EUSERS SUMMER SCHOOL

Position Paper

# Performance and Governance of Services of General Interest

# Water Sector

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## Abstract

The aim of this paper is to give a short overview about the water sector in the EU, which is special compared with other network industries, because water is a necessity to humans. Therefore, three countries have been selected, which have completely different organizational forms of their water sectors: Germany, France and England and Wales. They are all following different strategies for liberalization *for* the market, but not *in* the market. As conclusion of the case studies analyses, no efficiency gains of privatization can be stated, but there is no clear implication which organizational form is best. In this field further research is required.

# 1 Introduction

Urban water services are undoubtedly one of the most ancient network industries in the history. Roman aqueducts represent an admirable proof of the desire to create interconnection between nature and humans.

Nowadays technological improvements, quality standards and facilities have enhanced the services' provision, but some peculiar characteristics of this industry have not changed so much. For instance, supply facilities benefit from substantial economies of scale, exhibiting declining average costs with the increase of connected users. Furthermore, due to the large investments needed to build capture, storage and delivery infrastructures, the sunk costs are of a greater magnitude compared with those of other network industries. In fact, although water industry shares some common figures with the other network industries, it completely differs for other aspects. For example, urban water systems show economies of density, making the provision to small and dispersed communities not profitable; at the same time water is rarely transported over long distances, and for this reason the services' provision is not dominated by one large operator, instead municipalities and local authorities hold the responsibility for the organization (P. Bauby 2009). Beside all these technical attributes, water in *per se* is a unique good, with no substitutes and with numerous social implications (C. Menard and A. Peeroo 2011). The preamble to the EU Water Framework Directive (WFD), actually, states that "drinking water is not an ordinary commodity", although its scarcity obliges users to consider it also as an economic good.

All these aspects create conditions for the existence of a natural monopoly, hardly handled by market rules. Nevertheless, the last decades have seen an increasing privatization of this sector, even if with a slow pace compared with other service of general interest. Anyway, whatever the governance of the services, the accessibility and affordability of water for all users have to be guaranteed. Indeed, water pricing is an instrument to achieve financial sustainability of water services and to avoid the risk of "free water dilemma"[1] (H. Savenije and P. van der Zaag 2002). This means that prices should be set in a way to recover the costs for the services provided, but also, because of the unique characteristics of water, to include equity and sustainability considerations. In any case, prices are only in part determined by the costs, because they also reflect political and social characteristics, which can take the form of subsidies to induce consumption or of charges to reduce it.

Prices for water services, in fact, depend on several local characteristics, such as physical aspects, institutional framework, organization of the services which make their comparison very difficult. The transposition of the Water Framework Directive might be seen as a driver for standardisation in the application of basic principles such as cost recovery, although

[1] The free water dilemma is an example used in the literature to explain what could happen if water services were supplied for free. The rational is that if water provider does not receive a sufficient payment for its service, then he will not be able to maintain the system adequately, and, hence, the quality of services will deteriorate. This will affect only the poorest part of population, while the richest one will have more possibility to find new types of supply.

discrepancies might still remain between EU Member States owing to diverse legal and institutional frameworks (EEA 2013).

On the other hand, the quality standard are more standardised between EU Member States because of the existence of a strict legislative framework. The most recent reform introduced by the EU concerning water issues is the Water Framework Directive of 2000 on water and waste water quality standards. Nowadays the WFD is undoubtedly the main water policy frame in EU for the "long term protection of available water resources" (Article 1). Beside this directive, Urban Waste Water Treatment, Drinking Water and the Bathing Water directives have all contributed to raise quality standard throughout Member States. C. Menard and A. Peeroo (2011) observe how quality targets have been one of the major drivers for the water sector privatization. Municipalities, in fact, have been strongly motivated to delegate the provision of water services to private partners, in order to avoid the increase of taxes to afford the implementation of the standards required. At the same time, the need to renovate the ageing systems has also contributed to create the belief that privatization and liberalization would have helped to solve this *impasse*, although no EU directive about liberalization of the water sector has been launched. In chapter 2, we will further discuss about the policy reform's trends which have characterised the last two decades.

# 2 Policy Reforms

The following chapter summarizes most important facts about the water sectors in Germany, France and England. They have chosen three different ways to liberalize the sector, whereas the broader definition of liberalization in continuation of Ménard and Peeroo (2011) is used: reforms in the water sector are all kind of measures to introduce contestable markets.

## 2.1 Germany

More than 99% of the population in Germany had access to the public water supply in 2013. 5.948 companies provided drinking water to the population. There are also some private water suppliers, but only for the industry and energy production (Umweltbundesamt 2015). Germany has a special way of organizing the structure of the water sector. Because Germany is a federal state with 16 states (Länder) and each of them has his own law, the water sector is very fragmented. There are small, local operators in nearly every city with quite different types of organizational modes (Ménard & Peero 2011). The responsibility for water distribution to the customers is at the municipal level, so the municipalities use different forms of organization either on their own (e. g. *Eigenbetriebe*) or in cooperation with other municipalities (e. g. *Zweckverbände*). They also have the possibility to choose between public or private legal form (BDEW 2015).

In most cases the companies are completely or to major parts owned by the municipality. Thus, there are no incumbents with big market shares controlling the whole sector. Only about 9% of the number of operating entities involves private sector participation. Private Public Partnerships remain the exception; most of the companies are under public

management. Customers in Germany have a strong resistance towards liberalization (Ménard & Peero 2011).
Pricing in the water sector is regulated by the law of the municipalities. The fairness of the prices is controlled by the authorities. Prices have to cover the costs for an expensive infrastructure, not only the initial investment, but also the maintenance is cost intensive (16.4% of the costs are depreciation and 25.9% are for material).
Nevertheless, since 2005 prices for drinking water increased only by 12.2 % while the inflation rate increased by 14.3 %. Therefore prices are constantly cheap in Germany (BDEW 2015).

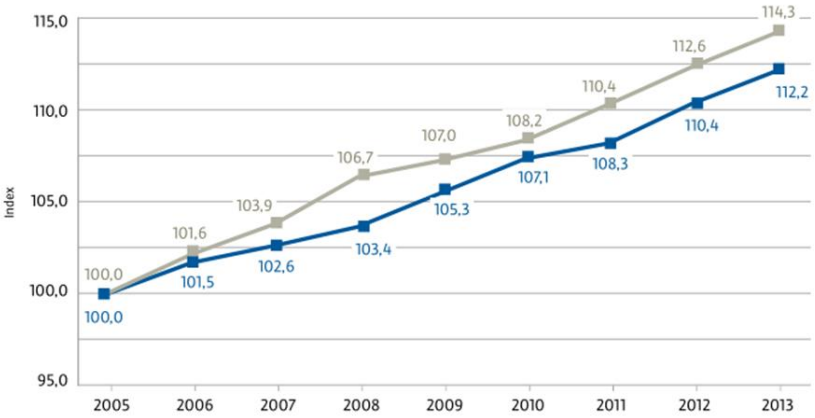


**Figure 1: Development of prices for water supply (blue) and inflation rate (grey) 2005 until 2013**

**(Source: BDEW 2015, Statistisches Bundesamt Germany)**

Customers are quite satisfied with the drinking water supply price performance ratio according to study by the BDEW customer barometer 2013 (79.9% expressed medium to high satisfaction) and the satisfaction has even increased since the last questionnaire in 2011 by 1.4%. The satisfaction with the water quality was also high in 2013 (83.5% were satisfied).

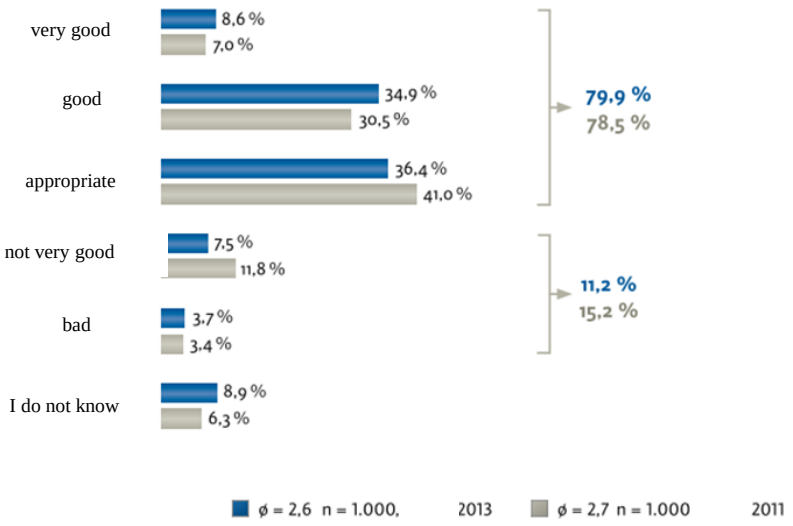


**Figure 2: price-perception-ratio of water supply (Source: BDEW 2015, Statistisches Bundesamt Germany)**

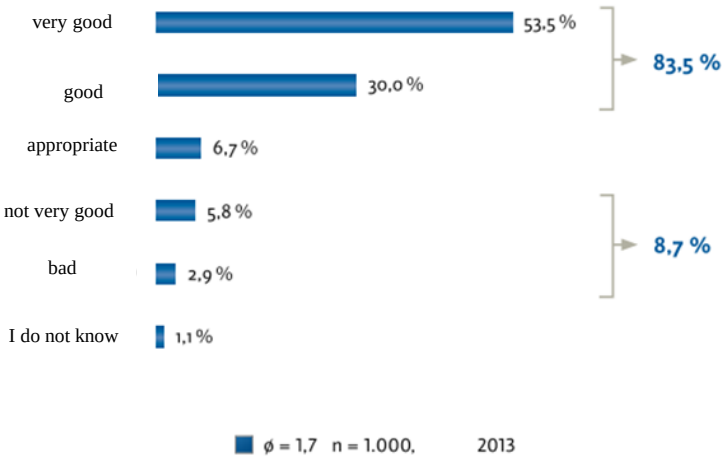


**Figure 3: Satisfaction with water quality (Source: BDEW 2015, Statistisches Bundesamt Germany)**

But anyway, some pressures to liberalization also exist, because of the criticism by the EU and the OECD: "the old form of direct public management" (Ménard and Peero 2011, p. 18) is lacking transparency. So a certain trend to "corporatization" can be watched. The main reason for corporatization lies in the growing financial pressure on municipal budgets. Municipalities want to release the responsibility for a potentially unsatisfying service and to benefit from efficiency gains in this mode of organization (Ménard and Peero 2011). Zschille and Walter (2011) found large differences in efficiency in the German water sector, so a potential for cost savings and consumer price decreases was indicated. Furthermore, small water utilities are significantly inefficient in their models, so it should be questioned if this kind of organizational structure is adequate (Zschille & Walter 2011).

## 2.2 France

In France, as well, local public authorities provide water supply. More than 99% of the population is supplied with drinking water. As the responsibility for water and sanitation utilities is local, regulation is necessary, but decentralized. They monitor prices, control entry and exit of firms into the market, organize competition (where it exists), and ensure uninterrupted service (Chong at al. 2006).
The municipalities can directly manage themselves through a "public authority" or delegate their management by temporary contract to a public or private operator. In the case of public-private partnerships, the participation of the private sector is governed by a comprehensive legislative and regulatory framework.
The procedure of delegation of the tasks is such that, first, the public authority launches a classical invitation to tender that is open to all interested private water companies. Second, there is a negotiation phase between the public authority and potential entrants that is shortlisted (Prasad 2007). These actions introduce, if not competition on the market, at least competition for the market and are therefore part of a liberalization process (Ménard and Peero 2011).

The water price is estimated locally. It can vary a lot from one municipal territory to another because the costs supported by the utility depend on local characteristics (e. g. resource or number of inhabitants).

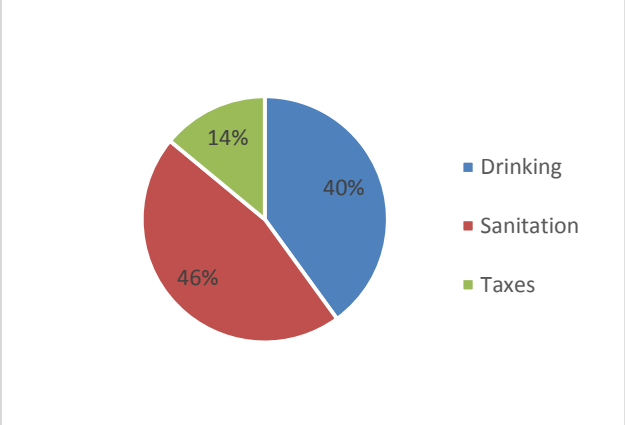


**Figure 4: Average consumption of water bill (Source: IFEN, March 2007)**

The tariff structure in France in some municipalities is as a fixed price which does not depend on volume consumed and in some others fixed plus variable part, which is either progressive or regressive. The price for water consumption covers investment and operation cost of the drinking water, the investment and operation costs for sanitation services, the taxes collected by the water agencies, VAT and various taxes (Prasad 2007).
According to water tariffs it is realized that under PPPs have set a greater prices, and there is unobserved heterogeneity that leads both to greater prices and a greater probability of choosing a PPP of local public authorities. Chong et al. (2006) mention that there is a need to consider collusion strategies and multi-contact markets in the negotiation of prices between external operators and local public authorities as well as corruption that may exist. Within and

across contract types, some contracts may provide more incentives than others, anticipate investments differently, and share risk differently.
For these reasons the primary trade-off is between the public solution (low incentives but few transaction costs) and PPP (price cap contract with a private operator – high incentives but possible *ex ante* and *ex post* transaction costs) in an environment that is uncertain. (Chong et al. 2006)
Recently, in France appeared a strong trend to re-municipalisation of water utilities, e. g. in Paris. From 1985 to 2009, the distribution of water in Paris has been delegated to private operators. But gradually, this kind of delegated management of public water service moves into crisis.
Local authorities are free to choose between public management and private management, but they most often choose to join a PPP in the interests of efficiency and profitability. Small drinking water services serving fewer than 3000 inhabitants tend to be managed by the community, while the large water utilities rely more on the public service delegation
The return to public service management can be done either during the end of the concession contract, or by reorganizing the contract when significant irregularities in the execution of the contract appear (Chiu 2013).
One of the arguments for the return to public management is the water price paid by the user, which is much higher when the manager is a private company. On average, the price of water is about 30% more expensive in delegated management. As such, the major concern remains economic, territorial authorities wishing to control the price of water, while maintaining the transparency of costs and expenses related to the service.
The example of the city of Paris is symbolic for the passage of a private management to public management of water services. Indeed, during the municipal elections of 2008, Bertrand Delanoë, left candidate for re-election, has pledged to the citizens to return to public management of water services if re-elected. The promise was kept. As of January 1$^{st}$ 2010, management of the drinking water service becomes public again. It is ensured today by an industrial and commercial establishment of the City of Paris: "Eau de Paris". Thus, water management in Paris was re-municipalised after twenty-five years of private management by Suez and Veolia (Bauby & Similie 2013).

## 2.3 England and Wales

The example of England and Wales is unique in that no other country has completely privatized its water sector. This case provides a stylized example of how financial considerations backed by a strong ideology fed the most radical form of liberalization: full divestiture. In 1989, the regional water authorities were privatized and their original tasks split. They hold both property and decision rights, and assume all the risks of a private company. But the sector remains tightly monitored through the very visible hand of an independent national regulator, the Office of Water Services (OFWAT). Therefore, liberalization operates under a quite complex institutional arrangement. Whereas the liberalization of the water sector in Germany and France goes hand in hand with a

decentralization process, it went in the opposite direction in England and Wales, having been accompanied by an increased centralization.
The innovation is that OFWAT uses a price cap mechanism that, in principle, is reviewed every five years and automatically takes into account inflation, performance and efficiency. Through benchmarking, OFWAT is also in charge of ensuring (virtual) competition.
However, the five- year term was not fully respected. Owing to a rapid increase in prices paralleled with jumps in profits of operators that generated a public outcry, the regulator intervened and changed the rules of the game. Moreover, there is a continuing debate on the effectiveness of a solution with almost no competition *in* the market. Therefore, next to the already existing yardstick competition which is a major tool in the hands of the regulator, new instruments have been introduced or are under consideration (Cave, 2009).
The universal experience of water privatization in the UK was a sharp increase in the cost of water. In cash terms, the average annual bill for water and sewerage rose from £120 per year in 1989 to £294 in 2006, an increase of 245% in 17 years. In real terms, it represents a rise of 39% over and above the general rate of inflation.

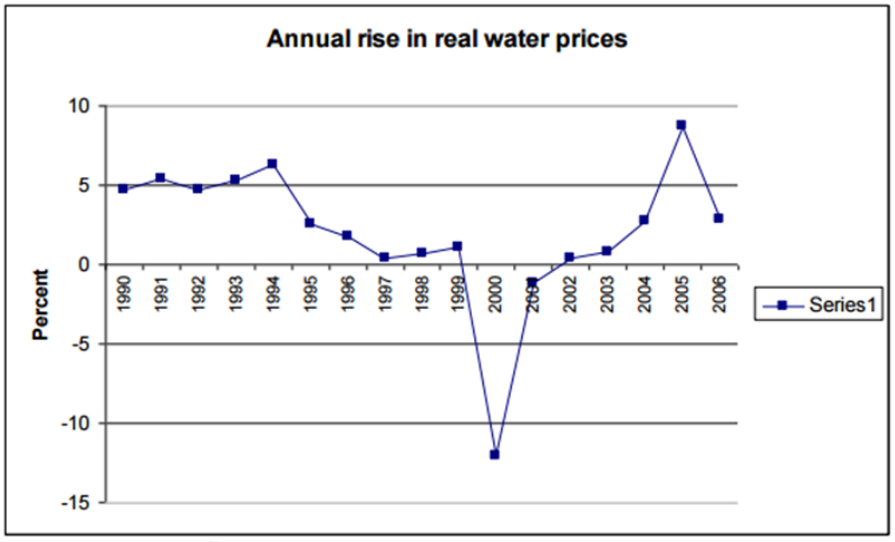


**Figure 5: Annual rise in real water prices in England (Source: OFWAT 2006, according to Hall and Lobina 2007)**

A breakdown of the component elements in the water bills shows that operating costs have remained roughly constant in real terms. The entire increase in customers‘ bills is due to the various elements associated with capital – capital charges, interest, and profits – which have approximately doubled, in real terms, over this period.
The water in Britain has become relatively more expensive since privatization. The British public still believes that water should be in the public sector, 17 years after the water companies of England and Wales were privatized. In June 2006, 56% of people in an opinion poll believed that the country would have fewer problems with water supply, if the industry was renationalized and the private companies replaced with a government-owned water board‖, while 38% disagreed (Hall and Lobina, 2007).

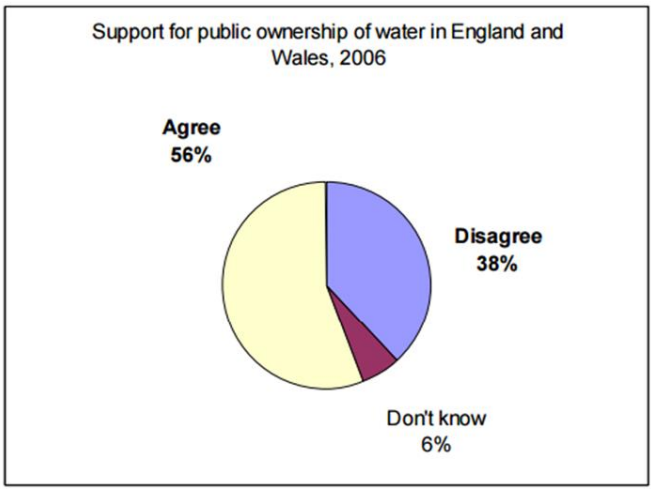


**Figure 6: Support for public ownership of water in England and Wales (Source: BBC Daily Politics Show Poll Fieldwork 2006)**

# 3 Conclusion and Outlook

The water sector share some features with other network industries but it is also characterized by some distinguishing attributes. Water is in fact a necessity for humans and everybody needs access to it. By its nature it is considered a social good with no substitute. Moreover, water networks involve huge proportion of sunk costs and decentralization. .

Even if the European Commission has not provided Member States with clear instructions about the most appropriate form of governance for water and wastewater services, several EU Member States have chosen some ways of liberalization and privatization of water services. This has happened mostly because the quality requirements and the ageing systems called for more investments in this sector. Consequently, through privatization, governments hoped to avoid consumers to bear the increase in taxes which would have happened.

This paper aimed to compare three different leading models in the organization of urban water services. The use of case studies helped to understand the effects of the reforms in terms of consumer's welfare. Prices and users satisfaction were used, where available, as proxy of welfare, since it is supposed that both prices and service quality affect consumer's well-being. Because no time series data are available about both indicators in the sector, a quantitative assessment of prices and user satisfaction trends was impossible.

The analysis of German, French and English water industries gives an idea of the different nuances of the reform pattern. In Germany water is provided by public suppliers. In most cases, the companies are completely or to major parts owned by the municipality. Private

ownership and PPPs remain an exception and, in any case, there are no incumbents with big market shares controlling the whole sector. The public supplier has to bear high costs for the maintenance of the systems, but this has not been reflected by higher prices. This interestingly contradicts some of the reasons that have pushed states towards privatization.

France is another interesting case where public management continues to be predominant, but some Public-Private-Partnerships have been implemented with the aim of improving efficiency. From the empirical studies observed there is no evidence about the effectiveness of PPPs in reducing final prices. This is mainly due to the high transaction costs linked to the risks of collusion strategies between public and private operators. In this sense, the process of re-municipalisation, which is ongoing in the country, is a clear signal of the will of redirecting the privatization trends.

Finally, the example of England and Wales is unique in that no other country has completely privatized its water sector. Furthermore, whereas Germany and France have experienced a process of decentralization of the services, UK went in the direction of their centralization. Concerning the consumer's welfare, from our analysis, it emerges that an increase in prices has happened after the service's privatization. This is particularly true for the first years before the reform's implementation; instead after the second price determination by OFWAT, in 1999 for the period 2000-2005, the prices were cut of 12.4%. In fact, Saal et al. (2000) show that real efficiency gains in terms of costs reduction happened only after the OFWAT intervention in 1999. The authors conclude that privatization in *per se* does not seem to be the most crucial driver for efficiency gains, whereas an effective regulation system pushed water and sewerage companies to reduce their costs.

Before concluding a general consideration is needed- In most of the cases, the debate about ownership is full of ideological concerns, which are understandably given the importance of water as a fundamental right, but can be misleading when assessing the effectiveness of the water services' reform in terms of consumer's welfare.

Consequently from our analysis we can conclude that there is no evidence of efficiency gains from switching to private management, not even from adopting some sort of competition for the market, as PPPs can be. Actually, the German case demonstrates that lower prices combined with good level of satisfaction are achievable through direct public management. Moreover, privatized systems have not shown gains in consumers' information, since citizens continue not to hold all the information on market prices (Bonnet et al., 2009). Hence, no

efficiency gains of privatization can be stated, but there is also no clear implication which organizational form is best. In this field further research is required.

For future recommendations, it seems vital to implement new business models focused on sustainable resource management (at least in the long run). Indeed, given the specified water-related issues (scarcity, meeting household water needs, water needs of enterprises), an industrial establishment might possibly outsource management. The goal is to refocus the company on what it can do to avoid a dispersion of efforts. This should also put pressure on prices, while reducing public spending and pressure to lower costs of labor.

# 4 References


Bauby, P 2009, The French system of water services. CIRIEC WP, 3.

Bauby, P & Similie, MM 2013, *La remunicipalisation de l'eau à Paris - Etude de cas*. Working paper CIRIEC N° 2013/02.

BDEW (ed) 2015, Branchenbild der deutschen Wasserwirtschaft 2015, wvgw Wirtschafts- und Verlagsgesellschaft Gas und Wasser mbH.

Cave, M 2009, Independent Review of Competition and Innovation in Water Markets: Final Report.

Chiu, V 2013, Vers la « remunicipalisation » du service public d'eau potable en France. Revue du Centre d'Études et de Recherches en Administration Publique. p. 247-262.

International office of water. 2007, Organization of water management in France. Capacity building for better water management in France. Available from: www.oieau.org/IMG/pdf/IOWater-WaterManagementFrance.pdf. [28.06.2016].

Chong, E, Huet, F, Saussier, S & Steiner, F 2006, Public-private partnership and prices: evidence from water distribution in France. Review of Industrial Organization 29, pp.149–169.

EEA, 2013, Assessment of Cost Recovery through Water Pricing, EEA Technical report, No 16/2013.

Euromarket 2004, "Work Package 4: Analysis of the Legislation and Emerging Regulation at the EU Country Level" in European Commission, Research Project on Water liberalisation scenarios: An empirical analysis of the evolution of the European water supply and sanitation sectors. Available from: http://mir.epfl.ch/webdav/site/mir/shared/import/migration/EUROMARKET_D4_Final_Report.pdf. [28 June 2016].

European Commission 2000, Available from: http://ec.europa.eu/environment/water/water-framework/index_en.html. [28.06.2016].

Gala, A, Jones, L, Tandon, P & Vogelsang, I 1994, *Welfare Consensuses of selling public enterprises*. Oxford University Press. New York.

Hall, D & Lobina, E 2007, From a private past to a public future? -The problems of water in England and Wales. PSIRU.

Ménard, C & Peeroo, A 2011, "Liberalization in the Water Sector : Three Leading Models." in Rolf Kunneke and Matthias Finger, (eds), *International Handbook of Network Industries: The Liberalization of Infrastrcutures*, pp.310-327, Edward Elgar.

Prasad, N 2007, Social policies and water sector reform. Markets, Business and regulation programme . United Nations Research Institute for Social Development.

Savenije HH & Zaag PVD 2002, "Water as an economic good and demand management paradigms with pitfalls", *International Water Resources Association, Water International*, Vol. 27 (1), pp. 98–104.

Umweltbundesamt 2015. Available from: https://www.umweltbundesamt.de/daten/wasserwirtschaft/oeffentliche-wasserversorgung. [28.06.2016].

Wallsten, S & Kosec, K 2008, "The Effects of Ownership and Benchmark Competition: An Empirical Analysis of U.S. Water Systems", International Journal of Industrial Organization, 26, pp. 186-205.

Zschille, M & Walter, M 2011, The Performance of German Water Utilities: A (Semi)-Parametric Analysis. DIW Berlin.