



Final Report for Work Package 5 (Phase 3)

Identification and description of plausible water liberalisation scenarios

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CHAPTER 1. INTRODUCTION TO SCENARIO BUILDING

1.1 Background

The title of this fifth work package (WP5) is the “identification and description of *plausible* water *liberalisation* scenarios”. This is the core objective of this work package.

Based on the results of WP1 to WP4 and the development of a dedicated Euromarket scenario building methodology, we have (as part of WP5) prepared a set of plausible water liberalisation scenarios that can:

- i) be used by policy makers (especially EU policy makers) and water professionals for their own purposes; and also
- ii) “enable” the following phase of Euromarket (ie WP6-9) to assess the economic, social, environmental and institutional implications of the selected scenarios.

The overall objective of Euromarket is to “study the *likelihood*, *nature*, and *forms* of water liberalisation that may take place in the *foreseeable* future”. The Euromarket proposal also states that the main issue (not yet addressed at the European level) is “the *possible* (and even likely) liberalisation of the water sector”.

This phase (ie WP5) is therefore critical to the overall success of the Euromarket project. Essentially this phase of the project links the preceding (WP1-4) and following (WP6-9) work packages of Euromarket.

This phase (WP5) of the Euromarket project has been directed and managed by the International Development Department (IDD) at the University of Birmingham.

This phase has involved all 10 partners of the Euromarket project and responsibility for authoring parts of this final report is shared amongst the different partners. This responsibility (along with the location of the specific written outputs) is summarised in the following table.

**Table 1.1 Partner Responsibility**

Output	Responsibility	Location of Contribution
Drivers: Market Perspective	IHE	Annex A2
Drivers: EU Perspective	Ecologic	Annex A2
Drivers: Institutional Perspective	UCL	Annex A2
Drivers: Operator Perspective	UNIZAR	Annex A2
Outline of initial EU End States	ENGREF	Chapter 3
Outline of current EU End State	EPFL Paris	Annex BI
EU End State and Storyline 1	VIII/ENGREF	Chapter 4/ Annex BII
EU End State and Storyline 2	IHE/TU Delft	Chapter 4/ Annex BII
EU End State and Storyline 3	IDD/Ecologic	Chapter 4/ Annex BII
EU End State and Storyline 4	EPFL/UCL	Chapter 4/ Annex BII
EU End State and Storyline 5	IEFE/UNIZAR	Chapter 4/ Annex BII
Belgium Storylines	UCL	Annex BIII
English Storylines	IDD	Annex BIII
French Storylines	Paris VIII	Annex BIII
Dutch Storylines	TU Delft	Annex BIII
German Storylines	Ecologic	Annex BIII
Italian Storylines	IEFE	Annex BIII
Spanish Storylines	UNIZAR	Annex BIII
Swiss Storylines	EPFL	Annex BIII

In particular responsibility for the description/validation of the individual detailed scenarios (ie EU End States, and the associated EU/Member State Storylines) was divided equally across the whole group. To ensure consistency in this scenario description/validation process IDD provided enabling guidance and outline templates for this part of the WP. Detailed guidance was also provided by IDD for the two validation workshops.

1.2 Scenario Building

What are scenarios

Whilst there is no single definition of scenarios per se, the following quotes come fairly close to what we believe is appropriate for this project.

- Scenarios represent alternative *images* (rather than simply projecting the present based on known trends). (Copenhagen Institute for Future Studies).



- A scenario is a *story* that describes a possible future. It identifies some significant events, the main actors and their motivations, and it conveys how the world functions. (Shell).
- Scenarios are hypothetical *sequences of events* constructed for the purpose of focussing attention on causal processes and decision points. (Kahn and Wiener).

A more detailed discussion of scenario concepts is contained in Annex A.I.1

Hence scenarios are coherent credible stories about alternative futures. Effectively they describe different paths (via a consistent set of events, trends and actor strategies) that lead to these alternative futures.

A scenario is therefore composed of two separate elements:

- The End State – which describes the situation at a particular future point in time.
- The Storyline – which connects the present (ie the current state) to the end state in a logical manner.

Hence a scenario is both a description of the future and how we get to that future. A scenario can help us (via the end state) to see what the future will be like and (via the storyline) how/why these futures may occur. Whilst both elements are important the storyline is critical as it reflects the main logic behind the scenario. The story form of a scenario also enables both qualitative and quantitative aspects to be incorporated.

It is extremely important for the reader to realise that “scenarios are not projections, predictions or preferences, but alternative futures. They are purposely *challenging*, being designed to help us confront the assumptions we are making about the present and future. Scenarios are valuable because they *stimulate questions* rather than because they provide answers”. (Sir Philip Watts, Shell)

Stages to scenario building

Iceberg analysis can be used to understand the process of building scenarios. The iceberg is shown in figure 1.1

At the peak of the iceberg are observable events. Trends and patterns are just below the waterline. This reinforces the point that events are not random but are related to one another and give rise to trends and patterns in the events observed. Finally at the bottom of the iceberg there is the underlying causal structure – the driving forces behind the trends and events.

Scenario building can be conceived as a process of diving to observe the bottom of the iceberg (i.e. from an understanding of *historic* events and *historic* trends develop an understanding of the causal structure), from which one can (hopefully) resurface (building scenarios by identifying the key driving forces and identifying the main *future* trends and *future* events that will characterise these scenarios).



The process of producing (and using) scenarios is just as important as the scenarios themselves. IDD therefore designed the scenario building process to widen the project teams perspectives and help us understand the issues and events that are significant (that we might otherwise dismiss).

The scenario building process can be conveniently split into five stages:

1. Defining the problem and selecting the scenario building approach to be adopted (see introduction and discussion on scenario building below).
2. Building the Base (e.g. by understanding the dynamics¹).
3. Developing the outline scenarios.
4. Describing the scenarios in detail.
5. Validating the scenarios.

These five fundamental stages to scenario building have been followed in this fifth phase of the Euromarket project. Supporting papers are contained in Annexes A.I to A.V respectively.

These five stages to scenario building are also used to structure the main body of this final report on WP5.

- Chapter 1. Introduction to Scenario Building.
- Chapter 2. Building the Base.
- Chapter 3. Developing Outline Scenarios.
- Chapter 4. The Scenarios.
- Chapter 5. Validating the Scenarios.
- Chapter 6. Conclusions.

The detailed scenarios are contained in Annex B.I to B.III.

Characteristics of scenarios

Scenarios can be characterised on the basis of their geographic scope, their time horizons and their content details. Each of these characteristics is briefly discussed.

Geographic Scale: Scenarios can be developed on different geographic scales – global, international regions (eg Europe), national (eg Member State), sub-regional or local. The Euromarket proposal states that the “likelihood of one single European water liberalisation scenario, or of different scenarios” will be assessed.

The Euromarket proposal also states that the project “will cover, in particular, (*potential*) water liberalisation in: the UK, France, Germany, Italy, Spain, Belgium, the Netherlands, and Switzerland”. Indeed these countries have been used to construct Member State storylines to the selected end states.

The Euromarket scenarios are focused at the European scale. However, the associated storylines also include an assessment of eight Member State contexts.

¹ From different actor perspectives (the EU, the Market, Legislative/Regulatory Institutions, and the Operators) and different themes (Social, Technological, Economic, Environmental, Political).



The WP5 proposal highlights existing generic management models in seven of the eight pre-selected EU Member States²:

1. The French (and Spanish) model – as an example of concessions.
2. The Dutch model – as an example of delegated public management.
3. The English model – as an example of strong regulatory control.
4. The Swiss model – as an example of direct public management.
5. The Welsh model – as an example of “community management”.

The Euromarket proposal raises the fundamental question as to whether the plausible liberalisation scenarios will “be related to the (currently) existing differences in European models”. Indeed these Member State management models are strongly reflected in the EU end states finally selected (see chapter 3). This is particularly true for management models 1, 3, 4 and 5.

Time Horizons: At the final WP1 meeting (June 2003) the Euromarket project team decided that the time horizon for the scenarios would be 10 years (from the end of the Euromarket project).

The timescales for scenario building are normally judged according to the dynamics of the sector under investigation. The WSS sector is traditionally risk averse and quite slow moving. Hence during WP5 a proposal to lengthen the proposed timescale to around 15 years (ie to around 2020) - to enable any proposed change to occur within the sector - was discussed. This would potentially allow for the development of more interesting and challenging scenarios. The project team decided to extend the scenario time horizon to 15 years horizon.

The scenario time horizon is therefore 2020.

Content: The Euromarket proposal states that:

1. Liberalisation scenarios may be differentiated by sector (water supply/sanitation), regions, and market segments.
2. Liberalisation scenarios will pertain to markets (growth and market share), enterprise strategies, and legislative/regulatory environments.

Each EU scenario has been structured around an introductory outline of the future (the end state template³), and a set of storylines (made of a series of future events, actor strategies and associated driving forces) composed at both the European and Member State level.

² Concerning Germany, its main characteristics is the diversity of organisational, legal and ownership structures in the water services that makes it difficult to identify as a specific model.

³ The template includes 8 major categories to describe the future: nature of competition, market, operators, institutional arrangements, economic factors, social factors, environmental factors, and other factors.



Euromarket Project difficulty

Before moving on to discuss our approach to scenario building it is important to recognise a major difficulty with the scenario building exercise in the Euromarket project.

That is the European water supply and sanitation services market does not consist of one single uniform current state - from which alternative (future) scenarios will develop. As is evident from the Member State profiles (prepared in WP2 and WP4) we are, in effect, dealing with multiple current states (which vary enormously across the EU). This makes the scenario building exercise (which normally embraces storylines from an one existing current state) particularly difficult - as the national institutional context is extremely important when considering potential liberalisation scenarios. By focusing solely on the EU level these national contextual issues could be lost.

We solved this problem by accepting that there were multiple current states and that multiple storylines should therefore be developed to a restricted set of future EU end states.

We assumed there would be two major forms of current state (see car park analogy in Annex A.IV).

- The first current state would be at the *European level*. Here the “current state” is simply the ‘average’ position across the EU at the current time (2004). The EU is really a mixed structure (but with the majority of services based on delegated/direct public management – mainly relying on competition in supplier markets). We would simply use this average position as the current EU state and develop storylines away from this mixed structure toward majority positions using the other competition models. These *EU storylines* would be largely structured around generic actors and driving forces.
- The second current state would be at the *Member State level*. These Member State storylines would be more tightly framed around specific actors and driving forces. The Member States selected were those eight originally identified in the Euromarket proposal (see above). Each Member State was also represented by an organisation in the Euromarket team and this local knowledge was deemed vital for developing plausible *Member State storylines*.

1.3 The Euromarket Scenario Building Methodology

The Euromarket Tool-Kit

It is the adoption (and particular use) of specific scenario building tools (particularly to develop the initial scenario outline and then describe them in detail) that distinguishes the many different generic and proprietary approaches to scenario building. These different tools and approaches are discussed in Annex A.I.2.

Taking “off the shelf” approaches to scenario building is not generally appropriate. The scenario building approach needs to be tailored to solve the focal question being addressed –



in this case the development of plausible liberalisation scenarios for the European water supply and sanitation sector.

We have therefore selected a number of scenario building tools (from those listed in table 1.2) that best fit the focal question. We believe they are particularly relevant to the scenario building objectives of the Euromarket project. The selected tools that form the basis of the Euromarket scenario building toolkit are:

- **Stage 2 – Building the Base:**⁴ *Historical/Trend analyses* (eg to represent the results of WP1-WP4) - possibly illustrated by *Causal loop diagrams* - and *STEEP analysis* to consider the broader macro-environment.
- **Stage 3 – Developing Outline Scenarios:** *Trend Extrapolation* (to develop initial outline Member State scenarios), *Future imaging* (eg to map and develop future European liberalisation end states) and the *Scenario cross/probability effects matrix* (eg to develop alternative outline European scenarios).
- **Stage 4 – Describing the Scenarios:** *Future History* via story telling (to develop plausible pathways from the current to the future end state), *Future Event Analysis* (to assess the storylines formed) and *Actor analyses*⁵ around selected critical events (to ensure internal consistency and provide additional detail on the selected scenarios).
- **Stage 5 – Validating the Scenarios:** Two validation *workshops* (the first one focused on driving forces and the possible EU end states, whilst the second focused on the full first draft scenarios), informal *external consultations* within 8 Member States and the introduction of *second readers* to contest the logic behind the proposed draft final scenarios.

These twelve tools (three in each stage) are drawn from across the main methods.

Our approach relies heavily on six of these twelve scenario building tools⁶ – *historical trend analyses* to identify the key driving forces, *future imaging* to develop the future end states, *future history* to develop the associated storylines (at both a European and Member State scale) to these end states, *future event analyses* to deconstruct the resulting storylines, *actor analyses* to validate and further describe the critical events and *workshops* to validate both the driving forces and the resulting scenarios.

⁴ Causal loop diagrams consist of arrows connecting variables in a way that shows how one variable affects another.

⁵ Actor analyses have to some extent been used to frame the first four work packages. These have been primarily framed around specific actors – operators, regulators, and the EU (with markets being a catch all work package with more of a focus on customers). These work packages have mainly focused on assessing historic/current trends (ie timeline methods).

⁶ The nine tools in stages 2 to 4 formed the basis of 9 individual work activities completed during WP5 (see Annex A).



The Euromarket liberalisation scenarios represent what is *plausible* (ie a form of *contrasted* scenario) - not necessarily what is either desirable⁷ (ie normative) or probable (trend based)⁸. However, plausibility does not preclude the introduction of surprises.

The inclusion of *surprises* within our range of *plausible* scenarios is important as history shows us that historical trends are characterised by strong fluctuations rather than smooth curves. These are often triggered by unexpected changes (ie surprises – whether they be improbable or probable). We have therefore introduced both *wild cards* (high impact and low probability events) into the storylines and have included one *scenario XXX* (as a peripheral scenario) to illustrate this point.

The Euromarket Approach to scenario building

The Euromarket proposal states that the “underlying driving forces for each liberalisation scenario will be determined” (rather than the key driving forces determining the scenarios - which is the method adopted in most deductive scenario building exercises). The approach alluded to in the Euromarket proposal is therefore more akin to a future mapping exercise. This occurs around a set of constrained futures that can be predicted at an early stage of the scenario building exercise (rather than a more traditional open ended scenario building exercise where more time is spent on developing the outline scenarios). In essence we have adopted a modified future mapping approach to develop our liberalisation scenarios.

Our modified future mapping approach involved integrating the above scenario building tools into the following 15 steps:

Stage 1. Develop scenario building approach

Step 1. Review literature on scenario building and identify scenario building tool-kit that is best suited to the Euromarket project (see above and Annex A.I).

Stage 2. Building the Base (see chapter 2)

Step 2. Describe the current EU state from an integrated analysis of the results from WP1-WP4 (see Annex B.I).

Step 3. Identify the main micro driving forces from four separate perspectives (see Annex A.II.1 to A.II.4 for 4 supporting papers).

Step 4. Identify the main macro driving forces from a STEEP analysis (see Annex A.II.5).

Stage 3. Developing Outline Scenarios (see chapter 3)

Step 5. Apply future mapping to identify a set of plausible outline EU end states (based on predominance of various competition processes) and allocate to authors for development of detailed scenarios.

Step 6. Cross check the selected EU end states with the results of the intuitive logic/morphological analysis to scenario building (see Annex A.III for supporting papers).

⁷ The Euromarket proposal states that we will not take a pro or an anti-liberalisation position.

⁸ We can call the most probable scenario the *reference* scenario – whether it is trend based or not.



Step 7. Cross check the selected EU end states with the results of MS trend extrapolation techniques to scenario building (see Annex A.III for supporting papers).

Stage 4. Describing the Scenarios (see chapter 4)

Step 8. Apply future imaging to visualise and describe the selected future EU end states in detail using a uniform template that highlights the main aspects of the future in 2020 (see Annex A.IV for template). Draw on the results of stage 3.

Step 9. Apply future history to prepare both EU and MS storylines in parallel (the first by pairs of partners, and the second by individual home country partners) from EU/MS current states to the selected EU end states (see Annex A.IV for guidance on story telling). Draw on results of stage 2 and 3 for driving forces/events.

Step 10. Analyse both EU and MS storylines by assessing future event pathways and identifying common/critical events (see Annex A.IV for guidance on story telling and EU/MS event table template).

Step 11. Analyse actors involved in the critical events using approach adopted in MASAM⁹ (see Annex A.IV for actor analysis template).

Stage 5. Validating Scenarios (see chapter 5)

Step 12. Validate EU end states, MS storylines, selected critical events and positioning of actors with at least 5 national experts.

Step 13. Validate driving forces, EU end states, EU storylines, selected critical events and positioning of actors with Euromarket partners at April and September workshops (see Annex A.V for workshop agendas and conclusions).

Step 14. Validate EU end states and EU storylines by using second readers and validate MS storylines by using EU scenario authoring pairs (who had ultimate responsibility for ensuring consistency of the final scenarios).

Step 15. Reanalyse actors involved in selected EU/MS critical events using MASSAM.

Our approach is shown graphically in figure 1.2. Steps 5, 8 and 9 are particularly important in the scenario building approach we have adopted.

⁹ MASSAM – Multi-issue Actor Strategic Analysis Model



CHAPTER 2. BUILDING THE BASE

2.1 Driving Forces from Four Actor Perspectives

The driving forces have been analysed from four separate actor perspectives – the market, the European Union (EU), the institutional context, and the operators.

Market

There are a myriad of different driving (and resistance) forces associated with liberalisation in the WSS sector. It is the balance between the various driving and resistance forces that will determine the propensity to change the existing institutional arrangements. These forces can be categorised into three tiers, those associated with:

1. Entities directly involved in WSS – namely the management entity and the responsible entity.
2. Indirect stakeholders such as consumers, trade unions, press and the private sector.
3. Perceived liberalisation experiences elsewhere - both nationally and internationally, and in both the WSS sector and other networked industries.

The forces associated with the first tier (ie those parties directly involved in any liberalisation process) are critical to the likelihood of change. The other two tiers are important in shaping the propensity and direction of change.

Most driving/resistance forces relate to specific features of the management and responsible (national/regional/local) entities.

For the management entity the key features that determine the direction and force of the driving/resistance forces relate to:

1. Scale of the management entity.
2. Level of corporatisation.
3. Strategies toward market expansion.
4. Level of cost recovery.
5. Multi-utility character.
6. State of infrastructure.
7. Perceived performance.
8. Access to financial resources.
9. Nature of technical demands.

For the responsible entity the key features relate to:

1. Scale of the responsible entity.
2. Level of influence on service provision.
3. Level of subsidies provided.
4. Political colour.
5. Level of financial pressure.
6. Level of trust in private sector.



7. Level of expertise in dealing with Public-Private Partnerships.
8. Firmness in decision-making.
9. Legal provisions.
10. Industrial policy.

Not all of the above driving forces are present in every Member State (see table 2.1 for a review of our selected countries).

These issues are discussed in more detail by IHE in Annex A.II.1

European Union

The European Union (EU) cannot be seen as one entity when considering future EU liberalisation policies in relation to WSS. There are differences in opinions (on liberalisation of WSS) between the main EU institutions (eg the European Parliament and the European Commission), and even different emphases between Directorate Generals (DGs) within the same EU institution (eg between DG Environment and DG Internal Market within the European Commission (EC)).

These internal differences are reflected in the wording of three key documents:

1. The Water Framework Directive (DG Environment, 2000).
2. The Internal Market Strategy: Priorities 2003-2006 (DG Internal Market, 2003).
3. The Green and White Papers on Services of General Interest (General Secretary, 2003/2004).

However, DG Market and DG Competition appear to be agreed that water supply and sewage treatment are services of general economic interest and therefore possibly subject to competition and internal market rules. In addition, these two DGs also believe that the current organisation of water service provision in Europe leaves room for an improved performance and that *structural changes* and *increased competition* would have the potential to result in greater efficiency and transparency, lower prices for consumers and improved quality in environmental and health terms.

However at the moment there is no consensus on the opening up of the water sector (to greater competition) at Community level. Indeed the European Parliament explicitly stresses its opposition to a liberalisation of the European water sector and instead promotes a modernisation of existing systems. In contrast the European Commission is still considering its position and has stated that “all options will be considered, including possible legislative measures”.

To this end the EC has circulated a questionnaire to all Member States searching for various information on WSS - including on the nature of competition processes and the costs incurred. They have also published a green paper on public private partnerships.

The White paper promises an assessment of the water sector by the end of 2005. The paper identifies nine principles that could have an impact on the future actions of the EU in the water sector.



1. Enable public authorities to be close to citizens.
2. Respect the diversity of services and situations.
3. Achieve public service objectives in open and competitive markets
4. Provide legal certainty.
5. Increase transparency.
6. Ensure consumer and user rights.
7. Monitor and evaluate the performance of services.
8. Ensure cohesion and universal access.
9. Maintain a high level of quality, security and safety.

However, in reality these high level principles provide no real guide to the future direction of European Commission policy on water liberalisation. The first two principles (1 and 2) would appear to favour the status quo with public authorities remaining dominant. The second two principles (3 and possibly 4) could favour greater liberalisation (possibly via outsourcing/concessioning), whereas the next three principles (5, 6 and 7) could support the introduction of greater benchmarking/independent regulation. The last two principles are relatively neutral with regard to future EU liberalisation policies.

Finally, the European Court of Justice is currently in the process of making three judgements on the definition of in house services. A strict interpretation of what is defined as “in-house” could lead to more transactions in the WSS sector being included under EU procurement law and hence subject to public tendering processes (and more transparent competition).

These issues are discussed in more detail by Ecologic in Annex A.II.2

Institutional

Over time there have been three major underlying institutional policy drivers associate with WSS:

1. Agriculture and industrial development.
2. Public health.
3. Environment.

Environment remains as the paradigm of the moment. However, a new paradigm involving market efficiency and consumer protection could emerge over the coming years – partly driven by changing social factors.

The nation state remains central to future discussions of greater liberalisation of WSS. At the nation state level there are important similarities and differences across the EU in WSS.

Major similarities across the EU relate to:

1. Per capita drinking water consumption
2. Pollution pressure from diffuse sources and hazardous industrial substance.
3. Connection levels for drinking water and sewerage.
4. Convergence on prescriptive instruments.
5. Importance of public/municipal organisations.
6. Final consumer is main “payer”.



Major differences across the EU relate to:

1. Availability of resources and agricultural water demands.
2. Nature and extent of social objectives.
3. Nature and extent of economic instruments.
4. Connection levels for wastewater treatment.
5. Experience of involving private capital.

Over time there has been a convergence in institutional arrangements across the EU. There are 3 powerful forces that are driving increased harmonisation across the EU – EU Directives (especially Water Framework Directive), plus greater financial and technological requirements.

The existing institutional arrangements (at the nation state level) are vital in determining the impact of the various driving/resistance forces. Institutional arrangements circumscribe the range of possible outcomes.

These issues are discussed in more detail by UCL in Annex A.II.3.

Operator Strategies

Different types of operator adopt different strategies. Four operator types (along with their associated strategies) have been identified:

1. Municipal Service. Separation and autonomy. Possible outsourcing. Part privatisation and concessioning are options when no social/political opposition.
2. Public Operators. Liberalisation in pre-network segments. Privatisation and outsourcing are options when no social/political opposition.
3. Mixed Operators (small and medium). Small – consolidation, integration and possibly privatisation. Medium – consolidation possibly followed by privatisation. Possibly adopt multi-utility/vertical integration and outsourcing.
4. Trans-National Corporations. Extent and nature of regulation important in determining geographic focus. PPP (risk sharing) when opposition to TNCs, buy-out existing public players when not. Also use multi-utility and vertical integration as selling strategies.

These issues are discussed in more detail by UNIZAR in Annex A.II.4

2.2 Driving Forces from Macro-Environment

To complement the above analysis of driving forces (identified from four different actor perspectives) we have also identified a set of hypotheses under the five main macro-environmental themes/factors of STEEP: **S**ocial, **T**echnological, **E**conomic, **E**nvironmental and **P**olitical. These individual hypotheses are described in detail in Annex A.II.5



Social (S)

1. Social disinterest and apathy.
2. Increased social interest and expectation.
3. Ageing demographic.

Technological (T)

1. No impact on static industry.
2. Incremental through core technologies.
3. Important impact through new water treatment home.
4. Major impact through the new no water home.

Economic (E)

1. Capitalism: Max Economic Growth.
2. Social Capitalism and Collectivism.
3. Social Realism and lower growth.
4. Social attitude and alternative lifestyles.

Environment (Env)

1. Increased pressure on water as a resource.
2. Higher incidence of floods.
3. Risk of new pathogens.
4. Land use change.

Political (P)

1. High Pro Liberalisation.
2. Anti-Liberalisation.
3. Mixed Private/Public.

These hypotheses were used to develop our full liberalisation scenarios.

2.3 Driving Forces from macro and micro environment (Group identified)

Following on from the above activities the Euromarket team discussed those driving forces that would have the most important and most uncertain impact on WSS liberalisation.

Following detailed discussions at the first validation workshop we selected the following three driving forces as being the most important and the most uncertain.

1. The level of social engagement (S).
2. The availability of public finance (E).
3. EU legislation toward liberalisation and competition of the WSS (P).



Other less important driving forces included:

1. Alternative lifestyles (S).
2. Technological innovation (T).
3. Pollution trends (Env).
4. Climate Change (Env).
5. Rate of economic growth (E).
6. Changes in economic structure (E).
7. National fiscal policies and introduction of cost recovery principles (E).
8. Extent of national regulation (E).

Many of the more minor driving forces identified by the group relate to Environmental and Economic themes.

These driving forces (especially the major ones) were used to develop our full liberalisation scenarios. These issues are discussed in more detail in Annex A.III.2.

2.4 EU Current State

Based on the results of WP1-WP4 a brief snap shot (characteristics, trends and possible future events) of the EU current state can be developed.

Characteristics: The WSS sector exhibits four key characteristics. It is:

1. A Natural Monopoly.
2. A Local Service.
3. A quasi-public good.
4. A vital good with no substitutes.

Overall the majority of the European population is supplied by public companies. Typically these supply individual municipalities – each generally supplying less than 1 million inhabitants.

Trends: The key (emerging) European trends are:

1. Larger management structures.
2. Increased transparency.
3. Increased autonomisation.
4. Increased competition and private sector participation.
5. Impact of liberalisation of other network industries.

Events: The key (possible future) European events relate to:

1. The application of the Water Framework Directive.
2. EU Competition Rules.
3. End of Cohesion Funds.
4. General Agreement on Trade and Services.

These issues are discussed in more detail by EPFL in Annex B.I.



CHAPTER 3. DEVELOPING SCENARIO OUTLINES

3.1. Mapping the Possibility Space for WSS Liberalisation Scenarios

The art of scenario development is to reduce a large range of possibilities to a handful of plausible directions that together contain the most relevant uncertainty dimensions. The end states selected should, ideally represent the future “possibility space”.

In WP1 we defined the term *liberalisation* as “a process by which competition is introduced in situations or sectors hitherto characterised by exclusive or special rights, or monopoly granted to historical operators”.

There are a limited number of potential *competition processes* in the WSS services sector. If all of these competition processes can be identified¹⁰ and clustered then we can develop a set of end states that conceptually maps the future “possibility space”.

As part of WP2 we developed a simple transaction framework. This transaction framework can be adapted to map the possibility space for future liberalisation pathways (ie competition processes).

The transaction framework identifies three main markets:

- The market for Customer Transactions (ie consumers who receive water and sanitation services from the management entity in return for payment).
- The market for Supplier Transactions (ie where private/public companies provide various inputs – bulk water, products, services and finance – to the management entity in return for payment).
- The market for Water Resource Transactions (ie where the water environment provides/receives raw water/wastewater discharges in return for appropriate controls, with payment possibly being made to environment agency to administer such controls).

Competition Processes

Within each of these three transaction markets there is potential for two types of competition – either *in the market* or *for the market*¹¹. Hence there are six possible generic competition processes within the three transaction markets.

However, in addition there is the possibility of regulated competition. Here some public authority (regulatory body or municipality), or some other body, attempts to mimic competition in/for the market through appropriate regulatory instruments.

¹⁰ Unlike some other broader scenario projects this future mapping approach is possible within Euromarket because the possibility space is relatively constrained.

¹¹ Competition for the market is generally organised by the appropriate responsible/regulatory body.



A quick summary of the eight potential competition processes are summarised below.

Supplier Transactions

1. Competition in the (supplier) market (CiSM). Rivalrous competition across the board of supplier inputs. However, long term and complex relationships with private sector are limited and traditional piecemeal public procurement is generally favoured.
2. Competition for the (supplier) market (CfSM). Various forms of Public Private Partnerships (eg BOTs, DBFO, Management contracts) with various degrees of risk transfer to the private sector. This includes contracting out various service aspects (eg billing) and the possible use of secondary bodies to arrange financing. This can be thought of as a complex form of public contracting. It excludes concessioning/leasing arrangements.

Regulated Market Transactions

3. Benchmarking Procedures (BP) possibly in the consumer (and possibly the supplier) transaction markets.
4. Price/Profit Control Mechanisms (PCM) such as RPI-X or rate of return targets. These mechanisms can be applied to both privately, community based and publicly owned management entities, at least in principle.

Customer Transactions

5. Competition in the (consumer) market (CiCM) that can include a range of service activities in a range of market segments including: self supply, geographic inset appointments (reflecting non exclusive rights of monopoly provider), retail competition and common carriage. This form of competition is usually restricted to a limited number of market segments eg large industrial consumers.
6. Competition for the (consumer) market (CfCM) that can include concessions and possibly affermage contracts. This type of contracting arrangement with full risk transfer characteristics is sometimes defined as a PPP (see recent CEC Green paper). For the purpose of this project it is treated separately.

Water Resource Transactions

- Competition in the water (resource) market (CiWM) – competition to buy specific water rights¹².
- Competition for the water (resource) market (CfWM) – competition for the right to abstract water/discharge wastewater, possibly through tradable licences.

It is possible to narrow down the number of liberalisation end states by not including competition processes within the water transaction market. These processes will ultimately

¹² Not an option in EU because the Member State typically “owns” the main water resources.



be determined by the six other competition processes identified in the two other transaction markets.

Hence there are six competition processes that can form the basis of our future end states. This possibility space (with the associated acronyms) is shown graphically in figure 3.1

Competition Modalities

We recognise that in reality one or more of the above competition processes could be present within any given future end state. However, within any given liberalisation end state one form of competition could predominate. The dominant competition process can therefore be used to determine the fundamental nature of the EU liberalisation end states.

Typically competition processes *within* the two main transaction frameworks (customer and supplier segments) are mutually exclusive (or at least problematic to operate together). For example, competition *for* the customer market is not normally associated with either competition *in* the customer market (granting exclusive rights is normally part of the contractual arrangement), or more importantly, intensive price regulation. There are also notable difficulties¹³ in regulating a system that involves both formal regulation and competition for the customer market.

Competition *for the customer market* may also preclude extensive competition *for/in the supplier market* (where the winning bidder is normally allowed to use associate companies to provide various supplier inputs). This is in contrast to regulation of consumer transaction market where competition *for/in* supplier markets is often seen as a vital complementary competitive process (that has to be protected from potential monopoly abuses).

It is possible to combine the above competition *processes* and construct a series of competition *modalities* that are increasingly liberalised. There are eight possible modes of competition. In order of increasing degrees of liberalisation they are as follows.

No Liberalisation

- ***Failed Markets*** – no competition in either the supplier or the customer transaction market.

Limited Liberalisation

- ***Pure (competitive supplier) markets*** – based on competition *in* the various supplier markets (products, services, and finance).
- ***Public-Private Partnerships/Outsourcing*** – based on competition *for* different supplier markets (based on complex contracts for different combinations of products-services-finance). But will also embrace competition process 1 for certain product market segments. Here PPPs will exclude concession contracts - these represent a distinct competition modality (see VI).

¹³ The boundary between regulation and competition becomes increasingly complex and



Controlled Liberalisation

- **Benchmarked markets** – based on formal and informal comparisons¹⁴, as managed by an appropriate benchmarking body. But will also embrace competition process 1 and possibly 2 for certain market segments.
- **Regulated markets** – based on price control or profit targets, as managed by a regulatory/public authority or the municipality. But will also embrace competition processes 1, 3 and possibly 2 for certain market segments.

More extensive Liberalisation

- **Fragmented markets** – based on various competition processes *in* various parts of the customer market (eg industrial users, connections to the network). But will also embrace competition processes 1, 2, 3 and 4.
- **Concessioned markets/Delegated contracts** – based on competition *for* the consumer market. These arrangements can be contractual or institutionalised (see Green paper on PPP). But they will possibly only embrace competition process 3 (depending on need for comparisons) and 4 (depending on the nature of the contract). The role of a central/regional economic regulator to enforce these competition processes (re benchmarking and price control) remains to be explored.

Full Liberalisation

- **Pure (competitive supplier and customer) markets** – based on full competition in the supplier and customer transaction markets, but with limited regulation.

We are dealing here with six (I-VI) plausible *competition modalities*. These six competition modalities should be thought of as competition options for the municipality (the responsible agent in most Member States).

These six competition modalities can also be used to structure the liberalisation end states (required to structure the proposed European scenarios) that will dominate the EU in 2020. They mirror the six competition processes identified above.

Management Modalities

We do not propose to base the EU end states solely on competition modalities. Management modalities such as ownership structures (public or private), and/or the degree of separation between the responsible and management entity (direct or delegated) are also relevant.

Competition modalities I-VI can operate with public and private operators. However, it is noted that some of the above competition processes have traditionally been associated with specific ownership structures (ie competition for/in *consumer market* and *regulated competition* have tended to occur where private operators predominate, whereas heavy

¹⁴ This could be the process through which mixed management approaches are compared. Some experts believe that allowing different management models to co-exist is a form of inter-modal competition.



reliance on competition in/for the *supplier market* have tended to occur where the public operator predominates).

The competition for asset ownership (and hence Competition for Strategic Control - CfSC) could be seen as an important complementary competitive process within the overall transaction framework (see again figure 3.1). Competition for ownership and strategic control between the public sector, the community and the private sector is already evident in some countries. Politically this is quite a controversial area. This could be explicitly recognised and be dealt with by using a peripheral scenario (ie a scenario XXX).

A scenario XXX could have been framed around “privatisation¹⁵” (in those countries, the majority, with public ownership), or “nationalisation” (in those countries, ie England, with private ownership). Under these two asset ownership scenarios it is likely that competition will be associated with competition modality IV/V and I respectively. Hence there is a strong overlap between asset ownership and the modality of competition. These ownership issues can therefore be wholly subsumed into these two competition modalities. We did not therefore develop an end state dedicated to public-private asset¹⁶ ownership arrangements.

However, this left one potential ownership structure – community based management – as a potential additional end state. This could form the basis of our peripheral (management/ownership orientated) scenario XXX.

3.2 Selecting the Final EU End States

Including one scenario XXX option, there would then have been seven EU end states (six plausible end states based on mapping competition modalities as outlined above, and one peripheral end state based on a specific management modality). This was too many to consider in this work package. Hence there was a need to reduce the number of end states to a more manageable number.

To this end we merged competition modality III, IV and V together as they were viewed as being complementary. This merged end state is based around a monopoly network that is heavily regulated (via price/profit control and benchmarking processes) and a set of niche markets¹⁷ that have been opened up to competition.

We therefore propose the following 5 “liberalisation” EU end states.

ENGREF provided a provisional summary of each EU end state (see below for initial outline), although this was subject to major changes during the detailed scenario description phase (see chapter 4).

The extent of liberalisation generally decreases as we move from end state 1 to end state 5.

¹⁵ If privatised there may (depending on national merger and acquisition policies) also be further competition between the various private interests for ownership and control. However, this can be dealt with under competition in the supplier market (re finance).

¹⁶ Privatisation of assets across the EU by 2020 is also seen as not being a particularly plausible scenario.

¹⁷ Monitored by the regulatory authority



End State 1: Delegated Contracts (Symbolised by a gift wrapped box)

Initial ENGREF Guide: A long-term (10-15 years) contract specifying very large objectives on integrated service is awarded to a private operator or a public enterprise. Criterion of choice: "Best bid". Pilot regulation of service by regional/national regulatory bodies.

End State 2: Outsourcing (Symbolised by a pair of shaking hands)

Initial ENGREF Guide: Several short-term (1-5 years) well-specified contracts for different activities of the WSS service (e.g. network repairing, billing, management) possibly combined with longer-term contracts (eg DBFO, BOTs, Partnering) for infrastructure specific maintenance/construction. However, revenue risk and responsibility for service provision remains with public body – which is typically responsible for the integrated service. Criterion of choice: "Best price". No formal regulation.

End State 3: Regulated Monopoly (Symbolised by a school masters hat/stick)

Initial ENGREF Guide: An unlimited monopoly (or a license for 50 years) - totally privatised or totally public (but are typically autonomous). There is an independent authority of regulation with great power to set the price and/or control profits and investments, comparative competition. Niche (non monopolistic) markets are deregulated but are closely monitored by the well- resourced regulatory authority.

End State 4: Direct Public Management (Symbolised by Council Chamber/Offices)

Initial ENGREF Guide: Competition is largely restricted to public procurement for infrastructure development. No competition on service aspects that are wholly managed by the public body. These bodies are typically non-autonomous local public water services under local ‘municipal’ control. Minimum service with very low price, may be financed by the taxpayers and is ultimately regulated by the local electorate.

End State 5: Community Management¹⁸ (Symbolised by a group of people holding hands)

Initial ENGREF Guide: Self-management by the users (shareholders).

Whilst these initial end state descriptions were substantially modified in the subsequent stages of WP5, the focus of the titles remained unchanged.

The four plausible end states (1-4) are based around contrasted competition modalities. They can be conceptualised along two key axes – the nature of competition in the supplier transaction market (end state 2 versus end state 4) and the nature of competition in the customer transaction market (end state 1 versus end state 3). The fifth peripheral end state (5) forms the basis of our scenario XXX and is structured around a specific management modality – community management.

Three of the selected future end states (1, 2 and 3) involve greater liberalisation at the European scale, whereas two of the selected future end states (4 and 5) represent a retreat from liberalisation.

¹⁸ There was some opposition within Euromarket to the inclusion of the End State 5 on Community Management. However, ENGREF (the original proposer of this peripheral scenario) persuaded sceptical partners to include community management as the fifth end state.



3.3. Supporting Evidence from Scenario Cross and Trend based analyses

The selected end states are generally supported by the results of the trend based Member State (MS) scenarios and the results of the Scenario Cross.

The majority of MS scenarios agreed on the need to cover outsourcing (4 out of 8 trend based MS scenarios), delegation contracts (6 out of 8), direct public management (6 out of 8) and regulated monopolies (7 out of 8). Competition in the customer market was only identified in a limited number MS scenarios. In contrast, community management (the peripheral end state) was not highlighted in any of MS scenarios presented.

The results of the Scenario Cross supported all of the above end states (although regulated monopoly was not directly mentioned).



CHAPTER 4. THE SCENARIOS

A summary of each scenario (the EU end state, the EU storyline and the 8 associated Member State storylines) is presented in this chapter. The full scenarios are contained in Annex B.

We recognise that, as there will be overlaps in the competition processes, we need some other secondary means of end state differentiation – especially where the end states are quite close together (re competition processes). To use the car park analogy, where the car parks are in neighbouring districts more detailed addresses are required.

This need for further EU end state differentiation occurs with:

- the two main “Private Sector Participation (PSP)” EU end states (ie Delegated Markets and Outsourcing) where competition “for” the customer/supplier market predominates; and
- the two EU end states that incorporate a more central role for the public sector (ie Direct Public Management and Regulated Monopoly) and where there is more reliance on comparative competition, and competition “in” some customer/supplier markets.

4.1 Scenario 1: Delegation Contracts

4.1.1 End State Summary

End state 1a: Delegation contracts and strong regulation

Nature of competition

This model is based on competition for the market every 10 to 15 years. Independent regulatory authorities exist in all EU countries, controlling the water price, 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. Monopoly power remains, and it appears clearly that there is a strong need of control of the operator's activities through *ex post* regulation.

Market

Markets are not unbundled. They are mostly dominated by major TNCs and private operators. Delegation contracts can take various forms but the most frequent are concession or lease (*affermage*) contracts, and represent 60 to 70% of the market.

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: Water supply and/or sanitation services, and possibly other environmental network services (waste collection). Hence for a given region different concessionaires will control different parts of the system.

Institutional arrangement

The public authority is responsible for at least a whole 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.

Economic aspects

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. *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.

Social factors

Several associations of users could be active but their involvement is only consultative.

Environmental factors

Environmental regulation is set at the national level by an entity under the responsibility of the Ministry of Environment. The assumption here is that pollution continues to be important which leads to increasingly complex quality standards.



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 SGI fund). The obligation to implement an independent regulatory authority is also integrated in the amended directive of 2009.

End state 1b: Delegation contracts and extreme competition

Nature of competition

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 sanitation 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, 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.

Market

The European market and national markets are characterized by the domination of an oligopoly of the biggest European water companies that master all the technological processes and economic aspects, and benefit from economies of scale, scope and vertical integration. Large water companies cope with competition through 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).

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 lose 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 customer service), as are sanitation markets.

Operators

In most cases, subsidiary companies of large European companies win the bid and take advantage of the monopoly during the 5 years of the contract. In 2020, delegation contracts are predominant in all Member States, with an oligopoly of a few large European operators that master technological processes, economic aspects and benefit from economies of scale, scope and vertical integration. Some small and medium-sized companies also remain, but do not have significant influence in the market.



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.

Economic aspects

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.

Social aspects

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

Environmental aspects

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 (and less experienced) competitors.

Other factors

Implementing competition every 5 years is difficult in Member States where public management or total privatisation are predominant. Some delays are given to Member States for compliance so that by 2020, there still exist other management modes like public management. However, the latter suffers important constraints, and progressively diminishes and disappears in most cases.

4.1.2 EU Storyline Summary

Start 2005-2010: First critical events and changes envisaged

TNC lobbying: A change in operators' strategies is envisaged due to a debt crisis: they invested in concession schemes in developing countries, but realised that this strategy was wrong as returns only occur in the long term. The operators decide to change strategies and prefer lease contracts in developed countries, and focus on the EU. TNCs lobby actively for a directive on competition for the market, finally leading to a white paper promoting competition *for* the market and arguing that a competitive environment leads to the best possible price-quality service.

New Member States: New EU entrants (but also elder Member States) face important investments in order to conform to quality standards from EU directives on water supply and



sanitation. Indeed, the need of technological and high expertise and qualified personnel to manage water services incites local authorities to entrust the services to private companies by developing delegation contracts.

These events associated with the recent GATS negotiations and World Bank recommendations lead to a directive proposal launched in 2008. It imposes to local/regional authorities responsible for water management an obligation to tender every 10-15 years, in order to promote competition for the market. This directive is voted and agreed upon in 2009 (before the change in European Commission and Parliament) and must be applied by 2012 by all Member States.

During this phase of increasing delegation contracts and setting of 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).

Storyline 1a: Delegation contracts and strong regulation

From 2005 to 2009, TNCs are the major actors influencing the EU policy towards more delegation contracts. Then from 2010 onwards, NGOs, left wing parties and local/regional authorities gain increasing importance and impose the regulation of operators. Consumers are considered to be more passive.

Middle 2010-2015: Social unrest

2012-13 Protest movement: Different left wing parties (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) and exerts pressure for the introduction of regulation of water operators to ensure the full accomplishment of the delegation contracts.

There is a lack of transparency of delegation contracts, and local/regional authorities do not have enough personnel and expertise to properly control the operators and water prices are deemed excessively high. Moreover, the perceived failure of the liberalisation of other network industries justifies social demand for more *ex post* regulation of operators regarding quality standards and service provision, but also more information.

Parallel to this movement, the European Commission is also very interested in developing evaluation of performance for Services of General Economic Interest (SGEI) and plans to launch an “EU evaluation of performance of SGEI”. 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.

2014-15: 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 water supply and sanitation services. This is held in Brussels in 2014 (the European Forum on Regulatory Authorities for Water) and groups all interested parties.



Regarding delegation contracts in the water supply and sanitation sector, the following project is agreed upon in 2015 between all actors of the water sector (governments, local/regional authorities, NGOs, operators).

End 2015-2020: introduction of independent regulatory authorities

Directive amendment in 2018 obliging the establishment of independent regulatory authorities by 2020.

The different levels of regulation and the allocation of tasks: Member States are free to define the regulatory missions and to organise regulation at the level they wish (local, regional or national level). However, 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 SGEI”.

For technical and historical reasons, a significant part of the regulation missions are dealt with by the local authorities responsible for the organisation of WSS services. However, the national or regional level can also bring an interesting relay. The local community can call upon the technical expertise necessary to the follow-up and the monitoring of the service and benefit from advice and assistance from specialists such as private advise offices or decentralised public offices.

In addition, the missions of regulation are defined at the national level. An authority of regulation could encourage the use of indicators of performance defined at the national level. It could also propose models of terms and conditions which would enable the local communities. 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. The respect of public service obligations (availability, continuity, affordability) will also be ensured by the independent regulatory authority.

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, these criteria (price and quality indicators) once controlled will be centralised and then communicated to the public (fulfilling the requirement of transparency for the users) through an annual report of the independent agency. 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.

Storyline 1b: Delegation contracts and extreme competition

All along the time span (2005-2020), TNCs and the European institutions are the major actors influencing the EU policy towards more delegation contracts. NGOs, left wing parties, local/regional authorities and consumers are considered to be less active and influent.



Middle 2010-2015: Push towards more liberalisation

2009: New EU Commission and Parliament pro-liberalisation. Several Member States ask for the encouragement of competition for the market. Moreover, the GATS negotiations lead to enforce the opening of markets in a context of world-wide liberalisation. In the same time, debates in the Council of Ministers and the European Parliament converge towards more control over the choice of responsible authorities regarding management options.

2013: EU Directive amendment of the former 2010 directive (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. Tender is considered as to be sufficiently regular to promote competition (every 5 years). There is therefore no need for specific regulation other than national and European competition authorities.

End 2015-2020: Total implementation of the directive

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 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.

Once the assumption of EU directives is made, these EU storylines 1a) and 1b) could be implemented at EU level by all Member States. Of course, this would not mean that the market would only be dominated by private companies (mostly TNCs but also small and medium companies), and there could be still room for mixed companies and public management (especially in countries with high public management percentage like the Netherlands, Cyprus, Lithuania, Malta and Turkey), but these management modes would be much less important (around 20%) than today (around 65% of the EU market). For scenario 1b, there is also a hypothesis of no active opposition against this extreme liberalisation path.

4.1.3 MS Storyline Summaries

Storyline Summaries

This MS Storyline summary concerns storyline 1a). For 1b) as this change concerns an EU directive amendment, one can imagine it will be eventually implemented in all countries

In **Belgium**, the move towards concessioned markets in Belgium was conditioned to the adoption of the Water Liberalisation Directive in 2009 that opened up the sector to



competition. 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.

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. The current policy aim to retain vertical integration and continue with statutory rights and duties for the whole supply chain. However, as it is supposed that an EU directive obliges all member states to introduce competition for the market, one can imagine this change for England and Wales, with supposedly more time delay given to comply to the directive.

Delegation contracts develop in **France** with the new directive on competition for the market (2009), 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, and competitive bidding is mostly won by private operators (mostly lease contracts as is the tradition in France). This is both observed 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).

In **Germany**, this type of compulsory public tendering challenges the autonomy of municipal organisation and interferes 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. The compulsory competitive tender for concession agreements drives municipal enterprises, generally Small and Medium sized Enterprises (SME), partly out of the market as losing the bid meant they had to be phased out. This process was mainly prevalent between 2009-2013. Consequently, and in the context of the national modernisation strategy, there was a general demand for a more lenient application of the locality principle (*Örtlichkeitsprinzip*), so that municipalities would be allowed to operate beyond their traditional municipal territory.

In **Italy**, two main driving forces should be considered. The first refers to the relevance of the legislative framework (this driving force should be considered as a common event, as it influence also the other scenarios building). Recently some decrees concerning the evolution of the utility sector have been passed. These decrees influence 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 promotes 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 influences the dynamics in WSS Italian Market, by making the market more open. This is enforced with the EU directive of 2009.

In the **Netherlands**, public companies are bidding against private companies for the time-bounded contracts (encouraged with the EU directive of 2009. 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 are entering the market and winning a substantial portion of the contracts. Also some Dutch public limited companies were able to win contracts.

In **Spain**, with strong competition (enforced by the EU directive of 2009), and without the possibility of subsidies from public institution, public companies would tend to disappear due to the pressure from the TNCs which 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) which would be very active under the perspective of strong competition.

In **Switzerland**, 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. Switzerland then has to implement the EU directive of 2009 obliging competition for the market.

Contextual Features

Obstacles. It is difficult to know to what extent some countries like the Netherlands with high public management levels can coincide with this delegation model. The same is also true for the UK: it seems difficult to imagine that it can evolve from total privatisation to delegation contracts. Although all countries must apply the EU directive in both cases (1a and 1b), it could take some time before complete implementation. In case 1a), one can imagine that in 2020, one could imagine that 60-70% of the drinking water supply and sanitation markets could be managed by delegation contracts to leave room for differences in management modes throughout the EU, especially in cases with high public management levels in 2005. In case 1b), this extreme scenario would lead eventually to a predominance of delegation contracts of private operators, but one can also imagine resistance of some responsible authorities, and compliance delays in countries like the UK, so we would not imagine 2020 to be 100% delegation contracts, but 70-80% of the drinking water and sanitation sectors.

Important structural changes are needed for countries to shift to bidding processes and delegation contracts. Countries like Spain, and Eastern countries like Poland who rely on private investments may also have difficulties in financing infrastructure, because the price of water does not cover water costs. One can therefore imagine that concession contracts must still be important (companies like RWE are more likely to ensure these types of contracts).

Uncertainties. To what extent these two scenarios could develop is a central question. Would it be possible to imagine an extreme scenario 1b) without the reaction of some actors like responsible authorities in different countries, NGOs ? The hypothesis in this case is the relative passivity of these actors, the influence of the GATS, and the power of private water operators and European Commission. Regarding 1a), the EU directive of 2009 (which is less extreme than the amended directive 1b) and the reactions of NGOs and left wing parties for more regulation could be imaginable.

Supporting Circumstance. Regarding TNCs, it is certain that French TNCs are interested in developing lease contracts (see article on this topic in *Le Monde*, 29th January 2004), and could want to redirect their development strategy towards the EU rather than developing



countries. Other companies like RWE are still interested in investing in infrastructure, and could also have an interest in promoting the development of delegation contracts in the EU. With or without a directive obliging responsible authorities to open competition for the market, this trend is likely to develop with increasing standards, important managerial and operational know how of private operators, and the lack of trained personnel and know-how of municipalities. Another supporting element towards more delegation contracts is the European Commission's opinion that markets are not competitive enough (monopolies, contracts too long...), and this would go in line with the liberalisation of other SGEIs. Regarding new member states, some countries (Slovakia, Poland, Hungary, Lithuania, Czech Republic) experience important pressure to conform to EU directives on drinking water and wastewater treatment: 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. Other countries like Cyprus, Lithuania, Malta and Turkey are still characterised by the quasi non existence of private sector involvement, and the shift towards delegation contracts is less probable for these countries.

4.2 Scenario 2: Outsourcing

4.2.1 End State Summary

Nature of Competition

There is still a high degree of variation in Europe in respect of the competitive character of the **consumer markets**; ranging from a free supply to large industrial and rural consumers, to consumer competition and common carriage. Common among all European operators is that they all have decided to **outsource part of their tasks** to external sub-contractors. A **large variation developed in respect of the width of these outsourcing contracts**. Under the pressure to achieve enhanced efficiencies and innovation, outsourcing has come to be seen as a promising means to internalize **scale and scope advantages where partly internalized via the use of sub-contractors**, which serviced a number of operators and areas. Consultancies and subcontractors with a high expertise offer their services, in competition with each other. Nevertheless, unlike under delegation contracts, **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". There was no real shift in the **water use rights**.

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**. Yet **excessive rain, water precipitation and draught** requiring the separation of the waste- and the rainwater systems.

Operators

As stated above already, a variety of **different arrangements** can be found in the EU with all kinds of different scopes and scales. The four generic types are: Direct public



management (by municipalized operated utilities). 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). Delegated private management (contracts with private parties). Direct private management (full divestiture).

Institutional Arrangements

The EU **lowered the threshold values** beyond which contracts have to be awarded through public tendering. The **high level of competency** in respect of technological, economic, legal and other issues, from the tendering operators and bidding firms has supported the development of (international) cooperation and generally applicable **indicators and benchmarks**. As in the energy and telecom sectors, consultants show a tendency to concentrate, combining the different knowledge aspects in the field and reducing the number of players available. Depending on the structure and organization of the sector, various **regulatory concepts** are being applied. **Competition authorities** have their responsibility in fighting the potential oligopolist tendencies in the supplier market.

Economic Factors

No dramatic and critical events have happened and the main economic drivers are a function of the long term underlying trends. Weak economic growth, 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 draught. 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. In respect of outsourcing, it is crucial that the operators remained in charge of the **risk of exploitation**. 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. **Transaction costs** were high because of the need for coordination over a number of actors with conflicting interests and to the growth in the number of contracts, each of which with different design.

Social Factors

Social aspects are balanced within the **political domain** and included in the ‘marching orders’ to the operators and concessionaries. Efficiency improvements inspired the establishment of **consumers’ organizations** for the several segments of consumers, operating as lobby groups *vis á vis* the several authorities and other parties

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 the context **excessive rain and water precipitation or draught**. Member states approaches depend on their being affected by these effects.



Other Factors

The general success of the use of outsourcing contracts in other governmental and former utility sectors are an important driver for the implementation of these practices in the water sector.

4.2.2 EU Storyline Summary

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

The drivers behind **efficiency** are, firstly, that more investments are needed. The need for investment is a result of: 1) Modernization of the WSS sector, 2) EU directives (WFD, DWD, UWWTD); 3) The shift from ground water to surface water; 3) Increase in scale which requires investment in physical infrastructure; 5) Investments in sanitation; 6) 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. **Specialization**, is connected to the first trend, gains in efficiency, but also **technological complexity**.

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.

Middle 2010-2015: More outsourcing

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**.

This results in an 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.



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. Dynamics in outsourcing shape the WSS market. WSS becomes **more technical**, **Climate change** starts to play an important role, as does **diffuse pollution**. 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**. Another dynamic is that the **TNCs**, instead of focussing on full-blown concessions start engaging in outsourcing.

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 general disappointment is supported by series of smaller and more serious **regulatory failures**. Private companies were able to build excessive profits and in member states with common carriage, the. 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.

But outsourcing is not a cure to all either. 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. 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: the Expertise Centre.

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. Government set up frameworks in which water companies operated in clearly defined legal responsibilities towards service provision and outsourcing contracts. The procedure of outsourcing becomes smoothed 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 also the World Bank in developing member states.

4.2.3 MS Storyline Summaries

Storyline Summaries

At the early stages of outsourcing in **Belgium**, it became clear that there were disadvantages such as fuzzy contracts and it missed the implementation of important technological improvements. The sector drew lessons from its experiences and the model of outsourcing



was generalised in 2010-2015. In the end state, water management is outsourced in most extent to CIBE, but CIBE does not hold a monopoly in exploitation (anymore). Bulk water trading has drastically increased. Three main providers share the market.

In **England and Wales** high price rises, over 20%, play a major role in the development towards outsourcing. This led to a lot of discontent, especially amongst household consumers. The Regulatory authorities were not successful in lowering the prices: the moves toward liberalisation (e.g. common carriage) failed, and new investments were needed as result of the WFD. Shareholders gradually began to exit the market, to be largely replaced by bondholders. In addition, the Regulator set tough targets. These tendencies contributed to the appetite for institutional change. There was an emerging consensus that outsourcing was the only way to achieve the tough targets set by the regulator, although the RA insisted on detailed procurement plans. Outsourcing focused on both infrastructure and non-infrastructure. The RA left it to the companies to determine the extent of their outsourcing.

In order to make the Outsourcing scenario happening in **France**, significant changes are supposed in order to evolve towards unbundling. The reason is that in the begin state, the operator is in charge of the whole service. Two driving forces enable outsourcing. At the EU level, there is an explicit policy towards promoting competition for the market. Secondly, there is a major scandal in Toulouse, leading to a national debate on the alarming state of distribution networks in France and the need to promote more competition in different sub-services. In the end state, TNCs have most of the market, but smaller private operators, specialized in small niches of the market, are also present.

In **Germany** the municipalities control the provision of the water services. In connection with the national modernisation strategy, in order to lower their costs and to comply with EU demands, municipal enterprises increasingly awarded subcontracts to external firms for specific service segments of the WSS. 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, which complicated the tendering processes. In the end state, the federal ministry strengthened its efforts to provide guidance and offered concrete assistance such as example contracts. By 2020, the degree of outsourcing of water service elements had significantly increased.

In **Italy**, increase in technological complexity and financial requirements for new investments stimulated the growth of outsourcing. In the following years, the WSS business continued to grow more complex and there was a great necessity to develop a number of collateral activities. Subcontracting was considered as a useful way to take advantage of professional firms with high expertise. In the end state, there is still an increasing demand for outsourcing of high technological requirements activities, since the local incumbent did not have the capacity to deal with this complexity. In 2020, outsourcing of the WSS activities is 80% of the total.

The pre-condition in **The Netherlands** is characterized by limited financial resourced and on the other hand substantial financial demands. Therefore, the water sector was looking for efficiency gains. This resulted in the outsourcing of non-core activities, later leading to a diverse range from maintenance of the pipes, to BOT contracts for water treatment plants, to outsourcing of the cleaning of the buildings. In 2020, there is an internationally blended mix of companies supporting the Dutch public limited water companies, the water boards and



municipalities. We see TNCs, but also low price suppliers from former Eastern Europe. The effect of outsourcing in terms of pricing and service delivery is almost negligible: the substantial transaction costs in the back office tendering, contracting and monitoring of all these different suppliers balanced the efficiency gains.

In **Spain**, outsourcing is limited to raw water and sanitation.

In **Switzerland** the law on consumable goods increased the responsibility of the operators and in this way, it pushed professionalization. This tendency, in turn, resulted in a new form of competition in the Swiss water supply market with short-term contracts. In sanitation, the main events happened between when the increasing use of chemical in the agricultural and industrial sector led for new demands in terms of technology for wastewater treatment. In the end state, outsourcing in both wastewater and drinking water supply are common.

MS contextual features

Obstacles. The actual state of all member states can coincide with this outsourcing model. A serious obstacle can be an integrated WSS model (e.g. France), where one operator controls all activities. However, even in this market, unbundling is feasible. Not only by means of EU directives, but also by external and internal pressures for efficiency gains and the need for more transparency.

Uncertainties. Outsourcing is compatible with all ms preconditions. The outsourcing scenario is basically based on the idea ‘what happens if no major events would happen, but if the tendency toward the increase of efficiency would continue’. So, no major events need to happen. The only uncertainty would exist in the fact that the tendency towards more efficiency would stop. This is not feasible.

Supporting Circumstances. There are many events and driving forces supporting the tendency towards efficiency gains, e.g. the scandal in Toulouse (France) leading to the understanding that a system of concessioning can result in backward investment in infrastructure. Other supporting circumstances are the extra investments needed for the environment (e.g. the UK), leading to bill increases. The public discontent that was the result, together with shareholders stepping out of the market, and tough regulatory targets can be major drivers towards outsourcing. Lowering the threshold values (Germany) fits with the aim of the EU to expose the water sector to competition. Such a measure is feasible and will increase the need for outsourcing, since the bidding procedures will be more complicated. Increase in technological complexity is another supporting circumstance (Italy, Switzerland). Lack of financial resources is mentioned by many member states (e.g. the Netherlands, UK, Italy) and is an important impetus towards outsourcing. Unexpected consequences of laws on consumable goods may also have an effect on outsourcing, since operators will hire technological expertise elsewhere (Switzerland).



4.3 Scenario 3: Regulated Monopoly

4.3.1 End State Summary

Nature of Competition

This End State is characterised by benchmarking as the key competition process in the main monopoly markets. Benchmarking can take two polar forms: high-powered benchmarking with centralised regulation (Pole A) is mainly applied under private monopolies that are subject to a strong external and independent regulating authority at central level, which is also in charge of conducting the benchmarking and of enforcing its results. This type of benchmarking is tried in a few member states also in combination with publicly owned operating entities. 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. Medium-powered benchmarking with decentralised regulation (Pole B) prevails in those countries, where the organisational structure of the sector is characterised by maintained municipal influence. It comprises extensive information gathering and interrogation of practices by an independent benchmarking authority. Participation is compulsory for all operators. A 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. Under pole A, there may also be competition for large users. Common carriage has only been introduced in a limited number of Member States. The supplier transaction market in this End State is mainly integrated. Tradable water licensing regimes have been installed in some Member States, while being refused in others.

Market

Operators tend to provide all water supply and sanitation services and manage all assets. Service quality levels are generally good, partly as a result of performance evaluation with formalised procedures. The demand for water declined and there is system over-capacity in some Member States (depopulation).

Operators

The type of operators ranges from private companies to highly autonomous municipal undertakings that work at supra-municipal level. They are generally organised under private law with capital being either private, public or mixed. Assets are owned by the operators. The primary objective of operators is the efficient supply of a vital public service, while simultaneously satisfying consumer needs. The involvement in other utility sectors is frequent and multi-utilities have become a prominent feature of the water sector of many Member States.



Institutional Arrangements

In accordance with the spectrum of benchmarking and regulation, the key actor relationships in this End State vary. Under Pole A (undertakings subject to high-powered benchmarking and centralised regulation), the key actor relationships exist between (mainly private) operators, centralised regulators acting also as benchmarker and customers. 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, municipalities (instead of private operators) and an independent regulator acting also as the benchmarking authority. 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. From the European level, there have been no liberalisation directives in the WSS and EU activity has been restricted to the promotion of benchmarking initiatives. Generally, changes in the WSS sector have mainly been driven by cross Member State forces. All groups of policy instruments are made use of across the EU, but there is a reliance on incentive and informative instruments.

Economic Factors

Water and sanitation tariffs are based on cost causality. Social tariffs are in place but these have been mandated by the central governments and are targeted at the most needy. Disconnections are banned. There is full cost recovery, including environmental and resource costs in some countries, where a practical approach has been determined of how to account for them. There are no direct subsidies, but indirect subsidies and regional cross-subsidies remain. Most new investments have been made by 2020 and the focus is on renewals. The economic efficiency of the system has improved through regulatory controls and benchmarking.

Social Factors

As service quality has improved, most Member States show an improvement in consumer satisfaction. In those Member States where the municipalities' influence prevails, liberalisation is not viewed as desirable for the WSS and there is a general antipathy toward full private sector ownership, as long as a good service is provided at reasonable prices. 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.

Environmental Factors

While climate change has created some important ongoing investment needs, these have been accomplished without major price rises. There remain problems associated with diffuse pollution, which could partly be reduced through the implementation of the WFD. 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.

Other Factors

EU liberalisation policies have had mixed success, partly due to the reluctance of some Member States to fully implement Liberalisation Directives, which dampened down the



demand for more extensive liberalisation in the WSS sector. Nevertheless, multi-utilities have become a prominent feature of the European water sector. There is no technology revolution that breaks the power of the monopoly nature of the distribution network. In general, the WSS sector displays a high media profile.

4.3.2 EU Storyline Summary

The EU storyline for the regulated monopoly scenario is not dominated by one single driving force. It is composed of a series of contrasting and complementary headline driving forces that influence the overall path followed to the final End State described above. Not all of the headline driving forces will be described in detail in the following storyline summary. Instead we will focus on some of the critical driving forces and the associated events we have predicted.

Start 2005-2010: Disparate drivers create the conditions for gradual change

During this period six contrasting driving forces (already existing and emerging) created the ground conditions for the greater use of high-medium powered benchmarking and introduction of independent regulators/benchmarkers across the EU.

1. Social: Public Attitudes against liberalisation (without adequate regulation) became harder.
2. ***Economic: Municipal Financial (and Managerial) Resources came under extreme pressures and led to the increased the need for “divestment” of water supply and sanitation services.***
3. Environmental-Health: Higher Bills (as a result of increasing technical complexities and greater investments and moves toward full cost recovery) reinforced the need for institutional change.
4. European: EU policy review on WSS liberalisation remained neutral but supported the need for modernisation and independent/compulsory benchmarking.
5. Operators: As part of their long term business strategies the TNCs gradually withdrew from the Western Europe (and focused on opportunities in Central and Eastern Europe). But the same TNCs were aggressively regulated in their remaining home EU markets.
6. Stakeholder: Power of Trade Unions remained relatively strong across the EU and acted as important countervailing power to the (declining) influence of the TNCs.

The first four driving forces proved to be particularly important in framing the changes that have occurred since 2005. Indeed they continued to be important in subsequent periods up until the present day - in 2020.

First, EU consumers saw (and continue to see) water supply as “a service of which all aspects should remain managed, or at least very strictly controlled, by the public authorities¹⁹” (Eurobarometer 2004). These attitudes have been influenced by high **profile failures** in outsourcing markets (eg poor drinking water quality and financial irregularities), municipal

¹⁹ 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”.



and private operator **bankruptcies**, **public demonstrations** against greater water liberalisation, the **poor performance** of liberalisation in other sectors, **corruption scandals** in CEE, **trade union lobbying** as well as longer term social changes in favour of greater Government intervention. This led to greater public demand for greater regulatory oversight including greater economic regulation.

Huge municipal expenditure on social protection (pensions and health), education and energy (public transport, renewables and efficient energy use in households) have led to substantial pressure to raise additional local tax revenues and reduce public expenditures in other areas, including (in some Member States not yet employing cost recovery principles) water supply and sanitation. In some cases these pressures have been compounded by a shrinking local revenue base, national public deficits (as a result of poor macro-economic performance), and the expiration of cohesion funding of WSS infrastructure. Indeed these mounting financial pressures within local authorities led to some major municipal restructurings and some high profile municipal bankruptcies - both in 2006 and more recently in 2010. These financial failures undermined public confidence in the ability of municipalities to manage the major investments required for a good quality WSS service. It also encouraged the formation of more autonomous public operators or alternatively local privatisations to raise much needed cash. This in turn led to the introduction of independent benchmarkers/regulators to counter the market power of these newly formed independent monopoly providers.

The **EU review of the WSS sector** was published by DG competition in early 2006. The resulting proposals (regarding liberalisation) were quite moderate. The EU took quite a strong line on maintaining /enhancing competition for large industrial users. However there was no major “pro liberalisation” policy for the domestic sector. The EU recognised the local monopoly status of the sector but also highlighted the importance of economic regulation and consumer protection. There were also concerns about: i) the need to comply with the principle of subsidiarity and; ii) the emerging negative results of more radical EU liberalisation policies adopted elsewhere. The EU launched two high profile pilot initiatives in the WSS sector – firstly a network of EU water/sanitation regulators, and secondly a major pan EU benchmarking study.

The **technical complexities** of WSS increased at an enormous pace between 2005-10 – the unexpected acceleration 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). The use of increasingly sophisticated monitoring equipment and new health/environment assessment techniques identified an ever-increasing range of new pollutants. These were highlighted in the increasingly investigative media. These developments increased the need for further investments in water supply infrastructure across the EU. 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 authorities of the ecological status requirements implied by the WFD. Hence there were huge additional quality related investments on sewage treatment. These would be in addition to those investments in the sewerage system - that would largely be stimulated by the increasing impacts of climate change (re preventing sewer flooding).



Hence **water bills continued to rise** between 2005-2010 - both as a result of these additional investment needs (see above) and the application of fuller “cost recovery” principles (as required under WFD). Indeed this pressure on bills (especially in rural areas) continued in subsequent periods (2010-2020) as a result of the ever-growing impact of climate change (eg serious droughts and floods), depopulation in some areas, a small decline in water demand, and the need to rectify failures to comply with EU Directives (especially article 9 of the WFD). Increasing water bills led to continuing consumer/political pressure for water reform. This (and the associated political fallout associated with rising consumer complaints) persuaded some municipalities that it would be more appropriate to relinquish responsibility/control to more arm length public bodies and to introduce more transparent benchmarking approaches to minimise the impact on bills of ever rising investments. In some cases independent regulators were established to manage the benchmarking process.

Middle 2010-2015: European policy and Consumer power dominate agenda

During this period five complementary driving forces – two arising from European policy developments and three emerging from the increasing importance of European consumer rights – continued to drive the process of institutional reform in the European WSS sector.

1. European: EU reviews of cost recovery and drinking water quality promoted the need for further increased transparency and encouraged further benchmarking activity.
2. European: Implementation of Water Framework Directive (WFD) underpinned major structural changes in scale and integration of water supply and sanitation operations.
3. Consumer: Abuses of monopoly positions stimulated the demand for greater economic regulation.
4. Consumer: Consumer power rapidly became an important factor in pushing for water reform.
5. Consumer: Limited direct competition emerged as result of industrial consumer lobbying, but common carriage remained controversial.

The first four drivers proved to be decisive in the ongoing reform process. **Two European studies** – one on the implementation of Article 9 of the WFD on cost recovery (sponsored by DG Environment) and one on drinking water quality (sponsored by DG Consumer) – were published in 2010. These studies highlighted problems in both rural (cost recovery) and urban (drinking water quality) areas. There were then calls for increased transparency in the sector. 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. It also stimulated renewed interest in national benchmarking in some Member States.

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. 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**. Indeed there was evidence that the nascent outsourcing market was increasingly **uncompetitive** and subject to collusion. This led to greater demands for the establishment of independent regulatory authorities.



Consumer power increased across the EU as a result of underlying social changes, empowerment resulting from liberalisation in other sectors and the public consultation requirements of the WFD. The excision of these increased powers was triggered by ever increasing bills (see above). This led to consumer demands for both greater economic 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.

End 2015-2020: International and Global Factors reinforce structural shifts

During this period positive experiences of Member States that have adopted independent benchmarking/regulation and ongoing changes in the global macro-environment reinforced and widened the pace of institutional reform.

1. European: Positive international experiences of benchmarking/regulation become well known across EU.
2. Environmental: Climate Change impacted both directly and indirectly on WSS.
3. Socio-Economic: Poor macro-economic performance and greater social engagement encouraged further public sector restructuring.

The second driver proved to be particularly important in framing the future direction of the sector. 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 (particularly in those Member States that had not yet implemented major water reforms). Along with the WFD (see above), climate change encouraged the formation of integrated (water supply and sanitation) operators that were based on water basin districts. This reorganisation enabled greater economies of scale/scope – both on operational and financial aspects.

4.3.3 MS Storyline Summaries

Storyline Summaries

In **Belgium** price reductions for large industrial users (via the introduction of grey water networks in Flanders and as a result of industrial policy to attract new industry in Walloon) induced social mobilisation to obtain similar price reductions for domestic customers. Benchmarking was adopted in 2013 to constrain domestic prices. A new regulator was established in Walloon to run the benchmarking operation and Aquafin took over these same responsibilities in Flanders. The results of the benchmarking (re cost frontiers) were made public and the results were enforced by the regulator.

In **France** EU policy (improving performance evaluation and transparency), local government lobbying (in recognition of poor control over existing operators) and NGOs (more transparency, more information to consumers, better control of operators, evaluation/sanction for breaches of contract) encouraged greater benchmarking/regulation in France. Indeed there was a national protest movement supporting regulation (2010). An independent national regulator is established in 2015. However, this does not undermine the



predominance of the delegation model as the regulator assists the municipalities in negotiating their contacts with the private operators.

In **Germany** there was an increased level of private sector participation and concentration in the initial period. This was mainly driven by municipal financial pressures. The EU pushed for the introduction of competition wherever possible and regulation (with transparency in costs, prices, and tariffs) where not. For later years two alternative storylines have been presented for Germany:

Pole A: “Privatisation” following municipal budget collapse in 2012. Equal fiscal treatment was introduced which led to the formation of merged water and sewerage service utilities and a renewed concentration process. This increased market power & price. To counter this dynamic regulatory powers were transferred from Länder to Federal Government and a central regulating body was established (2018).

Pole B: Capacities of abuse supervision bodies were increased and data collection intensified following EU pressure for increased transparency (2009). Municipalities/associations demanded introduction of voluntary/anonymous benchmarking system (2012) but the EU favoured compulsory benchmarking with unified core indicators (2013). Finally the Federal Government developed a binding/public benchmarking system (2020).

In **Italy** regulation was originally (in 2005) maintained through contractual arrangements between the operators and the municipalities. Post 2007 municipal financial pressures (reduced general revenues and high water investments) encouraged a sell off by those municipalities who had maintained a local public owned utility. The market power of the existing private law regional operators was further enhanced by merger and acquisition activity (to increase both geographic and utility scope). Increased regulation and benchmarking was then needed to counter this changing market dynamic. The Comitato di Vigilanza was made responsible for early benchmarking initiatives (the data being collected by regional authorities) with the results being published annually. Finally a regulatory body was established although its powers and modus operandi are still uncertain. However price cap regulation is considered to be the most likely outcome of ongoing discussions.

In the **Dutch** storyline EU policy stimulated transparency and further liberalisation in the WSS sector. National discussions highlighted a need/want for wide-scale liberalisation – municipalities/provinces (under financial pressure) wanted to sell for the cash, experiences in other sectors highlighted the potential benefits of liberalisation, and there were ongoing technical difficulties in dealing with new drinking water quality requirements. Following a national debate (2007) regional private law companies were formed that covered both water supply and sanitation. Some of these companies also covered other utility areas such as wastes. Bulk supply and retail supply was also separated, (some) assets were sold to the private sector and a national regulator was established. Regulatory benchmarking highlighted the good performance of multi-utilities. As a result of the regulatory practice of rewarding the most efficient players the multi-utilities gradually became the dominant mode of operation.

Following EU policy initiatives **Spain** introduced regional regulatory institutions to oversee their growing concessioned WSS market. These institutions are able to negotiate concession



contracts on behalf of the municipality. Depending on the powers and position of the regulatory institutions two alternative storylines have been presented:

Case A: Financial position of public bodies strengthened (by continuing EU support) and Regulators unfavourable to private sector interests. Private operators abandoned core concessioning business and focus on supplier markets.

Case B: Regulators favourable to private sector interests. Private operators remained (and expanded) their activities in the core concessioning business.

In **Switzerland** major reforms were triggered by a corruption scandal in one municipality in 2011. Investigations by media & civil society uncovered further irregularities and this pushed national politicians to introduce benchmarking at the federal level. But in the event (because of a lack of resources and the need to maintain local authority autonomy) by 2015 this initiative failed. However, encouraged by national and local politicians the Swiss Association of water and Gas (SSIGE) launched an alternative benchmarking system, but only for water supply. This system is compulsory and the results are made public. Indeed SSIGE may issue recommendations to the local authorities when the price is judged too expensive. The national association is now considering benchmarking in the sanitation sector.

In the UK (or more accurately **England and Wales**) there has been little change between 2005-2020 – the original regulatory model (price cap combined with comparative competition) has continued in a similar fashion to 2004. There is still much diversity in institutional structures and strategies. Common carriage has been successful in niche large user markets [and there has been an EU Directive targeted at large users]. Some European benchmarking initiatives have also been adopted/used by the regulator.

Contextual Features

Obstacles. The most important obstacle incurred within the Member State storylines leading up to the End State “Regulated Monopolies” proliferated itself with respect to the forms of ownership and the forms of regulation. Very different starting frameworks were for example present in the UK and in Germany: while the UK is regulated independently by the external body Ofwat, there is no independent regulating body in Germany, and instead regulation is built in at local level within decision-making procedure. These two countries constitute the diametrical poles of the spectrum covered by the End State (cf. also Figure 1, Annex B.II.3.1).

A further obstacle encountered in reaching this End State is linked to the co-existence of three major competition processes (price cap regulation, benchmarking and competition in the market for large users), which required a careful drafting of all Member State storylines in order to find an adequate balance between the End State’s three competition processes that best represents the respective national context. This difficulty led in the case of France and Spain to a slightly diverging end state conception, in which concessioning remains an additional key competition process alongside which a strong and independent regulatory body has been established (cf. Member State storylines for more detail, Annex B.III.1.3.). While this competitive set-up can be regarded as a variant of pole A of the End State’s ‘*spectrum of regulation*’ (private monopolies under independent and external regulation, see Figure 1, Annex B.II.3.1.), it is not entirely in line with the envisaged End State, as



concessioning is still taking up a prominent place within the competition framework of the French and the Spanish envisaged End State future.

Uncertainties. Uncertainties prevail with regard to the balance chosen among the competitive processes of this End State for each national case. In particular with respect to the conception of benchmarking processes, important differences remain between Member State storylines. However, low-powered benchmarking has been successfully excluded and the focus in all Member States is on medium-high powered benchmarking. A further uncertainty encountered in the case of Switzerland and Germany is related to setting the basis for benchmarking in the national accounting systems.

Supporting Facts. With the slight exception of France and Spain described above, all Member State storylines lead up to an End State in 2020 that is within the range of the EU End State “Regulated Monopolies”. The spectrum of regulation and ownership of the End State is also reflected by the national End State descriptions: In some Member States, privatisation and an independent external regulation constitute the core features of the national End State (Netherlands, Italy, Germany (case A)), while in other Member States autonomous public undertakings under medium-high powered benchmarking dominate (Belgium, Switzerland and Germany (case B)).

Due to the large variety of the competitive spectrum covered by this End State, some of its features were only reflected in a few national End States, such as the element of water transaction markets, which has only been addressed by Spain.

4.4 Scenario 4: Direct Public Management

4.4.1 End State Summary

Nature of Competition

In the case of direct public management (DPM), there is no competition in/for the customer market or for various service inputs. The local operator is awarded 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.

Concerning the supplier transactions, given that the municipality is not specialised in all activities, it can be possible that some operations are outsourced. However, contracting out is generally restricted to large turnkey (design and build) infrastructure provision and to the high technology domain. Competition for finance may also be obtained through bond markets.

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 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.

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 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. Operators are mainly local. However they can be organised at a higher scale, i.e. inter-municipal, but the legal responsibility and political will ultimately lie in the different municipality concerned. Regional organisations are another alternative.

Institutional Arrangements

The most important actors in the sector are the customers and local authorities, which are both operators and regulators. Important controls have been assumed for environmental issues by other authorities, namely at the river basin level. There have been no EU liberalisation directives in WSS. EU activity is restricted to the enforcement of public health and environment standards, as well as to non-discriminative measures in procurement contracts. There is no (independent) regulatory authority. The protection of customers' interests as well as the guarantee of adequate capacity investment is assured by public ownership and management of the network. Apart from environmental and drinking water quality issues, which are established at the river basin area, each operator acts as a regulator in its region.

Economic Factors

Tariffs are structured according to volumetric charges, and disconnections are banned. Furthermore, they are based on cost recovery and there are no direct subsidies, except for infrastructure development in isolated and less developed regions. Finally, DPM 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.

Social Factors

Customers normally trust the public operator and consider it provides a public service to the community. Public water operators modernised their governance structures in order to increase public participation in water management.

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.

Other factors

DPM does not preclude innovations in technology and management structures. (e.g., more flexible accounting standards, flexibility in work contracts).



4.4.2 EU Storyline Summary

The DPM storyline is illustrated by two pathways that converge towards the DPM end state: one of status quo and the other of convergence after an external shock.

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

In the first case, we observe that municipalities in various countries are already in DPM. The state of affairs in 2005 is that customers normally trust the operator. As long as water services are provided with good quality and at affordable prices, few questions about economic efficiency and financing are raised. This sequence is an evolution towards an improved and strengthened DPM by a series of adaptive innovations.

Start 2005-2010: "New public management tools"

Public water companies introduced New Public Management tools (NPM) in their organisation. They also explored different rationalisation measures, e.g. outsourcing of peripheral activities or flexibility in finance and work contracts. In addition, technological change occurred, that made efficiency gains plausible through decentralisation of service provisions. The third trend was the adoption of national measures granting local authorities with more autonomy and responsibility.

Middle 2010-2015: "Consequences from the WFD"

As a result of the implementation of the Water Framework Directive (WFD), river basin authorities integrated every aspects of water resource management at river basin scale. The water operators entrusted them with the permanent monitoring of decentralised systems of wells and treatment plants. As the WFD also recommended more public participation, water operators modernised their governance structures. The citizens/users were involved in the management of the operators and now the boards of directors are accountable to them.

End 2015-2020: "Mature DPM"

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 allowed gains in efficiency and enhanced trust in citizen's confidence. The direct public management model was thus strengthened.

Pathway 2: "Multiple conjunctural causation"

The storyline is driven either by external events (e.g., accident, natural disaster) or by voluntary actions of the actors' involved (e.g. social contest) that instigate a causal reaction.

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

The operator failed to avoid an accident or an act of sabotage that provoked a contamination in the network, disease and death. Alternatively, the external shock was the failure to prevent major damages and network disruptions from a natural disaster (e.g., floods). This external shock may have trans-national consequences through large rivers such as the Danube. The



operator failed to react to the disaster and was unable to take the safeguards measures that would bind the disaster and limit the number of victims. In consequence, public authorities set up a crisis management. These events were highly covered by the media, which triggered immediate reactions from civil society.

Middle 2010-2015: “The power of social movements”

In complement to this inability of the operator to face the crisis, it is discovered a scandal of corruption. Public authorities were pressed by the issue and its expected reflection in the following elections. In effect, the dominance of left wing movements in politics, led to the incorporation of certain features related to specific demands from civil society movements against profit making in services of public interest. This was also supported at EU level through a change in majority of the Parliament and the Commission.

End 2015-2020: “The turn to DPM”

Public authorities take the decision to turn to DPM. It had a low political cost for local politicians and allowed them to distance themselves from the corruption scandal. 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 relied 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 casualties and serious damages that occurred in the past have redirected the priorities of public authorities (e.g., facilitating the access of the operator to additional financial sources).

4.4.3 MS Storyline Summaries

MS Storyline Summaries

In **Belgium**, there has been a radical shift towards the DPM model following large natural disasters that created strong public discontent and corruption scandals that forced the commune to react and to withdraw from private regional companies.

In **England & Wales**, the pressure to reduce costs led to the merger of companies. The system was called into question following the failure of security systems and corruption scandals involving two major companies. Several initiatives at the local level re-established DPM.

In **France**, the *régie* model became more and more widespread following strong distrust of private operators by the population. New methods of public management have also showed that this model was successful.

In **Germany**, the pressure to introduce more competition at the EU level led municipalities to opt for DPM, which was not considered under the EU mandatory tendering procedures. Social pressure for more transparency and ecological incidents reinforced this trend.

In **Italy**, the introduction of new public management measures made the sector more



transparent. Moreover, financing problems related to water infrastructure also contributed to the development of DPM.

In the **Netherlands**, WSS are managed by multi municipal bodies and regional water boards. This is further enhanced by innovations in public management, the need for an integrated approach, and the perceived failure of liberalisation in other network industries (e.g., gas).

In **Spain**, public management was encouraged and strict regulation rules were applied over prices following the victory of left wing governments, which discouraged PSP.

In **Switzerland**, new managerial measures were introduced for enhancing public management. However, it was the perceived specificities of the sector compared to other network industries that led to the turn towards DPM.

MS Contextual Features

The aim of this section is, first, to see major issues or specificities of some countries, and to look at the major turning points; and, secondly, to assess the likelihood of the EU DPM end state in the selected member states.

Obstacles and Uncertainties. One could regroup the major *issues* for each selected member state as follows. For the majority of the MS scenarios, innovations in public management have been taken into account. Natural hazards such as transboundary droughts also play a key role in the different scenarios storyline and could influence the storyline in more than one country. The desire for more transparency, social discontent with operators, as well as the lack of confidence in private operators are also major recurrent themes. Finally, in some countries like Switzerland and Germany, the pressure for more competition in network industries including water at the European level has a turn back effect in that it reinforces the main specificities of the water supply and sanitation sectors.

Supporting Evidence. First, the eight case studies examined have shown that direct public management may emerge at least as one possible form of institutional arrangement. In four cases (i.e. Belgium, England & Wales, the Netherlands, and Switzerland), direct public management is the only form of management by 2020 while in the others this end state is less widespread. In Germany and in France, it is the predominant form of management. In Italy and in Spain, direct public management is ‘a residual form of management’.

In terms of *likelihood*, there is only the English and Welsh case which appears as highly unlikely. In France, the trend is certainly going towards delegated management and one need a major event such as social discontent to change the current situation. The same also stands for Spain. For the other case studies, although external shocks like natural disasters are considered, the storyline does not differ that much from the situation in 2004. In Belgium, Germany, the Netherlands and Switzerland, public management is already a major form of management.



4.5. Scenario 5: Community Management

4.5.1 End State Summary

The community management (CM) model in its “traditional” form differs from the public management model in the sense that the community participation includes ownership of the services, cost sharing, operation and maintenance of WSS. It helps to decentralise decisions concerning water services management, by transferring responsibilities to communities. It can be a way for an effective water management when centralized water provision is not efficient.

Nature of Competition

In the case of community management, there is no competition in/for the customer market or for various service inputs. 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 occur “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.

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).

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.

Operators

The community retains the ownership of the infrastructure and takes strategic decisions, concerning the level of service and financing, as it is responsible for investments needed for pipe maintenance. Regarding the operation and maintenance of WSS, there are two alternatives: the community may be involved in the day-to-day operation and maintenance or it can delegate this task or some other aspects to a professional (Schouten and Moriarty, 2003). In the extreme versions of Community Management, the WSM is based on voluntary work. Normally O&M entails the contracting out of some activities.

Institutional Arrangements

The CM is based on the participation of the community in the provision of WSS, in different manners:

- WSS is organised in voluntary organisations (i.e. user co-operatives);
- Customers own water asset 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.

Economic Factors

The role of the community is stronger for infrastructure finance (through ownership and financial decisions). However, as stated in the “nature of competition” section, some forms of outsourcing are experienced in the secondary market. 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 of a volumetric system with individual meters and a shared payment in proportion to owned property could be introduced.

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.

Environmental Factors

The community has to comply with EU and national standards, for what concerns drinking water standards and sanitation. 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.

4.5.2 EU Storyline Summary

Start 2005-10: “Technology opens new possibilities”

Concerning rural and disperse population, in these cases the provision of good WSS presents problems for public institutions or private operators, since it does 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. Users were directly involved in WSS management.

Concerning water treatment, the increasing level of water quality demanded by the citizens is questioning the chlorination for drinking water. A useful alternative for improving the water quality, then, could be to use domestic inverse osmosis.

For what concerns large industrial users or groups of firms settled in the same area, the supply comes 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. Regarding wastewater treatment, the interest of working under separated sanitation systems (for improving depuration efficiency) leads to increase the autonomous industrial sanitation systems under Community or self-management.



Another reason that pushes the spread of the CM steams from the rapid growth of urban areas. This is particularly true, especially along the coastal areas (tourist development) where the demand for infrastructure growth faster than the municipal networks. Under this circumstance many of these new urbanisations have assumed the option of building their own systems under common management²⁰.

In all these cases, the communities have the complete responsibility for the operation of the water services and for the financing. Until 2010, apart from rural or industrial settlements (or for self-supply and sanitation), a community management model can be identified also in case of centralised water services. In England and Wales, there has 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).

Middle 2010-2015: “The community mutual is widening in form of user ownership and involvement”

The decentralised solutions described above put the WSS service even closer to citizens. In practice, citizens (directly or through associations) became the owners of water systems or responsible for strategic decisions (through involvement in water companies governance).

Transfers from the Central Government to local authorities no longer represented the financial sources. 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. The limited financial sources boosted the search for cost effective solutions, both in public or private management entity case. 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. This direct ownership allowed the decrease of the capital costs (through a long term depreciation of asset and through the avoidance of remuneration for capital invested).

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

Some local communities started to express a strong preference towards the development of decentralised systems, which made possible to avoid the construction of new systems (thus reducing investments in water infrastructure). This preference was also boosted by the 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.

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

²⁰ In case of islands, for example, desalination treatment capacity can be managed in form of co-operatives of users.



The citizen involvement in WSS strategic decisions is determined by 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.

End 2015-2020: “Community Management as an effective way of implementing the Framework Directive”

Whilst in the previous years the CM model developed as a residual form of WSS management in areas not served by centralised water services, in 2020 a development of this form of management is experienced in all the situations in which an increasing involvement of users is experimented at local level, through ownership or participation in decision making.

The rationale for this increasing involvement of users is for make responsible all users about the 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 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.

In conclusion, community management, in 2020, is introduced or maintained for several reasons: because traditionally WSS has been managed in this way; because the community opts for this kind of WSS management, due to inefficient WSS management (both public or private) and mistrust in public institutions; because 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; because of ideological reasons.

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 local level, responsible for service provision and asset maintenance.

4.5.3 MS Storyline Summaries

Storyline Summaries

In **Belgium**, following the inadequacy in WSS provision by centralized systems (especially for what concerns wastewater treatment), many community initiatives developed in order to manage water services.



In **England and Wales** the investments needed to comply with EU directives together with the strong regulatory opposition towards price increases were the main important drivers. As a consequence, shareholders gradually began to exit the market to be largely replaced by bondholders. 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 began to offer specialist services to the largely debt-financed companies. 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.

In **France** the CM remain residual. In 2020 only limited rural areas will experience this form of management. However, a greater attention could be devoted to this form of management, as a consequence of change in social value, and individuals seeking new social identity structures.

As in France, also in **Germany** there will be a shift in social values, towards solidarity and local communities. In addition, following the WFD implementation, the public participation led to a heightened public interest in water service management issue and on a better coordination of different social group at local level. As a consequence, German associations and co-operatives were also experiencing a revival. Regarding the delegated public management, the financial crisis entailed by the Stability Pact, boost the possibility to sell water assets directly to connected users (instead of private firms).

In **Italy** CM remain a residual form of WSS management, regarding its traditional form. However, it showed high potential concerning the alternative forms of users involvement (through the selling of ATO operator' shares or through the representation in boards).

In **Netherlands**, the CM model developed from public management model. The main driving forces are the emerging of a new interest towards self-organized form of WSS provision and the development of new technologies, which make possible a decentralized purification possible. In 2012 communities had the right to organize their own drinking water, provided that regulatory bodies would oversee the quality of the management. Regarding wastewater treatment, the purification water boards (*zuiveringsschappen*) continue to have responsibility on wastewater treatment and water quality control.

In **Spain** the CM has been used traditionally in rural areas for the management of water for irrigation. In these irrigation districts the extension of CM to their villages is relatively easy. In new urbanizations in the surrounding of the big cities and in touristy areas CM is growing under the public health control of local and regional institutions.

In **Switzerland** CM developed along centuries in rural communities. In 2012 CM continues to operate in small rural areas, without expanding in new ones. However, at city level, due to financial troubles, local utilities are split into hundreds of community organizations.



Contextual Features

Obstacles and Uncertainties. In terms of *likelihood*, there is only the French case that appears as highly unlikely. In France, the trend is certainly going towards delegated management and one would need a major event such as social discontent to change the current situation. For the other case studies, in order to see a CM spread, it is necessary that the community is able and willing to participate: this is likely to occur in all situations in which there is a mistrust towards public institutions.

The major *issues* for each selected member state are: the technology improvement that made cheaper decentralised systems, the desire for more public involvement (following the implementation of WFD), even in financial terms, the social discontent with operators and the lack of confidence in private and public operators.

Supporting Circumstance. In 2020, even if CM model will not substitute other forms of centralised WSS, none of the eight case studies examined (i.e. Belgium, England & Wales, France, Germany, Italy, Netherlands, Spain, Switzerland) has excluded that community management could not emerge as one possible form of institutional arrangement in the countries concerned. However, in all cases it is regarded as a challenging model of WSS management. In particular, in the Netherlands and in Germany it developed from existing water user associations. In England and Wales, it emerged from the private corporation, in all cases in which ownership and some risks of ownership are transferred to the customers. In other countries it widened by consumers involvement in decision-making (Italy), splitting of existing companies (Switzerland), or in new urbanisations (Spain).



CHAPTER 5. SCENARIO VALIDATION

Actor analyses are an important feature of our scenario building methodology. These analyses have been used to build the base²¹ (in stage 2), to describe the scenarios²² (stage 4) and to validate the final scenarios (in stage 5). Indeed one could also frame the scenario outlines (in stage 3) in the context of market relationships between the key actors in the proposed transaction framework. Actor analysis was therefore embedded within our scenario building approach.

This chapter focuses on how we have used actor analyses to validate the final scenarios. Actor analyses are more useful in a dynamic context and are therefore more relevant to the validation of the scenario storylines. Actor analyses around the static conditions described in the end state in 2020 are probably less pertinent.

Liberalisation is an overtly political process. Actors and their relative position, salience, clout and influence (see below for definitions) on critical events pertaining to the liberalisation process are central to the development of any plausible liberalisation storyline.

To check on the plausibility of the (ie to validate) storylines we introduced the concept of mini-actor analyses. This was seen as a complement to the other, more interactive and external, validation techniques (ie two Euromarket workshops, interviews with national experts and involvement of second readers) adopted in our approach to scenario building. The introduction of actor analyses in this final stage was designed to force the scenario pairs to think about how actors would react and whether their storylines were tenable. It was, in essence, an internal validation tool.

Whilst any analysis of future actor behaviour is difficult it is important to check that the predicted outcomes of the critical future events are consistent with likely future actor positioning. We adopted the Multi-issue Actor Strategic Analysis Model (MASAM²³) as the basis of our mini-actor analysis tool. This is a powerful but relatively simple software tool that is framed around a number of key issues.

The key issues (around which actors position themselves) relate to ideas, topics, problems or other matters (eg in our case selected critical events or trends) that are open to discussion or dispute. For this project the important issues are where the outcome may affect the future evolution of the liberalisation scenario and, possibly more importantly, where the actors have diverging positions and are able to influence the outcome of the issue. Hence not all of the critical events identified are easily amenable to actor analyses.

Despite this difficulty, for each EU storyline, each scenario pair undertook a short stylised mini actor analyses around each of the critical event(s) already identified in the event

²¹ Specific actors (EU, operators, institutions and to a lesser extent customers) have been used to frame the assessment of driving forces (building on the WP1-WP4).

²² Actor positioning has been an integral part of the scenario descriptions and are, for example, included in the storyline event tables.

²³ Multi-issue actor analysis: tools and models for assessing technology environments, Journal of Decision Systems. Paper circulated to all partners.



analyses. For each critical event each scenario pair described²⁴, and then scored (0 lowest, 4 highest), each actor on the following factors:

1. **Position** – the actors preferred outcome arising from the selected critical event (generally either for or against the outcome identified in the storyline).
2. **Salience** – the subjective importance of the outcome arising from the selected critical event.
3. **Clout** – the power the actor has to directly influence the outcome of the selected critical event.
4. **Influence** – the power the actor has to influence the behaviour of other actors.

However, it should be noted that the scoring was based on a limited pair ranking. The critical events selected by the scenario pairs for more mini actor analyses are listed below:

Scenario 1. Delegated Contracts.

1. Debt Crisis of TNCs (2005).
2. Protest movement for more regulation of operators (1a. 2013).
3. Liberalisation directive amendment (1b. 2015).

Scenario 2. Outsourcing.

1. Public procurement becomes fashionable.
2. Public procurement contracts become a standard, easy to apply, risk avoiding tool.

Scenario 3. Regulated Monopoly.

1. EU publishes liberalisation strategy for the water sector (2006).
2. Consumer views reflected in Eurobarometer report – public unenthusiastic about PSP (2008).
3. Some high profile municipalities on the brink of bankruptcy (2010).

Scenario 4. Direct Public Management.

1. Crisis management (2010).
2. Resignation of private operator (2012).
3. Official turn to DPM (2017).

Scenario 5. Community Management.

1. Water service financial crisis (2009).
2. Crisis of centralised water service (2012).
3. Emerging new attitude toward collective way of living (2015).

It is apparent that some critical events (ie those where the decision could be affected by the actors) were more amenable to actor analyses than others. In addition some of the critical events identified by the scenario pairs were more akin generic trends than specific events.

²⁴ Not all the scenario pairs managed to complete this part of the actor analysis.



However, if identified and framed correctly, trends are also amenable to detailed actor analyses.

Further analysis of the mini actor analyses revealed that for each scenario there was one particular event/trend that was particularly critical to the evolution of the storyline and also amenable to more detailed actor analyses:

- Scenario 1. EC liberalisation Directive (event).
- Scenario 2. Public procurement becomes fashionable (trend).
- Scenario 3. Publication of EC Liberalisation strategy (event).
- Scenario 4. Official turn to DPM (trend).
- Scenario 5. Emerging new attitude toward collective living (trend).

More detailed and robust actor analyses could be developed around these specific events/trends in the next phase of the Euromarket project. One critical event, the publication/instigation any EU liberalisation strategy for WSS (as explicitly identified in scenarios 1 and 3) will strongly influence the plausibility of all five of the scenarios we have developed.

By analysing the results of the mini actor analyses we can identify some of the most important actors. We can also classify them according to their relative salience and power at a generic level (re water liberalisation):

- *Main players* (with high stake and relatively high power) including: Incumbents (operators) and Customers (possibly represented by customer bodies).
- *Referees* (with very high power, but possibly lower stakes) including the Regulators²⁵ (municipality or national bodies), Government bodies (including MS Ministries and EU bodies), the Judiciary (again MS and EU) and Voters (local or national elections).
- *Subjects* (with lower power but higher stakes) include potential New Entrants (eg from other utility sectors and neighbouring countries), Secondary suppliers, Consumer associations, NGOs, Workers and the Unions (directly and indirectly involved in the industry) and the Media.

²⁵ These may also have a high stake in the sector and could also be viewed as a main player.



CHAPTER 6. SUMMARY CONCLUSIONS

The core objective of this fifth work package (WP5) has been the identification and description of plausible water liberalisation ‘scenarios’ that can be used by policy makers and water professionals and that also “enable” the following phase of Euromarket (ie WP6-9) to assess their economic, social, environmental and institutional implications. The scenarios represent what is plausible but not necessarily what is either desirable or probable. Here we understand scenarios to be coherent credible stories about alternative futures. Effectively they describe different paths (via a consistent set of events, trends and actor strategies) that lead to these alternative futures. A scenario is therefore composed of two separate elements: the End State, which describes the situation at a particular future point in time, and The Storyline, which connects the present (ie the current state) to the end state in a logical manner. Hence a scenario is both a description of the future and how we get to that future. In the conviction that the process of producing (and using) scenarios is just as important as the scenarios themselves, the main body of this report has been built around four stages used in the scenario building: Building the Base; Developing the outline scenarios; Describing the scenarios in detail; and Validating the scenarios.

The scenario-building exercise displayed the following features:

- The time horizon is fifteen years to 2020.
- A total of twelve scenario building tools (three in each stage) were used and six in particular – historical trend analyses, future imaging, future history, future event analyses, actor analyses and workshops.
- Given that the European water supply and sanitation services market consists of multiple current states rather than one single uniform current state, and that therefore national institutional context is extremely important when considering potential liberalisation scenarios, it was decided to develop multiple storylines to a restricted set of future EU end states.
- We assumed there would be two major forms of current state. The first current state would be at the European level, the ‘average’ position across the EU at the current time (2004) from which storylines would be developed toward majority positions using the other competition models. The second current state would be at the Member State level. Here the storylines would be more tightly framed around specific actors and driving forces. The Member States selected were UK, France, Germany, Italy, Spain, Belgium, the Netherlands, and Switzerland.
- Given that plausibility does not preclude the introduction of surprises that result from unexpected changes, we introduced both *wild cards* (high impact and low probability events) into the storylines and included one peripheral scenario.
- We used a modified ‘future mapping’ approach to build the scenarios. This is based on the determination of the underlying driving forces for each liberalisation scenario rather than the key driving forces determining the scenarios. This approach occurs around a set of constrained futures that can be predicted at an early stage of the scenario building exercise rather than a more traditional open-ended scenario building exercise where more time is spent on developing the outline scenarios.
- The driving forces were analysed from four separate actor perspectives – the market, the European Union (EU), the institutional context, and the operators. To complement



this we also identified a set of hypotheses under the five main macro-environmental themes/factors of STEEP: Social, Technological, Economic, Environmental and Political. Three driving forces were considered the most important and the most uncertain: The level of social engagement; the availability of public finance; and EU legislation toward liberalisation and competition of the WSS. These were used to develop our full liberalisation scenarios.

On the basis of a mapping of the ‘possibility space’ using a transactions framework with three markets (for Customer Transactions, Supplier Transactions and for Water Resource Transactions) competition processes and modalities plus management modalities, five end-states were identified, as follows: End State 1: Delegated Contracts, End State 2: Outsourcing, End State 3: Regulated Monopoly, End State 4: Direct Public Management and End State 5: Community Management.

The four plausible end states (1-4) are based around contrasted competition modalities. They can be conceptualised along two key axes – the nature of competition in the supplier transaction market (end state 2 versus end state 4) and the nature of competition in the customer transaction market (end state 1 versus end state 3). The fifth peripheral end state (5) forms the basis of our peripheral scenario and is structured around a specific management modality – community management. Three of the selected future end states (1, 2 and 3) involve greater liberalisation at the European scale, whereas two of the selected future end states (4 and 5) represent a retreat from liberalisation.

Finally, we now summarise the essential features of these end-states and their associated storylines:

End-State 1: Delegated Contracts

Several driving forces underlie this scenario. First, European TNCs are retrenching back to Europe because of the heavy losses incurred through their high exposure in low and middle-income countries. They lobby actively for an EU directive on competition for the market. Second, new EU entrants and some existing Member States face heavy investment outlays in order to comply with EU quality standards on water supply and sanitation. Combined with recent GATS negotiations, an EU directive proposal is launched in 2008 that imposes an obligation on local/regional authorities responsible for water management to tender every 10-15 years, in order to promote competition for the market. This directive is agreed in 2009 (before the change in European Commission and Parliament) and must be applied by 2012 by all Member States.

This end-state is divided into two variants. Under the first variant, delegated contracts is combined with strong regulation. There is competition for the market every 10 to 15 years. *Ex ante* regulation (in order to choose the more efficient operator) is established by competitive bidding. Concession or lease (*affermage*) contracts are the most common contractual form, awarded mainly to TNCs. Markets are not unbundled, with private companies, both TNCs and smaller national companies, managing a vertically integrated service. Tariffs are agreed for long periods of time according to rules for adjustment based on indexation formulas. The operator is responsible of tariff collection and bears the risk of non-payment.



The responsible authority in the public sector remains the legal owner of the original assets, with responsibility for investment and maintenance depending on the nature of the contractual arrangement. The scale of the responsible authority is not necessarily synonymous with the scale of service and may be responsible for several services on different networks. Although monopoly power remains there is *ex post* regulation by independent regulatory authorities, which use through performance indicators to control the water price and quality of service and to ensure respect for public service obligations. The scale of the responsible authority is not necessarily modelled on the scale of service. This variant assumes that there is an EU directive in 2009 on competition for the market with a) the obligation to tender every 10-15 years, b) the establishment of a new EU incentive fund to provide technical assistance to municipalities to enable them to make the best selection of operator through the bidding process, and c) the obligation to establish an independent regulatory authority.

Under the second variant, delegated contracts is combined with extreme competition resulting from an EU directive requiring responsible authorities to introduce open tenders every five years, with contracts awarded solely on the basis of least cost. This leads to market domination by an oligopoly of the largest private European water companies with the gradual disappearance of direct public sector management. Stringent environmental standards and policies must be applied in all countries, and be integrated in the terms of the contract and invitations to tender. The regular five-year tendering procedure is considered to be sufficient to promote competition. Therefore, there is no need for specific regulation other than national and European competition authorities.

The EU wide scenario is based on the assumption that from 2005 to 2009 TNCs are the major actors influencing the EU policy towards more delegation contracts. Under the first variant, from 2010 onwards, NGOs, left wing parties and local/regional authorities gradually challenge this influence and lobby for tighter regulation of operators. Parallel to this movement, the European Commission is also very interested in developing evaluation of performance for Services of General Economic Interest (SGEI) and plans to launch an “EU evaluation of performance of SGEI”. It defends the establishment of independent regulators in the water sector at national level that control and diffuse performance indicators of different operators. This growing social demand for more *ex post* regulation of operators managing delegated contracts leads to a new EU directive in 2020 requiring the establishment of independent regulatory authorities to ensure that operators respect public service obligations (availability, continuity, affordability). Under the second variant, TNCs remain the major actors influencing EU policy towards more delegation contracts throughout the period to 2020, with a much more reduced role for political parties, NGOs, and local/regional authorities in comparison with the first variant. There is some delay in introducing legislation for five-year contracting in Member States where public management or total privatisation are predominant. Nonetheless, the new directive is finally applied.



End State 2: Outsourcing

This scenario is based on the simple question, “What happens if no dramatic or critical events take place, overall water use remains more or less stable, and the current trend toward greater efficiency continues”. This ‘quiet’ scenario is compatible with the wide variety of different institutional arrangements that are already found in EU Member States because all of them include ‘outsourcing’ to a greater or lesser extent.

The main economic drivers for this scenario are the long term underlying trends that are already present in the first decade of the 21st century. Foremost among these is a strong drive towards greater efficiency in service delivery. More investments are required because of the modernization of existing WSS systems, compliance with EU directives (WFD, DWD, UWWTD), the shift in supply from ground water to high-cost surface water, increase in scale that requires investment in physical infrastructure, investment in sanitation and the need to make WSS systems less vulnerable to terrorist attack. In response to this demand for extra funding for investment, there is a continuous political pressure existed to enhance the efficiency of the sector and to offer public services at a lower, cost-related tariff.

This pressure greater efficiency encourages European operators to increasingly outsource some of their tasks to external sub-contractors. These tasks range from short-term (1-5 years) well-specified contracts for activities such as network repairing, billing, management, as well as longer-term contracts such as DBFO, BOTs, and partnering for infrastructure specific maintenance/construction.

Unlike under the delegation contracts that feature in Scenario 1 (above), the revenue risk here is not transferred to the winning bidder for these outsourcing contracts. There are four driving forces behind the expansion of outsourcing - benchmarking, the early successes of member states that have adopted extensive forms of outsourcing, new EU legislation on outsourcing that lowers the threshold values beyond which contracts have to be awarded through public tendering (this extends outsourcing from the area of customer services to that of management) , and finally the increase in demand for specialization.. The expansion of outsourcing, together with accession of the new member states to the EU, leads to internationalization of the WSS. Low cost and highly competent companies from CEE move rapidly into the water outsourcing market. The dynamics of outsourcing begins to shape the WSS market. Subcontractors develop services for sectors other than the WSS sector, so becoming multi-utility subcontractors.

According to this scenario, from 2015-2020 citizen trust in regulatory bodies in a number of member states is put to the test as a result of disappointing results in terms of efficiency and effectiveness of the regulatory framework. There is a growing demand for specialized knowledge in order to overcome the information asymmetry between the tendering operators and the specialized sub-contractors and consultancies. A European support body for public procurement procedures is established in order to compare performance among sub-contractors. This body develops a standardised ‘model’ contract for outsourcing that gains worldwide attention after widespread coverage in the international media. This legal product is exported and heavily propagated by the World Bank in developing countries.



End State 3: Regulated Monopoly

This End State is characterised by benchmarking as the key competition process in the main monopoly markets. This takes two forms. High-powered benchmarking with centralised regulation takes place where there are private monopolies subject to a strong external and independent regulating authority at the central level. The regulatory authorities determine the tariffs, budgets, prices and investments that companies may charge or carry out. Medium-powered benchmarking with decentralised regulation takes place in those countries, where the organisational structure of the sector is characterised by strong municipal influence. The publication of benchmarking information exerts public pressure on companies.

Under this scenario, 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. In those Member States where the municipalities' influence prevails, liberalisation is not viewed as desirable for the WSS and there is a general antipathy toward full private sector ownership, as long as a good service is provided at reasonable prices. Assets are owned by the operators, who range from private companies to highly autonomous municipal undertakings that work at supra-municipal level. They tend to provide all water supply and sanitation services and manage all assets. There have been no EU liberalisation directives and EU activity has been restricted to the promotion of benchmarking initiatives. There is full cost recovery, including environmental and resource costs in some countries. There are no direct subsidies, but indirect subsidies and regional cross-subsidies remain..

The EU storyline for this scenario is composed of a series of driving forces that influence the overall path followed to the final End State. The most important of these are; public attitudes against liberalisation; extreme pressure on municipal financial and managerial resources leading to need for "divestment" of water supply and sanitation services; higher tariffs due to environmental and health concerns as well as moves toward full cost recovery; EU policy promoting the need for modernisation and compulsory benchmarking.

From 2010 onwards, four complementary driving forces continue to drive the process of institutional reform in the European WSS sector. These are: EU reviews of cost recovery and drinking water quality that promote the need for further transparency and encouraged further benchmarking activity; European: Implementation of the Water Framework Directive (WFD), which underpins major structural changes in scale and integration of water supply and sanitation operations; a rapid growth in consumer power stimulated by abuses of monopoly positions with demands for greater economic regulation.

From 2015 positive experiences of MS that have adopted independent benchmarking/regulation together with changes in the global macro-environment reinforce the pace of institutional reform. Positive international experiences of benchmarking/regulation become well known across the EU. Climate Change impacts both directly and indirectly on WSS. Severe droughts and floods appear to overwhelm the system in a number of MS that had not yet implemented major water reforms. Along with the WFD (see above), climate change encouraged the formation of integrated (water supply and sanitation) operators based on water basins. This reorganisation enables greater economies of scale and scope.



End State 4: Direct Public Management

This End State is characterised by the absence of competition in/for the customer market or for various service inputs. The operator is typically a non-autonomous local public water services body under the direct control of the municipality, which is the sole provider of integrated water services to the community. Although some operations are outsourced, contracting out is restricted to large turnkey infrastructure provision and to the high technology domain. There is no independent regulatory authority. Instead each operator acts as a regulator in its region.

The storyline is illustrated by two pathways that converge towards the Direct Public Management (DPM) end state: one of status quo and the other of convergence after an external shock. Under the first pathway, good quality and affordable water services leads to a gradual evolution towards an improved and strengthened DPM by a series of adaptive innovations through the introduction of New Public Management tools (NPM) and the implementation of the Water Framework Directive (WFD). Under the second pathway, external events (e.g. contamination accident, natural disaster) or voluntary actions of the various actors (e.g. corruption scandal) lead to a strong reaction from civil society, successfully pressing public authorities to turn to DPM.

End State 5: Community Management

This End State is characterised by the participation of the community in the provision of WSS in the following ways: WSS is organised in 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. Decisions concerning water services management are decentralised by transferring responsibilities to communities. There is no competition in/for the customer market or for various service inputs and contracting out is generally restricted to infrastructure provision or for technological expertise demanding tasks. The community retains the ownership of the infrastructure and takes strategic decisions concerning the level of service and financing. The community may be involved in the day-to-day operation and maintenance or it can delegate this task or some other aspects to a professional body.

The storyline towards the End State begins with technological innovation (e.g. reverse osmosis, separated sanitation systems) and company self-supply from wells, spreading the Community Management model initially in rural and dispersed populations, and to new tourism areas where the provision of good WSS presents profitability problems for public institutions and private operators alike. Elsewhere, limited financial sources boosted the search for cost effective solutions, both in public or private management systems. From 2010, some private and public owned companies decide to transfer ownership of water services to citizens.

Encouraged by a growing mistrust of both public authorities and private companies, some local communities begin to express a strong preference for the development of decentralised systems in order to avoid the construction of new systems (thus reducing investments in water infrastructure). This citizen involvement in WSS strategic decision-making in WSS is



strongly influenced by a wider societal crisis of individualism, under which people feel growing satisfaction in public activities rather than only in private consumption.

By 2020 the CM model ceases to be a residual form of WSS management in areas not served by centralised water services and is generalised, with widespread involvement of users at local level, through ownership or participation in decision making. The implementation of the Water Framework Directive and of the Aarhus Convention increases citizens' interest in involvement in environmental decision-making and their ability to participate actively in participatory planning procedures. The spread of the CM model is spurred by growing diseconomies of scale in large and growing urban areas that make decentralized systems with new technologies both cheaper and more efficient.