Annex A: Scenario Building

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A.I Defining the problem

ANNEX A.I.1 Scenario Concepts

Scenario Definitions

It is appropriate to assess some expert definitions of the scenario concept:

- Scenarios describe "a ***possibility*** space – a set of ***plausible*** futures that span a range of conceivable outcomes". (Malcom Eames).
- Scenarios are vivid descriptions of ***plausible*** futures. (Gill Ringland).
- The description of a ***possible*** future [or futuribles] plus the path to that future make up a scenario. (Michel Godet).
- A scenario is "An internally consistent view of what the future might turn out to be – not a forecast, but one ***possible*** future outcome". (Michael Porter).
- Scenarios are coherent, credible stories about alternative futures. Scenarios are ***plausible***, pertinent, alternative stories of the future. Scenarios are not projections, predictions or preferences. (Ged Davis).
- Good scenarios are ones that explore the ***possible***, not just the ***probable*** – providing a relevant challenge to the conventional wisdom of their users, and helping them prepare for the major challenges ahead. (Shell).
- A scenario is a future, not the future. No one can definitively map the future but we can explore the ***possibilities***. Scenarios should provide sufficient information for recipients to imagine being in a particular future, and to think about how they might behave in it. (Shell).

The scenario line of thinking suggests a perception of the future as a space. The scenarios fill this space.

The words "possible" and "plausible" need further consideration as they occur both in the Euromarket proposal and the above expert definitions.

The Cambridge definition of a *possible* future is that it is something that "might or might not happen", whereas the Collins dictionary states that something is "capable of existing, happening, or proving true". The Cambridge definition of a *plausible* future is that it is "able to be believed, or is apparently reasonable". The Collins dictionary also states that that it is something that is "apparently reasonable or true".

Plausibility is therefore based on expert judgement of possibility. Hence a *plausible* scenario is located within the *possibility* space.

The art of scenario preparation is to reduce a large range of *possibilities* to a handful of *plausible* directions that together contain the most relevant uncertainty dimensions. However, it should be noted that plausibility is in the "eye of the beholder" and each scenario will have its adherents.

Indeed one of the most contentious debates in scenario development is whether to assign probabilities to the final scenarios. One school of thought is that such probabilities provide vital information to decision makers on how to develop their strategies. The other school is that the future is inherently unpredictable and such probability assessments are based on the scenario developers' prejudices and should therefore be avoided.

Whilst some futures are more plausible than others, the interactions between the trends in the real world make any formal detailed assessment of their likelihood impossible. However, whilst recognising the inherent difficulties of assessing probabilities the Euromarket project team has attempted to rank the scenarios according to their plausibility for different Member States.

Scenario Rationale

Scenarios are particularly useful in situations where changes in the business environment are recognised but are not well understood. Scenarios help to reveal to their users an understanding about what is important, how those elements will evolve in the future, and the linkages between different elements.

Hence, scenarios can help us:

- to articulate the key considerations and assumptions;
- identify gaps , inconsistencies, dilemmas, uncertainties and indeterminacies and to understand complexity;
- expand our thinking, take on and explore new possibilities that are new, or challenge conventional thinking.

Liberalisation of the European Water Supply and Sanitation (WSS) services is therefore well suited to the scenario approach. The liberalisation process, by its political nature, is complex and poorly understood. The use of scenarios in this context will hopefully reveal some of the underlying complexities.

Scenario Purpose

The key purpose of Euromarket is to "***provide recommendations for local, national and European policy makers, as well as for water professionals, on how to manage such a (liberalisation) process***".

It should be noted that whilst the title (and focus) of WP10 in the Euromarket proposal is "Recommendations for EU policy-makers", this is not the sole target audience of this

research. However, that said, European policy-makers are one of the prime target audiences of the scenario building exercise.

The final approach to scenario building selected for Euromarket will ultimately be determined by the ultimate purpose of the Euromarket project. Four fundamental purposes for scenario building can be identified:

1. For planning and/or strategy development (by other actors in the WSS sector).
2. For evaluation (e.g. to assess the performance/impact of existing management models in the WSS sector).
3. For innovation (to identify new management models and possibly compare and contrast their performance with existing management models in the WSS sector).
4. For learning (to challenge existing paradigms within the WSS sector).

Purpose 1 and 2 may favour more constrained approaches (e.g. future mapping) to scenario building. In contrast, purpose 3 and 4 may favour the more open-ended approaches (e.g. intuitive logics) to scenario building. The focus of these open-ended approaches is on understanding the underlying driving forces of the system.

The Euromarket proposal appears to be focused more on purpose 1 (see objectives and WP 10) and purpose 2 (see WP6-9 and above discussion on possible use of existing management models as the basis of the scenarios). However, as a European research project purpose 3 and purpose 4 are also pertinent.

On balance the more constrained approaches to scenario building are more relevant for the Euromarket project.

David Musco, IDD, April 2003

ANNEX A.I.2 Tools for and Approaches to Scenario Building

Tools for Scenario Building

There are a large number of different scenario building tools. At least 25 different tools can be identified – although some are refined or elaborated versions of the classic techniques.

These scenario building tools can grouped under five method headings:

1. *Time-line methods* embracing tools that focus on the *past* (eg analogues, historical analyses, and trend extrapolation).
2. *Consequence methods* embracing tools that focus on the *future* (eg probability effects, future history, future event production, and consequence trees).
3. *Actor orientated methods* embracing positioning tools such as actor analyses and competitor analyses.
4. *Systems methods* embracing analytical tools such as STEEP analysis, cross impact analyses (possibly adopting causal loop diagrams and four field analysis to simplify the results), morphological analyses, and system modelling.
5. *Generative methods* embracing narrative tools such as future imaging, story telling (future history and story boarding) and future headline production.

1. The above tools are applied at different stages in the scenario building process – identifying key driving forces (eg causal loop diagrams), picturing future outline scenarios/end states (eg scenario cross, future imaging), and describing in detail the selected outline scenarios (eg story telling, future event production).

Approaches to scenario building

A number of scenario building approaches exist – both generic and proprietary. No single approach can be identified as best practice, especially considering the subjective nature of what actually constitutes a good story.

The only rule is that the scenario building approach adopted must be credible to the team building the scenarios and the key audiences who will read the scenarios. In addition there must be a fit between the approach used and the ultimate objectives of the work.

As no single approach is universally best it is sometimes appropriate to adopt, at least in the early stages of the scenario building exercise, a combination of approaches. Each approach used will generate particular insights. Hence the use of more than one approach will provide an even wider understanding upon which to base future decisions. It is reasonable to suggest that those decisions based upon different perspectives are likely to be more robust to future uncertainty.

Across EU and beyond there are differences in the approaches adopted for scenario building. Generally there is little consensus or consistency in the scenario building approaches employed. The influence of historical and cultural factors remains strong.

For example the moments of change, out of which different private/public organisations involved in scenario building were born, influence the approach adopted by these organisations today. National cultural traditions also play an extremely important role in determining national approaches to scenario building. In France, for example, scenario building tends to be analytical, whereas in the Netherlands the focus tends to be on collaborative developments.

Types of scenarios

There are three major types of scenarios – contrasted, trend based, and normative scenarios – as linked to possible (or plausible), probable, and desirable/undesirable futures.

Contrasted scenarios state an ordered set of possible events (irrespective of their desirability or undesirability), while normative scenarios take values and interests into account.

This is not to say that trends and normative processes do not play a role in the development of contrasted scenarios. We must take note of existing trends and typically, the scenarios produced will be based on the scenario developer's own values. Hence contrasted scenarios can be seen as being both trend influenced and semi-normative (in the social science sense rather than the future studies one).

Contrasted scenarios can be either "deductive" or "inductive" in nature.

- *Deductive scenarios* relate to future end states that are deduced first (through an assessment of driving forces, or through future imaging techniques), with event pathways subsequently being developed to these future end states (a future-backward approach where plausible pathways are developed to fit pre-identified end states).

- *Inductive scenarios* relate to future end states that are gradually induced from linking chains of events into a plausible storyline (a future forward approach where plausible pathways effectively predetermine the end states). This approach can also be likened to a sophisticated form of future trend based scenario.

The classification of any given contrasted scenario development technique will ultimately depend on the tools adopted to develop it.

Deductive scenarios can be further classified according to how the future end states are determined and how the associated storylines are developed. There are a number of different proprietary approaches to deductive contrasted scenarios (eg la prospective, intuitive logics, future mapping etc).

Each proprietary approach tends to rely on a different set of scenario building tools.

- *La Prospective* tends to adopt tools from all of the above methods to develop and describe the scenarios. The French school particularly favours complex system methods (eg cross impact analyses to analyse the driving forces, morphological

analyses to develop and describe the scenarios) and detailed actor orientated methods (eg actor analyses to validate the scenarios).

- *Intuitive Logics* tend to rely on the generative methods (eg brainstorming, future imaging) and simple systems methods (eg four field analysis, otherwise known as the scenario cross[1]) to develop the initial outline scenarios. Morphological analyses may be used to describe the initial outline scenarios in detail.

- *Future Mapping* approaches tend to rely on generative methods (eg future imaging) to develop the outline future end states. Consequence methods – particularly future event production – are typically used to describe the pathways to the possible end states.

To repeat 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 actually distinguishes the many different generic and proprietary approaches to scenario building.

David Musco, IDD, July 2004

[1] Scenario cross consists of two using two key driving forces to create a simple 2x2 matrix. Four different scenarios will come out of the corners of the cross.

A.II Building the Base

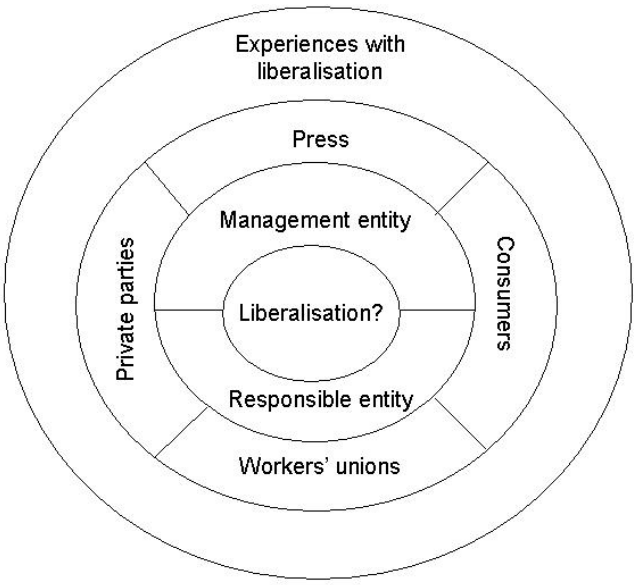
ANNEX A.II.1 Market perspective (UNESCO-IHE)

1. Introduction

The main objective of this short paper is to identify the main driving and resistance forces for liberalising the European water sector from the market perspective, based on the findings from Workpackage 2 of the Euromarket project (Euromarket, 2004).

Based on the research done in Workpackage 2 a myriad of different driving and resistance forces towards liberalisation can be identified across Europe at any given point in time. Analysis shows these driving and resistance forces can be categorised according to three tiers (see figure 1). The first tier of forces indicates those parties most directly involved in the process of liberalisation: incumbent entities and responsible entities. As these entities are either responsible for service provision or the management of service provision, the influence they exercise on possible liberalisation is considerable. The second tier of forces relates to the more indirect involvement of stakeholders:- consumers, the press, the workers' unions and the private parties. This group indirectly shapes the propensity and direction of liberalisation. The final tier of forces to influence a possible liberalisation of the Water and Sanitation Market include the (perceived) experiences with Liberalisation; either in other regions of the water sector or in the networking sectors. The influence of the failure or success of flagship Liberalisation projects cannot be underestimated: they shape the perceptions of stakeholders and provide the context for policy making.

Figure 1: Overview of the Driving and Resistance Forces towards Liberalisation



In any given market, it is the balance between these driving and resistance forces that will determine the *propensity to change* the existing institutional arrangement. Historically, this balancing act has resulted in predominantly direct public management of the European water

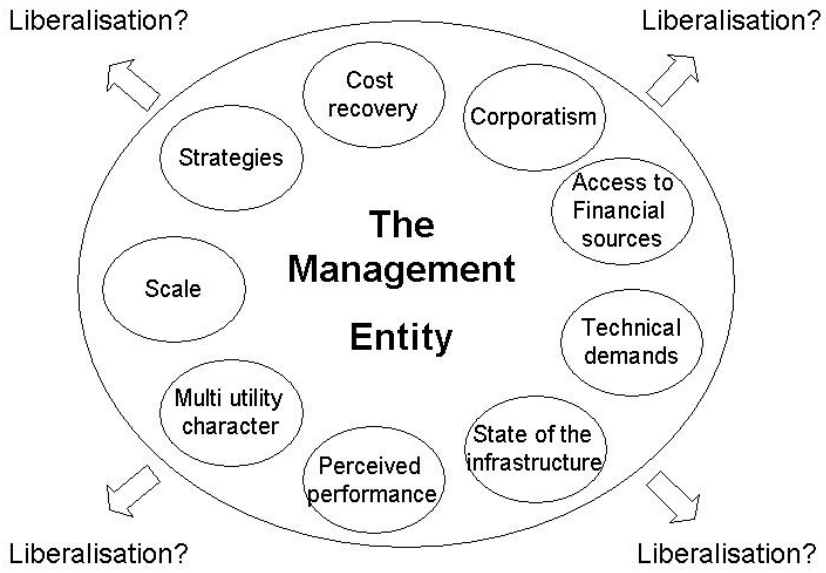
and sanitation sector. The nature of the driving and resistance forces will influence the *direction of change*. For example, the presence of powerful lobby groups for or against liberalisation may determine if the responsible government prefers to delegate the service provision to a public or a private entity.

2. The tier of entities that are directly involved

Two main actors shape the service provision, firstly the management entity that is executing the service provision, and secondly the responsible entity that bears the final responsibility for the service provision to the public.

The Management Entity
Since it is this entity that is currently in charge of executing the service provision, its' influence on any changes to the service provision is quite significant. Several characteristics (see figure 2) of this incumbent management entity might trigger or discourage liberalisation. It is interesting to see that in different countries the same characteristics produce an opposite effect:

Figure 2: The Management Entity



- *The scale of the incumbent management entity*. For example in Sweden, Italy, Belgium, Switzerland and in the Netherlands it is believed that large incumbent service providers might be better able to maintain the required expertise themselves and avert interference from international operators. On the other hand, size also attracts private parties (Camdessus, 2003) since a minimum size is required to have a concession contract profitable in view of the transaction costs associated.
- *Corporatism of the management entity*. For example in Belgium, there's a situation where for a long time the management entities used to work without political interference, except on retail price. The management entities as such do not specifically favour solutions that

would increase competition, even if they remain passive to (partial) privatisation processes.

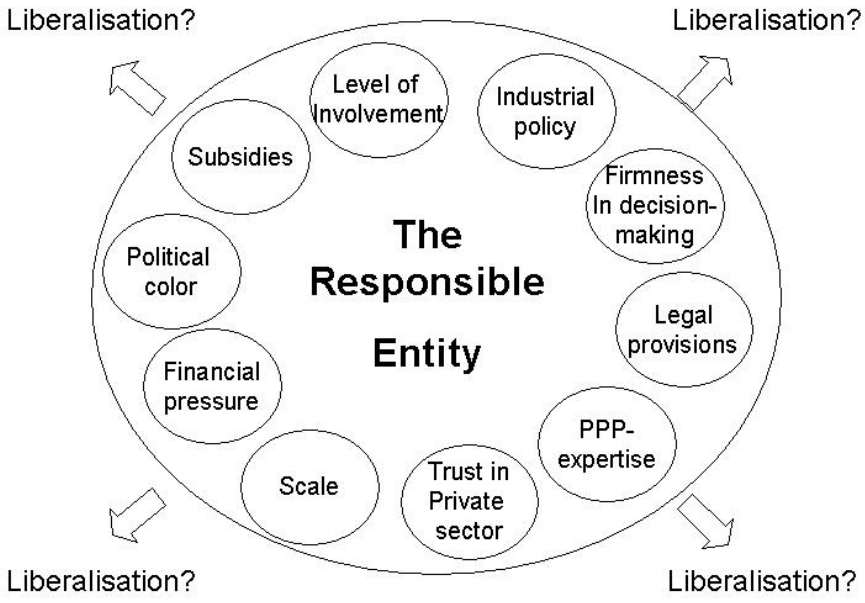
- *The strategies of incumbent management entities towards market expansion*. For example in Greece the ambition of the incumbents to exploit emerging market opportunities in the water sector, triggered partial privatisation of the two main water companies. An opposite effect can be witnessed for example in Scotland where worries about possible market entry by UK water companies searching for expansion, triggered a restrain on the liberalisation of the water market. Also this can be seen in Northern Ireland where employees of the incumbent management entities are lobbying to maintain the existing distribution of economic rents.
- *The current level of cost recovery of the management entity*. If there is a need to reach full cost recovery and make the required investment by attaining higher revenues this might trigger liberalisation as it did in parts of Switzerland. On the other hand, if there are limited opportunities for full cost recovery, the incumbent is a less attractive target in the eyes of private parties, as for example in Northern Ireland.
- *The multi-utility character of the management entity*. An existing integration between energy, gas and water in one management entity might blur the distinctions between the sector characteristics. As such, a multi-utility character makes the influence of the ongoing liberalisation in the other networking sectors stronger (especially the implementation of the EC Directive 96/92 on energy liberalisation) since the perception will be more dominant that what goes for one in-house sector should also go for the other. An example of this driving force can be found in Germany and Switzerland. Another element in this respect might be a push towards achieving economies of scope, as seen in the Netherlands where the Dutch water companies are eyeing towards the wastewater sector for integration, using the argument of water cycle management.
- *The present state of the infrastructure of the management entity.* The need to upgrade existing infrastructure, leads to foreseen increased financial pressure. Liberalisation might pave the way for enlarged access to funds. This is at hand in many countries such as Greece, Italy, the Republic of Ireland, Switzerland and the Dutch sanitation sector. If there is no real need to upgrade existing infrastructure, as in Scandinavia, there is also no need to search for other financial sources. Apart from the state of the infrastructure, the readiness of sound information available on the infrastructure can also be important. For example there is a lot of sound information on the assets of Scandinavian incumbent service providers, which is particularly interesting for private parties since it enables them to make a sound risk assessment.
- *The (perception of) performance of the management entities*. If incumbent management entities are (believed to be) performing well as in Switzerland and the Netherlands, the urge to change might be lacking. However, if there is a strong desire to improve the operational efficiency of existing public management entities in combination with a perceived efficiency of the private sector, possibly due to high profile failures as in the drought in Greece, this might trigger liberalisation.
- *The present access to financial sources of the management entity*. If the public incumbents currently have the possibility to access cheap government loans, as in the Netherlands, this might hinder liberalisation since a private party would not have this access and so would incur increased financial costs.
- *Technical demands on the management entity*. If there is a situation of increasing complexity of water and wastewater technology as for example in Greece, Italy, France

and Germany due to environmental requirements on ground water abstraction and surface water discharge, there might be a need to involve private sector expertise and finance. Furthermore; the implementation of the European Directives for example in Belgium, Portugal and the Netherlands, affected the required technical complexity and subsequently created a demand for private sector expertise and involvement.

The Responsible Entity

The responsible entity that is currently in place is another major factor that needs be acknowledged. Several drivers and constraints (see figure 3) are identified related to position, set up and abilities.

Figure 3: The Responsible Entity



- *The current level of influence of the responsible entity on service provision*. If the Incumbent Management Entity is highly dependent on government vagaries, this might seed the urge from the Management Entity to reduce the political vagaries in service provision by searching for alternative institutional arrangements. For example in the Scandinavian countries, the incumbent management entities are quite independent from government vagaries, and as such do not feel the urge to change. In other countries you see the opposite effect, such as in Northern Ireland and the Republic of Ireland, where the strong involvement of central government, either as a direct service provider or a major source of finance, prevents private sector involvement.
- *The current level of subsidies the responsible entity provides to the management entity*. If subsidies are in place, as for example in Austria, the government might be more inclined to liberalise the sector trying to relieve the financial burden of subsidizing.
- *The current political colour of the responsible entity*. In general one could say that a reigning liberal or right wing national/local political majority triggers liberalisation, while a reigning social democratic or more left wing national/local political majority is more resistant towards liberalising public services. However one could also say that political parties are acting within the National political dogmas. For example in Sweden and

Belgium liberalisation is neither advocated by right wing nor left wing politicians, while in Greece both political sides choose liberalisation.

- *The current financial pressure on the responsible entity*. For example, conforming and/or joining the Economic and Monetary Union and the Stability Pact criteria pressured the Greek, Spanish and Belgium government to reduce public debt and triggered the partial privatisation of water companies to generate additional financial resources. Other examples are the Republic of Ireland and Portugal, in which a decline in EC Regional Funds led to a search for alternative sources of finance. Also in the Swedish, Swiss and German municipal governments, the desire to reduce the financial burden on the public budget triggered the involvement of private parties.
- *The current scale of the responsible entity*. A large number of small municipalities acting as responsible entities may encourage associations, which may then be attractive to PPP. For example in France, Belgium, Portugal and the Republic of Ireland, PPP is used to create multi-municipal structures and hence gain economies of scale.
- *The current level of trust the responsible entity has in the private sector*. For example, the long history of interaction and hence trust between private and public sectors in France provides a good basis for partnerships, whilst in the Republic of Ireland for example there is only a little confidence and trust in the private sector possibly due to a lack of historical relations.
- *The current level of PPP-expertise of the responsible entity*. If regulatory expertise or general expertise about PPP is lacking: in Sweden for example, this contributes to the hesitance of introducing private sector involvement. However if it is available or readily obtained from neighbours, such as in Scotland, at least this element does not form a constraint to a future liberalisation.
- *The firmness of the responsible entity in decision-making*. If politicians are unable or unwilling to take the blame for an increase in tariffs they might be inclined to use the private sector as an instrument to undertake a politically difficult task. Conversely if politicians remain firm in their decision-making: as in Scandinavia, Denmark and Luxembourg, and they are willing and able to introduce tariff increases and to undertake considerable efforts to comply with the Water Framework Directive this may not be the case.
- *The current legal provisions in place that encourage PPP*. For example in the Republic of Ireland, Spain, Switzerland and some German Länder; arrangements for private sector involvement in the water and sanitation sector are under current consideration, yet in other countries, such as the Netherlands, Italy and Sweden, there are still major legal constraints to PPP. On the other hand the current "pipeline developments" at EU level indicate that the European Commission is looking for ways to heighten the exposure of the European WSS sector to competitive forces. If these developments materialise in legislation it would definitely trigger liberalisation processes.
- *The industrial policy of the responsible entity*. For example in Belgium, the industrial policy of the government triggered an up-scaling of regional companies to allow them to develop activities abroad. Politicians hope that the current investment in the wastewater sector will benefit regional construction companies and will contribute to regional capacity building in the WSS sector. Also the German Bundestag initiated a so-called "Sustainable water management policy" (BT-Drs. 14-7177 of 21 March 2002) that targets reaching optimal efficiency gains through modernisation of the present system. The constituent policy elements will affect the organisation of the sector and may lead to shifts

in the present structure as well as to increased competition and private involvement. In contrast, Spanish politicians use the argument of public responsibility for sustainable aquatic ecosystems to enhance the need for public management responsibilities in the water sector.

Indirect Stakeholders

The second tier of forces affecting liberalisation includes the influence that stakeholders and pressure groups exercise. The following groups can be identified:

- *Consumers*: If the consumers pay a relatively low price for water and sanitation services, as in Switzerland, or if they feel they might loose from any proposed restructuring, as in the Netherlands, Spain, England and Wales, the consumers might be inclined to block changes through public consultations. A specific group of consumers to exercise considerable influence are the large industrial consumers. They might be able to install a lobby if they feel they will gain from restructuring, as in the Netherlands, England and Wales, with regard to expanding competition.
- *Workers' unions.* The fear of job losses due to private sector involvement in the water and sanitation sector might trigger them to lobby against liberalising the sector, such as in Northern Ireland.
- *Press.* If the press is extensively involved, as with Sweden, this obstructs the liberalisation process since some politicians might be inclined to play the public sentiment on this controversial topic. If the media does not feature the liberalisation process, such as in Greece, implementing private sector involvement might turn out easier.
- *The private sector.* Lobbying by private companies who want access to economic rents might be a driving force for liberalising the sector, as is the case in France, Spain and partly in Switzerland. Another unpredictable element in the transformation process of the WSS sector is the interest that the private sector parties, such as Suez and Veolia taken from the Belgium example, may have on their regional operators.

3. Perceived Liberalisation Experiences

Aside from the direct and indirect incumbent parties within the water and sanitation sector, an important factor that influences possible liberalisation is the experience of liberalisation elsewhere, either in other parts of the country, other countries or other sectors. Even before liberalisation is on the agenda, one of the first things to look to is an assessment of the successes and failures apparent elsewhere, and to use these learning experiences for their own situation. Local evidence that PPP in neighbouring utilities in the water sector is working well might convince others to also enter a PPP process, as in Sweden or the pioneering Dutch DBFO contract in Delfland. Furthermore the experiences abroad of successful PPP can be influential; for example the efficiency of English water companies is shown in Scotland as a success and something to aim for. Interesting enough, the liberalisation of English water companies is used, by the Swedish for example, as a negative experience since it is often cited in the Swedish media that the English model is a poor example of liberalisation. Also in international benchmarking the Swedish water sector comes out positively. On the other side if international benchmarking surfaces a poor performance, as with the Greek public sector, this might trigger private sector involvement. Also liberalisation experiences in other (networking) sectors might provide either a driving force or a resistance force towards

liberalising the water and sanitation sector. Local evidence that PPP works well in others sectors, as in Scotland, definitely triggers PPP in the water and sanitation sector. On the other hand when liberalisation in other sectors turns out negatively; as for example the privatisation of electricity in Northern Ireland or the railways in the Netherlands, opponents use it as an argument against liberalisation of the water sector. Furthermore possible policy development with regard to liberalisation, may be highly influenced by the perceptions and experiences relating to the corruption of the private sector (for example Grenoble and Milan).

4. References

CAMDESSUS, M., Winpenney, J, 2003. *Financing Water for All*. Report of the World Panel on Financing Water Infrastructure.

EUROMARKET, 2004. *Analysis of the European Water Supply and Sanitation Markets and its possible evolution.* Final report for Workpackage 2 of the Euromarket project.

ANNEX A.II.2 European Union Perspective (Ecologic)

By Britta Pielen, Nadine Herbke, R. Andreas Kraemer

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1. Disclaimer

PLEASE NOTE: THE INFORMATION COMPILED IN THIS PAPER IS SUBJECT TO RAPID CHANGE!
The information presented is the status as of August 2004.

2. Introduction

Similar to other areas of European policy making, EU Member States diverge in their opinion about the optimal political and regulatory direction for the European water sector. As became apparent in the ongoing debate over the last years, this difference in perception pertains also at the European level, where the European Parliament and the European Commission set different emphases for water sector policies. Within the European Commission again, different Directorate Generals (DG) prioritise differently on their water policy agendas, depending on their respective mandates: while DG Competition and DG Internal Market concentrate on the dimension of water services and competition, DG Environment places its emphasis on the management of the water cycle and the protection of the Community's surface and ground waters.

From 2000 onwards, water and sanitation services, and the rules and regulations applying to their provision, have increasingly been put under scrutiny through various initiatives from the different DGs. All initiatives aim at harmonising the European water sector across Member States, albeit from different angles, depending on the DGs' different mandates (competition, environment and internal market). As these initiatives have potentially far reaching consequences for the organisation of the European water sector, their development should be closely followed and integrated into the further scenario development process within the *Euromarket* project, in order to ensure the political relevance of its results through the incorporation of related "pipeline thinking" at EU level.

Therefore, this paper gives a brief overview on the status of discussion (August 2004) and outlines the potential consequences of the described developments on the organisation of water service provision in Europe.

3. Clash of Values? How the Interpretation of 'Water' Differs

The different focus of the Commission's DGs regarding water sector policies becomes particularly apparent when looking at key documents published on the initiative of DG Environment, DG Internal Market and DG Competition over the last years, namely:

- the **Water Framework Directive**[1] (DG Environment) published in 2000,
- the Commission communication '**Internal Market Strategy: Priorities 2003-2006**'[2] (DG Internal Market) from 2003, and

[1] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action the field of water policy, OJ L 327, 22.12.2000, p. 1.
[2] COM(2003) 238 final, 7.05.2003.

- the **Green Paper on Services of General Interest**[3] (General Secretary) issued last year (and followed by a White Paper in spring 2004).

These publications display a complex view of the future schemes of water services within the EU. The different focus of the three issuing DGs reflects itself in the definition of the water resource and its linked services within these three key documents: The conception of water within the Water Framework Directive is not identical with those of the Green Paper and the Internal Market Strategy.

On the one hand, the **Water Framework Directive (WFD)** states in its preamble (1) that *"Water is not a commercial good like any other [...]"* and that *"The supply of water is a service of general interest as defined in the [1996] Commission communication on services of general interest in Europe"*[4]. As 'other services of general interest', under which the category 'water supply' is mentioned in the 1996 Commission Communication on Services of General Interest[5], are not subject to the application of EC competition and internal market rules, the WFD thus places water services in this conception.

On the other hand, both the **Green Paper on Services of General Interest** and the **Internal Market Strategy 2003-2006** classify water supply and sewage treatment as 'services of general economic interest' (SGEI) which brings water into the scope of competition and internal market rules (unless this application obstructs performance, see Section 0 below).
To further increase this divergence in the perception of water, the Green Paper and the Internal Market strategy provide different definitions of the **'market' for drinking water supply**. The Green Paper distinguishes three markets: firstly services provided by large network industries, secondly non-economic services or services without effects on trade, and thirdly *other services*. Water services are included in the last category. The Internal Market Strategy, however, treats water supply as a '*network industry'*. This divergent classification illustrates the specificity of water services: Water services are on the one hand network industries while being on the other hand local markets.

4. The EC Treaty and Services of General Interest

The Commission has clarified its view with respect to services of general interest in the context of the application of competition rules in its 2000 Communication on Services of General Interest in Europe.[6] The relevant EC rules on competition are stipulated in Article 86 (ex-Article 90) of the EC Treaty. Article 16 (ex-Article 7d) of the Treaty is also of importance in this context, as it outlines the role and conception of services of general economic interest within the European Union's competition and internal market framework.
To set the basis for the upcoming discussion of recent EU initiatives and their importance for the application of competition and internal market rules to the European water sector, the rationale of the relevant Articles of the EC Treaty are outlined below.

[3] COM(2003) 270 final, 21.05.2003.
[4] The Communication 'Services of General Interest in Europe' (OJ C 281, 26.09.1996, No. 69) distinguishes between services of general interest, which are or should be in the scope of jointly rules, and 'other services of general interest' (among others water supply is mentioned), whose rules should be defined by the Member States or their regions.
[5] OJ C 281, 26.09.1996, No. 69.
[6] OJ C 17, 19.01.2001, p. 4.

Article 16 (ex-Article 7d) EC Treaty

Article 16[7] (see Annex 1) of the EC Treaty confirms the place of services of general **economic** interest[8] among the shared values of the Union and their role in promoting social and territorial cohesion, without prejudice to Articles 73[9], 86[10] and 87[11]. However, the Article also stresses that both the Community as well as the Member States "*shall take care that such services operate on the basis of principles and conditions which enable them to fulfil their missions*". Accordingly, services of general economic interest are subject to EC competition rules only as long as the application of these rules does not impair their provision (cf. also next Section on Article 86 EC Treaty).[12] But Article 16 does not give an explicit right to establish secondary legislation, which is newly incorporated in Article III-6 of the 'Draft Treaty establishing a Constitution for Europe'.[13]

Article 86 (ex-Article 90) EC Treaty

Article 86 (see Annex 1) of the EC Treaty stipulates that in the case of public undertakings and undertakings to which Member States grant special[14] or exclusive[15] rights, Member States shall neither enact nor maintain in force any measure contrary to the Treaty rules on competition (including rules on state aid) and on internal market.[16]

In this context, the concept of an "undertaking" is interpreted in a broad manner. According to the Court of Justice, it encompasses every entity engaged in an economic activity, regardless of the legal status of the entity and the way it is financed.[17]

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[7] Article 16 of the EC Treaty (OJ C 325, 24.12.2002) corresponds to Article III-6 of the Draft Treaty establishing a Constitution for Europe (OJ C 169, 18.07.2003).
[8] Article 16 is silent on services of general interest.
[9] Compatibility of state aids with the EC Treaty.
[10] Cf. next Section on Article 86 EC Treaty.
[11] Incompatibility of state aids with the common market; outlining a number of exceptions.
[12] The application of Article 86(2) is explained in detail in the 2000 Commission Communication on Services of general interest in Europe (OJ C 17, 19.01.2001, p. 4).
[13] Article III-6 last sentence reads: "*European laws shall establish these principles and set these conditions without prejudice to the competence of Member States, in compliance with the Constitution, to provide, to commission and to fund such services*".
[14] 'Special rights' means rights that are granted by a Member State to a limited number of undertakings, through any legislative, regulatory or administrative instrument which, within a given geographical area (i) limits to two or more the number of such undertakings, authorised to provide a service or undertake an activity, otherwise than according to objective, proportional and non-discriminatory criteria, or (ii) designates, otherwise than according to such criteria, several competing undertakings, as being authorised to provide a service or undertake an activity, or (iii) confers on any undertaking or undertakings, otherwise than according to such criteria, any legal or regulatory advantages which substantially affect the ability of any other undertaking to provide the same service or to operate the same activity in the same geographical area under substantially equivalent conditions (see Commission Directive 2000/52/EC of 26 July 2000 amending Directive 80/723/EEC on the transparency of financial relations between Member States and public undertakings, OJ L 193, 29.07.2000, p. 73).
[15] 'Exclusive rights' means rights that are granted by a Member State to one undertaking through any legislative, regulatory or administrative instrument, reserving it the right to provide a service or undertake an activity within a given geographical area (see Commission Directive 2000/52/EC of 26 July 2000, OJ L 193, 29.07.2000, p. 73).
[16] OJ C 17, 19.01.2001, p. 4.
[17] As outlined in WRc and Ecologic (2003), 'public undertaking' means any undertakings over which the public authorities may exercise directly or indirectly a dominant influence by virtue of their ownership of it, their

Article 86 (2) also provides that undertakings entrusted with the operation of services of general **economic** interest (or having the character of a revenue producing monopoly) shall be subject to the rules on competition (including state aid) and on internal market in so far **as the application of such rules does not obstruct the performance**, in law or in fact, of the particular tasks assigned to them. At the same time, the development of Trade must not be affected to such an extent as would be contrary to the interests of the Community.[18] Accordingly, Article 86 (2) allows for the exemption of the provision of SGEI from competition and internal market rules under certain circumstances. The White Paper on Services of General Interest states explicitly for the first time that "*under the EC Treaty and subject to the conditions set out in Article 86 (2), the effective performance of a **general interest** task prevails, in case of tension, over the application of Treaty rules*".[19] In this context, it should be noted that Article 86 (2) refers to services of general economic interest, while here reference is made to "general interest task" instead.

5. Internal Market and Competition Rules

The trend towards a stricter enforcement of internal market and competition rules in the water sector that can be observed at EU level is related to the understanding of the **European Commission** (DG Competition and DG Internal Market) that:

- the current organisation of water service provision in Europe leaves room for an improved performance through efficiency gains and synergy effects; and therefore

- structural changes and increased competition in the water industry would have the potential to result in greater efficiency and transparency, lower water prices for consumers and improved quality in environmental and health terms.[20]

In this context, several activities have been brought underway that may influence the exposure of the water sector to competition. When looking at these activities in greater detail, it should be noted that the **European Parliament and other actors** (i.e. some Member States, water associations, consumer associations, NGOs, etc.[21]) took a firm stance against a liberalisation of the European water sector in their reaction to these initiatives from the Commission and instead favour a modernisation of the existing system.

The following section looks at these above-mentioned activities of the EU Commission in more detail and outlines their potential effect on the organisation of the water sector.

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financial participation therein, or the rules which govern it. A dominant influence on the part of the public authorities shall be presumed when these authorities, directly or indirectly in relation to an undertaking: (a) hold the major part of the undertaking's subscribed capital; or (b) control the majority of the votes attached to shares issued by the undertakings; or (c) can appoint more than half of the members of the undertaking's administrative, managerial or supervisory body (see Commission Directive 2000/52/EC of 26 July 2000, OJ L 193, 29.07.2000, p. 73).

[18] OJ C 17, 19.01.2001, p. 4; p. 5.

[19] COM(2004) 374, p. 7.

[20] COM(2003) 270 final, 21.05.2003, p. 4.

[21] SEC(2004) 326, 15.03.2004.

5.1. Green Paper and White Paper on Services of General Interest

On 21 May 2003, the European Commission published the Green Paper on Services of General Interest[22], which builds on Communications on Services of General Interest from 1996[23] and 2000[24] as well as on the 2001 Report to the Laeken European Council[25]. The objective of the Green Paper is:

"To organise an open debate on the role of the European Union in promoting the provision of services of general interest and in defining the public interest objectives pursued by these services, and on the way in which they are organised, financed and evaluated."[26]

The document indicates a current trend in the Commission towards increasing the enforcement of competition rules in the area of utility services and initiates discussions on e.g. a possible horizontal Framework Directive on Services of General Interest or on rules of '*good governance'* in their provision. In particular, it centres the debate once more on the competitiveness and the quality with which services of general interest are currently provided and how this could be improved through increased exposure to competition.

With regard to the implications for the water sector, the European Parliament states in its related resolution[27] that it "*rejects efforts to make water [...] services subject to single market sectoral directives*".[28] Furthermore, it explicitly stresses its opposition to a liberalisation of the European water sector and instead promotes a modernisation of the existing systems.

In reaction to the green paper, more than 300 statements from a large spectrum of actors were submitted during the open consultation process. All comments on the Green Paper have been analysed by the European Commission[29] and taken into account in the formulation of the subsequent White Paper, which was published on 13 May 2004.

With regard to the water sector, the White Paper highlights the following main issues from the consultation process:

*"Broad agreement exists that sector-specific regulation must not be extended to all services. However, for some services (**water**, waste, local public transport) diverging views are expressed as to whether a specific regulatory framework is desirable at Community level."*[30]
*"No agreement exists with regard to the opening of the **water** sector at Community level."*[31]

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[22] COM(2003) 270 final, 21.05.2003.
[23] OJ C 281, 26.09.1996, p. 3.
[24] OJ C 17, 19.01.2001, p. 4.
[25] COM(2001) 598 final, 17.10.2001.
[26] Cf. EU website: http://europa.eu.int/scadplus/leg/en/lvb/l23013.htm.
[27] European Parliament resolution on the Green Paper on services of general interest, 14.01.2004, P5_TA(2004)0018.
[28] P5_TA(2004)0018, no. 47.
[29] Report on the public consultation on the Green Paper on services of general interest, Commission Staff Working Paper, COM_SEC(2004) 326, 15.03.2004; the report can be downloaded at: http://europa.eu.int/comm/secretariat_general/services_general_interest/index_en.htm.
[30] COM(2004) 374, p. 24.
[31] COM(2004) 374, p. 25.

The White Paper formulates actions and measures that the Commission plans to take (e.g. cf. Section 5.3), and indicates in which areas the Commission awaits input from the Member States (e.g. regarding the establishment of quality evaluation, cf. Section 6). The box below highlights nine principles of the White Paper and the water and sanitation sector.

Box 1: "The nine principles of the White Paper and the water and sanitation sector", by Pierre Bauby & Sylvie Luption, University of Paris VIII.

The White Paper, published by the European Commission on the 12th of May 2004 on Services of General Interest, defines for the first time nine principles that are of interest in order to analyse the consequences (and uncertainties) they could have on the water and sanitation sector (WSS) if they were implemented:

1. *Enable public authorities to be close to citizens:* Services of general interest must be organised and regulated in order to be as close as possible to citizens' interests and the principle of subsidiarity must be respected.
   This principle could lead to the fact that public authorities (local and national) keep the responsibility of organising the WSS, and could limit initiatives of harmonisation and internal market initiatives.
2. *Achieve public service objectives in open and competitive markets:* The European Commission remains of the view that the objectives of an open and competitive internal market and of developing high quality, accessible and affordable services of general interest are compatible. According to the EC treaty and subject to the conditions set out in Article 86(2), the effective performance of a general interest task prevails, in case of tension, over the application of Treaty rules.
   The application of this principle and the (new) interpretation of Article 86 (2) could lead to 1) the fact that liberalisation is conditioned by general interest tasks, and 2) define these tasks, which could notably be done by responsible authorities.
3. *Ensure cohesion and universal access*: The access of all citizens and enterprises to affordable high-quality services of general interest throughout the territory of the Member States is essential for the promotion of social and territorial cohesion in the European Union. In this context, universal service is a key concept the Community has developed in order to ensure effective accessibility of essential services.
   The application of this principle could lead to an EU definition of a "universal service of water and wastewater", ensuring access to all the EU territory.
4. *Maintain a high level of quality, security and safety*: The security of service provision, and in particular the security of supply, constitutes an essential requirement which needs to be reflected when defining service missions. The conditions under which services are supplied also have to provide operators with sufficient incentives to maintain adequate levels of long-term investment.
   This principle is already applied with the different directives on water quality and wastewater treatment and the Water Framework directive.
5. *Ensure consumer and user rights*: These principles concern access in particular the access to services, including to cross-border services, throughout the territory of the Union and for all groups of the population, affordability of services, including special schemes for persons with low income, physical safety, security and reliability, continuity, high quality, choice, transparency and access to information from providers and regulators.

The implementation of these principles generally requires the existence of independent regulators with clearly defined powers and duties. These include powers of sanction (means to monitor the transposition and enforcement of universal service provisions) and should include provisions for the representation and active participation of consumers and users in the definition and the evaluation of services, the availability of appropriate redress and compensation mechanisms and the existence of an evolutionary clause allowing requirements to be adapted in accordance with changing user and consumer needs and concerns, and with changes in the economic and technological environment.
This principle could lead to a series of new measures on consumer and user rights, regarding access to all citizens whatever their social status (and the prohibition of disconnection and self-disconnection throughout the EU). Moreover, the insistence on the need for independent regulators could lead European institutions to develop this aspect for the WSS.

6. *Monitor and evaluate the performance of services*: On the basis of the public consultation, the Commission considers that any evaluation should be multi-dimensional and cover all relevant legal, economic, social and environmental aspects.
This principle could lead to explicitly include the WSS in the European methodology of evaluation.
7. *Respect the diversity of services and situations*: Any Community policy in the area of services of general interest must take due account of the diversity that characterises different services of general interest and the situations in which they are provided. However, this does not mean that it is not necessary to ensure the consistency of the Community's approach across different sectors or that the development of common concepts that can be applied in several sectors cannot be useful.
This principle leaves room for both the alternative of the consistency of a community approach (harmonisation, common rules, etc.) and the alternative of maintaining diversity.
8. *Increase transparency*: This principle should apply to all aspects of the delivery process and cover the definition of public service missions, the organisation, financing and regulation of services, as well as their production and evaluation, including complaint-handling mechanisms.
This principle should lead to the obligation for responsible authorities to precisely define public service missions and obligations and precise the ways they are implemented.
9. *Provide legal certainty*: The Commission is aware that the application of Community law to services of general interest might raise complex issues. It will therefore make a continuous effort to improve legal certainty regarding the application of Community law to the provision of services of general interest, without prejudice to the case law of the European Court of Justice and the Court of First Instance.
Will this improvement of legal certainty lead to a definition of common European rules?

Significant impacts on the organisation of the European water sector could be expected, should the classification of water as a 'service of general **economic** interest' be asserted at EU level. Besides triggering the enforcement of EC competition law and internal market regulations, currently applicable practices such as the granting of state aids and special or exclusive rights would be further scrutinised. Accordingly, the water sector might be opened

up to more competitive pressures, and political control at local and national levels would be curtailed, while the precise changes and adaptations that would result regarding water related legislation cannot be foreseen. The concrete consequences at the national level would differ and therefore cannot be captured by an overall projection.

5.2. Internal Market Strategy: Priorities 2003-2006

In May 2003, the Internal Market Directorate General published the Commission communication 'Internal Market Strategy: Priorities 2003-2006'[32], which constitutes another influential document impacting on the perception of water in EU policy making by the broad of the European Commission. The Internal Market Strategy 2003-2006 states as one of its priorities that a higher quality of services provided by network industries should be ensured. The water sector is referred to as one policy area where sector fragmentation may require new activities for opening the market further to competition.[33] In this regard three concrete activities are mentioned:

1. Building on a recently conducted study[34] of the European water sector, the Commission is currently undertaking a **review of the legal and administrative situation** in the water and waste-water sector, including competition aspects. In this regard, the Commission gathers information from Member States (e.g. through questionnaires, cf. Section 5.3), industry and consumers and plans to compile a comparative report on the basis of these results. Based on the comments of interested parties on this report, the Commission will then decide on appropriate follow-up measures[35] for a further modernisation of the European water sector[36]. In this regard, the European Commission emphasised that *"all options will be considered, including possible legislative measures"*.[37]

2. The Commission announces a **Green Paper** to be published in the course of the year 2004 with a view to *„launching a debate on how best to ensure that **public-private partnerships (PPP)** for major projects can be undertaken in conditions of effective competition and full legal clarity under procurement rules."*[38] The Commission stresses, that if necessary, it will propose further (legislative) measures to facilitate such partnerships (the Green Paper on PPP is treated in more detail in Section 5.4).

[32] COM(2003) 238 final, 7.05.2003.
[33] COM(2003) 238 final, 7.05.2003, p. 13.
[34] WRc and Ecologic (2002): Study on the application of competition rules to the water sector in the European Community, Prepared for the Competition Directorate-General, Final Report, December 2002.
[35] It should be noted that the Internal Market Strategy 2003-2006 emphasises that all activities emerging from the Internal Market Strategy should take full account of the Green Paper on Services of General Interest (cf. Section 5.1) and the Green Paper on Public Private Partnerships (cf. Section 5.4) (COM(2003) 238 final, 7.05.2003).
[36] The Commission Communication 'Report on the implementation of the Internal Market Strategy (2003-2006)' states explicit the "modernisation of the sector" as an aim (COM(2004) 22 final, 21.01.2004). In the context of water services, the terms liberalisation and market opening are taken aback. However, there is so far no clear definition or precise understanding of what is meant by this European "modernisation".
[37] COM(2003) 238 final, 7.05.2003, p. 14.
[38] COM(2003) 238 final, 7.05.2003, p. 14.

3. The Commission announces to further clarify the **application of state aid rules** to compensation for the costs of providing services of general economic interest. Currently pending decisions of the European Court of Justice will be awaited and taken into account in this process (for more details, cf. Section 5.5).

5.3. Questionnaire on Water

As indicated in the Internal Market Strategy, the European Commission is presently conducting a survey on the current situation of the water sector in Europe. For this survey, a questionnaire was sent to all EU Member States by the European Commission in June 2003 in order to collect information on the present competitive situation within the water sector of each Member State.

Questions on the present legal framework, the structure of water service organisation and provision (benchmarking, duration of contracts etc.), as well as on costs, capital expenditures and financing of the water sector had to be answered by the Member States.
The submitted questionnaires are presently evaluated by the European Commission. The results of this assessment of the water sector, which are expected by the end of 2004, will be published.[39]

5.4. Green Paper on Public Private Partnerships

On 30 April 2004, the European Commission published the Green Paper on Public Private Partnerships (PPP) and Community Law on Public Contracts and Concessions[40], which it had announced in its Internal Market Strategy 2003-2006 (of May 2003, cf. Section 5.2). With the Green Paper, the European Commission launched a debate on the desirability of adapting the Community rules on public procurement and concessions to accommodate the development of PPPs. According to the Commission, the main objective of the Green Paper is to see whether it is necessary to improve the currently applicable rules in order to ensure that all economic operators have access to PPPs under equal conditions of legal clarity and competition.

At present, there is no specific system under Community law on PPPs and the Community rules on awarding public contracts are applied to PPPs with differing degrees of intensity.[41] Contracts for these partnerships signed by public authorities with private companies are generally not covered by the EC Treaty rules on the single market, but principles deriving from Articles 43 to 49 of the EC Treaty (non-discrimination and transparency) would apply. In certain cases, they can be subject to the detailed provisions of the Directives on public procurement. However, other cases, and in particular certain "concessions", are not covered. The Community legal framework is thus the subject of more or less intensive Community co-ordination at several levels. In the view of the Commission, it is necessary to ensure that this legal framework does not form an obstacle to the access of economic operators' to the different types of PPPs. The Green Paper is therefore intended to set out the way in which the rules and principles deriving from Community law on public contracts and concessions apply

[39] Cf. COM(2004) 374, 12.05.2004.
[40] COM(2004) 327 final, 30.04.2004.
[41] European Commission, Public procurement: the Commission launches a debate on applying Community law to public-private partnerships, Europe News Item IP/04/593, Brussels, 4 May 2004.

when a private partner is selected, and then for the duration of the contract, in the context of different PPP arrangements.[42]

While a Green Paper generally only marks the beginning of the political debate, this particular document has already met with severe criticism, as it was perceived by many as displaying a significant favour towards universal obligatory tendering, in particular with regard to concessions.[43] Elsewhere, it was regarded that the European Commission wants to enforce PPPs, reducing the role of local authorities and scrutiny by elected representatives of the population in a service area. In the Green Paper, a catalogue of questions is formulated on which the Commission expects input from interested parties through an open consultation process, which closed on 30 July 2004. On the basis of the contributions received, the Commission intends to draw conclusions and, where appropriate, submit concrete initiatives. As the issues addressed in the Green Paper are of prominent importance for current and emerging ownership and management structure in the water sector, it can be expected that reactions to the consultation process will be manifold.

5.5 State Aid

The Commission announced in its Internal Market Strategy a further clarification on the application of state aid rules on compensations for the costs of providing services of general economic interest. The Altmark-Trans judgement[44] of the European Court of Justice (ECJ) from July 2003, which concerned the public transportation system as a service of general interest, currently serves as the main guidance on this issue. It gives a direction to the interpretation of when state aids are legal in the case of services of general economic interest.[45] The judgement outlines that an undertaking can be subsidised from public funds, if it provides a service of general economic interest (SGEI) and the *"level of compensation [...] is adequate"*.

To be more specific, the following four conditions are stipulated in the court's ruling that have to be met in order to categorise public service compensation not as a state aid and that Articles 87 and 88 of the Treaty do not apply[46]:

[42] More specifically, the Green Paper addresses the following topics linked to the public procurement aspect of PPPs: (i) the framework for the procedures to select a private partner; (ii) the setting up of PPPs on the initiative of the private sector; (iii) the contractual framework and contract amendments over the duration of a PPP; (iv) the issue of subcontracting. Both PPPs created on the basis of purely contractual links (so-called contractual PPPs) and arrangements involving the joint participation of a public and a private partner in a mixed-capital legal entity (so-called institutional PPPs) are addressed in the Green Paper.
[43] Verband Kommunaler Unternehmen e.V., EuropaNews: Aktuelles und Hintergründe aus Brüssel, Mai 2004.
[44] Judgement of the court of 24 July 2003, in Case C-280/00, Altmark Trans GmbH and Regierungspräsidium Magdeburg against Nahverkehrsgesellschaft Altmark GmbH.
[45] For want of clear other judicial guidelines, this judgement is used as a guidance for other services of general economic interest as well.
[46] As outlined in the 'Commission decision on the application of Article 86 of the Treaty to State aid in the form of public service compensation granted to certain undertakings entrusted with the operation of services of general economic interest': "*If the Member States do not respect these four criteria and if the general criteria for the applicability of Article 87(1) of the Treaty are met, public services compensation constitutes State aid that is subject to Articles 73, 86, 87 and 88 of the Treaty*".

1. The recipient undertaking must be entrusted with the fulfilment of clearly defined public service obligations.
2. The criteria on the basis of which the actual compensation is calculated must be established in advance in an objective and transparent manner.
3. The compensation cannot exceed the actual costs incurred through the provision of the service of general interest
4. Where the undertaking is not chosen through a public procurement, the level of compensation must be determined by a comparison with an analysis of the costs which a typical undertaking in the same sector would incur (taking into account the returns and a reasonable profit from the fulfilment of the obligations).

In its attempts to further increase legal certainty in this area, the European Commission is currently working on a 'Decision on the application of Article 86 of the Treaty to State aid in the form of public service compensation granted to certain undertakings entrusted with the operation of SGEI'. A first draft of the decision was published for consultation on 16 January 2004. The decision specifies "*conditions under which certain systems of compensation are compatible with Article 86(2) and are not subject to prior notification requirement of Article 88(3) of the Treaty*"[47], e.g. small amounts of compensation granted to undertakings providing SGEI whose turnover is limited. In addition, the Commission has started an investigation of the national regulatory frameworks applicable in each Member States to compensate undertakings that provide services of general economic interest. In this context the Commission is working on a proposal for a Community Framework on public funding, including clear criteria for the assessment of such compensation payments which are not automatically exempted under the above Commission decision, this means for larger public service companies.[48]

The increased legal certainty with regard to the application of state aid rules is of special importance to the water sector since, traditionally, (cross-) subsidies have been of importance.

[47] 'Commission decision on the application of Article 86 of the Treaty to State aid in the form of public service compensation granted to certain undertakings entrusted with the operation of SGEI', no. 5.
[48] There is a working paper of the Commission services which can be download from the DG Competition website: http://europa.eu.int/comm/competition/state_aid/others/.

6. Performance Evaluation (Benchmarking)

Performance evaluation[49] is currently high on the political agenda of many Member States, and is also regarded as an interesting and important instrument in the European Commission. The White Paper on Services of General Interest highlights that :

"The evaluation of performance at Community as well as at national level is crucial for ensuring the development of high-quality, accessible and affordable services of general interest in a constantly evolving environment. [...] such evaluation should be based not only on criteria of economic efficiency but also on broader social, economic and environmental criteria."[50]

A community-wide approach to performance evaluation for the water sector at European level would be a novelty in practice. Even the national approaches differ significantly, both in their practical application and in their scope. While the European Commission already attempted over the last years to increase its evaluation efforts in the area of services of general interest, covering both sectoral and horizontal evaluations on a regular basis (including water), these activities can only be regarded as a first initial step towards a European evaluation system. Given that the Commission started to perform horizontal evaluations in 2001, and will submit its first horizontal evaluation report in 2004, the Commission recognises in the White Paper that it may be *„appropriate to gather more experience with this process before reflecting on additional evaluation mechanisms"*.[51]

First possible approaches that could be used as a basis for an extended performance evaluation are mentioned in the White Paper:

- The current evaluation efforts specifically focusing on services of general interest and the Commission's more wide-ranging reporting tools could be further integrated and extended.
- The evaluation of services of general interest could be integrated into the analysis made regularly by the Commission of several Community policies.

In the White Paper, the Commission explicitly asks for additional input from the Member States. As benchmarking is also gaining importance at the national level, where different practices have been established to varying degrees, Member States can be expected to be interested in reacting to this demand.

Performance evaluation is gaining importance as a tool of management and of comparative competition, not only at the national, but also at Community level. There is a need for a broad and consistent overall methodological framework which the current evaluations at EU level do not fulfil. Depending on which approach is chosen for a European evaluation exercise, and on how effectively the scheme could then be operated at EU level (information restrictions, etc.), the impact on the European water sector would vary.

[49] Performance evaluation includes a broad variety of systems ranging from a comparison of key indicators to formalised benchmarking processes.
[50] COM(2004) 374, 12.05.2004, p. 19.
[51] COM(2004) 374, 12.05.2004, p. 19.

7. Public Procurement

The scope of EU procurement law has not been extended through its recent amendment (January 2004).[52] As before, when a private party is involved, a public procurement process must be initiated through operator contracts whereas services of so called in-house undertakings of local authorities as well as concessions are not under the scope of public procurement law. Accordingly, it is important to achieve a clear-cut definition of which arrangements qualify as in-house undertakings (e.g. can inter-municipal co-operations be treated as in-house undertakings; to which extend to PPP arrangements qualify, etc). According to the Teckal-judgement[53] of the European Court of Justice (ECJ) of 1999 an **in-house service** is given in the case where:

"the local authority exercises over the person [undertaking] concerned a control which is similar to that which it exercises over its own departments and, at the same time, that person [undertaking] carries out the essential part of its activities with the controlling local authority or authorities."

While this judgement provided first insights into which organisational arrangements may be regarded as "in-house undertakings", there is still a need for further reducing the grey area of the operative range of this judgement.

Currently, three pending judgements[54] are awaited from the ECJ, which will further clarify how strictly the definition of in-house services will have to be applied and consequently, which organisational arrangements will in the future have to be opened for public tendering.

A strict interpretation of in-house services, which could be established through the awaited court rulings, could exert an important impact on the organisation of water service provision in Europe. With regard to the implications for many organisational arrangements, such as inter-municipal co-operations or PPPs with a minority private involvement, one could expect that they would be reintegrated into public-law services in order to avoid to be subjected to public tendering processes.

[52] Directive 2004/17/EC of the European Parliament and of the Council of 31 March 2004 co-ordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors, OJ L 134, 30.04.2004, p. 1; Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 on the co-ordination of procedures for the award of public works contracts, public supply contracts and public service contracts, OJ L 134, 30.04.2004, p. 114.

[53] Judgement of the Court of 18 November 1998, in the Case C-107/98, Teckal Srl against Comune di Viano and Azienda Gas-Acqua Consorziale (AGAC) di Reggio Emilia.

[54] (I). Reference for a preliminary ruling by the Oberlandesgericht Naumburg by order of that Court of 8 January 2003 in the procurement review proceedings, Parties to the proceedings being 1. The City of Halle, 2. RPL Recyclingpark Lochau GmbH and 3. The Thermische Restabfall- und Energieverwertungsanlage TREA Leuna consortium (Case C-26/03);

(II). Reference for a preliminary ruling by the Tribunale Amministrativo Regionale per la Lombardia – Sezione staccata di Brescia – by order of that Court of 8 October 2002, 17 December 2002 and 14 February 2003 in the case of Consorzio Aziente Metano – CO.NA.ME against il Commune di Cingia de' Botti; with participation of Padania Acque S.p.A. (Case C-231/03);

(III). Reference for a preliminary ruling by the Verwaltungsgericht, Autonome Sektion für die Provinz Bozen by order of that Court of 27 September 2003 in the case of Parking Brixen G.m.b.H. against Municipality of Brixen/Bressano and Stadtwerke Brixen A.G. (Case C-458/03).

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9. Annex: Articles of the EC Treaty

Article 16 (ex-Article 7d) EC Treaty

Without prejudice to Articles 73, 86 and 87, and given the place occupied by services of general economic interest in the shared values of the Union as well as their role in promoting social and territorial cohesion, the Community and the Member States, each within their respective powers and within the scope of application of this Treaty, shall take care that such services operate on the basis of principles and conditions which enable them to fulfil their missions.

Article 86 (ex-Article 90) EC Treaty

1. In the case of public undertakings and undertakings to which Member States grant special or exclusive rights, Member States shall neither enact nor maintain in force any measure contrary to the rules contained in this Treaty, in particular to those rules provided for in Article 12 and Articles 81 to 89.

2. Undertakings entrusted with the operation of services of general economic interest or having the character of a revenue-producing monopoly shall be subject to the rules contained in this Treaty, in particular to the rules on competition, in so far as the application of such rules does not obstruct the performance, in law or in fact, of the particular tasks assigned to them. The development of trade must not be affected to such an extent as would be contrary to the interests of the Community.

3. The Commission shall ensure the application of the provisions of this Article and shall, where necessary, address appropriate directives or decisions to Member States.

Article 87 (ex-Article 91) EC Treaty

1.Save as otherwise provided in this Treaty, any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the common market.

2.The following shall be compatible with the common market:

(a) aid having a social character, granted to individual consumers, provided that such aid is granted without discrimination related to the origin of the products concerned;
(b) aid to make good the damage caused by natural disasters or exceptional occurrences;
(c) aid granted to the economy of certain areas of the Federal Republic of Germany affected by the division of Germany, in so far as such aid is required in order to compensate for the economic disadvantages caused by that division.

3.The following may be considered to be compatible with the common market:

(a) aid to promote the economic development of areas where the standard of living is abnormally low or where there is serious underemployment;
(b) aid to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State;
(c) aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest;
(d) aid to promote culture and heritage conservation where such aid does not affect trading conditions and competition in the Community to an extent that is contrary to the common interest;
(e) such other categories of aid as may be specified by decision of the Council acting by a qualified majority on a proposal from the Commission.

ANNEX A.II.3 Institutional Dynamics of liberalisation (UCL)

1. Introduction

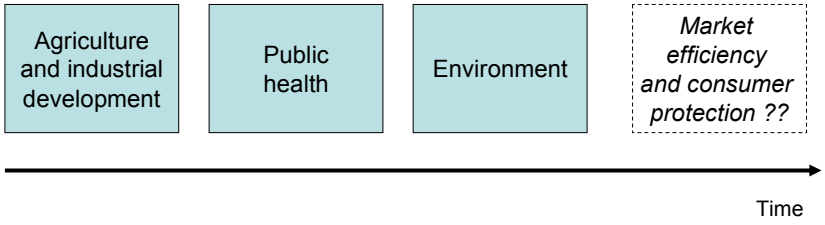
Work Package 4 focused on the analysis of legislation and emerging regulation in the water supply and sanitation (WSS) sector in selected European Union Member States. A comparative policy analysis between nine countries (France, Spain, The Netherlands, Sweden, Italy, Portugal, Germany, England & Wales, and Belgium) was conducted around the following research questions: Is there a trend towards harmonisation of the regulation and liberalisation of WSS services across EU countries? Do we observe an international convergence or a national or sector-based path dependency in water institutions? What are the main differences in the regulation of WSS services observed between the selected countries? We analysed the regulatory framework that governs the WWS sector in each country under investigation and looked at recent changes in legislation, as well as the context or motivation of change.

In order to do so, we used policy analysis. Public policies are defined as "the sum of activities and decisions taken or carried out by public (and private) actors with a view to resolving a collective problem". Policy analysis allows us to extract the rationale in public interventions and to historically trace back the evolution of the legislation. In our analysis, we crossed the seven analytical dimensions of the public policies (see the theoretical framework of WP4) with the five sub-sectors that constitute the WSS sector (resource access, production, supply, sewerage and treatment) that constituted our empirical field.

Our results show a strong "historical" path dependency (see Figure 1). This trend is identifiable in the different countries considered. Initially, in the second half of the 19th century, water policy was oriented towards the development of agriculture and industry. The intervention logic underlying this policy is that: *If we limit industrial discharges and we strengthen the evacuation of water by cleaning out watercourses, then we will avoid serious diseases and improve the productivity of agriculture.* The preoccupation with public health comes at the late 19th century. Public authorities decide the installation of drinking water supply networks would improve hygiene amongst the population. Thus, the policy rationale states that *If we develop public water distribution and regulate the sale of water products, then we will improve public health.*

Environmental matters come much later, since 1950 in most industrialised countries and 1970 in the others. The first consideration for the environment remains related to the preservation of public health. Ecology is a young discipline and its impact on legislation only dates back to the mid-1970s. The following hypothesis resumes the orientation of water policy towards environment protection: *If we intensify wastewater treatment, regulate discharges through permits and define protection zones for natural areas, then we will preserve drinking water supply as well as ecosystems and bio-diversity*. Each phase brings new actors in the decision-making process, designates new implementation arrangements and identifies new target groups.

Figure 1: "Historical" path dependency



In the current evolution of debates at national and EU levels, we imagine that a new paradigm could appear and lead major reforms in water public policies. This rationale would be related to the improvement of market efficiency and possibly to consumer protection, imposing a rise in communication, information to the public and compulsory improvements in the provision of related services (customer services, etc.). In this context, the continuing move to consumerism may be an important (long term) driver. This evolution is difficult to grasp as it relates to the changing outlook of people (perceptions, beliefs, values and attitudes), but might have important effects in terms of paradigm shifts.

Put in concrete terms, changing attitudes towards governments and institutions (e.g. less trusting), growth of individual values (e.g. more demanding) and shift away from traditional values (e.g. governments know best), and more empowerment to the individual (with increase in their individual voice), would certainly influence the evolution towards consumerism and market demand. These gradual changes are more likely to impact on the liberalisation debate if governments fail to meet individuals' expectations (e.g. service or price/quality), resulting in a greater demand for getting more competition to drive inefficiencies out. However, this rationale of market efficiency and consumerism is still not in place and the dominant policy rationale remains the environmental one. We formulate it as such: "If we protect the natural resource, then we secure our provision in good quantity drinking water at the lowest possible cost".

As such, we observe a piling-up or accumulation of laws, regulations, actors, etc. Former pieces of legislation are rarely retrieved and accumulate with new ones. This contributes to the complexity of current water legislation. As in other policy sectors, “policy inheritance” and incremental policy change characterize the WSS sector. The question remains open of how to bring more coherence to these wide sets of legislation; to reach an integrated water management which takes into consideration both the preservation of ecosystems and the supply of drinking water, amongst other uses?

At first sight, the Water Framework Directive (WFD) seems to answer the problem. It brings a framework for future development in the EU policy and also merges a set of former water directives concerning water quality. At least, the WFD is a trigger for more coherence in the EU water policy, bringing clear objectives for future action. In the Member States, however, the point is less evident. Actually, the WFD brings a clear objective for water management (i.e. to reach a good status for all water bodies as of 2015), establishes a program, or rather a method, to attain the objective (i.e. a management plan at river basin level elaborated by a basin authority), and recommends a series of measures in the programme of measures included in the management plan. National water legislation may be included in this plan and eventually reassessed given the status of the resource, human impacts on it and human needs.

If the intention is laudable, success is not guaranteed. At national level, the environmental plans developed in the 1990s were not really effective. It is also too early to know in which extent the different administrations and authorities will coordinate their activities and sincerely cooperate. In addition, the WFD is not a new start. The piling up of former legislation remains in place and much contradictions and incoherencies will still need to be tackled.

2. Identification of dynamics in WP4

The identification of the dynamics in the evolution of water legislation starts from a comparison between the public policies conducted in the different countries. The comparison conducted provides no ranking of countries and no typology. We do not attempt to explain these evolutions in full, as it would have been ambitious given the multiple conditions of a long-term evolution and would have conducted us out of the scope of the project.

We synthesise the comparison in a table organised around seven analytical dimensions or variables:

- Problems: water availability and supply, drinking water demand in quantity and quality, and rivalries between drinking water production and agriculture and industry;
- Objectives: environmental (e.g. good status), social (e.g. quality, price affordability), and economic (e.g. cost-recovery, financing of infrastructure);
- Instruments (or tools): regulatory/prescriptive, incentive, persuasive, informative, and self-regulative;
- Institutional arrangements: politico-administrative arrangement of implementation and vertical and horizontal coordination of public and private actors at various levels of government;
- Target groups: change of behaviour of operators, communes, consumers, farmers, industries, etc.;
- Outputs and outcomes: decisions and administrative actions (e.g. protection perimeters, subsidies) (outputs) and final effects in relation to the public problem to be resolved (outcomes);
- Policy rationale: intervention or action logic illustrating the (State) representation of the measures implemented, the target groups behaviour and the effects produced on society (see above for the historical evolution of the policy rationales underlying the public regulation of the WSS).

In the comparative policy analysis that we conducted about the regulation of the WSS sector in nine EU countries, we particularly insisted on the similarities between countries, as well as pointing out the main differences. The major differences separating the countries are the availability of the resource and, in southern Europe, the tough competition between agriculture and drinking water supply for the abstraction of the resource. Social objectives really differ, and are even absent in some countries. Economic instruments fit more to national traditions of public finances and public intervention, as well as the conditions of private involvement in the sector. Also, the level of wastewater treatment widely differs from one country to another, but should progressively converge.

In contrast, the number of similarities between the different cases is impressive, given the initial situation (including the heterogeneity between the countries and the differences in size

and population) and water availability in the different countries. Drinking water consumption per inhabitant is similar. The pressure on the resource is mainly due to diffuse pollution by agriculture, and discharges of hazardous substances by industry to a smaller extent. In the conduct of policies we observe equivalence on economic and environmental objectives as well as on prescriptive instruments in all the sub-sectors. In this extent, it is important to notice that the strong convergence on instruments is not necessarily linked to the EU requirements. In the organisation of the WSS sector, the public and municipal organisation dominates, even if we notice an (at least legal/formal) opening of the sector to competition for the market, however limited. In the country cases, we usually observe that what is scarce is money, not water. We wondered who paid for what, who collected and how were the revenues used? It comes out from the comparison that the needed financial resources are paid by the drinking water consumers, collected by the drinking water supplier, and mainly affected to the water infrastructure. Thus, whatever the degree of financial integration within the sector, the final consumer is the main payer. Concerning the outputs, rates of connection to drinking water supply, as well as to sewerage, are close to 100% everywhere.

Table 1: Summary of the similarities and differences in water policy in selected EU countries

	Similarities on:	Differences on:
Problems	DW demand per inhabitant	Availability of the water resource as well as the volume of water abstraction
	Pollution of drinking water reserves by agriculture Concentration of hazardous substances	Over-abstraction by agriculture Much local/regional rivalries
Objectives	Environmental and economic objectives (good status, secure DW supply, cost recovery)	Social objectives (price affordability, social correction mechanisms (funds and prices))
Instruments/ tools	Prescriptive instruments (e.g. quality standards for drinking water, abstraction and discharge permits)	Economic/incentive instruments (Taxes/ charges/ subsidies)
Institutional arrangement	Dominance of municipal and public operators	Experiences of involvement of private capital
	Pre-eminent financial mechanism: from the DW consumer to the water infrastructure, with a collection by the DW supplier	Levels of direct subsidies
Outputs	Rate of connection to DW supply and sewerage	Rate of connection to a treatment plant
	Partial opening to competition for the market (but, in result still very different)	Regulation and terms of the contracts allowing involvement of private capital

The factors explaining these similarities and differences are manifold. However, some constraints are particularly powerful to force harmonisation. The first are the **EU requirements**. Since the late 1970s, EU environmental policy, in particular in the water sector, is imposing certain sets of instruments and monitoring programmes. In this long tradition, the WFD turn up as a powerful tool not so much to harmonise instruments, but rather to harmonise the policy objectives.

The evolution towards harmonisation is also due to **economic/financial developments**. Adaptation to EU law requires substantial investments, which in the context of cuts in public finances of the early 1990s, pushed the public sector in the direction of alternative financing mechanisms. The present private involvement in the water sector is certainly partly due to economic reasons, but not only because of that.

The third factor explaining the convergences and divergences are the **technological developments**. The rising pollution problems, combined with an increase in quality standards for drinking water and discharges, required the recourse to high technology equipments. Traditional (mainly local and public) operators did not manage such technologies. As a result, public authorities called for the expertise of the major (private) companies of the sector that were able to provide the necessary technology and related services.

It makes no doubt that these developments pressed for change and provoked in some way an harmonisation of the water policies conducted in the countries.

Now we pursue the exercise of identification of dynamics for change in the water legislation. We provide some extrapolations of the main tendencies identified in the evolution of the WSS sector. This allows us to isolate **five driving forces** that will need to be considered in any expectations on future trends in this evolution:

1. **The national level is still deciding**. The dynamics remain national or sub-national in particular (federal) countries, such as Belgium. Constraints, of which we identified at least, are not necessarily national. But the answers brought to these constraints are. Concerning water policies, strictly speaking, the weight of the EU legislation is important, but the policies are not only determined by the EU legislation. Countries still face different problems, have diverging political objectives, in the social field for instance, and the organisation of the sector is not converging under the external pressure made by EU legislation.
2. **Liberalisation is not challenging the traditional functions of legislation, yet**. For the moment, except in England & Wales where the regulators have gained some autonomy, water management is still under the competence of the legislator. Self-regulation and enactment of regulations by independent agencies is not occurring in the sector. The debate on liberalisation will remain a parliamentary debate.
3. **Environment is still the most important issue**. The paradigm did not shift yet and the eco-systemic vision of water resource management is still developing. The implementation of the WFD should reinforce this trend.
4. **Water pricing is a hot issue**. The application of the cost recovery principle is widely shared in the different countries, even if it is not scrupulously applied. Every country tends to increase the burden of the costs of adaptation of the installation to the EU requirements on the consumer. With the WFD, the economic approach of water management could progressively supplant (or coexist with) the traditional engineering approach turned on supply-side management. The question of a guaranteed access to drinking water to all remains a secondary issue.
5. **Competitors push for an entry into the market**. In Portugal for example, private concerns reproach the Government of not being fair in the attribution of market and to guarantee a dominant position to Aguas de Portugal. This analysis falls out of scope

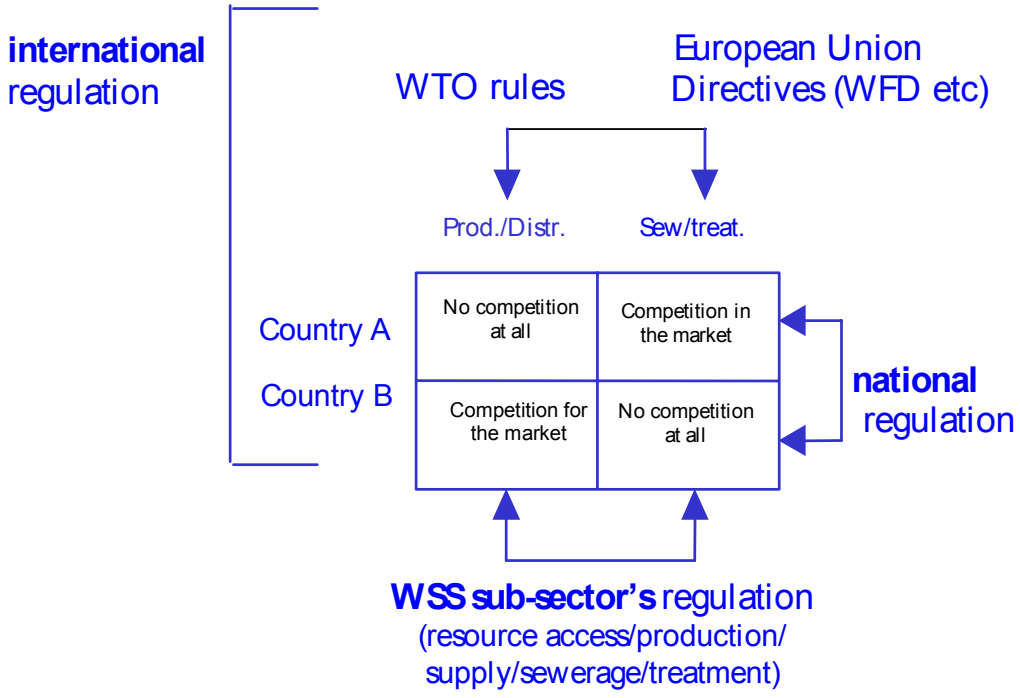
of our workpackage, but we stress it only to remind that further entry of private companies in the water sector is possible in many countries without significant legislative changes.

Finally, our detailed policy analysis supports the conclusions reached in WP1. The main driving factors presented above are very similar to those identified in WP1.

3. Towards causal explanations? Political driving forces

In the theoretical framework, we identify three rough categories of variables that might finally explain -cross-country and cross-sectoral- divergence or convergence of water legislation. These variables are "Globalisation and multi-level governance", "Polity and Politics characteristics" and "Policy networks". Theses categories of variables are strongly related to three traditional comparative approaches to the study of politics and policies in general, called the "International Regime Approach" (IRA; Krasner 1983), the National Patterns Approach (NPA; Richardson 1982, Vogel 1986 and all "comparative politics" scholars) and the Policy Sector Approach (PSA; Freeman 1986; Marsh and Rhodes 1992 and all "policy networks" scholars; Levi-Faur 2002).

Figure 2: Logic of cross-national and cross-sectoral comparison (for the development of a causal loop diagram)



Three distinct phenomena can be associated with globalisation (IRA):

1. The elaboration of **international norms** ("mandatory" harmonization through the Europeanization of WSS policies at national level);

2. **Market competition** (penetration by international competitor, influence of Water TNCs);

3. **Policy transfer** across countries ("voluntary" emulation, lesson-drawing between countries or even between federated entities within one country).

Three distinct phenomena can be associated with polity (NPA):

1. The influence of **federalism versus unitary states** (grid-lock and buck passing between federal level and federated entities versus "federalist laboratory" and development of knowledge among federated entities);

2. **Party politics** (role of left and right parties in "majoritarian democracies" à la Westminster versus negotiation and accommodation in governmental coalitions in consensus democracies) and;

3. The **mobilization of specific institutional rules** (e.g. direct democracy: referendum, judiciary power: litigation or proactive lobbying) through social groups ("bottom-up pressure").

Two aspects have to be analysed from the theoretical point of view of policy networks (PSA):

1. The **structural and relational characteristics** of the policy network itself (number and type of policy actors, dominance of state agency versus private interests, interdependency of resources, permeability to the environment, decision-making style), and;

2. The **social construction of the collective problem** to be solved and of the social groups who belongs to the policy network (inter-policy coordination of: water and agriculture, environment, social policy, competition policy; versus dominance of one policy issue).

This set of variables is likely to explain similarities and differences in water legislation between countries. Driving forces are not necessarily contextual elements (as those suggested in part 1), but also more structural ones. The institutional arrangements influence the options retained in the organisation of the WSS sector. The interferences and mutual influence of the different institutional arrangements (i.e. international regime, polity and policy networks) make the outcomes unpredictable at first sight. Only a systematic testing of these structural variables would allow an identification of their respective influence and relative weight on the options retained in reforms affecting the WSS sector. It is useful to build scenarios with contextual driving forces, but one should not neglect the constellation of institutional arrangements within which reforms take place. Institutional arrangements circumscribe the range of possible outcomes.

ANNEX A.II.4 Operators perspective (University of Zaragoza)

1. Introduction

The Water Service Sector (WSS) encompasses a complex cycle of activities which may be susceptible to processes of liberalisation and competition. This cycle tends to be divided into three segments which offer the operator's diverse opportunities and different liberalisation options:

- Pre-network waters
- Urban network waters
- Sanitation

In all three sectors there are usually important markets of secondary inputs:

- Civil works
- Maintenance of installations
- New technologies

The WP3 has analysed the strategies developed by different operator typologies. This document attempts to relate these strategies to the driving forces at play in the context of the operator. Multiple future scenarios for different operator typologies will be produced depending on the predominant driving forces.

Driving forces operate on various levels (world-wide, European, national, regional, and local) in the context of the operators work. In this document we have considered the following:

- The WTO induces diminishing financial resources for public institutions. This means that public institutions tend to incorporate private capital in the water sector.
- Liberalisation process in other network sectors (e.g. electricity) can increase the pressure for liberalisation in the water sector at different levels.
- High environmental standards mean new investments are needed.
- Public opinion defending the welfare state via its public services and rejecting privatisation.
- Political positions regarding privatisation.
- The social understanding about the sustainability of aquatic ecosystems reinforces the need for a new democratic framework.
- The need to introduce a new Public Management style in order to increase efficiency and transparency.

2. Operator Typologies and Scenarios

In this section we will try to show the relationships between the main driving forces specified above and the main typologies. This will allow us to analyse the possible changes, which move an operator from their current typology to a future one depending on the strength of

each driving force. This approach can be useful for predicting the movements of the operators from their current status towards a new one.

2.1 Municipal Service (MS)

Currently the Municipal Service (MS) is working with objectives based on the development of a good public service, considering users as citizens rather than mere customers. Management responsibilities are usually centred on offering the service itself, with low levels of organisational economic responsibility.

The general pressure in favour of reducing public deficits and rationalising the economic management of public institutions is pushing for changes in these kinds of management.

In the context of *public and political opposition* to privatisation processes, these changes would result in:

- The separation of the municipal economic management of the service within the local council.
- The creation of a public company and transferral of the service management to this company.

In this context, the demands of rising environmental quality standards, with their respective technological requirements, means that municipal public services promote an active competition in the secondary input market. In these cases the public sector would offer civil works, partial maintenance services and new technology acquisitions out to public tender.

Specifically in the case of new technologies, municipal services tend to open up active markets with multiple types of contracts. This can be seen clearly in the sanitation sector, but also in the pre-network water sector in areas with water scarcity problems.

Although the need for making use of economies of scale is not usually relevant for municipal services in large cities, it is for smaller municipalities. In these contexts, and from viewpoints critical of privatisation, local councils tend to set up institutional structures with other municipalities in order to manage their services or organise alliance strategies.

In cases where there is *no social or political pressure against privatisation*, the following options are available given the general need for financial resources:

- Mixed companies
- PPP contracts (public-private-partnership)
- Water service concessions at different levels

2.2 Public Operators (PO)

PO are companies owned by municipalities or regional governments. These operators have clearly delimited responsibilities regarding economic and technical goals. In contexts without social and political opposition to privatisation and with the need for financial resources

which public institutions cannot provide, processes of partial or total sale of these companies to private enterprises are an option. Furthermore, deals produced by TNCs (Trans-National Corporations) with PPP to set up mixed companies often reduce competition rather than increasing it. In particular, secondary input markets could be dominated by the TNC which enters into a partnership with a public institution. In these cases, vertical integration is usually produced via the technological capacity of the private operator, blocking any options for segmented markets.

The driving forces which refer to the technological requirements called for by new environmental regulations will act in the same direction as the section relating to Municipal Services in cases regarding small public operators. On the other hand, the tendency is to vertically integrate the three afore-mentioned segments in cases regarding public operators in large cities. The evolution of the pre-network segment, often managed by public operators or regional institutions, requires special attention.

There are strong restrictions for privatisation and disincentives for other forms of liberalisation in this segment. This could possibly be due to the significant tradition of public management in this sector. However, in areas suffering from water scarcity and particularly in the Mediterranean region, membrane technologies allow for water re-use and desalinisation options at more competitive costs than those costs for the long distance transportation of water via hard infrastructures.

This all leads to the offer of significant liberalisation opportunities in the pre-network segment, or even to the development of water markets via Water Banks or the exchange of water rights between users. Faced with the need for economies of scale, small public companies promote strategies of co-operation or fusion in a similar way to that mentioned previously. However, public companies in large cities tend to extend their market domination to metropolitan, and even regional, areas.

2.3 Mixed operators

2.3.1 Small mixed operators

In the case of small and mixed operators, their strategies are mainly based around three tendencies: grouping together, integration or privatisation.

The first two options share the common aim of making the most of the advantages offered by economies of scale obtained by increasing operator size. However, in the first case (grouping strategies) the resultant holding does not involve the loss of independence of the individual operators which form it. On the other hand, if the operators choose the integration strategy, they lose their individual legal status and their management becomes jointly run. The privatisation option attempts to solve financial problems of the respective public institution.

The predominance of either privatisation or one of the first two tendencies (grouping together or integration) depends mainly on public opinion in relation to privatisation. If civil society demonstrates a strong opposition to privatisation, operators tend to follow grouping or integration strategies. The choice between these two will, in turn, be dependent on the position of each operator with respect to maintaining their independence. That is to say, the choice is dependent on the relative regional importance of the individual operators and the

individual evaluation of the management independence for these services by each of the municipalities. If these variables were significant in a specific region, the operator would opt for grouping strategies.

2.3.2 Medium mixed operators

Mixed operators mainly follow two kinds of strategies. The first is based on consolidating, and later expanding, the operator´s position, eventually becoming regional or even national operators. The second strategy is privatisation. The intensification of the multi-utility strategy seems clear in both cases so as to consolidate their position and use economies of scope.

The main driving force in favour of each possibility is, as in the previous case, public opinion with respect to the entrance of private capital in the WSS. Public opinion against this could encourage the expansion and consolidation of medium-mixed operators in ever wider areas, but without a particularly important presence outside their own natural geographical markets.

Regarding the strategy for activity segments, it must be pointed out that there is a tendency for vertical integration by companies of a certain size. However, at the same time, medium sized operators can offer business opportunities to TNCs and companies specialised in leading technology, via the subcontracting of services in areas of advanced technology. In this sense there may be interesting competitive spaces for the contracts of medium sized operators between large companies and small private ones highly specialised in leading technology.

1.1. Trans-National Corporations (TNCs)

Large companies have used various strategies. In some cases they have given priority to attempts to enter non-regulated markets in developing countries, which have often given negative or unclear results. Given this, large companies now have a tendency to give priority to reliable markets whether they are regulated or not. Eastern European markets and other EU markets are included in this perspective. The TNCs' strategy has been, and is, one of capturing markets via strategies of vertical integration or even multi-utility strategies. Although the latter seem to have been unsuccessful in EU countries, they could succeed in Eastern European countries. A specific and successful strategy of TNCs is the PPP strategy, based on sharing risks and responsibilities with the public institutions. Final responsibility remains with the public institutions (frequently including public majority ownership) but under an effective management control by the company.

In cases where there is no social and political opposition to the entrance of private capital in WSS, the decreasing financial resources of the public sector together with pressure from the WTO might lead to situations wherein the TNC would enjoy regional dominance for long periods of time. Competition would be reduced as contracts become long term and are not split. TNCs would buy, totally or partially, public companies in an attempt to take on the entire cycle of the WSS.

If there was strong public and political opposition to the entrance of private capital, TNCs would choose PPP-type contracts. They would then compete with medium-sized companies for short-term split contracts offered by Public Institutions.

ANNEX A.II.5 STEEP Analysis

This chapter firstly summarises the results of the STEEP analysis and secondly includes a Morphological Analysis to help integrate these results.

IDD has been concerned that Work packages 1-4 have been too EU and Member State focused. There has been a need, therefore to place these considerations within the larger contextual environment and to identify the underlying macro dynamics that impact directly and indirectly on the liberalisation process. This is what the STEEP analysis has attempted to do, place WSS liberalisation within the broader macro environment.

1. STEEP Analysis

Five brainstorming groups formed to assess each of the five themes: Social, Technology, Economic, Environment, and Political. Examples of the possible drivers within the five themes are outlined below:

- **Social:** Current demographic trends (aging population, migration, infertility, life expectancies); degree of social freedom; changing attitudes to the roles and responsibilities of governments; enhanced inter-connectedness; growth of individual values; international awareness and national identity, family structures, role of the media in shaping perceptions, importance of brand and image.

- **Technological:** IT, other technologies (biotechnology, nano-technology, Artificial Intelligence, genetic engineering, new materials, new energy sources)

- **Economic:** Economic globalisation; global economic growth; balance between the rich and poor; changes in business, trade, and work forces.

- **Environmental:** Climate and atmospheric change; pollution; energy demands; water and food resources; urbanisation; disease; deforestation.

- **Political**: Includes control of state borders; interaction between states; interaction between NGOs and the state; internal and external threats to state security; proliferation of military technology; shifts in global power; internal domestic issues for state governance.

Each group participated in a brainstorming workshop to identify plausible hypotheses for each theme that could impact on WSS liberalisation. These hypotheses illustrate key driving forces in the macro environment, which drive change and underpin observable events in the world. Although STEEP analysis lacks integration, it has been chosen to help identify the inter-connectedness of seemingly random events and multiple trends, leading to an understanding of the unseen underlying structure that ultimately drives events in Water Liberalisation.

This systems approach can effectively lead to new insights and perspectives: which challenge our mental models of how the world works and stimulate the contemplation of changes that previously would have been out of our frame of reference. It effectively allows us to dive to the bottom of the iceberg, delve into the underlying structure and re-surface with new insights and perspectives relevant to future events. Often our mental models contain deep-rooted assumptions, guiding ideas, and recipes that exist in our mind and determine 'how' we interpret events going on around us. They predispose us to expect certain results and ultimately guide action.

This can cause a "lock-in" process within organisations, whereby managers and employees interpret events in the world through a common lens, creating a shared mental model of how the future will unfold. What they know, determines what they see, and what they see determines what they know.

Our minds often construct plausible explanations and mistake connections made in the mind with reality. This is why an important element of the morphological analysis is to challenge existing mental models, and stimulate new thinking into new directions.

"Problems that are created by our current level of thinking can't be solved by that same level of thinking." (Albert Einstein)

The results of the brainstorming session (Activity E) for each of the five themes will be summarised thematically. Each theme will include a brief summary of the brainstormed hypotheses followed by a full description that can be found in the appendix. The last section will include a morphological analysis, which will attempt to integrate the STEEP hypotheses into some broader macro driving forces.

Social

Hypothesis 1: Social Disinterest and Apathy

Increasing social disinterest and apathy towards the broader contextual environment leads to a feeling of apathy with respect to the provision and allocation of water services. This can cause inaction and a lack of any belief in the ability to affect the broader environment. This could enhance the liberalisation process through a lack of any conviction to influence the macro environment. Regulatory measures will be at a minimum; as will transparency and accountability measures. This will give private companies the freedom to enjoy increased profits and high levels of competition.

Furthermore quality of water provision will be at a minimum standard and could possibly decline to ensure a maximisation of profits. This could lead to a higher incidence of water contamination and sanitation accidents. An increase in water borne infections and diseases could also occur, with detection rates delayed and underestimated until manifestations become apparent.

Hypothesis 2: Increased Social Interest and Expectation

The underlying trend of increased levels of education and literacy incurs a larger knowledge base. As people are becoming more aware of the world around them through higher rates of education, inter-connectedness, and increased access to knowledge sources, the demand and expectation increases. Enhanced social freedom and individual choice requires the expectation of private and public entities to deliver. Emphasis on brand and image will become prominent; with high levels of transparency and accountability. This will enhance the liberalisation process, as public entities will be more inclined to subcontract private parties to minimise public deficit. There may be pressure on public entities to maintain a position of responsibility; and to ensure that management entities provide high levels of customer satisfaction via strict regulatory measures. Consumer associations may refuse the payment of water bills if satisfactory standards are not in place; and legal measures could ensure compensation to the customer. This could cause conflict between management and responsible entities as to who will be liable for payment. This in itself would lead to more clearly defined roles within each entity on procedure and the implementation of transparency and accountability. The high levels of distrust of private companies and the profits they make; means their success within a competitive market depends on their image and their ability to maintain this image in the eyes of the public. Profits will become more transparent; with the public demanding private companies to account for their spending and to be more involved in the decision- making process via public participation.

Hypothesis 3 : Ageing Demographic

The underlying trend of an ageing population in the developed world means that the improvement of drinking water quality and the control of quality parameters will be critical; as older people are more sensitive to viruses and bacteria. This could require private investment in technology to ensure quality provision and also high levels of regulation possibly via the public sector. Public authorities could set up a social fund for water, which may encourage private interest, and ensure their commitment to this sector. The public may be asked to subsidise this fund through higher taxation and rates; however this would imply that the customers receive higher bargaining power. They may demand strict regulatory measures; compensation measures and restricted profit margins. Social pressure could also lead to a more social Europe causing an EU regulation of services of general interest. This would mean strict regulatory measures throughout the EU on water provision; more control on water prices; more regulation of profits; and more regulation of public and private management. With learning experiences of liberalisation in other sectors, politicians could be reluctant to privatise and promote water liberalisation unless private companies can deliver in terms of quality and consumer satisfaction. Furthermore; with high regulatory measures at local, national and EU levels; local authorities may take a more lead role in the actual management of water distribution and wastewater treatment rather than the private sector.

Technological

Hypothesis 1: No Impact Of Technology on a Static Industry.

Apart from some treatment processes (for water and wastewater) the water and sanitation sector is relatively low tech. It effectively involves the storage and transport of large volumes

of water/wastewater from/ to regional locations to local demand centres. In the next ten years it is envisaged that only a limited uptake of alternative network arrangements will take place.

Hypothesis 2: Incremental Impact through Core Technologies

Technology may reduce the costs of service provision. However technology could potentially reduce competition as a result of proprietary technology and economies of scale required to develop new technologies. Furthermore, technology development may potentially increase quality standards; for example better pollutant detection; higher levels of treatment. This could also have the ability to increase investments, and enhance competition, although the final impact on liberalisation remains uncertain. What does seem clear, is that developments are likely to occur as a result of developments within and on the boundaries of the core technologies which are;-

- **Biotechnology –** GMOs used for wastewater treatment
- **Information and Communication technologies –** new monitoring techniques
- **New Materials –** new membranes, new pipe materials, cheaper desalination
- **New Energy Sources –** gasification technology, desalination driven by renewables

As we see above, the development of continuous monitoring technologies and improved network modelling techniques may overcome some of the problems inherent in common carriage and subsequently enhance the competition of available water sources.

Hypothesis 3: Important Impact through the New "water treatment" Home

Water/wastewater treatment is taken at the household/ street level. Raw water is transported to the house/street whereby the consumers are responsible for installing appropriate membrane filters (with high quality water being produced with higher priced filters). The wastewater produced is also treated to a level determined by the customer – the charge for sewerage will depend on the level of local treatment. There would also be the possibility of local household water recycling. This will create a new market for filters; which could be provided by the energy utilities as the filtration devices are energy intensive. This would be a more expensive option than the one currently in place; however it takes into consideration the trend towards individualism and enhanced social choice; by allowing the customer a real choice over the quality of water received and the level of treatment households want to provide locally. This decentralised approach would effectively decrease the power of existing distributors and better allow for common carriage arrangements and the reduction of quality risks. This would also reduce the threat posed by terrorist attacks; as treatment would be provided locally rather than nationally.

Hypothesis 4: Major Impact through the New "no water" Home.

Water use in the home is reduced to minimum levels; and effectively self-supplies. This would include the introduction of composting toilets; dry or intensive recycling dish/clothes washing (i.e. individual appliances are adapted with membrane recycling technologies); low consuming showers; bathing water could be collected from rainwater and drinking water could also be collected from rainwater or from bottled sources. Greywater (from dish/clothes washer and bathing) can either be recycled or disposed of via soakaways. Compost could either be used on the garden or collected via the road. These "autonomous" self-supply

houses have already been built in the UK. Even in the drier parts of Britain (500mm rain per year) there is sufficient rainfall to supply an autonomous house (with a roof collection area of 150m2) with around 200 litres per day. With the very low consuming devices described above this would be enough water to disconnect the household from the networks. It would essentially self-supply, which would have a substantial impact on the monopolistic nature of the industry.

Economical

Hypothesis 1: Capitalism: MAX Economic Growth

This hypothesis assumes a high level of economic growth, in the context of capitalism, involving a highly individualistic economic perspective characterising public values. This will include a considerable private willingness to pay moderated by self-interest and fiscal austerity, inducing a high degree of subsidiarity in standard-setting and a limited general internalisation of external effects (i.e. public values). Moreover privatisation of the sector will be working towards standards that are performance and cost efficiency driven according to BATNEEC norms (Best Available Technology Not Exceeding Excessive Costs). Local circumstances, in terms of the ability to fund, to identify, and to internalise effects are determining factors in terms of the organisation of the water sector and its investments. Off-the-shelf standardization of technologies and economies of scale will secure MNC advantage, leading to further differentiation between the have and have-nots. Some areas will receive higher quality requirements, if they can afford it (ie gated communities) whilst other river basins will receive no improvement and may be abandoned due to insufficient funding. Non-degradation is the main principle, if conditions are not too deteriorated already.

Hypothesis 2: Social Capitalism and Collectivism.

This hypothesis also assumes a high growth, this time in the context of a social brand of capitalism, based on collectivism and the institutionalisation of modes of co-operation. Quality of life, stability and a blend of self-en collective responsibility are the fundamentals of this society. Water supply services are generally accepted as a public good, funded through universal standards of taxation and levies. Solutions are determined according to local possibilities and requirements, internalising as much of the external effects as possible. Ownership will be public based, with possibly some private participation. Responsibility will be delegated centrally; there will be some variation in location specific solutions, depending on the vulnerability of regions within a range of available options. This range will be determined and sanctioned centrally; facilitating a main role for public bodies or a combination of public/ private partnerships. Water standards will be high, and BAT (Best Available Technology) based. The precautionary principle will be prevailing, as far as possible.

Hypothesis 3: Social Realism and Lower Economic Growth

This hypothesis assumes lower economic growth, with lower public revenues, inducing a strong drive towards minimal public spending and a move towards "social realism." Water supply services are still generally considered and accepted as a public responsibility, for which specific levies can be raised. Fiscal austerity, however, excludes funding on the basis

of the general budget. There is centralism in the standardisation of levies, but there is a limited (i.e realistic) internalisation of external effects. As with the first hypothesis, this will generally favour the larger international consortia, which will be-able to capitalise on this development. Privatisation, to reduce state involvement and the public budget, in combination with strict regulation, results in a strong cost-efficiency driven standard setting, according to the BATNEEC principle, in favour of society as a whole. There will be a reduced number of technological options, resulting in solutions, which have wide-scale applications. In this particular case, there will be strict application of the user/polluter pays principle in combination with the non-degradation principle.

Hypothesis 4 : Social Attitude and Alternative Lifestyles.

This hypothesis also assumes a lower rate of economic growth, in association with social attitude and alternative lifestyles. Economic growth and profit making are seen as inferior to the broader notion of well being. Water services are considered to be a truly collective good, for which the community shares some responsibility. Within the context of fiscal austerity: to keep central government from growing and limit the state budget, there will be a considerable private willingness to pay. There is a strong subsidiarity in standard setting and a localized internalisation of external effects, reflected in local solutions and approaches for water supply and treatment. These facilities are organised and managed in a collectivist way, possibly on a municipal or communal basis. The ambitions are characterised as a performance driven variation of BAT standards, given individual and local circumstances in respect to income and possibilities. This could result in a mixture of public and private management. Larger scale solutions will be partnered with smaller-scale solutions providing a mixture of public and private operators supplying local solutions. The precautionary principle prevails, insofar possible.

Environmental

Hypothesis 1: Increased pressure on water as a resource

An underlying trend connected to processes within the larger macro-environment includes the increasing magnitude and relevance of droughts. Besides drying up surface water bodies, a decrease in rainfall affects the flow regime of rivers and impacts on the quantity and quality of groundwater bodies. As a result, the costs associated with drinking water abstraction and purification increase. There will also be a higher degree of regionally interlinked water supply infrastructures in order to react to regional water shortages and to maintain adequate access to constant and safe drinking water provision. We can see therefore that co-operative strategies would gain in importance, for example inter-municipal co-operation could increase. We see therefore that rising production costs as well as the potential for higher private involvement are key elements of this hypothesis. However, consumer groups could also create pressure to ensure that responsibility remains in the public domain via public management bodies.

Hypothesis 2: Higher Incidence of Floods

In this hypothesis there is a similar impact on the organisational structure of water as the previous hypothesis on droughts. In order to ensure that a constant and safe standard of water quality is readily available to all areas, it is necessary to ensure that there is an articulate regional water supply infrastructure. Investments in larger storage reservoirs and higher investments in technical equipment may also be necessary to better safeguard the network from the risk of floods. These developments could trigger a surge in municipal co-operation (i.e. through emergency co-operation plans) and also encourage enhanced levels of private involvement.

Hypothesis 3: The Risk Of New Pathogens

In this hypothesis we see that the underlying trend of increased average temperatures results in the spread of new pathogens, which are not native to Europe. The increased temperature of groundwater, allows the pathogens to settle and develop within the storage system and also within the sewage system. This will lead to higher network maintenance, higher purification costs (also the possibility of new methods) which will likely encourage private involvement to ensure quality service provision

Hypothesis 4: Land Use Change

There could also be a land-use change due to a re-structuring of water service provision; either through dual supply, self-supply, or the 'water treatment' home method. This could either decrease the pressure on water as a resource, as in the case of 'self supply' or potentially increase the pressure due to increased processes of soil erosion and the higher degree of soil sealing. In the case of soil sealing, we can anticipate higher levels of rainwater run-off, which may lead to larger treatment capacities being required (in case that rain water is not collected separately and the current facilities are not dimensioned in this utilisation ratio). Furthermore, an intensification of soil erosion would result in dams and reservoirs being un-silted to ensure functionality. Both these processes incur high costs, which would encourage private involvement and increased pressure on the consumer.

Political

Hypothesis 1: Green Political Opposition

This hypothesis assumes political opposition from green parties and anti-globalisation advocates. Concern over resource protection calls for a greater role by public bodies in resource management. However it's argued that green movements could only object to WSS liberalisation if private operators are un-able to resolve management issues effectively.

Hypothesis 2: Move from local to National Government

Responsibility of water services provision relies on local authorities, which could see these services as a means to raise capital and effectively reach policy objectives. The impact on

WSS liberalisation could be two-fold; firstly opening up the WSS market and secondly by selling public enterprise shares.

Hypothesis 3: Move from National Government towards Federal Government

The strengthening of national interest protecting incumbent operators towards foreign ones could trigger the emergence of an anti-liberalisation movement. This could hinder the entry of foreign operators into the national market and open up WSS markets.

Hypothesis 4: Establishment of Cross River Basin Authorities

The IWRM principle, when applied at supra-national level, should entail the creation of supra national bodies, i.e. International River Commission. They would subsequently interact with various actors both public and private. It is still unsure how this will impact on WSS liberalisation, since their activities influence resource management not WSS management.

Hypothesis 5: Pro-liberalisation Advocates

The acceptance of World Bank recommendations will probably force national government (most likely right wing) to open up to WSS markets (in the form of bidding procedures for WSS management delegation or State aid.) This could positively enhance the WSS liberalisation process.

Hypothesis 6: Pan European Regulatory Body

The creation of Water Courts, charged for the protection of consumers' rights at a European level, should substitute or strengthen national system regulation. This will have an impact on the liberalisation process, depending on how they define the levels of service, and how the EU with respect to competition rules considers them.

Hypothesis 7: Political Corruption

Political corruption could potentially take on numerous forms, each with its own unique effect on the contextual environment. It is still unclear what kind of effect this could have on WSS liberalisation; however it is certainly worth consideration.

Hypothesis 8: The Influence of EU Policy-making

Any changes to EU policy-making could impact directly on the WSS liberalisation process. For example, if agricultural water demand increases, the water resource available could allow for the creation of markets for the raw resource, with new entrants into the tertiary market. However, since normally infrastructure is not connected with WSS, it is unlikely that the additional resource will be simply devoted to household consumption.

Hypothesis 9: Fear of Terrorist Attacks

This would increase the control of water as a raw material, and call for the massive use of purification methods such as membrane technology. This would effectively create an entry

barrier, and induce public protection of the resource. However it is still unclear how this should affect the WSS liberalisation process.

These hypotheses have been synthesised into three, to enable the morphological analysis. To summarise they are as follows: (1) Pro-liberalisation (2) Anti-liberalisation and (3) Mixed.

Hypothesis 1: High Pro Liberalisation

In this hypothesis we see large private sector involvement. The national government (more likely right wing) has accepted World Bank involvement, and has effectively opened up the WSS markets (in the form of bidding procedures for WSS management delegation or State aid.) Responsibility will be delegated centrally, to local authorities, subsequently opening up the market to private operators by selling enterprise shares and delegating management responsibilities. Private regulatory measures will be standardised to a national standard; and EU regulatory measures will be subject to national interests. However, regulatory measures will be relatively low, in order to secure the interest of larger TNCs and MNCs within the WSS market. Here we see an opening of state borders and a subsequent increase in foreign investment. Existing incumbent entities may be unable to compete with the larger corporations and a re-structuring of the operator industry takes place.

Hypothesis 2: Anti- Liberalisation

In this hypothesis we see a lot of opposition towards WSS liberalisation from many sectors. Firstly there is a strong consumer base, backed by consumer bodies, resisting the liberalisation of water. Strong public opinion rejects that water can be classed as a commodity: and an underlying conviction exists that water should remain under public ownership. This evolves from the belief that water should be free and available to all persons; and that private sector involvement can only hinder this. Green movements, anti-globalisation advocates and the general public have strong bargaining power towards the government in this society. There is a great need to reconcile public opinion; in order for the current government to stay in power, and therefore public values dictate the terms of liberalisation. Fear of terrorist attack, could also lead to tight control measures; and an increase in purification technologies i.e. membrane implemented at a local level. There may be a willingness to pay, on the part of consumers, to keep public ownership rather than involve private participation, and levies may be raised directly for this purpose. A strengthening of national interest in protecting incumbent operators over foreign ones', could also close the market to foreign investment. This will effectively strengthen a monopoly within the WSS Market; increasing the power of existing incumbent water utilities and limiting new entrants to subsidiary sectors.

Hypothesis 3 : Mixed Private/ Public

In this society we see there is a need by the national government to reconcile public values and private interest. There is pressure at EU level to open the WSS market; and a limit on public deficit boosts privatisation. However there is a need to balance this with public values. Consumers, consumers groups and environmental bodies don't have as high a bargaining power in this society, however there is strong pressure on the government to ensure water quality and minimise private profit making. In order to reconcile both interest groups, strong regulatory measures are enforced at EU; National; and local levels. The creation of Water

Courts, charged for the protection of consumer rights at European level, would supplement and strengthen the national system. The creation of supra national bodies, i.e. International River Commission to monitor the interaction of private/public bodies, would also have an indirect impact on liberalisation through resource management. Public ownership; would be delegated centrally to local authorities who would subsequently sub-contract management and operator duties to private parties with strict regulatory measures. There would be limits on private sector profit making via authorised threshold profits; and there would be strong penalty measures sanctioned against unsatisfactory water quality service. Consumer bodies would effectively represent public interests to ensure quality standards via compensatory measures.

Fiona Evans, IDD, June 2004

A.III Developing Scenario Outlines

ANNEX A.III.1 Trend Based Member State Scenarios – Summary of Results

IDD has reviewed seven of the eight updated (trend based) Member State scenarios.

We have prepared a matrix (see table 3.1 in main D5 report) that compares and contrasts the driving forces/constraints and the proposed scenarios across the seven Member States. We have also listed some examples of the future events that have been identified within the different Member State scenarios. The key points arising from the matrix are as follows:

Driving Forces/ Constraints

1. General consensus that EU (liberalisation) policies and local financial pressures on municipalities could result in increased liberalisation.
2. General consensus that operator strategies could influence the nature and direction of liberalisation.
3. Variety of different national driving forces is also in play. These will also influence the nature and direction of liberalisation.
4. Public opinion (and associated political opinion) could play an important role in constraining liberalisation.

Points 1 and 4 tie in with the scenario cross work undertaken at the workshop (see Annex A.III.2).

Proposed Scenarios

1. Majority of MS scenarios agree on the need to cover outsourcing (4 out of 7), delegated contracts (5 out of 7), competitive (supplier) markets (5 out of 7) and regulated markets (6 out of 7).
2. No MS scenario refers to community management as a plausible EU liberalisation end state.
3. There is no consensus on the fifth scenario – 3 relate to fragmented markets (different forms of competition in the market), 2 relate to partial privatisation, 1 relates to mixed management models, and 1 relates to competition in the capital markets (under full privatisation).

Example Future Events

1. Majority have identified a future event involving EC action on liberalisation in the WSS.
2. Legal and institutional reforms are important key national events in a number of MS scenarios.
3. Competition "in the market" is successful in selected segments.

David Musco, IDD, June 2004

ANNEX A.III.2 Scenario Cross - Building Scenarios

Based on the discussions at the April 2004 WP5 workshop, this short paper attempts to construct a set of EU end-state scenarios, including the main outline and some of the key underlying driving forces. The 'paired' Scenario Building exercise at the workshop identified three major and eight minor driving forces of change in the water sector in Europe. An important assumption here is the pan-European nature of all of these driving forces. Although each driving force will be present in each Member State, this does not mean that it will alter the direction of change of each Member States' Water Supply and Sanitation (WSS) arrangements to the same extent.

1. Major Driving Forces

The level of social engagement
There are three major actors that determine the level of social engagement – trade unions, consumer associations and the media. The pressure from strong trade unions, such as in France and Germany, would tend to obstruct any private sector involvement for fear of job losses (and the other way round). Although in many countries the influence of consumer associations is marginal, a high level of consumer interest in service provision would tend to obstruct liberalisation (and the other way round). For some WSS organisations that are democratically elected, such as the Dutch water boards, there is a direct and tangible link with social engagement. Press coverage can also be an important driver or constraint to change, especially in view of the direct relation and influence it can have on populist politicians.

The availability of public finance
The supply of public finance for WSS can range from scarcity/shortage at one extreme to abundance of public funding at the other extreme. There is a clear link with the overall rate of economic growth. If the growth rate is high, the constraints on budgetary allocations to the sector will be lessened.

EU legislation towards liberalisation and competition of the WSS
Within the coming ten years several flagship decisions will have to be taken by EU Member States. The EU is at the crucial crossroads and the level of success of these decisions might trigger disintegration or coherence. Among these key decisions are the following: how will the 10 new member states be accommodated? Can agreement be forged on an EU constitution? Will Member States be able to formulate a common foreign policy and agree on a joint EU military force? Another important decision relates to how far the EU can really manage to produce one common internal market. The resolution of these important strategic decisions will indirectly encourage or discourage further liberalisation of the WSS sector.

2. Minor Driving Forces

- The extent of national regulation of theWSS
- Alternative life-styles
- Pollution trends

- The rate of economic growth (subsuming interest rate movements and the availability of finance for investment)
- Technological innovation
- Changes in the economic structure (e.g. trend towards an ageing population, shift to post-industrial economy dominated by service sector employment, reduction in role of agriculture following reform of the Common Agricultural Policy)
- National fiscal policies and the introduction of the principle of cost recovery tariffs
- Climate change

3. Major and minor variables: linkages

There are clearly some linkages between the 'major 'and 'minor' variables as follows:

Major Variable: The level of social engagement

- Major Variable – The availability of public finance
- Minor Variable - Alternative life-styles
- Minor Variable - Technological innovation
- Minor Variable - Changes in the economic structure
- Minor Variable – The rate of growth

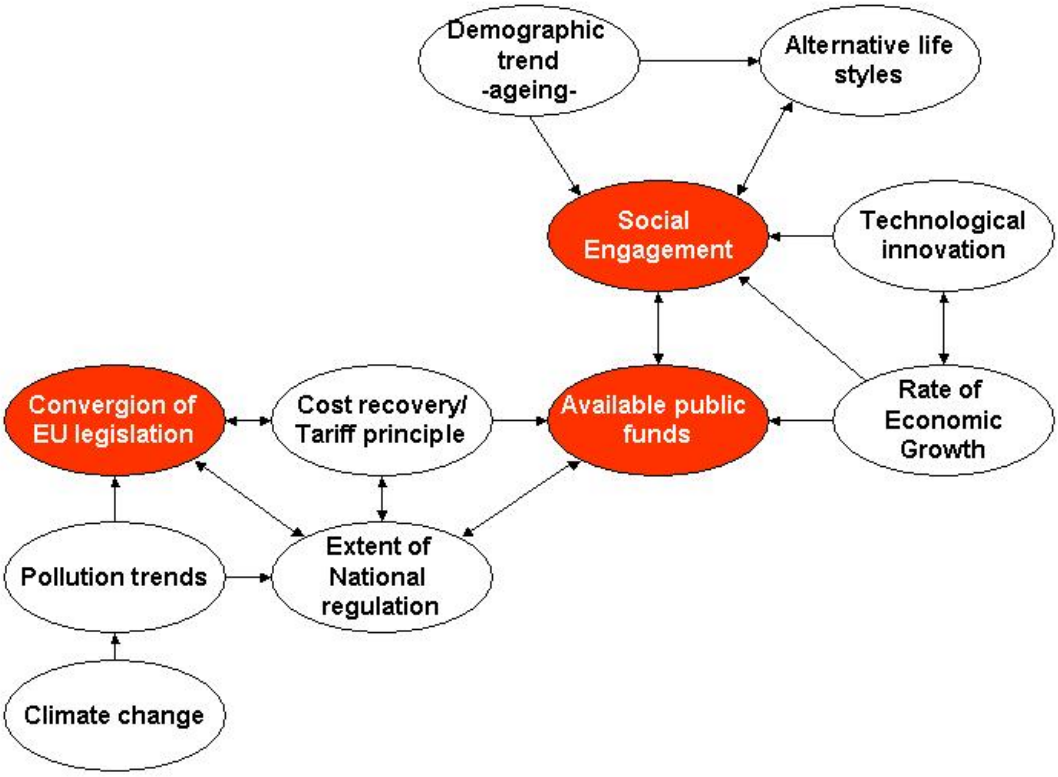
Major Variable: The availability of public finance

- Major Variable – Social engagement
- Minor Variable - The rate of economic growth (subsuming interest rate movements and the availability of finance for investment)
- Minor Variable - The cost recovery tariff principle
- Minor Variable - The extent of national regulation of theWSS

Major Variable: EU legislation towards the WSS

- Minor Variable - The extent of national regulation of theWSS
- Minor Variable - Pollution trends
- Minor Variable - Climate change
- Minor Variable – Cost-recovery tariff principle

The relationship between these variables is shown in the causal loop diagram below.



The three major variables may be described according to polar extremes (decreasing and increasing), as follow:

The level of Social engagement

Decreasing: This assumes that citizen participation in the political process falls to a low level. It is reflected in the low turnout in municipal, regional, national and European elections, as well as by declining membership of political parties. It is also reflected in the gradual drop in active citizen involvement in a range of local community organisations (e.g. school boards), local and national charities, and campaigning organisations. Of particular interest for this research, citizen involvement declines in the major environmental campaign organisations such as Friends of the Earth and Greenpeace. The major underlying cause for this societal change relates to changing cultural values brought about by the influence of a 'pure capitalist' development model as identified by Robert Putnam in 'Bowling Alone'(Simon & Schuster, 2000). Growing citizen identification with individualised consumption of material goods leads to mass rejection of 'time-consuming' social networking from which no clearly defined material benefit derives. As a result, the stock of 'social capital' declines.

Increasing: This assumes that levels of citizen participation in the political process increases to a high level. It is reflected in the high turnout in municipal, regional, national and European elections, as well as in increased membership of political parties. It is also reflected in the gradual increase in active citizen involvement in a range of local community organisations (e.g. school boards), local and national charities, and campaigning organisations. Of particular interest for this research, active citizen involvement increases in the broad 'anti-globalisation' movement and wider support for its strong message in favour

of public control of global water resources. The major underlying cause for this societal change relates to the changing cultural values brought about by the influence of a 'slow growth' developmental model, whereby growing rejection of materialistic consumption is associated with enhanced importance attached by citizens to a less stressful lifestyle, quality leisure-time, and the maintenance and development of social networks of mutual support. Given this broader underlying shift in public attitudes, the emergence of specific problems such as pollution, quality and sudden price increases is more likely to provoke a significant increase in the level of social engagement around water issues.

The availability of public finance

Decreasing: This assumes that the level of public funding available for the WSS, in particular for capital investment, declines markedly over the coming decade. The IMF successfully promotes a growing convergence among OECD countries with regard to monetary and fiscal policy. This is reflected within the EU by a tightening of compliance with Community-wide annual targets that limit the size of the fiscal deficit of individual member states. The underlying demographic trend associated with an ageing population increases the demand on current expenditure for health care, state pensions and housing benefit. In combination with the growing control of the overall fiscal deficit, this produces a 'scissor effect', severely limiting the growth of capital expenditure over the coming decade.

Of particular interest for this research is the response of member state governments to this growing shortage of public finance for investment in basic infrastructure, including the WSS sector. Increasingly national governments turn to institutional arrangements for financing investment that the involve private sector, such as French-style lease contracts (*affermage* and *concession*) and well as Build-Operate-Transfer (BOT) arrangements.

Increasing: This assumes that the level of public funding available for the WSS, in particular for capital investment, remains at current levels or increases over the coming decade. There is increasing refusal by member states to comply with EU limitations on the size of the fiscal deficit. As a result, these are gradually abandoned. Governments engage in deficit financing of major physical investment in basic public services for several reasons. These include job creation, compliance with EU environmental legislation and renovation of outdated infrastructure.

Of particular interest for this research is the response of member state governments to this growing availability of public finance for investment in the WSS sector. Increasingly national governments refuse to follow up a number of 'pilot projects' with private sector involvement in capital expenditure. Instead, they return to a predominant role for institutional arrangements with solely public sector involvement such as direct and delegated public management.

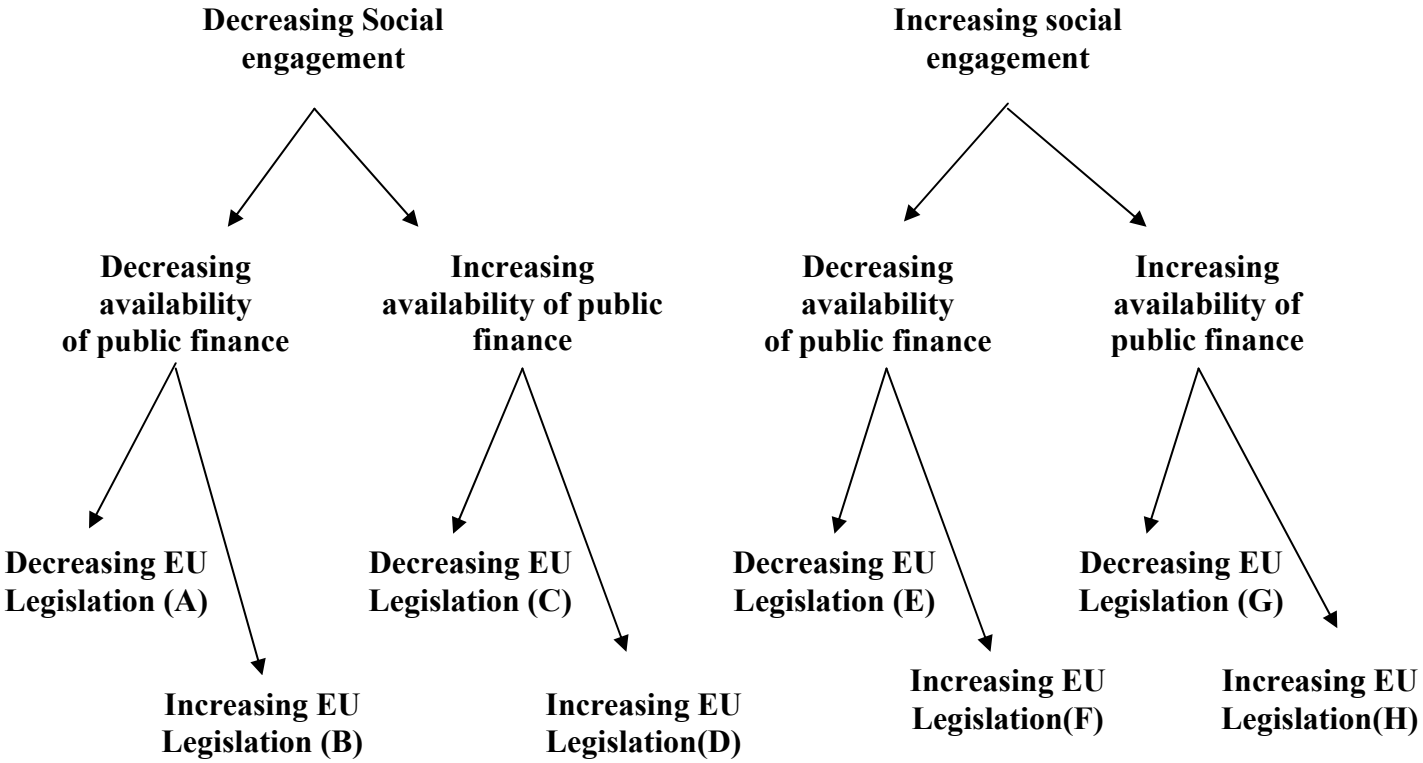
EU legislation towards liberalisation and competition in the WSS

Decreasing: This assumes that only limited progress towards liberalisation and competition through European directives in three areas**.** First, the EU continues to grant extensions for the deadlines for the introduction of new standards in drinking water and sanitation systems. This slows down the trend towards enhanced technical complexity of the WSS, the pressure to raise levels of capital investment, and the process of 'regionalisation' of institutional

arrangements in the sector. Second, the EU is lax in monitoring the implementation of the various principles for the management of the natural resource, as embodied in the Water Framework Directive (WFD). These principles – encouragement of a river basin management approach, cost recovery tariff policy, and public participation – are left to the discretion of the Member States. Third, the WSS is defined as a Services of General Interest (SGI) and hence remains excluded from the general EU competition laws.

Increasing: This assumes rapid progress towards liberalisation and competition through European directives in three areas**.** First, the introduction of higher standards in drinking water and sanitation systems continues to enhance the technical complexity of the WSS, to raise the level of required capital investment, and to encourage the 'regionalisation' of institutional arrangements in the sector. Second, the EU undertakes strict monitoring to ensure compliance with the various principles for the management of the natural resource, as embodied in the Water Framework Directive (WFD). These encourage a river basin management approach, cost recovery tariff policy, and public participation. Third, the WSS is defined as a Services of General Economic Interest (SGEI) and is included under the general EU competition laws, thereby encouraging the liberalisation of the sector.

4. Scenario Building; Tree Matrix



From the paired brainstorming exercise at the workshop, a tree matrix was developed on the basis of the three major variables. This produced eight alternative end state scenarios, based on different combinations of the three major variables, as follows:

	Social Engagement	Availability of Public Finance	EU Legislation
Scenario A	Decreasing	Decreasing	Decreasing
Scenario B	Decreasing	Decreasing	Increasing
Scenario C	Decreasing	Increasing	Decreasing
Scenario D	Decreasing	Increasing	Increasing
Scenario E	Increasing	Decreasing	Decreasing
Scenario F	Increasing	Decreasing	Increasing
Scenario G	Increasing	Increasing	Decreasing
Scenario H	Increasing	Increasing	Increasing

In the plenary discussion it was agreed that Scenarios C and D should be excluded from further consideration because of the unlikely nature of the combination of a decreasing level of social engagement with an increasing level of availability of public finance.

In the following, we attempt to 'flesh out' the remaining six end-state scenarios, as follows:

Scenario A: Decreasing level of social engagement + Decreasing availability of public finance + Decreasing degree of EU legislation

Under this scenario, private sector participation (PSP) in the WSS has increased. Most Member States are pursuing a broad strategy to promote the international competitiveness of their respective national economies through two major policies. First, governments seek to maintain decreasing levels of company taxation in order to attract foreign direct investment. Second, they pursue broad anti-inflationary policies designed to promote export competitiveness. Tight fiscal policies are an integral part of this strategy and these keep the primary deficit at low levels below 2.5% of GDP. The need to minimise the Public Sector Borrowing Requirement (PSBR) means that inter-governmental fiscal transfers are severely curtailed to water utilities that are not pursuing cost-recovery tariff policies. Also, the availability of bond financing of investment in basic infrastructure is severely curtailed, even in those Member States such as Germany that have traditionally made widespread use of this source of funding for the WSS. In the absence of any active opposition from citizens, governments pursue an aggressive policy of encouraging private sector participation (PSP) in the operation, maintenance and investment of the WSS. Although this takes various forms, the French-style lease contract becomes the major institutional arrangement for PSP. The decreasing level of citizen engagement means that water utilities are able to pass on the extra costs associated with cost-recovery tariff policies with an acceptable rate of return to the private operator without engendering widespread social protest.

Scenario B: Decreasing level of social engagement + Decreasing availability of public finance + Increasing level of EU legislation

Under this scenario, private sector participation (PSP) in the WSS has increased to an even greater extent than in Scenario A. In addition to the fiscal consequences of the strategy of promoting international competitiveness outlined in Scenario A, PSP is also spurred on by EU legislation that both encourages liberalisation and requires new investment in order to meet stricter compliance with higher standards of water quality and protection of water sources. French-style lease contracts have come under increasing criticism because of the perceived low levels of transparency and accountability that are deemed incompatible with the new EU legislation for the WSS. As a result, the expansion of PSP mainly takes place through new institutional arrangements for public-private partnerships (PPPs) such as Build-Operate-Transfer (BOT) and Build-Operate-Own (BOO), as well as joint-venture share ownership.

Scenario E: Increasing level of social engagement + Decreasing availability of public finance +Decreasing degree of EU legislation

Under this scenario, governments of member states pursue the tight fiscal policies outlined in Scenario A. These greatly restrict the level of fiscal transfers to water utilities to cover operating deficits. By withdrawing central government guarantees, Member States also restrict the right of sub-national tiers of governance to raise bond finance. These central government policies provoke widespread citizen discontent, as expressed through municipal and regional tiers of governance. This leads to a deterioration of central-local relations as local government seeks ways of circumventing the harsh fiscal discipline imposed on it from above. The limited degree of EU legislation that reduces the pressure towards liberalisation together with citizen hostility towards the fiscal austerity imposed by central government combine to strength political support for institutional arrangements that re-enforce direct public management of the WSS

Scenario F: Increasing level of social engagement + Decreasing availability of public finance + Increasing degree of EU legislation

Under this scenario, and as in Scenario E, tension emerges between central government and local public management of water utilities when Member States seek to impose fiscal austerity in the face of widespread citizen opposition. However, in this case, there is growing EU legislation that both encourages liberalisation and requires new investment in order to meet stricter compliance with higher standards of water quality and protection of water sources. Sub-national tiers come under conflicting pressure from actors/stakeholders. On the one hand they face growing pressure to raise tariffs as a result of central government fiscal policies and new EU legislation requiring an increase capital investment programme. On the other hand, they face vocal pressure from citizen activists, opposed to PSP and calling for the retention of public sector management of water utilities. In an attempt to reconcile these opposing positions, sub-national public bodies (municipal and regional) seek to radically improve the productive efficiency of water utilities under their jurisdiction. They pursue two main avenues in their search for a reduction in the unit cost of service delivery. First, they promote moves from direct to delegated forms of public management in order to raise labour productivity. Second, they promote the amalgamation of smaller water utilities in order to achieve economies of scale.

Scenario G: Increasing level of social engagement + Increasing availability of public finance +Decreasing degree of EU legislation

Under this scenario, the increasing availability of public finance, together with increasing levels of social engagement, greatly reduces the pressure for reform of institutional arrangements within the sector in pursuit of greater levels of efficiency. This is reflected in the generally cordial relations between central and sub-national tiers of government with respect to the management of individual water utilities. This 'stasis' is further encouraged by the absence of strong EU legislative moves towards liberalisation. Of all the scenarios, this is the one where it is most difficult to identify any broad trends. This is because the three core variables are pushing in the direction of greater heterogeneity of experience.

Scenario H: Increasing level of social engagement + Increasing availability of public finance + Increasing degree of EU legislation

Under this scenario, as in the case of Scenario G, the increasing availability of public finance, together with increasing levels of social engagement, greatly reduces the pressure for reform of institutional arrangements within the sector in pursuit of greater levels of efficiency. However, in this case, there is growing EU legislation that both encourages liberalisation and requires new investment in order to meet stricter compliance with higher standards of water quality and protection of water sources. The increasing level of social engagement that is prevalent in Member States means that citizen groups make a growing impact into the policy formulation process in response to two principles embodied in the EU legislation. First, activist groups are quick to respond to the principle that citizen participation should be encouraged in the overall management of the sector. Second, environment groups respond to the principle of sustainability of the water resource by pressing for the introduction of new technologies designed to reduce the overall level of abstraction (e.g. separation of grey and clean water, reduction of water losses through better pipes, and water recycling at the household level). This increasing level of citizen involvement, together with the greater availability of public finance, ensures that there is minimal increase in PSP as a result of the principle of liberalisation embodied in the EU legislation. Instead, there is general citizen 'willingness to pay' for the higher tariffs introduced in order to cover the costs of the investment programme required to comply with the higher standards imposed by the EU legislation. This limits the pressure for institutional reform in the direction of PSP. Instead, a growing number of sub-national and regional bodies introduce institutional reforms designed to promote community management by involving citizens directly in the governance of water utilities under their jurisdiction. These reforms include experimentation with cooperative and mutual forms of water management.

5. Conclusion: identification of scenarios with End-States

Although the above scenarios result from the combination of broad trends, they do indicate movement in the direction of a variety of alternative End-States as shown in the table below.

	Main Drivers Forces for Change			Approximation to End-States Identified in Activity G
	Social Engagement	*Availability of Public Finance*	*EU Legislation*	
Scenario A	(-)	(-)	(-)	Lease Management
Scenario B	(-)	(-)	(+)	Public-Private Partnership
Scenario E	(+)	(-)	(-)	Direct Public Management
Scenario F	(+)	(-)	(+)	Delegated Public Management
Scenario G	(+)	(+)	(-)	Mixed Management
Scenario H	(+)	(+)	(+)	Community management

Andrew Nickson, IDD, July 2004

A.IV Scenario Descriptions

ANNEX A.IV.1 Guidance on Story Telling

In order to tell a story, it is important to get into the mindset of an author. Every story has a start, middle, end: and an underlying message to the reader. The author takes the reader through a journey of events and experiences, allowing the reader to participate in this process of exploration. The author re-creates the experiences of the story in the mind of the reader, through the use of language and imagery, stimulating the reader to imagine they are actually in the place described, experiencing the event as if they were there. As we are attempting to write stories about the future, it is essential to imagine yourself to actually be in the future. The reader needs to be-able to share the experience of being there with you in your projected future. They've been taken along for the ride so to speak; journeying with you through every event, so try to make it an interesting trip!

These guidelines can be divided into three parts: (1) **Story Forming:** this section gives an outline of the key elements which tie together to form the storyline. (2) **Main Structure**: this can be sub-divided into (i) Start: pre-conditions; (ii) Middle: story weaving, (iii) End: future end state. (3) **Story Telling**: this section deals with getting into the mindset of the author. [55] (4) **Preparation for the September Workshop** which gives provisional guidelines to help you with your presentations in September.

1. Story Forming

In story forming two methods can be identified: (1) Play it back and (2) Play it forward. (Schwartz 1991) Essentially you should be able to do both when you come to conceptualise your scenario. With the first method you begin with your future end state and effectively re-trace the events to the beginning. (This is what historians do). The second method uses the pre-conditions i.e. driving forces (WP 1-4) to devise storylines, in a forward-looking direction. When it comes to writing up the stories you will see that we use the first method. (Please see section 3) However it is important during the conceptualisation stage to consider both methods. It allows you to see both sides of the coin with respect to your storyline, giving the final product completeness and cohesion. It may also be a useful checkpoint, to play it both backwards and forwards once you have formed your storyline.

To Summarise

- **Play it back** < This can be compared methodologically to historians retrospectively tracing the connections between events in order to plot a narrative of the past.[56]

- ***Play it forward*** > We use the logics of society as drivers of our possible storyline.

[55] Although we are only dealing with water and sanitation liberalisation in these scenarios, it is still essential to get into the mindset of being in the future to make your stories plausible and feasible

[56] You can also backcast using a disconnected concept or idea and work backwards to see how it might have developed.

Seven elements can be identified in the story forming process:-

1. **Identify the drivers of change**

In scenarios the drivers of change – or the characters of the plot – are institutions and concepts. In the imagination of storytelling we can also cast the driving forces within the STEEP analysis as characters themselves within the storyline.

2. **Identify the key sequence of events** (ie. storyline)

This refers to what is the most likely to occur within the contextual environment in the given time period.[57] (Place and time specific)

Critical Events

This refers to those events that are 'critical' (i.e. contingent) to the designated end state. They can include both 'must' happen and 'must not' happen events.

Critical Events[58] (must happen + must not happen) = End State X

(a) Must Happen Events[59]
(b) Must Not happen Events[60]
(c) Degree of Uncertainty: what still remains uncertain within the scenario outline: which components still have a high degree of uncertainty with respect to form and regularity[61] These differ from 'must' happen and 'must not' happen events because there is still a great deal of uncertainty about their influence within the storyline; and they are not contingent to the end state as the other two are.

3. **Identify key triggering events.**

Some trends and events may act as a catalyst for a sequence of events to follow. For example: new technology uptake may have wide-ranging implications and instigate the occurrence of other key events i.e. higher private investment; higher taxes etc." Key triggering events may also be 'critical events' (see above).

4. **Consider branching points**

Also known as "choice points": they refer to the point of inter-section between two alternative futures. The choice of taking one path, instead of the other is key to the determining future. It may be useful, during the scenario building process to make a note of

[57] But logic is not necessarily what happens in the world, and narrative provides the opportunity to add an unexpected twist or kill off a leading character early on to shift the story onward.
[58] There should be a MAX of 4 critical events for each storyline, there is likely to be less.
[59] These are events that "must" happen in order to reach the designated end state. These can be also described as "critical events".
[60]These events "must not" happen in order to reach the designated end state. If they do happen they will effectively change the composition of the eventual end state
[61] This contains human bias, our mental maps can sometimes colour our vision of the future. It may be useful to brainstorm a whole spectrum of events (including those out of your original frame of reference) and have an attempt at storyboarding: playing with various event and driving force cards, devising various storylines to a set of possible end states.

these points, and to consider alternative routes branching off, to the ones you have chosen for your particular scenario. They can provide your own scenario with extra flesh and depth; by imagining an alternative future to the one you have chosen to use, you effectively de-fine the characteristics and composition of your identified scenario in contrast to the other. Subsequently determining the 'defining' characteristics of your particular scenario.

5. **Identify Common and Unique Events**

Events that appear in more than one storyline (i.e. they occur in the storyline for other end states too) are "common events": they are likely to occur under most circumstances and so should figure in your scenario plan. There are also "unique events" or wildcards that usually only occur on a one off basis: however they can have a determining effect on the evolution of the storyline and the composition of the future end states.

6. **Consider Challenge and Resolution**

Consider the theme of challenge and resolution to the storyline. Plot lines contain evolution, revolution, sudden change, new possibility, cultural shifts – but importantly, they consider how these changes accumulate to affect the nation for example. Challenges are met and responded to, which effectively re-defines or subtly influences the content of the future.

- Try to imagine a future that isn't smooth but incremental and disjointed, dissonant and fluid, non-linear and fragmentary.[62]
- Consider the relationships between opposing forces and decide how they might be resolved.[63]

7. **Provide Substance**

Imagine what it would be like to live in each society, the defining features, main problems/ concerns, and the solutions. Includes actor analyses. How do the various actors influence the process of reaching the various end states? Visualise yourself being that actual actor (institution for example); and imagine what your main priorities, goals, and aspirations would be and what possible course of action you would take in order to reach them. Of course the contextual environment will reflect a multitude of competing forces both macro and actor focused, and it is up to you to decide how this interaction will play out, which forces will be the most influential to each event in the storyline and the final composition of the future end states.[64]

[62] Try to include unexpected twists to the storyline, considering multiple possibilities that are not mired in the present

[63] This includes the resolution and challenge of macro (STEEP); actor analyses and driving forces (WP1-4)

[64] Storyboarding can assist in the scenario building process. It helps to identify the flow and sequence of events; the various intersections of driving forces and the composition of end states. It is an imaginative process: fitting the various event cards; driving force cards and perceived end states into logical and sometimes illogical patterns which outline various storylines and future maps. It may be useful to outlay your sequence of events first and then weave in the driving forces, the method doesn't matter, what is important is that you play freely, allowing your imagination to open up to new possibilities to colour and shape the form of your final storyline.

2. Story Structure

START - Pre-conditions

- Description of the state of affairs (prior to any cataclysmic event). Include start time/date.
- Important underlying trends and driving forces within (1) Contextual Environment (STEEP) and (2) Actor perspectives (WP 1-4)
- Outline how the selected driving forces come into interplay with each other. Some may have a positive effect on each other; some may be negative, whilst others may be simply neutral. This is important when considering the direction that this interplay could result in. For example, driving forces that are similarly positive with respect to liberalism may provide the cataclysmic force required to move one future towards a particular type of liberalism rather than another.
- Also, the direct interplay of forces determines the scope, direction and form of future events. For example: the trend towards individualism could take many different forms depending on its interaction with other key forces within the contextual environment. For example; individualism in a contextual environment that places a high value on notions of well being would take a different form to a society that places more value on economic wealth

MIDDLE - Story Weaving

This forms the main content of the scenario. The storyline will track through each event: the various intersecting forces, branching and triggering points leading to the future end states. This can either take the form of a slow build up of events or it can take on a faster accumulation or *crescendo* effect. It may help to visualise a story map in your mind that includes a branching network of events and causal relations. Consider alternative storylines, to add definition and substance to your existing storyline, adding form to its own unique identity. Consider the inter-connectivity of each event, the cluster of intersecting driving forces, and the motivation and carrying capacity of the key actors involved. The rule, here is that each and every event has to be connected to the other, and expressed in terms of its causal relations and underlying structure (key driving forces). This means that every event is defined in terms of the causal relations it has to other events in the storyline.

To summarise each event in the sequence of the story line to the future ends state should include the following: -

- An explanation of how the intersecting forces of both the macro (STEEP) and actor perspectives (WP1-4) inter-connect and intersect with each other.
- Analysis of the main players and actors[65]: their interests, stake, influence, strategy, priorities, power, and position.
- Virtual facts relevant to the storyline should be woven into each event.
- Each and every event has to be connected to the other, and expressed in terms of its causal relations.

[65] An *actor* can be described as an entity that has a stake in the system under study and plays a role in its evolution by mobilizing the resources at their disposal to influence the issue outcome either directly (i.e. using its "clout") or indirectly by influencing other actors (i.e. using its influence). Bendahan, S et al (2003)

END - Future End States

The fluid and flowing nature of the storyline should find its natural ending here. Every event in the sequence of the storyline should connect to this end point. In effect, the future end states should animate the driving forces of the storyline. This is essential to the identity and coherence of each scenario. Does the storyline fulfil the conditions of the driving forces? It should establish a sense of order in the mind of the reader, a satisfactory conclusion. This is not to say that it has to be a closed ending, indeed many uncertainties may still remain, what is important is the synergy and cohesion of each storyline, and the natural flow from start to finish.

Final Check List

Stories should be tested for the following:

- Plausibility (Play it forward and back)
- Challenge
- Relevance
- Coverage
- Coherence

3. Story Telling

Getting Into the Mind Set!

Imagine being projected into your delegated future end state, what it would be like to spend a day there? What would you do, what could you do, and what couldn't you do? Would you have free and easy access to water facilities? Or would it be your responsibility to collect it yourself? What are the toilet facilities? This may not seem like the first thing you would want to contemplate when being projected into your virtual future, virtual shopping and other advancements may take more of your attention, however these considerations are critical to the context of WSS and would definitely figure into your day's experience of future hopping at some point! The first thing you need to do is convince the reader that you are actually in the future, so colour your storylines with extra detail, for example: *Mr. X took over presidency in 2014 and straight away took harsh measures against large corporations. He brought in the green tax and strong regulatory action placing a strain on MNC profit margins*. This is crucial to give your stories life and realness, creating the impression you are really there. Obviously this has its limits, too much detail can be counter-productive especially if it isn't relevant, however include some virtual facts, weave them in carefully, grab the audiences' attention and make them feel like they're actually there experiencing it with you. Put yourself in the place of a future historian, and imagine virtually what the sequence of events would be to take you that particular future.

To Summarise:

- Write it from the **view** that **you are actually in the future**, giving a running **commentary** of the sequence of events to your particular end state.[66]
- Bring in supporting **virtual facts**; indicating the intersection of driving forces; in a free flow sequence of events leading to a particular end state
- Please refer to the sample extract in annex A.

Sample
In 2006, there was social upheaval which led to increased pressure on national government to reform policy-making. Green political parties and anti-globalisation advocates…

4. Storyline Format

Both MS and EU scenarios begin with a start date of 2005, and finish in 2015. The progress of each scenario is temporal (i.e. moving forwards in time)[67]. Please use the following subheadings for each storyline.

- START: pre-conditions: 2005 – 2007
- MIDDLE: story weaving: 2007- 2012
- END: future end state: 2012 – 2015

MS storylines will be approx. 1.5 pages per end state, and EU storylines will now be up to 10 pages long. [68]

5. Storyline Summary and Conclusion

Summary

Each pair allocated to each end state will then create a short summary from:

1. EU Storyline to allocated End State (max 10 pages in total)
2. The collated MS storylines for their allocated end state (max 12 pages)[69]

The EU and MS summary should both be approximately a page long and should include the following:-

- The critical events and/or the main changes envisaged
- The main obstacles to achieving their end state
- The impact on different players of moving to their end state
- The challenges for government of moving to their end state.

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[66] This refers to a commentary of events beginning with the past and finishing with the present. This is the method used by most historians who retrospectively trace the connections between events in order to plot a narrative of the past. It is also known as the "Play it Back" method in scenario building.

[67] The content of the storyline itself will decipher the length of each sub-section, inferring some variance. In order to keep consistency amongst scenarios, the guidelines on length for MS and EU outlines as well as the congruency with respect to format and sub-headings should ensure that cross analysis is feasible and coherent.

[68] The original suggestion of between 10-15 pages could potentially be counter-productive and after careful consideration it has now been agreed that nearer 10 would be sufficient. The requirement of this provision is quality not quantity, as long as the 10 pages are succinct, informative and alive we consider this to be the smarter option.

[69] The eight MS storylines will be collated together to form one storyline for all of the MS. Each pair will do this for their particular end state.

Conclusion

This short (1-2 page) conclusion will include a defense of the critical events (i.e. the must happen and must not happen events for each End State). This will be based on a comparative analysis of the EU and collated MS storylines.

6. Preparation for the September Workshop

We need to start thinking about the structure of the September workshop. The workshop will be a validation event and it will be the pairs to propose (and defend) their allotted scenarios and for selected partners to comment (and test them).

At the September workshop the presentation of each scenario will consist of 4 parts.

Each pair will be responsible for presenting:

1. End State description of 2015.
2. An EU Storyline (summary)[70], and associated event and actor analyses.
3. A synthesised summary of the eight MS storylines.
4. The Conclusions to the Scenario.

To prepare for the workshop we suggest that two forms of analysis are undertaken – an event analysis, and an actor analysis.

Event Analyses

For each storyline (the EU and each of the 8 MS) we suggest the pairs prepare a tabular summary of the distinct events identified in their storylines – highlighting the date it occurred, the nature, the main driving force(s), the associated perspective (market, operator, institutional etc), the actors involved (see Excel Actor Template for examples), the importance, and the linkages to other events.

At the workshop you will then have two event sheets for each end state:

(1) An EU sequence of events. (Please refer to Excel EU Event and Actor analyses template).

(2) Each of the eight member state scenarios' sequence of events will be listed side by side. (Please refer to Excel MS Event Analyses template).

Actor Analyses

For the EU storyline only, undertake a short actor analyses around the critical event(s) identified in the event analyses. For each critical event describe, and then score (0 lowest, 4 highest), each actor on the following factors:

1. **Position** – the actors preferred outcome arising from the critical event (generally either for or against the outcome identified in the storyline).

[70] This will be structured on a temporal basis i.e. moving forwards in time

2. **Salience** – the subjective importance of the outcome arising from the critical event.
3. **Clout** – the power the actor has to directly influence the outcome of the critical event.
4. **Influence** – the power the actor has to influence the behaviour of other actors.

Then based on the above undertake:

1. An *influence* analysis to illustrate the relative power of actors to influence the outcome of the critical event.
2. A *dissatisfaction* analysis to illustrate the level of dissatisfaction with the expected outcome.
3. A *proximity* analysis to illustrate the relative positioning of actors around the critical event and the potential for alliances.

If more than one critical event has been identified attempt to assess the power repartition to illustrate the relative importance of the critical events to each key actor. For further information on actor analyses please refer to the paper[71] circulated in April 2000.

The above analyses will help to validate the selected outcome of the critical event(s) and will help to provide added plausibility to the storyline that has been prepared.

Fiona Evans, IDD, July 2004

[71] Multi-issue actor analysis: tools and models for assessing technology environments, Journal of Decision Systems.

ANNEX A.IV.2 The Car Park Analogy

The Car Park: The car parks are the future end states. The general location of each car park has been provided by the results of activity G. The IDD rationale paper provides the district in which the individual car parks are located and the ENGREF paper provides the, all important, foundations on which the car park will be built (EPFL have recently circulated a brief tabular description of these car park foundations). The key defining feature of each car park is the nature of the main competition processes (ie the last column in the EPFL table). This can be seen as the formal address of the car park. This address will ultimately determine the planning regulations for each car parks final construction (ie the nature of the predominant competition process will largely predetermine the other attributes of the scenario).

The IDD excel template provides the steel structure that will now be constructed by the individual pairs (within the appropriate planning regulations which will provide for internal consistency). This structure may slightly change as time goes by, but the general location of the car park is now fixed as the foundations have been well laid by ENGREF. The earlier these initial car park structures (templates) can be circulated to all the car drivers the better. As the car park structures are refined over time the car drivers need to be informed ASAP as this will make their overall journeys easier. The more distinguishing features the car parks have, the easier they will be to find.

The cars: We have 8 cars. The individual journeys of the 8 cars to each of the car parks are the individual MS storylines. These cars are currently located in different parts of town. England is a mini (and is parked in the rough side of town) and Germany is a BMW 7 series (in the posh area). We have each already explored the surrounding neighbourhood in our MS scenarios (activity F). We know where we are (see outputs from WP3) and we also know where some (but not all) of the 5 different car parks are located. We have some rough mapping tools (the outputs from activity D and E in WP5) and some outline guidance (from IDD on story telling) to help us navigate our cars to each car park from our respective homes. However, the route we each take to each car park is now up to the driver (ie the partner responsible).

As none of the MS cars have started from the same place, all of the journeys to the same location are different. There may be some common events amongst the cars, for example they may all have to go right at a given junction in order to reach the end destination (i.e. Must happen event). Or all cars may have to stop for petrol but there are also many ways to reach one destination, and although we can anticipate certain events there are also those events which are more difficult to predict, but which can have a determining effect on outcome. For example, one of the cars may break down (i.e. ‘must not’ happen event) which is incremental to reaching the end destination.

The car drivers are able to ask for instructions from local pedestrians (ie validation by MS experts) in our own neighbourhoods. These people know about the location of the car parks, the ones they prefer, and the best way to them. However, they are not really able to help the lorry drivers (see below) as they are not from their own neighbourhood, and are in any case too busy helping the car drivers. The lorry drivers will however, get some help from the car drivers, but unfortunately only after they have arrived at their allotted car parks.

The Lorries: We also have 5 identical lorries. The journeys of the 5 identical lorries (possibly even car carriers that are able to carry all 15 MS cars) to the different car parks are the EU storylines. The lorries are more difficult to drive and their single home is more difficult to locate (essentially they are all currently parked equidistant between the 15 Member States – the average EU position). We have each already explored the surrounding neighbourhood in our scenario cross work (activity K). Each pair will take responsibility for driving their EU lorry to their allotted car park (ie the one they have been constructing themselves – these lorry drivers are multi-talented).

Again we have some mapping tools (the outputs from activity D and E in WP5) to help us navigate the lorry to each car park from the home. However, again the route taken to each car park is up to the lorry drivers (ie the pairs responsible). They may look out for some of the cars to help them find their way. However, the lorry will be travelling at the same time as the cars so only limited help will be available to the pairs.

The Map: After completing the journey the drivers of the cars and the lorries need to map out their respective journeys (event analyses), identifying the main turning points (critical events) and the reasons why they took the decisions they did at these turning points (actor analyses).

Once the majority of cars have journeyed to the different car parks and the lorries have also arrived at their allotted car parks, and the maps of the journeys made, all the drivers re-group at a central location (the September workshop in Delft) to discuss the similarities and differences of their experiences, with respect to the journeys travelled.

At the workshop we will aim to identify the best car park and to determine the key turning points on the journeys we have all made. We then may attempt to visualise some of the key turning points by applying some simulation software. The lorry drivers will then go away and put the final touches to the car park and map the car and lorry journeys to their car park in order to help other drivers in the future.

David Musco, IDD, July 2004.

ANNEX A.IV.3 IDD Scenario Write Up Guidelines

The following guidance will outline the structure intended for the inclusion of scenarios within the final report. It is intended to ensure that the most important information doesn't get lost within the quantity of the material encompassed within WP5 and the previous work packages (WP1-4). For this reason, the chapter dedicated to the scenarios themselves will be deliberately concise and direct, allowing the key determining features and characteristics to illuminate themselves. We propose therefore that the chapter includes a short end state summary, a short EU storyline and finally a concise section on Member State 'Contextual features.' The remaining material ie. templates, tables, full storylines will be included in the annex to allow the user to choose for themselves how much detail they wish to delve into with respect to certain issues. We have devised it this way, as we appreciate that time is of the essence, and that not everyone will be able to read through the full report material but will still want a main overview of the project itself. As all the guiding material is referenced and included in the annex, nothing is lost from the project, rather the user benefits from the freedom of looking only into the issues that are individually relevant rather than having to go through the whole report attempting to pick out the points here and there that may or may not be useful.

In the final write up of the scenarios, each end state will comprise of three elements. The first element will be the End State Composition, the second the EU storyline and third the MS Contextual Features. This chapter effectively draws together the key defining features of each end state with the problems, obstacles and supporting circumstance inherent to member state circumstance. The contextual features of the Member States effectively ground the EU storyline within its contextual environment i.e. the EU. This is critical to the legitimacy and credibility of the EU scenarios, and contributes to the instrumental value placed on such scenarios by decision makers within the WSS.

1. Balancing the Scales: EU/MS Content

It is important to the credibility and legitimacy of the scenarios that the right balance is met between MS and EU content. The EU storyline should employ MS examples that illustrate the most contrast and challenge (re: story telling doc). This will be key to the analysis and the utilisation of these scenarios in decision- making. It is anticipated that some MS will find it particularly difficult to reach certain end states. This could mean that the parameters of the end state may need re-defining in order to ensure all the cars reach the car park.[72] To illustrate the range of MS, it will be useful to include particularly those MS that are diametrically opposed/ or different with respect to contextual circumstance

[72] In extenuating circumstances, some MS may not be-able to reach certain end states at all, and may have to park outside the car park. This is unusual, and all attempts must be made to allow car X to arrive in car park Y. This may mean an extension needs to be built onto car park Y, this is fine and to be expected, and should not alarm. This information will be critical to decision makers, and needs to be given high priority in the report.

Utilising the UK/German Example: Regulated Market

Whilst constructing the UK and German storylines for the regulated market, the defining contextual features illustrated immediate uncertainties with respect to end state composition. We have utilised this example here, as we feel some the issues we encountered will be common across the scenarios, and this is how we propose you deal with such issues.

The Contextual features inherent to individual countries determine different obstacles, uncertainties and supporting circumstances for the scenarios. With the UK/German example we see these contextual features proliferate themselves with respect to the forms of ownership and the forms of regulation. In this case, the UK is regulated independently by the external body Ofwat. In Germany there is no independent regulating body, instead the regulation is built in at a local level within decision-making procedure. This means that changes or developments within the WSS will not be passed unless investors are satisfied that all internal procedural specialists have been consulted and that legitimate means are in place to ensure outcome satisfaction. Any abuses are investigated and legal measures are appropriate to discourage any abuses to the system.

The UK and German example illustrate the extreme locations within the 'regulated market' end state car park. They in effect outline the range available within the regulated market. The range exists from central regulation (External Body: Top – Down approach) to local regulation (Bottom –UP). It is possible for countries to place themselves between these two opposite positions, or they could contain a combination of these two forms of ownership.

The co-existance of more than one form of ownership is already apparent in some countries of the EU, and it is likely to continue into the future depending on individual member state circumstance. By including two opposite member state examples within your EU storyline, you are acknowledging the range of possibility space and the problems concurrent with reaching the desired end state. This material is critical to the legitimacy and credibility of your scenarios. In the real world, no country follows one of these models exactly, and it is illogical to suppose they should. This is not the purpose of the report. In fact most member states will probably follow a hybrid form of more than one end state. These models are not cast in stone, and should not be contemplated as the only five options or outcomes for the future of the WSS sector. What this project does is effectively assess these models in reference to individual members state circumstance: illustrating the benefits, disadvantages and obstacles inherent to each. This will allow decision makers to assess and determine the direction they may wish to take, and the obstacles and uncertainties inherent to such approach.

We see therefore, that these issues are to be expected and anticipated. They form the key material relevant to decision-making within the WSS. It allows decision makers to view critical information regarding the difficulties and uncertainties across a spectrum of countries, all attempting to reach one destination. It allows cross-analysis of what works in what country, what doesn't, and will indicate directions, problems and solutions depending on the motivation of the decision makers. It is vital to include this material within the main body of the report, within the EU storyline. There is also a further section dedicated to the defining features of MS examples, which allows you to explain in more detail the circumstances surrounding the range of positioning.

2. Write Up Format

It is critical to the consistency and usability of the scenarios, that they all follow the same simple format. Each of the five EU end states follows the format of three elements:

(1) End State Summary
(2) EU Storyline
(3) MS Defining Features

End State Summary (MAX 2 pages A4)

Using the format outlined in the End State Template, write a brief summary of the key points and defining features of your end state.

Use the following Sub headings:

(0) Nature of Competition
(1) Market
(2) Operators
(3) Institutional Arrangements
(4) Economic Factors
(5) Social Factors
(6) Environmental
(7) Other

Ensure that you write at least a paragraph for each sub heading, and ensure the complete summary does not exceed 2 pages.

EU Storyline Summary (MAX 2 pages A4)

Scenario Title: eg. Regulated Markets: *'A Time to Quit'*

You need to create a punchy title that encapsulates your scenario in a couple of words. The above is given as an example.

Scenario Structure:

Use precisely the three titles provided below to break up your storyline.

Each paragraph: MAX 300 words. (3 paragraphs in total)

(1)	START	2005- 7	Title e.g.: 'Opening Up'
(2)	MIDDLE	2007-12	
(3)	END	2012-15	

All scenarios should follow the format outlined above. You will also need to think about 'titles' that illustrate these three time periods. For example: in the regulated markets scenario

the period 2005-7 can have a title of 'Opening Up.' Again this title needs to encapsulate the ethos of that period in relation to the end state. It should act as a "signpost" to the reader about where the direction of the scenario is going in that particular time period. Ask yourself what is happening in this time period, what is being achieved in relation to reaching the designated end state?

- Highlight the critical events/ branching points, using **BOLD** to accentuate the main points. (This allows the reader to view the main points clearly, and piece together the sequence and patterns of events within the reader's mind.)
- Include MS examples that illustrate the range of the possibility space i.e. the extremes within the end state composition. (Re: UK/German example)

MS Storyline Summary

This section is split into two sections. The first simply provides the reader with a short 1 paragraph summary of each MS storyline.

The second section is dedicated to further substantiating the MS examples utilised in the EU storyline. In the EU storyline, the examples are only outlined in brief. In this section, you need to explain why the examples you have chosen illustrate the most contrast and challenge.

The format of this section is divided into three categories:

1. OBSTACLES
2. UNCERTAINTIES
3. SUPPORTING CIRCUMSTANCE

Under each heading, you will need to reference the MS's that illustrate the most uncertainty, the main obstacles or provide the most supporting circumstance to your designated EU end state.

With respect to the UK/German example, the form of ownership deciphers the form of regulation. This would fall under the heading of 'uncertainties': as it illustrates a major uncertainty with respect to the end state composition. The end state is characterised by 'regulation': however the type of ownership determines the form of regulation. It can be centrally regulated, or it can be regulated at a local level. It therefore affects the end state composition, and this information needs to be included.

You should also include how the MS example affects the scenario, does it effect end state composition or does it affect the storyline? In each example you need to identify which element it impacts either (1) End State Composition or (2) EU Storyline.

There is no minimum or maximum number of MS examples you should utilise. This is up to individual preferences: you have to decide what are the most critical obstacles, uncertainties and supporting circumstance for your EU end state. What are the key points and issues that will be most relevant to decision makers within the WSS?

3. Overview

- Pick out member state examples that illustrate the most challenge and contrast with respect to (1) storyline and (2) end state composition.
- Divide the examples amongst the sub headings provided.
  Obstacles
  Uncertainties
  Supporting Circumstance
- Identify whether your example impacts on either (1) EU Storyline or (2) End State Composition

Fiona Evans, IDD, July 2004

ANNEX A.IV. 4 EU End State Template (IDD)

	FUTURE END STATE SUMMARY DESCRIPTIONS IN 2015:
	Main European Descriptors Defining Future End States *Items in italics have been described for current EU state in wp1-wp4*
End State Definition	**0. Nature of Competition in three main markets (WP2)**
	Describe main features of competition in Consumer Transaction Market
	Describe main features of competition in Supplier Transaction Market
	Describe management of Water Resource Transactions (see below)
	1. Market [elements drawn from wp2/wp4]
Consumer Market	**Describe fragmentation in assets/customers/service segmentation in 2015 (WP2) ?? EG** *Assets: Water-wastewater, Water Bulk supply-distribution, Sewage Collection-treatment* *Customers: Households-Non Households-Neighbouring municipalities* *Services: Connections vs Ongoing Service, Sewage vs Drainage*
	Describe any direct competition in the consumer market in 2015 (WP2) ?? EG *Connections to the network* *Large industrial customers* *Water resource provision*
	Describe Consumer Perceptions in 2015 (WP2) ?? EG *Attitude towards liberalisation* *Overall satisfaction with services* *Satisfaction with price and quality* *Contractual/informational problems* *Conflict resolution*
	Describe Geographic basis of Service Arrangements in 2015 (WP2/WP4) ?? EG *Municipal* *Multi-Municipal* *Water resource zone* *Regional government boundaries*
	Describe pattern of Growth in demand in 2015 (WP4) ?? EG *Households* *Large users* *Other sectors (agriculture, energy)* *New water consuming sectors (eg energy crops)*
	Describe Quality of Service in 2015 ?? EG Extent of Connections (Full ??) (Time to connect to service) Drinking water quality Interruptions to supply Failure of Sewage works to comply with consent limits (pollution fines) (Customer service levels eg complaint handling etc)
Supplier Market	**Describe nature of competition in 2015 ?? EG** 1. Infrastructure O&M 2. Support services (business scientific, customer) 3. Utilities (eg electricity, fuel), Chemicals and Aggregates 4. Consultancy and Contracting 5. Equipment 6. Finance 7. Bulk water supply
	Describe extent of outsourcing in supplier segments (see above) ?? EG
Water (resouces) Market	**Describe permitting/trading/water banking arrangements ?? EG** Abstraction Permitting Discharge Consent Permitting