretary of State additional investments were added into the final settlement. This led to much higher price rises. The final price determinations allowed for bill increases of over 20 % across England and Wales between 2005 and 2010. Some price increases were a lot higher than this average figure.

There was quite a lot of discontent, especially amongst household customers, about the scale of the resulting bill increases. However, the operators and their equity investors were generally content with the outcome of the 2004 periodic review (despite being below what they had originally bid for). The moves toward liberalisation (eg common carriage) were not generally successful in putting additional pressure on Appointees to reduce costs and improve services. Common carriage remained peripheral and calls for more wide-scale competition in the market (with the exception of a select number of larger customers) faded into obscurity.

The level of complaints about household bills reached record proportions in May 2005 and the increasingly vocal Customer Committees continually briefed the media about the scale of this customer dissatisfaction.

The Regulatory Authority came under strong political/public pressure to keep prices low (despite the huge investment programme, largely driven by the EU Framework Directive and the aggressive implementation of this Directive by the Environment Agency) in the 2009 periodic review - and to actually reduce them again if this was at all possible (as the previous Regulator did back in 1999).

However as a result of the Water Framework Directive and the emerging impact of climate change investments were increasing (and not decreasing) as the decade wore on. These new investments were largely bond financed.

Recognising the possible future regulatory regime (in 2007 the Regulatory Authority gave clear signals through speeches and city briefings that the regulatory pressure would be intense at the next price review in 2009) shareholders gradually began to exit the market to be largely replaced by bondholders.

This periodic review for 2009 (PR09) proved to be very fractious. Eventually the Regulator Authority determined that a small bill reduction could be achieved by constraining the rate of return for equity, assuming higher levels of gearing and forcing very tough efficiency targets.

With regulatory approval – both before and after PR09 - competition in the capital markets resulted in a major but a gradual structural shift (from equity to bond financing). From 2007 to 2010 industry gearing rose to over 70%. A number of companies became either wholly debt financed or only with a very thin equity wedge.

However, a few of the larger companies continued to favour the equity model. These large equity based companies (which were generally part of even larger holding companies) began to offer specialist services to the largely debt-financed companies (that were restrained by their covenants from diversifying away from the core business of water supply and sanitation).

In response to the tough price review of 2009 a large number of companies also put proposals to the Regulatory Authority to become mutualised - with ownership and some risks of ownership being transferred to the customers of the utility or selected members.

BRANCH POINT BETWEEN STORYLINE 2 AND STORYLINE 5

2. Story Weaving: 2010-2015

In January 2001 the then Director General of Water Services stated that he "would be concerned if significant numbers of companies were to seek to follow (Welsh Waters example) before the model of a wholly debt financed outsourced company had been tested."

The subsequent poor performance of Welsh Water did not give the Regulatory Authority the comfort it needed to authorise the wide-scale mutualisation of the industry. The need for clear management separation prior to the price negotiations also created problems for many mutual proposals. Customers were also sceptical of the proposed mutualisation in a number of regions, and most were rejected (often by a large voting majority). Modern day consumers did not appear to want this responsibility (and the associated risks) of an increasingly complex industry.

However, despite these rebuttals (by both the customer and the Regulatory Authority) there was still an appetite for institutional change. Many of the companies who had their applications for mutual status rejected returned to the Regulatory Authority with similar proposals for contracting out operating/customer service functions - but with no formal change to the nature of the asset owning body. There was an emerging consensus in the industry that outsourcing was the only way to achieve the tough targets set by the regulator. However, the asset owning bodies would be mainly financed by debt, with only a thin equity structure.

These proposals were largely accepted by the Regulatory Authority - although some minor (when compared to those required for any proposed change to a mutual body) amendments to Appointee licences were required as part of obtaining regulatory approval.

However, the Regulatory Authority insisted on detailed procurement plans. Each plan - outlining competitive outsourcing on a rolling basis in four main areas: service delivery and asset operation contracts; customer service contracts – had to be approved by the Regulatory Authority and/or audited by Reporter. Each plan had to assess the competitiveness of the market, the nature (number, mix and type) of current and proposed contracts, details of the procurement process and how the company would retain control of contractors operations. The Regulatory Authority also made it

clear that it was necessary to disaggregate the core services to make them properly contestable in the open market.

The Appointees were also prevented from delegating responsibility for the proper performance of its statutory functions to any other party and had to ensure it has adequate resources to do so itself (important considering the degree of outsourcing that was proposed).

When the outsourcing contracts were finally let between 2014/15 they were mainly won by the remaining small number of large equity based water and sewerage companies. The Regulatory Authority continued with the same regulatory model (irrespective of ownership/investor patterns) for the Appointees – price caps using aggressive comparative competition. However, whilst this remained an important competition process it was evident that outsourcing was becoming an equally dominant across England and Wales. This increased importance was reinforced by events in the following five years.

3. To the End State: 2015-2020

The 2014 price review was as tough as the one in 2009. As the regulatory targets became more difficult to achieve the remaining equity based companies looked to outsource more of their own activities so as to reduce their cost bases.

Outsourcing focused on both infrastructure (eg capital maintenance activities) and non infrastructure (billing and customer management) elements. Indeed by 2020 outsourcing levels in the remaining equity based companies had reached almost 50% of turnover (a massive increase from the 15% quoted in 2005). However, there was no general rule about which services were outsourced, and whether outsourcing always offered the "best solution". In some companies there remained a preference to keep all core services in house – both to maintain service integrity and to keep a close eye on costs. The Regulatory Authority left it to the companies to determine the extent of their outsourcing.

This storyline turns on tough regulatory reviews in 2009 and 2014 and the refusal by the Regulatory Authority to allow mutuals to be formed. Companies (whether equity based or debt based) turn to outsourcing as the central means of achieving the challenging regulatory targets.

4. B.III.8.3 Regulated Monopoly – Business As Usual.

1. Pre-conditions: 2005-2010

The periodic review for 2005-09 was generally seen to be well balanced and ensured that well managed companies were able to finance their functions. The final determinations (of the 2004 periodic review) were similar to those published in the draft determinations – leading to a 13% increase in bills over the period. There was no consolidation in the sector. There was continued increase in bond financing.

Moves to open up the market by common carriage were a great success, partly as a result of associated technological developments. A number of large companies (from the energy sector) entered the market in a substantial way. These moves were supported by an EU Directive (adopted in 2006) aimed at liberalising access to large industrial water users by 2009.

Following early successes the Regulatory Authority adopted policies to further promote competition (accounting separation, wider definition of avoidable costs under access pricing regime) and the Government gradually lowered the common carriage threshold to embrace the majority of non-household customers (say all non household customers above 20 Ml/d) and also new housing estates.

The existing appointees remained in place but aggressive competition forced service levels up and costs down to new lower levels. Appointees responded to competition by further unwinding cross subsidies that put additional pressure on household bills.

The existing regulatory framework continued to be fine-tuned and became ever more complex and costly to manage. More econometric modelling was introduced and further adjustments to the price cap formula were made to sharpen competitive signals. In response, some companies increased their outsourcing (whereas others reduced it).

There was some increase in the use of European benchmarking data following the launch of a European pilot project in 2007. However, the difficulty of making data comparisons across different Member States and the confidentiality issues surrounding its use meant that this form of international benchmarking was only used to support national benchmarking activities.

Following the price review in 2009, price reviews were extended back to the original concept – ie once every 10 years – partly to counter increased complexity. However, there were ongoing interim reviews for a number of companies as some issues such as bad debt and capital maintenance levels continued to cause financial problems.

2. Story Weaving: 2010-2015

By 2010 the industry reached a general plateau in terms of cost levels (eg cost of capital, operating efficiency gains) and service performance.

BRANCH POINT BETWEEN STORYLINE 1 AND STORYLINE 3.

However, this plateau is not seen as a major problem as the public remained relatively satisfied with the prices they paid and the services they received. Equity investors were also adequately remunerated for the risks they incurred.

To improve efficiency levels further the Regulatory Authority reinvestigated the possibility of adopting European benchmarking processes. This action was supported by the instigation of a multi-million Euro pan EU benchmarking system in 2012. The European Commission wholly funded this system.

3. To the End State: 2015-2020

By 2015 the European datasets were a lot more robust (and in a format similar to those adopted in England/Wales, were publicly available from a wide cross section of countries (Germany, Scandinavia) and were audited by professional bodies. For 2019 it was decided to integrate the results of these European benchmarking into the price setting process.

As time progressed for large-medium sized industrial users the water supply sector increasingly resembled the already liberalised energy sector. In contrast the sewerage sector remained as a fully integrated service. However, price cap regulation continued to be applied across the water supply network and institutional diversity has been maintained to the current time (2020).

Indeed in 2020 the water industry looks very similar to 2005. Price cap regulation has become even more complex but price cap regulation remained a success. There is much diversity in structures, ownership and corporate strategies. The main difference between now (ie 2020) and 2005 relates to the increased level of competition for non-household customers through common carriage and the use of European benchmarking data. Competition for connection services has also been good for the customer.

This storyline turns on the success of regulatory reviews in 2004 and 2009, the relative success of various competition initiatives (eg common carriage) and the introduction of wide-scale European benchmarking.

5. B.III.8.4 (Direct) Public Management – Crisis Management

1. Pre-conditions: 2005-2010

Following the results of the 2004 periodic review the regulator came under strong political/consumer pressure to keep prices lower (despite huge investment programme, largely driven by the EU and the aggressive implementation of the Framework Directive by the Environment Agency).

The move toward greater liberalisation (such as via common carriage) was not successful in putting pressure on Appointees to reduce costs and improve services to the majority of customers. The Regulatory Authority achieved this price control by allowing more company mergers to occur to reduce both operating and capital costs.

This was despite evidence that did not support the arguments favouring economies of scale (often used at that time by the proponents of increased water-water mergers/acquisitions). Mergers started between the water and sewerage companies and the local water only companies in 2006. Success here led to further restructuring across the country. Equity returns then reached much more favourable levels.

2. Story Weaving: 2010-2015

With regulatory approval, competition in the capital markets resulted in just 3 major private companies (NorthCom, CenCom, SouthCom) that owned and operated the assets. This occurred within a relatively short period of time (from 2010 to 2013) as a result of a takeover-merger frenzy as equity investors looked for improved returns.

National comparative competition became largely redundant and with it price cap regulation was severely blunted. The Regulatory Authority adopted two separate regulatory approaches to try and maintain pressure on the remaining small number of companies and set sensible price controls. The Regulatory Authority adopted a model company approach and also started to use international comparators more aggressively. The regulation of transfer pricing regulation also became a lot more important. The 3 large companies also tended to rely (with regulatory encouragement) more extensively on a plethora of sub contractors that were not directly associated with them.

Hence, by 2015, the industry was wholly dominated by 3 large equity financed companies. Price cap regulation had moved from national comparative competition to company modelling (supported by EU benchmarking exercises). The 3 mega-companies also purchased products and services from a myriad of subcontractors (including DBO contracts where appropriate).

However, this massive restructuring exercise yielded a much lower number of Appointees and a higher probability that any investment strike could lead to large parts of the industry being taken back under public control. However, during the restructuring years (2010-2015) the Regulatory Authority did not consider this to be an issue of major concern. The industry appeared to be performing relatively well and was delivering better services at lower costs.

3. To the End State: 2015-2020

However, things started to go wrong in 2016.

First, in 2016 there was a major terrorist incident that was partly a result of poor security. As a result (following an investigation) the Regulatory Authority issued an enforcement order that required a major overhaul in security procedures. This episode undermined public confidence in the 3 main private operators. It also raised political awareness of the strategic importance of the sector to even greater levels. Much greater expenditure was then needed to protect these assets from further attack.

Second, by 2016 climate change had created major operational problems for the remaining 3 water and sewerage companies. There was a major drought in the summer of 2015 that was followed by flash flooding in the autumn of the same year. The required investments were huge and would (if wholly financed through bills) result in major price rises across the industry. Prices had already risen by over 20% over the previous 10 years and increasing numbers of household customers (without the threat of disconnection) were refusing to pay their bills.

In 2017 there were major financial scandals at two of the three holding companies that owned the regional operating companies. This led to major uncertainty in the capital markets that were unprepared to further finance the huge investments to deal with the combined global risks of climate change and terrorism. This essentially led to an investment strike by the capital markets in 2017. The companies were unable to raise money in the capital markets and revenues were also under pressure. As a consequence companies were unable to fulfil some of their principal duties. Some were also struggling to pay their debts.

Following advice for the Regulatory Authority the Secretary of State, Wayne Rooney (a leading member of the newly elected Socialists Workers Party), petitioned the High Court for a Special Administration Order against two companies implicated in the financial scandal (2017). The third company gave up its Appointment voluntarily.

The 3 Appointments were offered to the market. However, no private company was prepared to take on the responsibility (noting the deteriorating financial outlook of huge investments and failing revenues). In effect the industry was now largely under public control - through the person appointed by the High Court to carry on with core functions of water supply and sanitation. In 2018 the Government took the strategic decision to use tax payer monies to fund the required investments to deal with the ever growing impacts of climate change.

Some large entrepreneurial local authorities (eg Birmingham, Manchester, Leeds) and some Regional Development Agencies (eg SEEDA in the South East of England) established their own publicly owned companies and sought to buy out the water/sewerage assets associated with their districts/regions. These municipal bodies were highly regarded by the general public as they had successfully managed energy companies for a number of years (following the development of more embedded electricity generation). The traditional British public position that municipalities “do

not have the requisite technical skills" (Eurobarometer, 2004) no longer applied across the whole country.

The Government – keen to reduce its direct involvement in the sector and to return to greater levels of regionalisation (as were apparent in 2005) - agreed to the partial break up of the 3-mega companies. They sold the assets to the bidding municipalities in 2019. Hence municipalities returned to the water supply and sanitation sector for the first time in over 50 years.

This storyline turns on the regulatory approval of major water-water mergers, concurrent shock events (a terrorist incident, financial scandals, major climate change impacts and an associated investment strike) and an improved public perception of municipal performance.

[Note: The storyline to end state 4 is particularly problematic for England and Wales - in that the focus of this end state is on (direct) *public management*. However, we have tried to construct a set of driving forces and associated events that could lead England and Wales to this form of public management. The fourth storyline proposed for England and Wales is therefore intended to break the strong institutional constraints highlighted in the introduction. This scenario is proposed as a shock scenario. Any substantial restructuring in England and Wales will have to be driven by major changes in the external contextual environment that might result in the financial and/or management failure of several Appointees at the same time. This would occur if, for example, the required investment could not be funded by associated price increases. Here (if no buyer could be found) the Government may have to step in and use tax revenues to support large parts of the industry during this investment crisis/strike. Such a crisis could occur if climate change was sudden and catastrophic (major extremes in rainfall). Alternatively terrorism threats/action (and private sector failure to deal with these threats) may also result in Government intervention. This has occurred in the US where the privatised air traffic control was essentially re-nationalised following the terrorist attacks on the 11 September. Another doomsday story could be a closure of the capital markets to the water industry – possibly as a result of several corporate failures (ala several Enrons[39] occur concurrently). These are all reflected in the above storyline.]

6. B.III.8.5 Community Management – A Mutual Future

1. Pre-conditions: 2005-2010

The draft determinations for 2004 projected that household bills would rise by around 13% between 2005 and 2009. However, following interventions by the Environment Agency and the Secretary of State additional investments were added into the final settlement. This led to much higher price rises. The final price determinations allowed for bill increases of over 20 % across England and Wales between 2005 and 2010. Some price increases were a lot higher than this average figure.

There was quite a lot of discontent, especially amongst household customers, about the scale of the resulting bill increases. However, the operators and their equity investors were generally content with the outcome of the 2004 periodic review (despite being below what they had originally bid for). The moves toward

[39] It should be noted that Wessex Water was actually owned by Enron. However, the company was so well ring fenced that it survived the corporate failure of its owner and was subsequently sold on to a Malayan company.

liberalisation (eg common carriage) were not generally successful in putting additional pressure on Appointees to reduce costs and improve services. Common carriage remained peripheral and calls for more wide-scale competition in the market (with the exception of a select number of larger customers) faded into obscurity.

The level of complaints about household bills reached record proportions in May 2005 and the increasingly vocal Customer Committees continually briefed the media about the scale of this customer dissatisfaction.

The Regulatory Authority came under strong political/public pressure to keep prices low (despite the huge investment programme, largely driven by the EU Framework Directive and the aggressive implementation of this Directive by the Environment Agency) in the 2009 periodic review - and to actually reduce them again if this was at all possible (as the previous Regulator did back in 1999).

However as a result of the Water Framework Directive and the emerging impact of climate change investments were increasing (and not decreasing) as the decade wore on. These new investments were largely bond financed.

Recognising the possible future regulatory regime (in 2007 the Regulatory Authority gave clear signals through speeches and city briefings that the regulatory pressure would be intense at the next price review in 2009) shareholders gradually began to exit the market to be largely replaced by bondholders.

This periodic review for 2009 (PR09) proved to be very fractious. Eventually the Regulator Authority determined that a small bill reduction could be achieved by constraining the rate of return for equity, assuming higher levels of gearing and forcing very tough efficiency targets.

With regulatory approval – both before and after PR09 - competition in the capital markets resulted in a major but a gradual structural shift (from equity to bond financing). From 2007 to 2010 industry gearing rose to over 70%. A few companies became either wholly debt financed, or only with a very thin equity wedge.

However, a few of the larger companies continued to favour the equity model. These large equity based companies (which were generally part of even larger holding companies) began to offer specialist services to the largely debt-financed companies (that were restrained by their covenants from diversifying away from the core business of water supply and sanitation).

In response to the tough price review of 2009 a large number of companies also put proposals to the Regulatory Authority to become mutualised - with ownership and some risks of ownership being transferred to the customers of the utility or selected members.

BRANCH POINT BETWEEN STORYLINE 2 AND STORYLINE 5.

2. Story Weaving: 2010-2015

In January 2001 the then Director General of Water Services stated that he "would be concerned if significant numbers of companies were to seek to follow (Welsh Waters example) before the model of a wholly debt financed outsourced company had been tested."

The proposals for major institutional change in England (post 2010) were partly stimulated by the apparent success of Welsh Water (which had operated as a non for profit company controlled by Members of the public since the turn of the century). The success of Welsh Water also gave the Regulatory Authority the comfort it needed to authorise the wide-scale mutualisation of the English water industry.

However, the Regulatory Authority insisted on:

- A demonstration of clear benefits for customers of the changes;
- Informed customer consent (ie that any change to mutual status must be supported by a full customer vote – where the majority supported the changes proposed);
- The boards of the newly formed mutual were independent from the existing license holders (in order to ensure fair terms for the sale and the subsequent operating agreements).

When asked, the customers were very supportive of the changes to mutual status proposed. This was despite some reservations from Government Ministers about the stability of a system dominated by mutuals.

So in order to obtain mutual status the Regulatory Authority also insisted on some important changes to the licence conditions of all the "mutuals" that were established post 2010. These licence modifications were introduced: to ensure continuing pressure for management efficiency and transparency and to maintain/enhance the efficacy of various competition processes (eg outsourcing, comparative information, ownership reversal, possibility of common carriage etc). Important changes required by the Regulatory Authority as a condition for mutual approval included:

- Financial Ring Fencing: Loan facilities to be maintained at investment grade ratings. Need to maintain financial instrument on the LSE. Prohibited from engaging in any activity other than those required to carry out its proper functions. No cross default covenants. A requirement to maintain adequate reserves.
- Corporate Governance: Board to contain majority of non-executive directors. Need to a maintain management incentive scheme (linked to performance) and comply with LSE codes relating to corporate governance. Need to consult Regulatory Authority on changes to Articles and Memorandum of Association. Needed an explicit public statements on policies of customer rebates. When Members are the owners there should be a transparent selection process.
- Procurement: A procurement plan must be approved by the Regulatory Authority and/or audited by a Reporter. The plan must assess the

competitiveness of the market, the nature (number, mix and type) of current and proposed contracts, details of the procurement process and how the company will retain control of contractors operations.

The mutual was prevented from delegating responsibility for the proper performance of its statutory functions to any other party and had to ensure that it had adequate resources to do so itself (important considering the degree of outsourcing).

Hence by 2015, whilst there was a mixture of ownership models, the majority could be broadly classified as "mutuals" (mutual trusts and registered community asset mutuals (RCAMs) – where assets are owned by customers; not for profit companies limited by guarentee – where assets are owned by members of the community; and companies with a thin layer of participating – but not ordinary – shares).

These mutual entities can be likened to a community-based form of management.

3. To the End State: 2015-2020

The Regulatory Authority continued with the same regulatory model (irrespective of ownership/investor patterns) – price caps using aggressive comparative competition. Indeed the 2014 price review was as tough as the one in 2009.

The Regulatory Authority also continued to refuse to allow further water-water mergers (to maintain an adequate comparator regime) and hence restricted the upside potential for remaining equity investors. These policies remained an important feature of the sector.

However, the change to an industry dominated by mutual status enabled outsourcing[40] to external unrelated companies to emerge more substantially across England and Wales. This change in asset ownership essentially enabled the possibility of separating asset ownership from day to day operations on a much larger scale than with the equity model that dominated the 1990s.

Through the introduction of the licence condition covering procurement, the Regulatory Authority had an important influence in the nature of this outsourcing activity (how extensive it had to be and how it should be managed – via a number of separate contracts of variable durations to larger all embracing - concession like - contracts). The Regulatory Authority would approve the procurement plan. The Regulatory Authority also made it clear that it was necessary to disaggregate the services to make them properly contestable in the open market. However, the assets of the mutuals are now maintained and operated by a limited number of major private operating companies.

This storyline turns on the tough regulatory reviews in 2009 and 2014, the relative success of Welsh Water (the pioneer mutual) and public confidence in the core preconditions and measures put in place by the Regulatory Authority to protect consumers.

[40] In 2004 most of this outsourcing activity was to associate companies with all the associated problems of transfer pricing and need for appropriate regulation.

7. Conclusions

Nature of Storylines: The storylines to end state 1/3 and 2/5 are based on a common initial premise and a common set of events up until around 2010. For end states 2/5, by this time (following a tough periodic review in 2009), equity investors have largely voluntarily exited the system to be largely replaced by debt providers. For end states 1/3, by this time, the price cap mechanism as currently applied has broadly exhausted itself. However, it should be noted that all of these 4 final end states (1,2,3,5) are still essentially embedded in the current all embracing regulatory framework.

End States 4 and 1 are based on the fundamental premise that public bodies (typically the municipality) retain ultimate ownership of the assets. Unlike the rest of the EU this end state assumption is contrary to the current situation in England and Wales[41] - where private companies own the assets and investment returns are implicitly constrained by the economic regulator. Hence the storylines for these two end states are particularly difficult to construct for England and Wales.

[41] It could be argued that Welsh Water is a form of community management and so exists in the current institutional set up in England and Wales.