

A (Mis)alignment of Governance Structures?

The Two Water Concessions in Metro Manila

Marie-Luise Mußenbrock

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ABSTRACT

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Improving the quality of water services is vital in many developing countries. In order to address the issue, many of them launched a series of reforms of which a major element was the involvement of the private sector. However, private sector participation (PSP) did not prove to be a general panacea. In some cases it has led to improved water service quality, such as increased access and reduced water losses. In other cases it has resulted in deteriorated performance, including high tariffs and potentially negative impacts on health and the environment. The question is under which circumstances PSP can positively or negatively impact on the provision of water services. This INEF Report analyses the varying performance of the two water concessions in Metro Manila through the lens of the theory of Transaction Cost Economics (TCE). It shows that a misalignment of governance structures (organisational constructs) according to the level of transaction costs leads to worse water service provision.

ZUSAMMENFASSUNG

Die Verbesserung der Wasserversorgung ist von entscheidender Bedeutung in vielen Entwicklungsländern. Um das Problem anzugehen, verabschiedeten viele von ihnen eine Reihe von Reformen, von denen ein wesentlicher Bestandteil die Beteiligung des privaten Sektors ist. Allerdings ist diese kein „Allheilmittel“. In einigen Fällen hat sie zur Verbesserung der Wasserversorgung beigetragen. Dies verdeutlichen unter anderem der vermehrte Zugang zu Wasser und die Abnahme von Wasserverlusten. In anderen Fällen führte die Beteiligung zu verschlechterten Serviceleistungen, was hohe Tarife und potentiell negative Auswirkungen auf Gesundheit und Umwelt zeigen. Somit stellt sich die Frage, unter welchen Bedingungen sich die Beteiligung des privaten Sektors positiv oder negativ auf die Wasserversorgung auswirkt. Dieser INEF-Report analysiert die unterschiedliche Servicequalität der beiden Wasserkonzessionen in Metro Manila anhand der Transaktionskostentheorie. Er zeigt, dass eine Fehlanpassung der *Governance*-Strukturen (Organisationsformen) in Anlehnung an die Höhe der Transaktionskosten zu einer verschlechterten Wasserversorgung führt.

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1. Introduction¹

According to estimates from the WHO, about 780 million people do not have access to drinking water and 2.5 billion people are lacking appropriate sanitation services in developing countries. This negatively impacts on health and causes disease (UNICEF/WHO 2012: 2; WHO 2009). Moreover, it is estimated that by 2025, 1.8 billion people will be living in countries or regions with absolute water scarcity, implying an increasing shortage of the resource (UN-Water/FAO 2007: 10). As these numbers illustrate, expanding the coverage and improving the quality of water services is extremely important. In order to address the issue, many developing countries – often under pressure from international financial institutions – launched a series of reforms of the water sector, of which a major element was the involvement of the private sector (Marin 2009: 13; Budds/McGranahan 2003). On the one hand, many states were noticeably failing to deliver water services in an efficient and effective way. On the other hand, the need to attract private capital investment and reform the sector through a reallocation of roles, incentives and accountability drove the initiation of privatisation (Krause 2009). Although there are arguments in favour of privatisation, it is unreasonable to think that it is a general panacea. In fact, private sector participation (PSP), resulting in various governance structures, such as complete privatisation, i.e. market governance, or public-private partnerships (PPPs), involves many risks. Besides the economic hazards related to a monopolistic sector, access to and quality of water services impact on health and the environment, among other things, turning them into highly politicised services (OECD 2009: 9-10).

Despite these risks, increasing the efficiency and effectiveness of water services is vital in many developing countries. The question, then, is whether PSP can bring additional value into the provision of water services, and if so, under which circumstances. In order to give a tentative answer to this question, I intend to analyse the varying performance of the two water concessions in Metro Manila through the lens of the theory of Transaction Cost Economics (TCE). Subsequent to two early articles of Ronald Coase (Coase 1937; Coase 1960), TCE has been increasingly used to analyse various social arrangements in recent years. It aims to explain the relative efficiency of different governance structures, meaning organisational forms of exchange, in handling and organising a transaction and, hence, transaction costs (Williamson 2005). The theory thus offers a valuable analytical framework, as it is especially “well-suited to the [analysis] of complex contracting and nonmarket organization” (Williamson 2005: 41), such as the introduction of PSP in the water sector. Transactions are economic exchanges which involve the transfer of associated property rights between two or more contracting parties, for example in the form of privatisa-

¹ I would like to gratefully acknowledge comments and suggestions by colleagues at the Institute for Development and Peace, University of Duisburg-Essen, on an earlier draft of the report.



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tion. Contracts are assumed to be incomplete, as the contracting parties are not able to include all future contingencies, so that transaction costs arise in negotiating, monitoring and enforcing contracts. In order to economise transaction costs, economic actors aim to align transactions, which have different characteristics, to governance structures (organisational constructs) in a discriminating way. The different governance structures have varying adaptive capacities to efficiently deal with transaction costs (Williamson 2005: 51). However, what happens if economic agents fail to adequately align governance structures? Does this have an impact on performance levels?

In the report, the two water concessions in Metro Manila serve as instructive empirical examples to answer these questions for two main reasons. On the one hand, they allow the application of a most-similar case approach, as many framework conditions in both concessions are very alike. Consequently, many of the explanatory factors for the success and failure of water privatisation processes can be held constant. On the other hand, despite similar circumstances, the service quality of both concessionaires varies immensely, with the East Zone concessionaire being successful and the West Zone concessionaire facing huge difficulties. This empirical puzzle calls for an explanation which I intend to give with the help of the theory of TCE. The analysis will show that, while many underlying factors can be held constant, different levels of transaction costs are observable in the two concessions. These were arguably disregarded during the privatisation process leading to a (dis-)economisation of transaction costs. In other words, I argue that a misalignment of governance structures according to the level of transaction costs led to worse water service provision in the West Zone concession, while an alignment of governance structures in the East Zone improved water supply.

Since privatisation and PSP in the provision of public services are highly contested, with a particularly fierce debate arising over the issue of water, as a resource essential for life, the following will, first, embed the research question in the scholarly debate. I begin with a discussion of the conceptual arguments for and against PSP in the water sector, followed by a review of existing empirical evidence for the success and failure of PSP and the determining factors. The second part will elaborate on the two water utilities in Metro Manila, including a closer examination of the similar framework conditions and a presentation of the varying performance of the two water concessions. The third part outlines the theory of TCE in detail in order to provide the analytical framework. With the help of this framework, the fourth section investigates the different levels of transaction costs of the East and West Zone concessions in Metro Manila. Here, secondary data, such as annual reports, case studies, evaluations and monitoring reports, served as the main source of information. In addition, I collected primary data from six semi-structured interviews with relevant stakeholders involved in the privatisation process during a field study in Metro Manila in September and October 2011. Finally, the concluding part sums up the major findings of the study, briefly describes some of its limitations and puts the analysis into broader perspective, on the basis of which future research possibilities are identified.

2. The debate on PSP in the water sector

The debate on PSP in the water sector starts with the terminology used. In a strict sense, the term “privatisation” only relates to the sale of assets to the private sector, initiating the private ownership of water infrastructure, whereas PSP and PPPs involve a variety of contracts between public and private actors ranging from rather simple service contracts to more complex concession and divestures. They differ in terms of the ownership structure, the length of the contract, the division of responsibilities for operation and maintenance and as well as funding and the compensation scheme adopted (Bakker 2010: xv; ADB 2008a: 2-3). An overview of different types of PPPs and their key features can be found in Table 1 below. Complete privatisations are rarely implemented, so that purely private water supply is very uncommon, while PPPs in the water sector are more commonly based on medium-term arrangements, such as management contracts, than on long-term arrangements. Within these arrangements, public authorities do not only retain ownership of the assets involved, but more importantly have the possibility to pursue social and ecological goals through regulation (Houdret/Shabafrouz 2006: 9).

Table 1: Summary of different types of PPPs

	Service Contract	Management Contract	Lease/ Af-fermage	Conces-sion	Divesture
Asset Own-ership	Public	Public	Public	Public	Private
Contract Duration	1-3 years	2-5 years	8-15 years	20-30 years	Infinite
Operation & Maintenance	Public/ private	Private	Private	Private	Private
Capital In-vestment	Public	Public	Public	Private	Private
Compensa-tion Terms	Unit pric-es	Fee (with performance incentives)	Portion of tariff rev-enues	All/part of tariff revenues	Tariff revenues

Source: adapted from OECD 2009: 20 and ADB 2008a: 28

Although the terms “privatisation”, “PSP” and “PPPs” differ in points of detail, their common feature is that they generally entail some form of restructuring of governance and the application of market-based norms, values and practices (Bakker 2010: xv). For ease of reference, I will therefore use the terms interchangeably, which simultaneously highlights these common features. With these differences in terminology in mind, the study will now turn to the general debate on PSP in the water sector.

In essence, the debate reflects the fact that there are differing views about the appropriate role of the state and market, whereby either market or state failure



is accentuated (Bakker 2010: 5; Davis 2005: 146). Many of the pro- and counter-arguments recall similar discussions on privatisation in relation to electricity and telecommunications, for example. However, the debate about water – a highly politicised resource – has been particularly fierce, as it relates to social, economic and ecological issues of sustainability (Bakker 2010: 15; Houdret/Shabafrouz 2006: 11). In this context, the ambiguous character of water has played an important role. On the one hand, water is a (scarce) economic resource serving as an input in various production processes. On the other hand, we cannot consider water a commodity like any other, as it has religious, spiritual and environmental connotations as well as being a non-substitutable resource essential for life (Bakker 2010: 21-30; Hukka/Katko 2003: 152). Access to drinking water is therefore a necessary condition for health and well-being as well as being a basic element of social justice (Houdret/Shabafrouz 2006: 14). In relation to this, the UN Committee on Economic, Social and Cultural Rights asserted in 2002 that every person has a human right to “sufficient, safe, acceptable, physically accessible, and affordable water” (UN ECOSOC 2002: 2).

The multiple functions of water in human development complicate the management of the water sector. Supplying drinking water is a complex undertaking which entails various difficulties, from harnessing (new) water sources to developing the necessary infrastructure for (drinking) water treatment, storage and distribution. Any reforms and manipulation of the water sector immediately affect the resource’s quantity and quality, which may have far-reaching impacts on social, economic and ecological sustainability (Houdret/Shabafrouz 2006: 8, 18). This ambiguous character of water and all accompanying issues have to be carefully considered by the water utilities, whether privately or publicly run, so that equitable distribution patterns are implemented and water resource depletion is avoided (Houdret/Shabafrouz 2006: 32-33).

2.1 Public versus private: the conceptual debate

Proponents of PSP in the water sector point out the failure of many governments, especially in developing countries, to provide adequate water services. Low coverage rates, low rates of cost recovery, deteriorating infrastructure, high levels of non-revenue water (NRW), overstaffing and un-responsiveness to the poor exemplify poor water service delivery (Bakker 2010: 87; Marin 2009: 19; Davis 2005: 154). Proponents of PSP ascribe the absence of adequate water supply to deficient government management due to a lack of expertise and incentives for efficiency, and to rent-seeking behaviour, corruption as well as underinvestment (Budds/McGraham 2003: 97; Bakker 2010: 87; Marin 2009: 18, Davis 2005: 154). They hail the private sector as a means to improve service delivery by introducing more efficient management methods, technical expertise and innovation as a result of the profit motive. A contract with clear and concise goals, as opposed to the manifold and often inconsistent motives of public water utilities, is argued to further improve water service delivery. In addition, the introduction of competition and a sense of arms-length accountability to customers drive efficiency (Marin, 2009: 19; Davis, 2005: 154). Customer satisfaction is of particular concern to private utilities, as a reduced number of complaints results in lower administrative costs and higher profits. Satisfied customers are also more willing to pay their bills on time and in full (Davis 2005: 174)

Advocates of PSP often associate the reasoning related to increased efficiency with a pro-poor argument (Bakker 2010: 97-98; Rogers/de Silva/Bhatia 2002: 15). Although it sounds counter-intuitive that a profit-seeking supplier will serve the poor, proponents contend that on the basis of increased efficiency and the introduction of cost-recovering tariffs, additional resources become available. These resources enable higher connection rates to the water infrastructure to be achieved, which specifically benefits poor households which were not previously connected to the water system (Bakker 2010: 98; Rogers/de Silva/Bhatia 2002: 2, 15; Davis, 2005: 154). The necessary cross-subsidising tariff structures, whereby high-income households pay higher tariffs than poor households, can be implemented in privately and publicly operated water utilities through tariff regulations. Consequently, low-income households do not have to rely on alternative sources, such as dug wells, which often only offer water of poor quality and unpredictable availability, or water vendors whose services are, as studies have shown, up to ten times more expensive (Bakker 2010: 98; Wu/Malaluan 2008: 208; Galiani/Gertler/Schargrotsky 2005: 87). Service quality is simultaneously improved and as much of the water, a scarce resource, is saved as possible because cost-covering prices encourage more efficient resource allocation (Bakker 2007: 432; Rogers/de Silva/Bhatia 2002: 2) Although state utilities are arguably also able to introduce the principle of cost recovery, they often face political impediments which make it impossible to introduce the necessary tariff increases (Budds/McGranahan 2003: 97; Wu/Malaluan 2008: 207; Davis 2005: 154). Hence, proponents perceive privatisation of water utilities as a means to de-politicise the water sector, whereby government subsidies can be reduced or even abolished, releasing funds for other public purposes (Wu/Malaluan 2008: 208; Davis 2005: 154). Next to capital made available by cost-covering tariffs, proponents claim that considerable private investment to expand and improve the water infrastructure will accompany the introduction of PSP. However, after two decades of water privatisation, even wholehearted proponents have realised that this goal has not been achieved (Bakker 2010: 99; Castro 2008: 66, 68; Davis 2005: 155; Marin 2009: 123). This leads us to the arguments against PSP, many of which may also have led to less private investment than was initially expected (Bakker 2010: 94).

Opponents hold that PSP in the water sector may entail many risks and costs. In economic terms, high fixed costs in connection with long-term irrevocable investments and inelastic demand turn the water sector into a natural monopoly, making government regulation indispensable (Kirkpatrick/Parker/Zhang 2006: 146; World Bank 2006: 2; Hukka/Katko 2003: 143, 153; Galiani/Gertler/Schargrotsky 2005: 87). The monopolistic character also limits the possibility to introduce effective competition in the market, even in comparison to other monopolistic markets such as telecommunications and energy supply. Transporting water entails higher costs than transmitting phone calls or electricity. Different sources of water cannot be mixed either, as this might impact negatively on water quality. Hence, it is only possible to introduce competition for the market through competitive bidding processes (Kirkpatrick/Parker/Zhang 2006: 146; Clarke/Kosec/Wallsten 2009: 328).

However, problems of asymmetric information and incumbent advantages may hamper the bidding process. Moreover, only a small number of potential



bidders feature in the water sector (McIntosh 2003: 2; Davis 2005: 152). This encourages opportunistic behaviour, resulting in over-optimistic offers which are expected to be re-negotiated *ex post* (Marin 2009: 28; Kirkpatrick/Parker/Zhang 2006: 156; Clarke/Kosec/Wallsten 2009: 347). This is especially true of developing countries whose institutional capacities may be too weak to effectively enforce contracts (Marin 2009: 14; Hukka/Katko 2003: 147). Even in the absence of opportunistic behaviour, it is difficult for private operators to make a realistic bid, as much of the water infrastructure is underground, so that an assessment of network conditions is not easy (World Bank 2006: 2; Marin 2009: 19; Davis 2005: 152). Considering the fact that contracts are often negotiated on a long-term basis, they are incomplete, as they cannot include all future contingencies. As a result, adjustments with regard to tariffs, volumes and other targets are likely (Kirkpatrick/Parker/Zhang 2006: 156). In addition, commercial risks, foreign-exchange risks, arbitrary political interference, political risks exemplified by major protest movements and complex pricing policies are other problems confronting public and private investors. As a result of these risks, capital costs for water infrastructure rehabilitation and expansion are often relatively higher for the private sector as compared to the public sector (OECD 2009: 9-10; Bakker 2010: 94-97, 101; Davis 2005: 155; Hukka/Katko 2003: 152; Clarke/Kosec/Wallsten 2009: 328, 330; Marin 2009: 126). Opponents further contend that the introduction of PSP may not necessarily increase efficiency due to commercial incentives. On the contrary, private operators might be able to make profits mainly from tariff increases, which they are able to enforce due to poorly informed regulators (Budds/McGranahan 2003: 97). As a result, tariffs and connection charges may well be too high, especially for low-income households (Davis 2005: 169; Budds/McGranahan 2003: 109). In contrast, public water utilities may out-perform privately run utilities in terms of effectiveness, equity and accountability if they are appropriately reformed and resourced (Bakker 2010: 2; Baietti/Kingdom/van Kinneken 2006)

On more normative grounds, opponents voice apprehension about transferring the control of such essential services to a profit-oriented company, as this may entail considerable negative externalities on health and the environment (Bakker 2010: 81; Davis 2005: 147). Opponents of PSP emphasise the human right to water and argue that by recognising this basic right, states are ethically responsible for the provision of water.² In other words, the introduction of market structures in the water sector is argued to be incompatible with guaranteeing the human right to water (Bakker 2007: 437; Bakker 2010: 136-138). However, the counter-argument is that the human right to water does not necessarily de-legitimise the introduction of PSP (Bakker 2010: 150, Budds/McGranahan 2003: 95). In fact, many proponents of PSP stress the human right to water which can, in their opinion, only be realised through the involvement of the private sector (Bakker 2010: 150).

² For a detailed discussion of the opportunities and challenges associated with the human right to water, which would go beyond the scope of this report, see Bakker (2007), Bakker (2010: 147-152).

Many of the arguments advanced by proponents of PSP are refuted by the counter-arguments of opponents and vice versa, so that no common position is in sight. The next section will scrutinise empirical evidence on the comparative performance of publicly and privately operated water utilities to see whether a clearer picture emerges.

2.2 Public versus private: empirical evidence

The performance of a publicly compared to a privately run water supply is at the centre of the debate on PSP in the water sector. Although numerous empirical studies on this issue exist, they have been unable to answer this question satisfactorily, partly because of problems with the studies themselves (see, for example, Bakker 2010: 100; Marin 2009: 40-42; Davis 2005: 156, 158; Clarke/Kosec/Wallsten 2009: 328, 331). First, there is a lack of available data, particularly baseline information, as many water utilities lack reliable performance monitoring (Marin 2009: 41; Bakker 2010: 100; Clarke/Kosec/Wallsten 2009: 328, 331). Second, the ambiguity of performance indicators hampers systematic comparisons. For instance, the calculations of NRW levels or coverage rates vary from utility to utility. Third, the interdependency and interaction of different performance indicators confound comparison. It is rather meaningless, for example, to analyse increased access to water without considering service interruptions (Marin 2009: 40; Pérard 2009: 197). Here, the diverging choice of indicators may result in contradictory evaluations of the same cases. While one study may observe enhanced coverage rates, another study of the same case might report unaffordable tariff levels (Bakker 2010: 6; Marin 2009: 14). Fourth, the varying performances of different water utilities are hard to compare because they are largely shaped by local factors, such as the origin and quality of raw water (Marin 2009: 40). Fifth, there are several methodological difficulties (Bakker 2010: 100; Davis 2005: 158). Before-after comparisons entail uncertain assumptions about the potential development of continued public services (Davis 2005: 158). In addition, a sample selection bias can be observed, meaning that some single-case studies have received far more attention than others. Econometric studies often do not include enough cases to control effectively for exogenous factors (Marin 2009: 42). Sixth, a considerable share of the empirical research is conducted or financed by organisations either supporting or opposing PSP in the water sector, resulting in arguably less independent studies (Davis 2005: 156; Bakker 2010: 100).

Despite these limitations, the body of literature which studies the performance of PSP in the water sector can be divided into two categories: (i) case studies of single projects; and (ii) statistical analyses of numerous projects. The latter either compare the performance level of privately with publicly operated utilities, or the performance of different forms of private water supply before and after the introduction of PSP. To point out just a few examples, Clarke, Kosec and Wallsten show that coverage rates in three Latin American countries improved after the introduction of PSP. However, the same holds true for their control regions, including publicly operated utilities, where connection rates were also enhanced (Clarke/Kosec/Wallsten 2009). Similarly, Estache and Rossi and Kirkpatrick, Parker and Zhang find no significant variation in performance levels of publicly and privately operated utilities in a comparison of these in



Asia/the Pacific and Africa respectively (Estache/Rossi 2002; Kirkpatrick/Parker/Zhang 2006). Gassner, Popov and Pushak report rather positive results in an extensive study of water and electricity utilities in 71 different countries, including larger gains in labour productivity and connection rates for the privately operated utilities (Gassner/Popov/Pushak 2009). However, their results remain inconclusive with regard to tariff increases. Moreover, an analysis of various public and private water utilities in Argentina demonstrates that child mortality was reduced by 8 per cent in regions with PSP in the water sector (Galiani/Gertler/Schargrotsky 2005). In contrast, Guasch puts forward more negative results in a comprehensive analysis of a World Bank database on infrastructure PPPs, in which he highlights that about 75 per cent of contracts in the water sector have either been renegotiated or cancelled altogether in Latin America and the Caribbean (Guasch 2004).

Case studies of single water utilities usually investigate how the performance of the water sector develops after the introduction of PSP. These single case studies again present a mixed picture, although there is stronger evidence for improved water service delivery involving the private sector (Marin 2009: 42; Davis 2005: 160). Accordingly, most cases observe ameliorated performance especially with regard to measures of coverage, productivity as well as water and service quality. However, these improvements often went hand in hand with price increases (Marin 2009: 42; Davis 2005: 166; Clarke/Kosec/Wallsten 2009: 331). At the same time, a series of high-profile contract terminations were reported in recent years (Marin 2009: 13; Wu/Malaluan 2008: 208).³

In addition, some studies mix the two categories, meaning that they compare results from numerous utilities without formal statistical analysis. Instead, they employ similar methodologies to examine a number of different cases so that the results can be better compared. For example, Marin evaluates the performance of 65 different urban water utilities before and after the introduction of PSP (Marin 2009). The study concludes that contractual agreements which combine private operation with public financing are the most successful. In other words, the initial focus on long-term contracts, including large-scale private capital investment, has not been successful. However, the study illustrates that the private sector positively contributes to service quality and operational efficiency (Marin 2009: 123-127; 145-148). Shirley again presents contrasting results for six water utilities including PSP (Shirley 2002). Based on their case studies, Shirley and Ménard conclude that PSP in the water sector may compensate for weak institutional capacities. However, they acknowledge that there is a danger of private operators taking advantage of these weak institutions, possibly resulting in arbitrary tariff increases (Shirley/Ménard 2002: 37-38).

As with the conceptual debate, it is clear that most of the empirical studies also remain largely inconclusive (Marin 2009: 42; Bakker 2010: 102; Wu/Malaluan 2008: 208-209). Given the importance of improving water service

³ For a good overview of the effects of PSP on performance levels in the water sector, based on single case studies, see Clarke, Kosec and Wallsten (2009: 332-334).

delivery on a global scale, it is essential to move beyond the public versus private debate. Why is private participation in the water sector successful in some cases and not in others?

2.3 Beyond public versus private: conditions for success and failure

Before turning to the theory of TCE as a possible analytical framework to explain the success and failure of PSP in the water sector, this section will first address contributing factors which have already been put forward in the literature. Various authors have identified five main factors contributing to the success and failure of PSP. First, there is a rather broad consensus that weak regulation of the water sector results in poor performance levels of publicly and privately operated utilities (see, for example, Bakker 2010: 101; Johnstone/Wood 2001: 13; Marin 2009; Franceys/Gerlach 2008; World Bank 2006; OECD 2009; Guasch/Laffont/Staub 2008). As mentioned above, private operators in particular tend to take advantage of weak regulation to generate profits from tariff increases rather than from efficiency gains (Marin 2009: 124). Despite the broad agreement on the general need for regulation to ensure adequate water quality, to avoid environmental degradation and to oversee a monopoly provider (Franceys/Gerlach 2008), there is no consensus as to which is the most effective regulatory approach. Generally, there are two different regulatory strategies, namely regulation by contract and regulation by an independent regulator. Differing contexts determine their relative advantages, depending on contract enforcement possibilities in court versus the capacities of a regulatory authority (Davis 2005: 172; Marin 2009: 131-132). More specifically, economic regulation entails three types of regulation, namely price-cap regulation, rate-of-return regulation and benchmark regulation. All three types have their advantages, including incentivising cost minimisation and increased private-capital expenditure as well as improved handling of information asymmetries. However, they also involve disadvantages, such as potentially higher capital costs, risk of over-investment and difficulties with regard to their practical application (Davis 2005: 173; Guasch/Laffont/Straub 2008: 436).

The second condition for the success or failure of PSP in the water sector, which remains uncontested in the literature, is the importance of a contract with clear and realistic goals, as it allows to hold operators accountable more easily (Marin 2009: 127-128; Hailu/Guerreiro Osório/Tsukada 2012: 2576). Third, then, the general public should be able to scrutinise the bidding process and contract targets as well as regulatory information and decisions in order to enhance transparency and thus increase public support for PSP in the water sector (Marin 2009: 133; Hailu/Guerreiro Osório/Tsukada 2012: 2576; Neville 2011: 264-265). This may also allow more flexible contract re-negotiations, so as to reach compromises and solutions, especially when facing a crisis (Neville 2011).

Fourth, in addition to adequate contract design and regulation as major pre-conditions, Wu and Malaluan (2008) highlight the significance of internal factors. Sound corporate governance, financial management and operations management proved to be critical factors in their study of the two water concessions in Metro Manila. The concluding section will consider these factors in more



detail. Fifth, with regard to external factors, the introduction of PSP in the water sector needs to be part of a broader sector reform which credibly supports financial viability, for example through sustainable and socially acceptable cost-covering tariffs and accountability (Marin 2009: 127). Furthermore, Guasch, Laffont and Straub find political cycles and macroeconomic shocks to be highly significant in determining renegotiations of contracts (Guasch/Laffont/Straub 2008: 433-434). Unfortunately, the latter external factors often lie outside the control of the public or private operator (Marin 2009: 127).

The following analysis in light of the theory of TCE will contribute to this discussion of the factors determining the success or failure of PSP in the water sector. The two water concessions in Metro Manila serve as instructive case studies in this context. Before the theory of TCE is outlined in more detail, the next section will first give a short overview of the two water utilities in Metro Manila in order to demonstrate why they form an interesting empirical puzzle. The case selection is also elucidated from a methodological perspective.

3. The two water utilities in Metro Manila

3.1 Overview of the two water utilities in Metro Manila

In 1994, the government of the Philippines began to conceptualise the privatisation of the Metropolitan Waterworks and Sewerage System (MWSS) in order to address the growing 'water crisis' in Metro Manila. MWSS's failure to operate the water utility effectively and efficiently exemplified the crisis (ADB 2008b). About one-third of MWSS's coverage population did not have access to water and NRW levels fluctuated by around 60 per cent at the time of privatisation (Dumol 2000: 6). Compared with the performance of water utilities in other large Asian cities, MWSS's performance was the worst, as illustrated in Table 2. In addition, MWSS was immensely indebted and relied heavily on Official Development Assistance (ODA) to finance capital expenditure (Esguerra 2003: 6; Dumol 2000: 25).

Table 2: Comparison of water utilities in Asian cities, 1995

City	Population (million)	Water Coverage (% of population)	Water Availability (hours/day)	NRW (% of production)	Staff/1000 Connections
Manila	10.6	67	17	58	9.8
Bangkok	7.3	82	24	38	4.6
Hong Kong	6.3	100	24	36	2.8
Kuala Lumpur	1.4	100	24	36	1.1
Seoul	10.6	100	24	35	2.3

Source: adapted from McIntosh/Yngiguez 1997

In 1995, the Philippine government adopted the Water Crisis Act which became the legal basis for the introduction of PSP in Metro Manila's water sector (Dumol 2000: 26). The privatisation process concluded on August 1, 1997. MWSS's operational and investment functions were privatised under two separate 25-year concession agreements following a competitive bidding process (ADB 2008b: i). The service area of Metro Manila was divided into two zones. This division was a critical feature of the privatisation process because it supposedly created quasi-competition between the two concessionaires, so that both the regulatory office and consumers have been able to compare service quality (Dumol 2000: 45). The Manila Water Company, Inc. (MWCI), a consortium composed of International Water (United Utilities, UK and Bechtel, USA) and the local Ayala Corporation, won the East Zone concession (Dumol 2000: 84). In March 2005, MWCI became a publicly listed company on the Philippine Stock Exchange (MWCI 2008: 7; Wastewater Headline Manager, interview, 07/09/2011). Maynilad Water Services, Inc. (MWSI), a consortium of the international Suez Lyonnaise des Eaux and the local Benpres Holdings, won the West Zone concession. However, after two major crises and a long financial struggle, MWSI underwent a change of ownership in 2007. The DMCI-MPIC Water Company, a joint venture between DM Consunji, Inc. (DMCI) and Metro Pacific Investments Corporation (MPIC), both local companies, now manages MWSI (Chiplunkar/Duenas/Flor 2008: 1). The two service areas are shown in Figure 1.

Figure 1: Water concession service areas in Metro Manila



Source: Chiplunkar/Duenas/Flor 2008: 1

Considering the size of the population of about 10.6 million in the two service areas, equalling 13 per cent of the total population of the Philippines, and investment requirements estimated at \$7 billion over the contract duration, it is no surprise that "the transaction was hailed as the largest water concession in the world" (Dumol 2000: vii).⁴ The sheer dimension of the transaction in one of the largest urban areas in Southeast Asia is in itself enough to turn the two concessions into two fascinating empirical cases. Interestingly, both cases also confirm the inconclusiveness of the empirical evidence with regard to the performance of PSP in the water sector outlined in Section 2.2. MWCI proved to be

⁴ For a detailed description of the privatisation process, see Dumol (2000).



quite successful in ameliorating water service quality in the East Zone concession, while MWSI has faced huge difficulties in the West Zone concession. This empirical puzzle of why the performance levels are so different makes the cases worth analysing.

Besides being interesting empirical examples, the two case studies also offer the unique opportunity to apply a most-similar case approach to analyse the underlying factors for success and failure. The following section will explain this in more detail.

3.2 Case selection – a most-similar case approach

In its purest form, the most-similar system approach implies that “the chosen pair of cases is similar in all respects *except* the variable(s) of interest” (Gerring 2007: 131, italics in original). This allows controlling for certain, concomitant variables, while other independent variables can be considered explanatory (Tarrow 2010: 234; Meckstroth 1975: 133). In other words, the method has the advantage of being able to dismiss a number of potentially explanatory variables from further analysis (Anckar 2008: 400). Hence, the more similar the cases are, except for the variables of interest, the higher the validity of the analysis.

The two water concessions in Metro Manila are arguably most similar, as both concessions are implemented in a very similar context. Starting with the explanatory factors for the success and failure of PSP in the water sector outlined in Section 2.3, first, both water concessionaires in Metro Manila are subject to the same regulatory framework. This framework comprises a mixture of rate-of-return regulation and benchmark regulation. Accordingly, the concession agreements stipulate that tariffs should allow the recovery of all investments over the life of the concessions plus a rate of return if capital expenditures are considered prudent and efficient by the public partner. Hence, risky over-investments should be avoided (MWSS/MWCI 1997: Article 9; MWSS/MWSI 1997: Article 9; Manager/Research and Planning Executive Assistant, interview, 11/10/2011; Manager, interview, 05/09/2011). In 2002, the MWSS Regulatory Office (MWSS-RO) introduced benchmark regulation, including key performance indicators and business efficiency measures, in order to monitor the concessionaires in a more efficient and accountable way (Manager, interview, 05/09/2011). Additionally, tariff levels are adjusted according to three procedures which are (i) annual inflation adjustments; (ii) annual Extraordinary Price Adjustments (EPA); and (iii) a so-called rate rebasing, implemented every five years.

Second, besides being regulated in the same way, the contracts, namely the concession agreements between the two private concessionaires and the public partner MWSS, stipulate the same goals, responsibilities and obligations with regard to both the public and the private partners (MWSS/MWCI 1997; MWSS/MWSI 1997; Manager, interview, 05/09/2011). While MWSS retained the ownership of its assets, MWCI and MWSI have the exclusive right to manage, maintain and develop the water and sewerage system (ADB 2008b: 8; Manager/Research and Planning Executive Assistant, interview, 11/10/2011). Next to specifying the obligations of the private partners to provide water and sanitation services, the agreements also stipulate the payment of concession fees

equating to MWSS's foreign denominated debts (MWSS/MWCI 1997: Articles 5-6; MWSS/MWSI 1997: Articles 5-6). However, here lies one of the differences in the agreements. While MWCI only has to pay 10 per cent of MWSS's former loans in the form of concession fees, MWSI is obliged to pay 90 per cent. This factor will be further considered in the analysis.

Third, the general public was and continues to be able to scrutinise the same information about both concessionaires with regard to the bidding process as well as regulatory information and decisions of the MWSS-RO, for instance in relation to tariffs. For example, during the bidding process, it was considered essential to have bids lower than the pre-privatisation tariff levels in both concession areas in order to win public support (Dumol 2000: 42).

Fourth, with regard to external factors, both concessionaires faced similar framework conditions. As mentioned in the previous section, the Water Crisis Act formed the legal basis for the reform of the water sector in Metro Manila, including the introduction of PSP and other elements, such as a re-organisation of MWSS (Dumol 2000: 25-26). Furthermore, both concessionaires are obviously confronted with the same political cycles, as the local government of Metro Manila as well as the central government are identical in both concession areas. Similarly, external (macro-economic shocks), most prominently the Asian financial crisis and the rather severe incidence of the weather phenomenon El Niño, which reduced water availability by about 30 per cent, hit both concessionaires (Wu/Malaluan 2008: 215; Neville 2011: 246).

Despite these similar framework conditions, the performance of the two concessionaires varies immensely, with the East Zone concessionaire being the success story and the West Zone concessionaire facing huge difficulties. The two cases thus exemplify variations in the dependent variable, namely the performance level of the two concessionaires, while possible explanatory variables, including most of those pointed out in Section 2.3, remain constant. As a consequence, the two cases allow contingent causal inferences to be drawn about the actual underlying explanatory variables (Kaarbo/Beasley 1999: 381-382). The question, then, is: Why do the two cases immensely vary in their performance levels? What are the explanatory independent variables for one concessionaire's success and the other's failure? Before turning to a possible theoretical explanation based on TCE, the following section will elaborate on the concessionaires' differing performance levels.

3.3 Performance levels of the two water utilities in Metro Manila

Four indicators will provide information about the performance levels of water service provision in the East and West Zone concessions. First, an analysis of the changing levels of access to water services reveals the performance level. Second, the study will examine to what extent the concessionaires reduced wa-



ter rationing. Third, the reduction of NRW levels⁵ serves as an indicator to evaluate service provision. The last indicator relates to the tariff levels with regard to their financial viability as well as affordability. These indicators were purposely selected, as they include the provisions for water service delivery as stipulated in the concession agreements (MWSS/MWCI 1997; MWSS/MWSI 1997 Article 5, Schedule 2). They also form the main basis of MWSS-RO's monitoring and evaluation of the two concessionaries with regard to key performance indicators and business efficiency measures, which have formed part of the benchmark regulation since 2002. Additionally, Marin (2009) uses them in the aforementioned analysis of 65 urban water utilities.

3.3.1 Performance levels in the East Zone concession

Using the four indicators, the study will first analyse to what extent the East Zone concessionaire has been able to increase access to water services during the contract term. Table 3 summarises the service targets for water supply coverage as laid down in the concession agreement as well as the actual water supply coverage.

Table 3: Water supply coverage in the East Zone of Metro Manila

	2001	2006	2011	2016	2021
Water supply coverage targets	77.1%	94.1%	94.1%	94.1%	94.6%
Actual water supply coverage	76%	98%	99%		

Source: MWSS/MWCI 1997: Schedule 2; MWSS 2013a

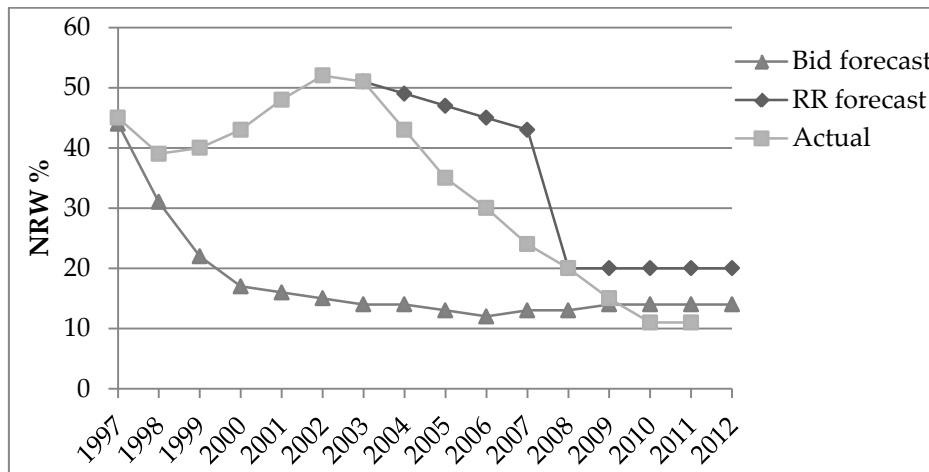
MWCI estimates that it currently provides water to more than six million people, implying that about 99 per cent of the service population has access to water (MWCI 2010: 6; MWSS 2013a; Manager/Research and Planning Executive Assistant, interview, 11/10/2011). It is obvious that MWCI has surpassed the initial contractual targets of 94.1 per cent. Therefore, performance with regard to this indicator is arguably high. Certainly, performance has improved compared to pre-privatisation levels when only 67 per cent of the population had access to water. MWCI mainly achieved this high performance with the help of an innovative programme, called *Tubig Para Sa Barangay* (Water for the Community) with which the company was also able to supply safe water to low-income communities (Manager/Research and Planning Executive Assistant, interview, 11/10/2011). This demonstrates that equity considerations were included by the private partner, which not only supports poor households, but also helps to increase public acceptance of the concessionaire.

⁵ NRW refers to water that is not billed because of leakages in the distribution network (physical losses) as well as illegal connections or measurement problems due to dysfunctional meters (commercial losses).

Second, the concession agreement envisions that “the Concessionaire shall ensure the availability of an uninterrupted 24 hour supply of water to all connected Customers in the Service Area”(MWSS/MWCI 1997: Article 5.1.2). MWCI successfully achieved this target and 99 per cent of the service population receives water on a 24-hour basis (MWCI 2011: 53). Hence, the performance level with regard to this indicator can also be considered high after the privatisation. In contrast, the performance before the implementation of the concession was much inferior, as MWSS supplied water on average for only 16 hours per day (Wu/Malaluan 2008: 212). Low continuity of service puts considerable constraints on households, who might be forced to store or fetch water from other supplies in order to bridge the intermittent supply.

Third, Figure 2 presents the development of NRW over the concession period up until today. The figure includes the bid forecast representing the initial targets of the concession agreement. The rate-rebasing (RR) forecast is also included. These new targets were adopted in 2003, when it was realised that the initial targets set in the concession agreement could not be met. Lastly, the figure incorporates the actual performance of MWCI.

Figure 2: Development of NRW in the East Zone over the concession period



Source: MWSS-RO 2010a; MWCI 2011: 6, 53

As illustrated, the company failed to meet the initial contractual targets and in the first years of the concessions, NRW levels actually increased. This exemplifies the reduced possibility for capital expenditure after the Asian financial crisis which Sections 5.1.3 and 5.3.3 will discuss in more detail. However, from 2003 onwards, MWCI gradually reduced NRW levels to 11 per cent (MWCI 2011: 6, 53). In 2009, the concessionaire accomplished and surpassed the initially envisioned targets as laid down in the bid forecast (MWSS-RO 2010a). A NRW level of 11 per cent is arguably high-performing, particularly for a developing country, as it is comparable to those of the best-performing utilities in industrialised countries. In contrast, before the privatisation, the NRW level fluctuated at around 60 per cent in both service areas taken together (McIntosh/Yniguez 1997; Dumol 2000). This level is even worse than average in developing coun-



tries, where NRW levels are estimated at around 40 to 50 per cent (Kingdom/Liemberger/Marin 2006: 2).

The last indicator to assess the performance level relates to the tariff levels. In order to ensure a utility's financial sustainability, tariff levels must be cost-covering. Simultaneously, they have to remain affordable, meaning that tariffs should not exceed 3 per cent of per capita income (Hailu/Guerreiro Osório/Tsukada 2009: 11). In relation to MWCI, ever since the implementation of the privatisation, tariff levels are assumed to be cost-covering, as they allow the concessionaires to recover their capital expenditure plus achieve a rate of return over the life of the concession (Manager, interview, 05/09/2011). Before the privatisation, this was not the case, as MWSS largely relied on subsidies from the central government and on ODA (Wu/Malaluan 2008: 207-209; Dumol 2000: 19). The tariffs have remained affordable before and after privatisation, as they, according to two of the interviewees, they do not exceed the 3 per cent level of per capita income (Manager, MWSS-RO, interview, 05/09/2011; Manager/Research and Planning Executive Assistant, interview, 11/10/2011). Since it is not possible to verify these statements due to a lack of data, the study alternatively analyses whether tariff structures and pro-poor programmes support low-income households. Accordingly, before privatisation, there was a lower tariff level as well as a tariff structure that benefited low-income households (Rosenthal 2002; Manager/Research and Planning Executive Assistant, interview, 11/10/2011; Manager, interview, 05/09/2011). After privatisation, the tariff structure has continued to differentiate between customers, with residential customers paying the lowest rates, commercial customers being charged the second highest rates and industrial customers paying the most. Moreover, there is an increasing block tariff policy, meaning that the rates per unit for water rise with total consumption. This supports low-income households further, as low consumption is assumed to be linked with lower income (Rosenthal 2002).

MWCI has also been able to connect low-income households to the distribution system with the help of the aforementioned community programme *Tubig Para Sa Barangay*. Accordingly, low-income households are able to benefit from the tariff structure (MWCI 2011: 5, 11; Manager/Research and Planning Executive Assistant, interview, 11/10/2011). The concessionaire tries to alleviate payment requirements for poor households with the help of flexible financing schemes, such as the staggered payment of connection fees and cost-sharing arrangements among community members (Baclagon 2004: 14; Wu/Malaluan 2008: 222). The increasing block tariff structure seems to be a challenge because most low-income communities receive water in bulk, implying an excess consumption beyond ten cubic metres which is charged at a higher rate (Rosenthal 2002). However, MWCI tried to offset this by calculating an average consumption for each individual community household which is charged at a lower rate. Still, the social scheme results in higher rates for low-income households compared with an average household directly connected to the water infrastructure (Baclagon 2004: 19). Despite this challenge, the community project is certainly an innovative strategy by the private partner to reach low-income-households. As mentioned, it demonstrates that equitable distribution patterns are account-

ed for in the East Zone concession. Now, poor households are also able to benefit from the central water distribution system and do not have to rely on water vendors whose services are often as much as ten times more expensive (Bacalagon 2004: 10). Accordingly, with regard to tariff levels, performance is at a high level since the introduction of PSP. Tariffs are both cost-covering and seemingly affordable due to a pro-poor tariff structure and a functioning pro-poor programme. In contrast, the previous performance level was only moderate, as tariffs were not cost-covering but arguably affordable.

3.3.2 Performance levels in the West Zone concession

In the following, the contrasting performance of the West Zone concession as compared to the East Zone concession will become visible. Again, first, the study evaluates the performance level in the West Zone concession by assessing to what extent MWSI increased access to water services. Table 4 sums up the service targets for water supply coverage as laid down in the concession agreement as well as the actual water supply coverage. Although the company increased access to water services after the implementation of the concession from 67 per cent to 85 per cent in 2011, the coverage targets envisioned in the concession agreement have still not been met (MWSS 2013a; MWSS/MWSI 1997: Schedule 2). Between 2001 and 2006, the increase in supply coverage nearly stagnated, exemplifying the reduced possibility for capital expenditure after the Asian financial crisis as well as quite obstructive re-negotiations (Marin 2009: 56). Unlike in the East Zone concession, where universal access has nearly been achieved, it is not clear who benefits most from the increased access in the West Zone concession. The community programme, which was initiated by MWSI, largely failed. Accordingly, before and after the implementation of the concession, the performance in the West Zone service area, measured against the first indicator, remains unsatisfactory.

Table 4: Water supply coverage in the West Zone of Metro Manila

	2001	2006	2011	2016	2021
Water supply coverage targets	87.4 %	97.1 %	97.4 %	97.7 %	98.4 %
Actual water supply coverage	73 %	74 %	85 %		

Source: UTCE/Japan PFI Association 2003: 29; Marin 2009: 56; MWSS 2013a

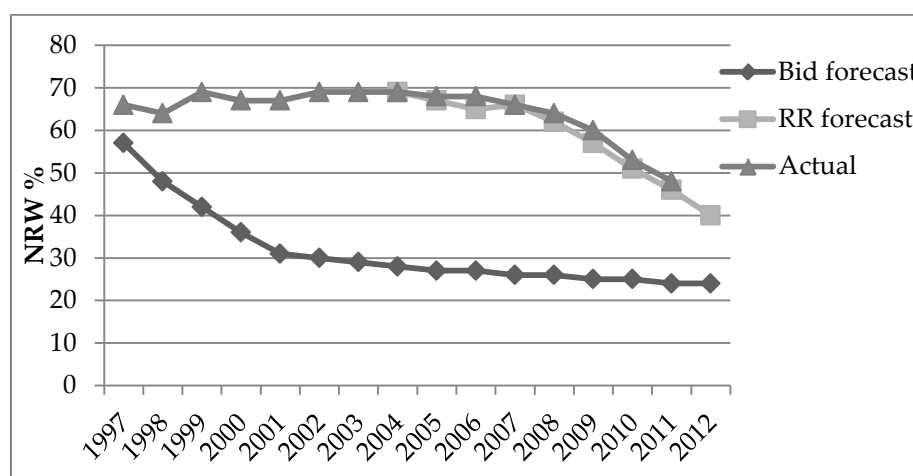
The second indicator to assess the performance level again relates to water rationing. As mentioned, before privatisation, MWSS supplied water only for 16 hours per day on average, which put constraints on households (Wu/Malaluan 2008: 212). After the implementation of the concession, MWSI reduced water rationing at first. However, the situation significantly deteriorated as soon as the company faced the previously mentioned immense financial difficulties after the Asian financial crisis. In 2006, only 32 per cent of MWSI's customers had 24-hour supply as compared to 80 per cent in 2001 (Marin 2009: 71; MWSI 2011). After the change of ownership in 2008, MWSI slowly reduced water ra-



tioning again, so that in 2010, 71 per cent of customers received 24-hour water supply (MWSI 2010: 3). Since 2011, the concessionaire reached the initial level of about 80 per cent again (MWSI 2011). Hence, especially at the start of privatisation, performance levels were even poorer than those of the public utility.

Third, Figure 3 presents the development of NRW in the West Zone over the concession period. It again includes the bid forecast representing the initial targets of the concession agreement. The rate-rebasing (RR) forecast is also included. MWSS adopted these new targets in 2004, when they realised that the initial targets set out in the concession agreement could not be met. Lastly, the figure incorporates the actual performance of MWSI.

Figure 3: Development of NRW in the West Zone over the concession period



Source: MWSS-RO 2010b; Dimaano 2012

As is obvious, MWSI did not achieve the initial targets (bid forecast) set out in the concession agreements over the term of the concession. In the first few years, the NRW level increased to as much as 69 per cent between 1999 and 2004 as compared to a fluctuating value of about 60 per cent in both service areas before privatisation (UTCE/Japan PFI Association 2003: 34). Moreover, MWSI did not meet the new forecasts set after the rate-rebasing (RR) in 2004, but exceeded them in all years except for one. A NRW value above 60 per cent is even worse than the average in developing countries, where NRW levels are estimated at around 40 to 50 per cent (Kingdom/Liemberger/Marin 2006: 2). Since the change of ownership, NRW levels have slowly started to fall again (MWSS-RO 2010b; Chief Finance Officer, interview, 02/09/2011). Thus, performance with regard to this indicator has been unsatisfactory before and after the implementation of the concession.

Fourth, the financial sustainability and affordability of the tariff levels will help to assess performance level. As mentioned above, tariff levels before the privatisation were not cost-covering, as MWSS largely relied on subsidies from the central government as well as ODA (Wu/Malaluan 2008: 207-209; Dumol 2000: 19). Similar to tariff levels in the East Zone, tariff levels in the West Zone concession allow MWSI to recover its capital expenditure plus achieve a rate of

return over the life of the concession (Manager, interview, 05/09/2011; Chief Finance Officer, interview, 02/09/2011). They are therefore supposedly cost-covering. As stated in the previous section, the tariff levels were assumingly assumed to be affordable prior to the privatisation due to much lower tariff levels as well as a tariff structure that benefits low-income households (Rosenthal 2002; Manager/Research and Planning Executive Assistant, interview, 11/10/2011; Manager, interview, 05/09/2011). After the implementation of the concession, the West Zone concessionaire adopted a similar tariff structure to that in the East Zone concession, including an increasing block tariff and differentiation between customers. However, since then, the tariff levels increased by as much as 250 per cent compared to the pre-PPP level (Marin 2009: 114). Some studies show that tariffs presently charged by MWSI are higher than those that would apply if the service had remained in public hands (Marin 2009: 115-116). Unlike MWCI, MWSI's water for the community project, which targeted poor households, largely failed because it created additional financial burdens due to rising NRW levels after the programme began to expand (Wu/Malaluan 2008: 224; UTCE/Japan PFI Association 2003: 68-69). In sum, performance with regard to tariff levels has remained inadequate before and after privatisation. Before, tariff levels were not cost-covering, but arguably affordable. Afterwards, tariff levels were cost-covering, but no definite statement can be made about their affordability. Although the tariff structure benefits low-income customers, large tariff increases were put in place and the pro-poor programme initially envisioned arguably failed.

Summing up, the performance of service provision in the water sector has improved since the implementation of the concession in the East Zone of Metro Manila, especially compared to the situation before privatisation. In the West Zone concession, the scenario is reversed. After the introduction of the PPP, performance did not significantly improve and partially even deteriorated. Thus, the performance level is even poorer compared to service quality prior to privatisation. How can this large difference in performance levels in the East and West Zone be explained?

4. TCE and privatisation in the water sector

Having the large differences in the performance levels of the East Zone and West Zone concessionaires in mind, this section will consider the theory of TCE in more detail. TCE, being rooted in New Institutional Economics (NIE)⁶, focuses on the analysis of economic activity in relation to governance structures which vary in their organisational competences (Williamson 2005: 51). Transactions, i.e. economic exchanges implying the transfer of associated property

⁶ For more information on various strands in NIE, see, for example, Ménard and Shirley (2005).



rights, for example in form of a privatisation, are the basic unit of analysis. Implicit or explicit contracts between two or more partners are the basis of transactions. They involve costs which arise as a result of negotiating, monitoring and enforcing contracts. These contracts are assumed to be incomplete due to the human characteristic of bounded rationality, namely the incapability of actors to foresee all future contingencies. As a consequence, not every possible state of nature can be specified in the transaction contract, which means that external enforcement might be difficult. *Ex post* transaction costs may arise due to opportunistic behaviour of one or both contracting parties. In other words, transaction costs may involve contractual hazards, such as mal-adaptation costs, costs of modifying, enforcing or renegeing on a contract, costs that arise in relation to protection against *ex post* opportunism (Williamson 2005: 46-48).

As the interdependency of contracting partners and, thus, transaction costs rise, the need for contractual safeguards and control mechanisms for fulfilment of obligations *ex post* increases. In order to provide these contractual safeguards, TCE argues that economic actors align “transactions, which differ in their attributes, [to] governance structures, which differ in their costs and competencies, in a discriminating (mainly, transaction-cost-economizing) way” (Williamson 1991: 277). Accordingly, governance is the means by which to introduce safeguards and order so as to mitigate conflicts and realise mutual gain. In relation to this, Williamson differentiates between three types of governance structures, namely markets, hierarchies and hybrids (Williamson 2005).

4.1 Governance structures – markets, hierarchies and hybrids

Generally, the three governance structures – market, hierarchies and hybrids – differ in three main characteristics, namely incentive intensity, administrative control and bureaucracy, and contract law regime (Williamson 2005). In the first type of governance structure, namely markets, the risk of exchange hazards is low and contracting works well as the interdependency of the contracting parties is basically non-existent. In other words, transaction partners can easily be exchanged. Since information is readily available through price mechanisms and competition, contracts are nearly complete so that economic actors adapt efficiently to disturbances and varying circumstances (Williamson 1991: 279). In this situation, market governance incurs the lowest costs, as incentives intensity, meaning the incentive to allocate resources efficiently, is very high. Administrative controls are low because supporting bureaucratic structures are nearly non-existent and not needed. The contract law regime is legalistic, i.e. the courts can solve disputes, as nearly complete contracts are easily enforceable (Williamson 2005: 48-51).

When exchange hazards and the interdependency of the contracting parties are high, hierarchy entails the lowest costs. This type of governance structure enables contracting partners to easily coordinate adaptation to unanticipated changes in the environment, as they are organised within one unified authority. Hence, information exchange is facilitated and disputes over incomplete contracts are settled within the organisation, implying that it is the court of ultimate appeal (Williamson 1991: 274). However, moving a transaction from markets to hierarchies involves costs. Incentives are diminished as a result of inter-

nal organisation and consequential low competition. Moreover, bureaucratic costs rise because extensive administrative control mechanisms have to be introduced. Because of these costs, hierarchical organisation can be thought of as the governance structure of last resort (Williamson 2005: 53).

The last type of governance structure, hybrids, is located in between the characteristics of incentive intensity, administrative support by bureaucracy and contract law regime. In cases where a transaction involves only moderate interdependency of the contracting parties and the possibility of exchange hazards, hybrids are the governance structures with least costs. The autonomy of the contracting parties is at least partially maintained, so that incentive intensity is at a medium level. At the same time, the contractual framework provides for additional safeguards and administrative control. Information disclosure is facilitated and arbitration mechanisms replace the courts. Nevertheless, contracting parties can still revert to the courts as medium of ultimate (Oxley/Silverman 2008: 217-218). Table 5 summarises the attributes of the three different governance structures.

Table 5: Attributes of governance structures

Governance structure / Attributes	Market	Hybrid	Hierarchy
Incentives intensity	High	Medium	Low
Administrative control	Low	Medium	High
Contract law regime	Legalistic (court)	Contract as framework	Organisation as court of ultimate appeal

Source: adapted from Williamson 2005: 49

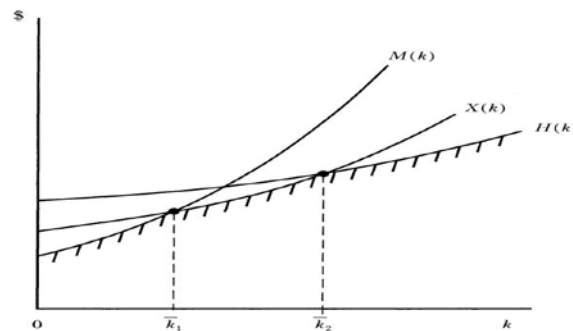
The discrete numbers of three different governance structures do not always clearly represent the ‘real-world’ organisational forms of public water provision, PPPs and private water services. Nevertheless, hierarchy relatively clearly epitomises publicly run utilities. Most PPPs, such as management and lease contracts, may safely be assigned to hybrids. The border between markets and hybrids becomes more blurred when looking at concessions. These are arguably on the edge of full privatisation, implying market governance, but retain some characteristics of hybrids, such as public asset ownership. A divestiture represents market governance in the provision of water services. Having these different governance structures in mind, the question is what determines the level of transaction costs and the resulting threats of contractual hazards.

4.2 The characteristics of transactions – asset specificity and uncertainty

The characteristics of transactions, namely asset specificity and uncertainty⁷, influence the level of transaction costs. An asset is specific if it makes a necessary contribution to the production of a good or service and has much lower value in alternative uses. This non-redeployable character of investments exists, for example, due to their localisation (site specificity), their physical characteristics (physical specificity), the size of the market (dedicated assets), necessary specialised knowledge (human specificity) or the synchronisation needed (temporal specificity). Investment in a specific asset increases the dependency of the investing party, which heightens the risk of opportunistic behaviour by the non-investing party (Williamson 1996; Joskow 2005: 327-228).

As asset specificity and, hence, bilateral dependency rise the aforementioned contractual hazards may set in. In order to avoid these hazards and economise transaction costs, economic actors align transactions to governance structures, depending on the level of asset specificity (Williamson 2005: 51). Figure 4 illustrates this, whereby 'k' represents the level of asset specificity and '\$' the level of transaction costs. A lack of incentive intensity and higher administrative costs ($k=0$) initially disadvantages hierarchies ($H(k)$) and hybrids ($X(k)$). However, the divergence of costs between markets ($M(k)$), hierarchies ($H(k)$) and hybrids ($X(k)$) decreases as asset specificity (k) increases. Eventually they turn around, as the need for contractual safeguards, coordination and administrative control becomes particularly immense (Williamson 2005: 51-52).

Figure 4: Transaction costs and asset specificity



Source: Williamson 2005: 49

⁷ The third characteristic, frequency, will not be dealt with because of the unclear and partly competing effects on transaction costs. On the one hand, high transaction frequency gives reasons for hierarchical organisation to make use of economies of scale in a recurring transaction and recover the costs of vertical integration. On the other hand, if reputation mechanisms are important, high levels of frequency drive transaction costs down, as they support the development of reputation effects (Macher/Richman 2008: 7).

This study measures the level of asset specificity in relation to water services on the basis of three indicators. First, the properties of raw water reveal the level of asset specificity, as the worse the quality, the more specific the treatment. Treatment requirements can range from simple mechanical filtering to more complicated combinations of physical and chemical treatment plus disinfection and refining processes (Ménard/Saussier 2000: 393). The second indicator to measure the level of asset specificity is the origin of raw water. Reliance on groundwater, as compared to surface water, implies higher asset specificity, as obtaining and distributing groundwater usually requires expensive and highly technical pumping systems (ibid.). The third indicator relates to the riskiness of investments. As mentioned, investments in the water sector entail high risks due to their large volumes, long amortisation terms and the non-redeployable character of assets. Nevertheless, some investments entail higher risks than others. Accordingly, the risk may be heightened by a poor and increasingly obsolete distribution system with high NRW levels. The existence of other unpredictable hazards, such as fees, further increases the riskiness of investments.

Uncertainty generally refers to unanticipated changes in circumstances surrounding a transaction, such as a privatisation process. Uncertainty is, for example, influenced by changes in the environment, as this increases the complexity of the transaction (Leiblein 2003). The higher the complexity of the transaction, the more difficult it is to anticipate changes in circumstances surrounding the exchange, implying a higher level of uncertainty (Ménard/Saussier 2000). As the uncertainty around the transaction increases – especially in connection with rising asset specificity – the need for contractual safeguards heightens as well (Williamson 2005: 47). Hence, contracting parties aim to align governance structures to the level of uncertainty and asset specificity, which Table 6 highlights. If asset specificity and uncertainty are low, for example, market governance can be chosen, whereas if both characteristics are at a high level, hierarchies are the best option.

Table 6: Uncertainty, asset specificity and governance structures

		Uncertainty		
		Low	Medium	High
Asset specificity	Low	Market	Market	Market
	Medium	Hybrid	Hybrid or hierarchy	Hybrid or hierarchy
	High	Hybrid	Hybrid or hierarchy	Hierarchy

Source: own figure

In order to measure the level of uncertainty in the water sector, the study puts forward three further indicators. First, the origin of raw water may also impact on uncertainty, as it determines to what extent an assessment of water availability is possible. It is more difficult to determine the amount of groundwater as compared to surface water. Second, the study measures uncertainty in terms of



the availability of raw water, meaning that it assesses whether the service region is characterised by water shortages. Possible water shortages increase uncertainty, as the utility operator cannot be sure of being able to meet minimum demand, for example in the event of a drought. Third, the length of the contract reveals the level of uncertainty. The longer the contract duration, the less complete it will be because of the difficulties of including all various contingencies. However, do economic agents always align governance structures and transaction costs in the most cost-effective way?

4.3 (Mis)alignment of governance structures

Misalignments occur between transaction costs and governance structures. Individuals, who are characterised by bounded rationality, do not always decide rationally on the optimal form of governance as determined by the level of asset specificity and uncertainty. This misalignment may result in different degrees of contractual hazards and is, therefore, predicted to lead to inefficiencies. Each governance structure has, as mentioned above, its advantages and disadvantages, with the right choice depending on the characteristics of the transactions (Yvrond-Billon/Saussier 2004; Ménard/Saussier 2000). Hence, the optimal mode of governance efficiently mitigates possible contractual hazards and conflicts, while simultaneously keeping the incentive structure high (Williamson 2005). In relation to this, empirical studies have shown that a (mis)alignment has effects on the commercial success of a firm as measured by profit (Mayer/Nickerson 2005; Nickerson/Silverman 2004), return on sales (Nickerson/Silverman 2004) or survival rates of firms (Silverman/Nickerson/Freeman 1997). Other empirical studies scrutinise the relationship between transactional (mis)alignment and performance as determined by technical performance (Leiblein/Reuer/Dalsace 2002) and quality of service (Ménard/Saussier 2000). Nevertheless, the number of studies that investigate the performance implications of governance choice through the lens of TCE remains limited (Macher/Richman 2008: 41).⁸

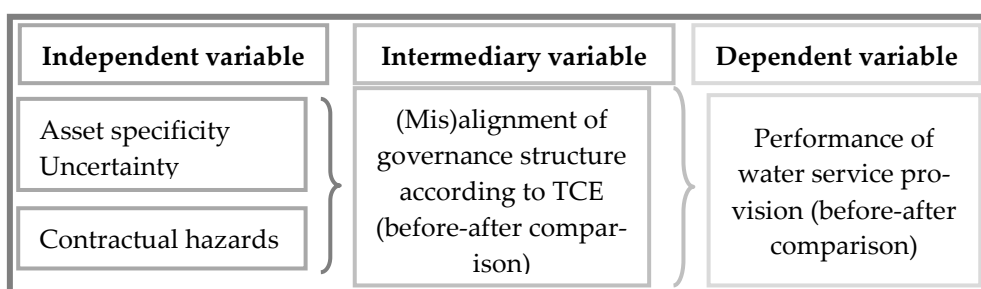
Similar to the aforementioned studies, an alignment of governance structures in water services may thus result in fewer contractual hazards, such as re-negotiations or terminations of contracts, and, in turn, to improved service delivery. In order to assess the level of contractual hazards, the study examines to what extent contractual re-negotiations can be observed. This reveals the extent to which transaction costs are economised and governance structures are aligned. If disputes can, for example, be settled within the framework of the contract, there is a low level of contractual hazards, implying functioning arbi-

⁸ In contrast to this limited amount of research examining whether adherence to transaction cost principles is associated with enhanced performance (Yvrond-Billon/Saussier 2004), a larger amount of empirical research consistently shows that transaction cost considerations are important drivers of governance choices across multiple social science disciplines and business fields (see Macher/Richman 2008 for an extensive review).

tration rules. If it comes to a complete termination of the contract, the chosen governance structure is assumed to have failed to economise transactions costs.

Based on this understanding of TCE, the study hypothesises that more aligned governance structures (intermediary variable), according to the level of transaction costs (independent variable), lead to better performance of service provision in the water sector (dependent variable). Accordingly, the indicators for asset specificity and uncertainty support an assessment of the level of transaction costs and, together with the degree of contractual hazards, provide information about a possible alignment or misalignment of governance structures. Figure 5 presents the hypothesis and the corresponding variables more clearly.

Figure 5: Hypothesis and Variables



Source: own figure

5. Transaction characteristics of the two water utilities in Metro Manila

In order to find out whether an alignment or misalignment of governance structures according to TCE can be observed in one or both of the concessions, the first step is to assess the level of transaction costs with regard to asset specificity and uncertainty.

5.1 Transaction characteristics of the East Zone concessionaire

5.1.1 Asset specificity

First, in the East Zone concession area, asset specificity, as measured by the properties of raw water, is arguably at a medium level. Accordingly, raw water, which is treated in the Balara Treatment Plant, goes through four main processes, namely flocculation, sedimentation, filtration and disinfection (Manager/Research and Planning Executive Assistant, interview, 11/10/2011; MWSS 2013b). At different times of the year, different treatment levels are necessary, which also impacts on costs. For instance, when it is quite rainy, soil from the mountains might be dislodged, making the water more turbid, so that more chemicals are needed (Chief Finance Officer, interview, 02/09/2011). Nevertheless, the required water treatment levels are considered “normal” (Manag-



er/Research and Planning Executive Assistant, interview, 11/10/2011), especially because the process has been used since the 1960s (*ibid.*). This implies that the concessionaire uses a rather conventional, highly tested technology. Since no specific investments have been needed to finance unconventional technologies so far, the public partner has considered all capital expenditures prudent and efficient, allowing the concessionaire to recover all investments plus achieve a rate of return (MWSS/MWCI 1997: Article 9.3.4; Manager/Research and Planning Executive Assistant, interview, 11/10/2011; Manager, interview, 05/09/2011; Wastewater Headline Manager, interview, 07/09/2011).

Second, in the concession area of MWCI, the level of asset specificity with regard to the origin of raw water is rather low. More than 97 per cent of it stems from surface water in the Angat-Ipo-La Mesa Dam Raw Water System, with the principal source being the Angat River. From Angat Dam water is transmitted to Ipo Dam which serves as an intermediate intake. The water then flows to three settling basins in Bicti before part of it is passed on to the Belara Treatment Plant with the help of aqueducts. Hence, hardly any expensive and highly technical pumping systems are needed to obtain and distribute the water, as it flows mostly by gravity (MWSS 2013c).

Third, the riskiness of investments further reveals the level of asset specificity. The East Zone concessionaire inherited the newer elements of MWSS's former distribution system (Chief Finance Officer, interview, 02/09/2011; Public Servant, interview, 08/09/2011). The service area benefited from MWSS's expansion initiatives during the 1980s. Accordingly, the general network age at the time of privatisation ranged from ten to twenty years (Manager, email interview, 05/01/2011). Depending on the material used, water pipes have an average operational lifespan of about fifty to eighty years (Palaske 2009: 293) meaning that the water infrastructure of the East Zone is rather new. This, combined with an initial NRW value of just 45 per cent in 1997, indicates that the distribution system was presumably in reasonably good condition (MWSS-RO 2010a). However, the fact that MWCI had to repay 10 per cent of MWSS's former loans in the form of concession fees heightens the riskiness of investment. Since these loans were mostly foreign denominated, they proved to be a major point of contention after the Asian financial crisis massively devalued the Philippine peso (Esguerra 2003). Nonetheless, the financial burden remained manageable, since MWCI only had to pay 10 per cent of MWSS's former loans.

5.1.2 Uncertainty

With regard to uncertainty, first, the study examines the origin of raw water. As mentioned before, MWCI largely depends on surface water from the Angat-Ipo-La Mesa Dam Raw Water System (MWSS 2013c). The availability of water can therefore be assessed fairly easily, so that uncertainty with regard to this indicator is presumed to be low.

Second, uncertainty with regard to the availability of raw water is at a medium level, as there is enough water to serve the demand for the time being. However, it is questionable whether it can also serve future demand by only relying on Angat Dam. Accordingly, the weather phenomenon El Niño, which sometimes drastically reduces water availability, regularly affects the raw water



source (ADB 2008b: 21, 56; Chiplunkar/Duenas/Flor 2008: 3). If this weather phenomenon intensifies, for example as a result of climate change, the lack of raw water might cause serious problems for the concessionaires in the future (Manager/Research and Planning Executive Assistant, interview, 11/10/2011). Low water levels in Angat Dam also negatively impact on the quality of the water, so that more chemicals are needed to treat the water, driving up treatment costs (Chief Finance Officer, interview, 02/09/2011). Moreover, MWCI relies on a single source to meet the demand for potable water. This is quite risky, particularly because this one source is relatively close to an earthquake fault line. Both partners are therefore actively looking for new water sources. However, this could become a somewhat contentious issue, as it is not clear whose responsibility it is to develop this new source (Manager/Research and Planning Executive Assistant, interview, 11/10/2011; Manager, interview, 05/09/2011).

Third, the length of the contract determines the level of uncertainty. The East Zone concession agreement was originally set at 25 years in 1997, implying a rather lengthy contract duration and high uncertainty. In 2008, uncertainty further increased due to another contract extension. The concession is now envisioned to end in 2037 (Manager/Research and Planning Executive Assistant, interview, 11/10/2011; Manager, interview, 05/09/2011).

5.1.3 Contractual hazards

The degree of contractual hazards will further verify the assessment of an alignment or misalignment. In the case of the concession between MWCI and MWSS, there has been a moderate level of contractual hazards. As indicated in the previous section, the devaluation of the Philippine peso after the Asian financial crisis and the rather severe incidence of the El Niño phenomenon in 1997 led to relatively extensive re-negotiations. The Philippine peso devalued against the United States dollar by more than 100 per cent by the end of 1998 (Chiplunkar/Duenas/Flor 2008: 2). This, in turn, led to the doubling of the concession fees in form of MWSS's former foreign denominated loans. As a consequence, MWCI filed a petition for an Extraordinary Price Adjustment (EPA) (Esguerra 2003: 3). Later on, MWCI and MWSS also signed Amendment Number 1, which was originally initiated by the West Zone concessionaire. It allows automatic tariff rate adjustments based on prevailing exchange rates for the remainder of the concession. Thus, the two concessionaires can neither gain nor lose on the basis of changing exchange rates (Chiplunkar/Duenas/Flor 2008: 3; Manager/Research and Planning Executive Assistant, interview, 11/10/2011; Manager, interview, 05/09/2011). Both EPA and Amendment No. 1 were ultimately the subject of a case in the Court of Appeal, i.e. outside the arbitration rules provided for in the concession agreement. However, a termination of the contract could be averted.

The second re-negotiation concerned the extension of the concession term for another fifteen years. The Philippine Supreme Court mandated the clean-up of Manila Bay and "(w)ith this new ruling, [...] it necessitated that the concessionaires [...] become more aggressive in implementing their wastewater master plans" (Manager/Research and Planning Executive Assistant, interview,



11/10/2011). Although this re-negotiation confirms the fairly good relations between MWCI and MWSS, it still demonstrates the incompleteness of the contract, as the costs and complexity of sanitation services were underestimated.

The third potential point of contention may centre on the harnessing of a new water source that meets the growing demand in Metro Manila. According to the concession agreement, MWSS was responsible for the Umiray Angat Transbasin Project which serves as an additional source (ADB 2004). Besides the development of this new water source, it is not clear whose responsibility it is to develop other required sources (Wastewater Headline Manager, interview, 07/09/2011; Manager, interview, 05/09/2011). According to one of the concessionaires, there is “an implicit assumption in the concession agreement that MWSS is taking care of new water sources” (Chief Finance Officer, interview, 02/09/2011), mainly because it will be a complicated large-scale project involving considerable investments. This arguably goes beyond the scope of obligations and responsibilities of the concessionaires, which are tasked with supplying drinking water and sanitation services as stipulated in the concession agreement. Moreover, the costs would be passed on to the consumer if the concessionaires had an obligation to develop the source because, as mentioned above, the concession agreement allows the concessionaire to recover all investments plus achieve a rate of return (Chief Finance Officer, interview, 02/09/2011; Manager/Research and Planning Executive Assistant, interview, 11/10/2011). A more equitable financing scheme might, therefore, be achieved if the public partner develops the source by relying on tax revenue and possibly ODA. In any case, the modalities, as well as issues related to water rights and tariffs, remain ambiguous (Manager, interview, 05/09/2011; Public Servant, interview, 08/09/2011).

5.2 Alignment of governance structure in the East Zone concession

Based on the analysis of the level of transaction costs and contractual hazards, the governance structure in form of a concession between MWCI and MWSS is arguably an alignment. In contrast, the hierarchical form of governance before the implementation of the concession is thus a misalignment. Figure 6 summarises the levels of asset specificity, uncertainty and contractual hazards, the corresponding governance structure according to TCE, and the performance level in the East Zone concession.

Figure 6: Summary of data analysis of the East Zone concession

Independent variable	Intermediary variable	Dependent variable
Asset specificity: Low to medium Uncertainty: Medium Contractual hazards: Medium	Before: Misalignment of governance structure → hierarchy (public service) After: Alignment of governance structure → market/hybrid (concession)	Performance level of water services: Before: Medium After: High

Source: own figure

The governance structure in the form of a concession seems to be particularly well aligned because the level of asset specificity is between a medium and low level, nearly implying the applicability of market governance according to the theory of TCE. As mentioned, a concession is arguably on the edge of full privatisation, denoting market governance, but retains some hybrid characteristics. It thus seems to allow the economisation of transaction costs and efficiency gains through higher incentive intensity. The medium level of contractual hazards also more or less confirms this alignment of governance structure and the misalignment before. Although re-negotiations have taken place, it should be recognised that a solution, which the public and private partner were able to accept, could be found for every issue. MWCI and MWSS were even able to overcome the difficulties during the Asian financial crisis. Referring back to the performance levels of the East Zone concession in Section 3.3.1, the analysis demonstrates that the service provision in the water sector improved considerably after the implementation of the concession. Hence, based on the theoretical frame of TCE, the study ascribes this at least partly to the alignment of governance structure and an economisation of transaction costs.

5.3 Transaction characteristics of the West Zone concession

Although we could assume that the degree of transaction costs is similar in the East Zone and West Zone concessions, the subsequent analysis using TCE will show that there are some crucial differences. This is particularly true for the level of asset specificity. As mentioned, TCE argues that as the levels of asset specificity and uncertainty surrounding a transaction increase, the need for contractual safeguards increases as well. Hence, the following examination of the characteristics of transactions in light of the theory of TCE will reveal that the governance structure in the form of a concession is not well suited to handle and organise the water transaction and hence transaction costs. This may also have led to the rather poor performance of the West Zone concessionaire.



5.3.1 Asset specificity

First, the level of asset specificity, as measured by the properties of raw water, is considerably higher in the West Zone concession compared to the East Zone. In most of the service area, MWSI also relies on the Angat-Ipo-La Mesa Dam Raw Water System. The raw water eventually flows to the La Mesa Treatment Plants 1 and 2, where it requires the level of treatment described above, namely physical and chemical treatment plus disinfection. However, in order to be able to provide water to the southern parts of the concession area, MWSI tapped Laguna Lake as an additional water source, with the water being treated in the Putatan treatment plant (MWSI 2009b; Chief Finance Officer, interview, 02/09/2011). In the southern parts, it is not feasible to use raw water from the Angat-Ipo-La Mesa Dam System, as the water distribution system is either non-existent or in a very poor condition (Chief Finance Officer, interview, 02/09/2011). Compared to Angat Dam, pollution levels in Laguna Lake are much higher due to more residents and factories beside the lake, so that the raw water requires a complicated treatment process. This includes the use of specific technologies, namely membrane filtration and reverse osmosis (MWSI 2009a: 4; MWSI 2009b). This technology is the first of its kind being used in the Philippines, implying that it is not well tested. Moreover, it raises treatment costs, as it is very energy-intensive. Investments in these unproven technologies are particularly risky for the private partner. The regulator might argue that the expenditures are not prudently and efficiently incurred, for example if the technology is not working properly, so that it may disallow MWSI to recoup the expenditures (Chief Finance Officer, interview, 02/09/2011).

The second indicator to assess the level of asset specificity, namely the origin of raw water, is judged to be low. Similar to MWCI, in the West Zone concession, more than 97 per cent of raw water stems from surface water sources of the Angat-Ipo-La Mesa Dam Raw Water System and from Laguna Lake (MWSI n.d.; MWSI 2009b). Hardly any expensive and highly technical pumping systems are needed to obtain and distribute the water (Chief Finance Officer, interview, 02/09/2011).

With regard to the third indicator, i.e. riskiness of loans and investments, the level of asset specificity is arguably high. The distribution system in the West Zone was not only in a poorer condition as compared to the East Zone, but there were also major unpredictable hazards. Accordingly, the West Zone concessionaire inherited the older parts of the distribution system with pipes dating back to Spanish colonial times. Some parts of the distribution system were more than a hundred years old (Chief Finance Officer, interview, 02/09/2011; Public Servant, interview, 08/09/2011; Manager, email interview, 05/01/2011). Moreover, at the point of privatisation in 1997 the NRW value was above 66 per cent in the West Zone concession, implying that the distribution system was in poor condition (MWSS-RO 2010b). This high value in MWSI's service area, especially compared to the NRW level of only 45 per cent in the East Zone, is particularly interesting when taking into consideration some of the assumptions of the public partner prior to privatisation. Before the division of the service area into an East and West Zone, the West Zone was assumed to have a more developed infrastructure requiring less capital expenditure. This was also the reason



why MWSI was required to repay 90 per cent of MWSS's foreign denominated debts in the form of concession fees, whereas MWCI only had to pay 10 per cent (Chiplunkar/Duenas/Flor 2008: 2). In concrete figures, it meant that "if [MWSI] had \$800 million dollars of concession fees to pay, [MWCI] probably only had 80 million dollars" (Chief Finance Officer, interview, 02/09/2011). As a consequence, after the Asian financial crisis the much larger concession fees led to major financial constraints, resulting in long and complicated re-negotiations (Chiplunkar/Duenas/Flor, 2008).

5.3.2 Uncertainty

Unlike the level of asset specificity, the degree of uncertainty in the West Zone concession is comparable to that in the East Zone concession. Accordingly, the origin of raw water is surface water stemming mainly from the Angat-Ipo-La Mesa Dam Raw Water system and a smaller part from Laguna Lake (Chief Finance Officer, interview, 02/09/2011). Therefore in this case too, the availability of water can be assessed fairly easily, so that uncertainty is low.

Second, with regard to the availability of raw water, MWSI faces similar problems as MWCI, meaning that currently it has enough water available to meet demand. However, the future is still unclear as a result of the impacts of the weather phenomenon El Niño and the riskiness of relying on a single source which is close to an earthquake fault line. Although MWSI was able to tap a second water source, namely Laguna Lake, it is impossible for the company to rely only on this source due to the substantial treatment costs. Accordingly, MWSI also aims to meet the demand in the southern parts of the concession area by relying on Angat Dam as soon as the proper distribution system is put in place (Chief Finance Officer, interview, 02/09/2011). Similar to the East Zone concessionaire, MWSI is also actively looking for new water sources. As mentioned, this could become a contentious issue, as the concession agreement does not clearly define whose responsibility it is to develop this new source (Chief Finance Officer, interview, 02/09/2011; Manager, interview, 05/09/2011).

Third, the length of the contract influences the level of uncertainty. Similar to the contract duration of the East Zone concession, MWSI and MWSS initially set the concession period to 25 years in 1997 and extended it by another fifteen years in 2009, so that the concession is now envisioned to end in 2037 (Chief Finance Officer, interview, 02/09/2011). Hence, uncertainty with regard to this indicator is quite high.

5.3.3 Contractual hazards

The concession between MWSI and MWSS exhibits a high level of contractual hazards, especially compared to the East Zone concession. Similar to MWCI, MWSI had to face two major crises shortly after the completion of the privatisation process, namely the Asian financial crisis and the rather severe incidence of the El Niño phenomenon. Unlike MWCI, MWSI was not able to meet 90 per cent of MWSS's foreign denominated debts from concession fees. After the Asian financial crisis and the subsequent devaluation of the Philippine peso, MWSI's concession fees also doubled. As a consequence, MWSI was no longer



able to borrow money for capital expenditure to improve the water infrastructure. Instead, it ended up using borrowed money and equity to pay the concession fees (Chiplunkar/Duenas/Flor 2008: 1-3; Esguerra 2003: 6-7). Despite tariff increases granted under an EPA and, later on under Amendment No. 1, MWSI failed to consolidate its finances. In December 2002, the private partner gave notice of early contract termination. The dispute ended before the courts, after the arbitration mechanisms defined in the concession agreement failed. After a long and expensive struggle, MWSS underwent debt and capital restructuring, which resulted in MWSS becoming the largest shareholder of the company in 2005. Shortly after the process was completed, MWSS launched an international tender for the right to subscribe to their shares (Chiplunkar/Duenas/Flor 2008: 4).⁹ As mentioned earlier, DCMI-MPIC took over the ownership of MWSI in January 2007. Although some improvements in service quality can be observed since the change of ownership, the West Zone concessionaire still lags behind, especially when compared to the East Zone.

The second re-negotiation concerned the extension of the concession period for another fifteen years. Although this re-negotiation demonstrates the confidence in the concession between MWSS and MWSI, including the new owners, it reveals the incompleteness of the contract due to an underestimation of the costs of providing sanitation services. The third potential point of contention, which may affect the West Zone concession similar to the East Zone concession, might be the harnessing of a new water source, already discussed in Section 6.1.3 (Chief Finance Officer, interview, 02/09/2011; Manager, interview, 05/09/2011; Manager/Research and Planning Executive Assistant, interview, 11/10/2011).

5.4 Misalignment of governance structure in the West Zone concession

Based on the analysis of the level of transaction costs as characterised by the degree of asset specificity and uncertainty, and the level of contractual hazards, the study concludes that the hybrid governance structure in the form of a concession between MWSI and MWSS is a misalignment. Due to a medium to high level of asset specificity and a medium level of uncertainty, the concession, which is, as mentioned, an organisational construct between market and hybrid forms of governance, failed to economise transaction costs. This is also exemplified by the high levels of contractual hazards, resulting in a termination of the contract between MWSI and MWSS and a complicated change of ownership.

Before the implementation of the concession, the governance structures could have been better aligned as well, as a hybrid form of governance would presumably have simultaneously increased incentive intensity and economised transaction cost. In view of that, a management or a lease contract, which are clear hybrids, might have been a better choice. Nevertheless, according to the

⁹ For a detailed description of the debt and capital restructuring, see Chiplunkar, Duenas and Flor (2008).

theory of TCE, the hierarchical form of governance is also an applicable option. Figure 7 again summarises the levels of asset specificity, uncertainty and contractual hazards, the corresponding governance structure according to TCE and the performance level of the West Zone concessionaire.

Figure 7: Figure 6: Summary of data analysis of the West Zone concession

Independent variable	Intermediary variable	Dependent variable
<p>Asset specificity: Medium to high</p> <p>Uncertainty: Medium</p>	<p>Before: (Mis)alignment of governance structure → hierarchy (public service)</p> <p>After: Misalignment of governance structure → market/hybrid (concession)</p>	<p>Performance of water service provision</p> <p>Before: Medium</p> <p>After: Medium to low</p>
<p>Contractual hazards: High</p>		

Source: own figure

Referring back to the performance levels in the West Zone concession in Section 3.3.2, the analysis has shown that after the implementation of the PPP, water service provision did not improve; indeed, to some extent it deteriorated. Again, based on the theoretical frame of TCE, the study ascribes this to the misalignment of governance structure and a dis-economisation of transaction costs. It would be interesting to know whether the performance of the water utility would have improved with the same amount of capital expenditure if it had remained in public hands. The very costly re-negotiations could certainly have been avoided if a different governance structure, which would have better economised transaction costs, had been chosen.

To sum up, the previous analysis seems to support the hypothesis that a misalignment of governance structures has a negative impact on the performance of service provision in the water sector. An alignment of governance structures according the theory of TCE led to improved water services in the East Zone concession, while a misalignment of governance structures in the West Zone concessions resulted in a deteriorated performance. Hence, the two cases exemplified variations in the dependent variable, namely the performance levels of the two concessionaires, and the explanatory variables, namely the level of transaction costs and a (mis)alignment of governance structures. Simultaneously, other possible influencing factors, such as the regulatory strategy, the contract design and the political and economic environment, including the general water sector reform and unforeseen shocks are the same in both concessions. They are therefore constant. The investigation thus shows that no general conclusions about the water privatisation can be drawn without carefully differentiating between the two concession areas. The results suggest that in the privatisation process in Metro Manila, the different characteristics of the trans-





actions in the concession areas were not properly considered. As a consequence, the two concessionaires took very divergent paths after privatisation.

6. Conclusion

As was shown, the introduction of PSP in the water sector is not a general panacea for the efficient and effective water services that are urgently needed in many developing countries. However, in some cases it may lead to improved performance of the water sector, including increased access to water, better service quality and reduced water losses. In contrast, in other cases it may result in poorer performance, exemplified by high tariffs and negative externalities on health and the environment. This study tried to identify which circumstances and conditions contribute to the success and failure of PSP in the water sector. The theory of TCE proved to be a valuable framework to scrutinise the role that transaction costs play in determining the relative effectiveness of different organisational forms of PSP.

The most-similar case study of the two water utilities in Metro Manila in light of the theory of TCE arguably confirmed the hypothesis that a misaligned governance structure according to the level of transaction costs leads to a deteriorated performance of service provision in the water sector. More specifically, in the East Zone concession of Metro Manila, it was demonstrated that service provision in the water sector improved, with increased access to water, less water rationing, lower NRW levels and cost-covering and affordable tariffs. In this case, the organisational mode of governance in the form of a concession was aligned according to the degree of transactions costs as measured by a (low to) medium level of asset specificity and medium level uncertainty. Moreover, the limited number of contractual hazards further confirmed the alignment. In contrast, in the West Zone concession, the study showed that a misalignment according to a (medium to) high level of transaction costs, as measured by a (medium to) high level of asset specificity and medium level of uncertainty, led to a widely recognised failure to reform the water sector. The performance of the water utility could not be improved and in some periods it actually worsened, with increased water rationing and NRW levels, for example. Again, the misalignment was also verified by a high degree of contractual hazards resulting in the termination of the contract. The level of asset specificity in particular is very different in both concessions. While MWCI's raw water sources only require conventional treatment technology, part of MWSI's raw water source necessitate the use of specific, much less tested technologies. Furthermore, MWCI inherited the newer parts of the water infrastructure, which were in much better condition, whereas some sections of the distribution system in the West Zone concession area dated back to Spanish colonial times. In addition, the concessionaires faced different amounts of concession fees, which impacted on the riskiness of investments with MWCI having to pay only 10 per cent and MWSI 90 per cent of MWSS's former foreign denominated loans. Even though this factor was included in the analysis in relation to heightened asset specificity, the impact of this difference in light of the currency risk might have been underestimated (Neville 2011: 253). Table 7 gives another overview of the findings.

Table 7: Overview of findings

		
Independent variable: - Transaction Costs - Contractual hazards	- (Low to) medium - Low to medium	- Medium to high - High
Intermediary variable: - (Mis-)alignment of governance structure	Before: Misalignment After: Alignment	Before: Alignment After: Misalignment
Dependent variable: - Performance	Before: Medium After: High	Before: Medium After: Medium to low

Source: own figure

Nevertheless, it should be kept in mind that an alignment of governance structures cannot guarantee the success of any privatisation process. As was suggested in Section 2.3, internal factors related to the management of water utilities also have a major impact on their success and failure. This, however, applies to both publicly or privately run water utilities and it also holds true with regard to the two concessions in Metro Manila. Accordingly, corporate governance and financial and operational management were other key factors that determined the widely recognised success of MWCI and failure of MWSI (Wu/Malaluan 2008; Neville 2011). First, concerning corporate governance, unlike MWCI, MWSI largely engaged its related foreign subsidiaries as management and technical consultancies without competitive bidding, which substantially increased costs (Wu/Malaluan 2008: 217-219; Neville 2011: 256.). Second, MWCI made adjustments with regard to its financial management in response to the Asian financial crisis. This implied that the company focused on domestic and smaller loans for capital expenditures, aimed solely at areas that were most likely to produce financial improvements. These adjustments were not made by MWSI (Wu/Malaluan 2008: 219-221). Third, whereas MWCI retrained, supported and encouraged its employees in various ways, MWSI failed to increase its employees' capacities and Filipino employees even felt like second-class staff (Wu/Malaluan 2008: 221-223; Neville, 2011: 256; Manager, interview, 05/09/2011). These findings are also confirmed by all interviewees (Manager, interview, 05/09/2011; Public Servant, interview, 08/09/2011; Chief Finance Officer, interview, 02/09/2011; Wastewater Headline Manager, interview, 07/09/2011; Manager/Research and Planning Executive Assistant, interview, 11/10/2011).

Although performance is slowly improving in the West Zone concession since the change of ownership, pointing to an improved management strategy, this report has demonstrated that MWSI is still having difficulties meeting the contractual targets. In relation to this, the continuously high NRW levels are particularly striking, as reducing NRW offers the best prospects of increasing efficiency and financial viability. It may be premature to fully evaluate the new



owners of MWSI and it remains to be seen which way MWSI will go in the coming years. Despite these additional determining factors, a certain trend becomes visible through the analysis of the two most-similar case studies, exemplifying the impact of a (mis)alignment of governance structures on the performance of service provision in the water sector. The results suggest that there is no absolute advantage of one governance structure, be it a hierarchical form of governance (public provision), a hybrid form of governance, or on the edge of market governance (concession). Rather, a comparative advantage of the different governance structures can be observed, depending on the characteristics of the transaction.

Putting the analysis in broader perspective, with reference to other water privatisation processes in the last decades, it seems questionable that all of them would have been initiated if transaction costs and their determining characteristics had been considered. Accordingly, it seems very likely that many water utilities in developing countries, especially those in the numerous megacities, figure high transaction costs. Accordingly, referring back to some of the indicators for asset specificity and uncertainty, it can be stated that (i) raw water sources are increasingly polluted, necessitating increasingly sophisticated treatment technologies; (ii) due to the overexploitation of water sources, the availability of both surface and groundwater sources is decreasing, which not only exacerbates water scarcity but also impacts negatively on water quality (Engel et al. 2011); (iii) due to the aforementioned under-investment in the water sector, water distribution systems tend to be old and in a rather poor condition (see, for example, Bakker 2010: 87), enhancing the riskiness of investments. This implies that public sector involvement in the provision of water services remains indispensable, so that transaction costs are economised through an alignment of governance structures. However, to confirm this statement, wide-ranging analyses of more (mis)aligned governance structures in the water sector in light of the theory of TCE are needed. This may also help to tackle the immense challenges facing the water sector in many developing countries.



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Manager, Regulation and Corporate Development/Research & Planning Executive Assistant, Regulation and Corporate Development, MWCI, interview, 11/10/2011.

Manager, Regulation and Corporate Development, MWCI, email interview, 05/01/2011.

9. List of Abbreviations

ADB	Asian Development Bank
DMCI	DM Consunji, Inc.
EPA	Extraordinary Price Adjustment
FAO	Food and Agriculture Organization
MPIC	Metro Pacific Investments Corporation
MWCI	Manila Water Company, Inc.
MWSI	Maynilad Water Service, Inc.
MWSS	Metropolitan Waterworks and Sewerage System
MWSS-RO	Metropolitan Waterworks and Sewerage System Regulatory Office
NIE	New Institutional Economics
NRW	Non-revenue water
ODA	Official Development Assistance
PPP	Public-private partnership
PSP	Private sector participation
RR	Rate-rebasing
TCE	Transaction Cost Economics
UN ECOSOC	United Nations Economic and Social Council



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