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CRITICAL SUCCESS FACTORS OF PRIVATE SECTOR PARTICIPATION IN WATERSUPPLY SERVICES

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Abstract: The purpose of the research is to establish critical success factors of private sector participation in the case of water supply services of low and middle income countries. The possibility of establishing these factors is presented through a case study of private sector participation in Manila's water supply services, generally the largest private sector participation project in water supply. By applying that approach it is found that the quality of operator's resources, the strength of consortium, partners' commitment, public support and the political environment are of crucial importance.

Key words: private sector participation, water supply, market failures, government failures, natural monopoly, concession, Manila

ČIMBENICI USPJEHA PARTICIPACIJE PRIVATNOG SEKTORA U VODOOPSKRBI

Sažetak: Cilj je istraživanja ustanoviti kritične čimbenike uspjeha participacije privatnoga sektora u vodoopskrbi zemalja s niskim i srednjim dohotkom. Mogućnosti iznalaženja kritičnih čimbenika prikazani su kroz studiju slučaja participacije privatnoga sektora u vodoopskrbi Manile, općenito najvećega projekta participacije privatnoga sektora u oblasti vodoopskrbe. Na ovaj način pokazuje se da su od presudnoga značaja kvaliteta resursa vodovoda, snaga konzorcija, privrženost partnera, javna podrška i političko okruženje.

Ključne riječi: participacija privatnoga sektora, vodoopskrba, slabosti tržišta, slabosti države, prirodni monopol, koncesija, Manila



1. Introduction

Cancellation of projects in the water and sewerage sectors, expressed in value terms, is considerably greater than in other infrastructure sectors, which requires consideration of the critical success factors of private sector participation (PSP) in the field of water supply (World Bank and PPIAF, 2018).

With regard to the cancellations concerned (see Table 1) and the difficulties of PSP in the water supply sector in general, over the last 25 years there have been changes in the PSP methods and mechanisms, influenced by politics advocated by international organizations with global influence as well as perceptions of local and national public authorities.

Table 1: Cancelled PSP projects in water supply and sewerage; low- and middle-income countries, 1990-2018

Region	Number of projects	Financial value of projects ^{x)} (in mil USD)	Share in total investments (in %)
East Asia and the Pacific	30	11 740	14
Europe and Central Asia	2	8	0
Latin America and the Caribbean	17	1 621	2
Middle East and North Africa	1	0	0
Sub-Saharan Africa	5	303	0
Total	55	13 672	16

^{x)} Projects with a value of more than 1 million USD

Source: *World Bank and PPIAF* (2018)

The emphasis has shifted from privatization and long-term concession contracts as national (macro) projects to the diffusion of PSP as local solutions of regions characterized by *high potential* for largest transnational corporations (TNCs).

Characteristics of the local context and needs of different types of clients are particularly emphasized as part of this new approach to PSP. Privatizations and long-term concessions have become unpopular over time. A significant number of cases ended in early termination or non-renewal of contracts, both in high- and low- and middle-income countries. This has led to a new generalized view of public authorities on PSP (Valdovinos, 2015).

In response to this situation, PSP promoters have developed a new approach to PSP, which is reflected in the expansion of PSP schemes to facilitate their application in different contexts. Observed from country to country, development of PSP projects has become more specific and diverse, since countries increasingly strive to develop their own PSP schemes, usually with hybrid characteristics that do not easily fit into standard leasing/ concession/ BOT schemes (Delmon, 2015).

TNCs have adapted to this, seeing themselves no longer as providers of financial capital, but as organizations that provide resources and *improve access to water*, as in the case of Veolia, or are *ready for a revolution in access to resources*, as in the case of Suez.

Shorter-term contracts increasingly stand out within these PSP contracts, for example performance based contracts (PBCs), ranging from those related to reducing water losses to those related to leakage management to those related to increasing the number of connections.



For example, through a PBC leakage-related contract the Ho Chi Minh City in Vietnam managed to reduce leakage to almost half of what existed before the project began, with water savings equivalent to serving additional 0.5 million people and power savings of 23,000 kWh/d. PBCs are focused on achieving results, so payments are made accordingly.

Often these projects do not require the private sector to manage the operator, but are reduced to the involvement of private sector expertise only in specific areas of operator activity (Delmon, 2015).

A study entitled *A Tale of Two Concessionaires: A Natural Experiment of Water Privatisation in Metro Manila*, conducted by Wu and Malaluan (2008), established that corporate governance, financial and operational management were among the most important internal factors determining the success of the said PSP.

2. Manila – the highest private sector participation in the history of water supply services

The largest PSP projects in the field of water supply, measured by the number of citizens as consumers in low- and middle-income countries, are: Manila (11 mil), Ivory Coast (7 mil) and Senegal (4.7 mil) (Marin et al., 2009; Verougstraete and Enders, 2014). Measured by project value, the largest PSP projects are: Manila (West) (4.5 billion USD), Buenos Aires (4 billion USD) and the State of Johor (Malaysia) (3.4 billion USD).

PSP is described in further text in relation to the Manila water supply because it represents not only the highest PSP in low- and middle-income countries, but also the highest PSP in the history of water supply services in general.

In the mid-1990s, it became clear that the MWSS (*Metropolitan Waterworks and Sewerage System*) operator could not provide a safe and reliable water supply to Manila's strongly growing population. Two thirds of households did not have a connection to the water supply and those who had one had proper supply for an average of 16 hours a day. Water losses due to leaking, insufficient number of water meters and illegal connections amounted to 63% of the produced water volume. On the other hand, there were no resources available for maintenance and repairs, and the public operator was heavily indebted and inefficient. Suffice it to say that it had 9.8 employees per 1000 connections while the respective partial efficiency indicator was 1.8-2.4 in comparative countries (Verougstraete and Enders, 2014; NCPPP, 2017)

Through the 1995 *Water Crisis Act* it was decided to privatize MWSS within 12 months based on the model applied in Buenos Aires in order to increase quality and access to water and sewerage services, operational efficiency, secure capital for necessary financial investments and end water supply subsidization (Wu and Malaluan, 2008; Verougstraete and Enders, 2014). In 1996, MWSS began the project concerned, which led to signing of concession contracts for a term of 25 years in early 1997, with a concession fee of 1.2 billion USD (Wu and Malaluan, 2008).

In February 1997, the companies *Maynilad Water Services, Inc.* and *Manila Water Company, Inc.* were awarded concession contracts, where the public company MWSS retained ownership of the infrastructure. The first of these companies was awarded the concession of the west part (60% of the population) and the second of the east part of Manila (40% of the population).

When *Maynilad* started operating, it made efforts to increase the number of customers and reduce losses due to non-revenue water by including clients from illegally constructed homes by simplifying connection registration procedures, by allowing connection cost payments to be made in multiple instalments, and by implementing a special project for the water supply of poor people (common water meter, public connection to water reservoirs) (NCPMP, 2017).



The results were dramatically different in the following years: the *Maynilad Water Service* became bankrupt and was eventually turned over to MWSS, while the *Manila Water Company* became very successful, even listed on the *Philippine Stock Exchange*.

The co-existence of two concessionaires in the same city offers a rare opportunity to study the internal factors of PSP because the effects of external or environmental factors (political support, regulatory structure, unforeseen events, etc.) are fully controlled. Of the bidders that were awarded concessions, *Maynilad* (which was awarded the concession for the West Zone) was a joint venture of the transnational company *Suez* and the national company *Benpres Holding*, and the *Manila Water Company* (which was awarded the concession for the East Zone) was a joint venture of the Philippine company *Ayala*, British *United Utilities*, American *Bechtel* and Japanese *Mitsubishi Corporation* (Wu and Malaluan, 2008).

The contract specified that service prices could be changed during the first ten years of the concession contract only on two grounds, in addition to inflation (Wu and Malaluan, 2008):

- extraordinary (annually; to prevent negative financial events like strong devaluation, major changes in legislation and regulations) and
- regular (in five years; to prevent automatic and extraordinary changes from resulting in an unfairly high return on equity).

It is precisely the changes in rates that have become a major subject of dispute between the state and the concessionaires. The amount of extraordinary tariff changes was not specified and there were extraordinary events (the El Niño effect, which led to a reduction in water supply, and the Asian financial crisis that led to a strong devaluation and to a doubling of debt service on that basis), and the method of making assumptions when calculating investment rates was not specified. All this was related to the unusually low tariffs given in the bids relative to the pre-privatization tariffs, which reflected the low efficiency of MWSS as well as the high confidence of the bidding winners. Thus, the base rate was 5 pesos/m³ in the West Zone and 2.3 pesos/m³ in the East Zone, while it had been 8.6 pesos/m³ in the pre-concession period (Wu and Malaluan, 2008).

Maynilad fell into losses (e.g. 24 million USD in 2001) and debts (300 million USD by 2001) and stopped paying the concession fee in 2001. At the same time, it requested a rate increase, and in December 2002 it requested cancellation of the concession contract before an arbitral tribunal. In February 2003, *Maynilad* concluded that the contract was formally cancelled and requested 303 million USD in compensation for the investments made (NCPPP, 2017).

However, MWSS argued that *Maynilad* was not entitled to terminate the contract and filed its own request for termination of the concession contract since *Maynilad* stopped paying the concession fee and failed to reduce the amount of non-revenue water. It also violated the concession contract by not maintaining the (BNAQ-5) and constructing (BNAQ-6) aqueducts and by not increasing the capital stock by 80 million USD. On the other hand, *Maynilad* denied that it was obliged to reduce the amount of non-revenue water and increase the capital stock.

The dissatisfaction of both parties led to an arbitration proceeding before the *International Chamber of Commerce* (ICC), which ruled that neither party provided sufficient evidence to terminate the contract, and so *Maynilad* and MWSS continued to work together providing water supply services *to the extent necessary to satisfy public interest*. The case was closed as late as 24 July 2017 in favour of *Maynilad*. In the meantime, consumers had to pay a big price for the *poorly concluded arrangement* (NCPPP, 2017).

On the other hand, *Manila Water* achieved good financial results. It started making a profit in 1999 while still providing services at a great discount compared to the pre-privatization tariff. It was listed on the Philippine Stock Exchange already in 2005, which was the first initial stock sale in the Philippines since the Asian financial crisis. Its concession was



extended in January 2010 and expires in 2037, and not in 2022 as previously specified. There are complaints that the concession was extended without a competitive bid (Hall et al., 2011).

A number of studies (Rivera, 2011; Abon, 2012) of this PSP case were conducted to determine whether the desired efficiency improvement was achieved and whether it benefited customers through lower rates and better quality of service. The studies established that significant service improvements were achieved, which would not have been possible without the introduction of private operators.

On the other hand, PSP faced difficulties: the tariff setting pattern had to be revised soon after the concession was awarded, the progress in the sewerage sector was lower than expected and after an initial reduction the rates were increased. One of the concessionaires (*Maynilad*) even went bankrupt and it was necessary to resort to public resources to ensure continuity of services while searching for a new operator. Despite these difficulties, the *United Nations Economic and Social Commission for Asia and the Pacific* (ESCAP) deems that it is correct to say that this case study shows that efficiency improvements can be initiated by introducing private operators (according to Verougstraete and Enders, 2014: 4).

It is particularly important to notice the viewpoint presented by Wu and Malaluan (2008), according to whom the main reason of *Manila Water's* success is the introduction of innovations in operational management, which is reflected in:

- introduction of territory management (division of territories into seven business areas, subdivided into 43 demand monitoring zones (districts); a zone services about 10,000 connections and consists of district metering areas with 500 - 700 connections each) and
- introduction of a consumer community program (a group of low-income families, where two to five families share one connection and water consumption costs; where this is not possible, one group connection is provided for the community of up to one hundred families).

3. Critical success factors of private sector participation

In general, requirements that need to be met in order for PSP arrangements to be successful, or critical success factors, receive little attention (Ameyaw and Chan, 2016). A number of critical success factors of water supply services are specified in the literature:

- authorities lacking experience (Carrillo et al., 2008)
- poorly agreed deals and renegotiations (Guasch, 2004)
- poor and unprofessional regulation (Casarin, Delfino and Delfino, 2007)
- public resistance (Hall, Lobina and de la Motte, 2005)
- sector-related barriers (Ameyaw and Chan, 2013)
- country-specific factors (Chen and Doloi, 2008).

Taking a general view, it is beyond doubt that there are systemic market weaknesses (Domljan and Domljan, 2020) and particularly in water supply services (2018). These are imperfect competition (or existence of a natural monopoly, which requires regulation), provision of an insufficient amount of the public resource (because the market does not provide the resource in question at all, or at least not to a sufficient extent, which requires regulation), existence of external effects (action of an individual or of companies imposes costs on others, for example damage to the source or course of the river, which requires regulation), incomplete markets (commercial companies do not produce goods the production costs of which are lower than the price customers are willing to pay, so for



example there is no water supply for parts of the population or for areas despite that fact that they want to pay for water supply services).

On the other hand, if *market failures* are sought to be corrected by public intervention, there are systemic *government failures*. They are manifested in limited information (it is difficult to assess what cannot be seen, that is, what is hidden underground, as illustrated by the case of the water supply of Atlanta, the largest PSP case in the US that ended in failure) (Slattery, 2003) and limitations resulting from political processes (through lobbying, funds are redirected from where they are best invested as shown by the optimization of their use based on cost-benefit analysis, to other places, and, for example, there are no investments in water infrastructure as a result).

Water supply is particularly specific, because whether we like it or not, a state of natural monopoly is inherent in it and it is necessary for production to be performed, or at least regulated, by public authorities.

There is no doubt that there can be big losses when managers run a company that is in the position of a natural monopoly (because they are not exposed to competitive pressures to increase resource use efficiency), and consequently they are not interested in innovating institutional structure, production processes, services and marketing, etc.

Theoretically viewing, PSP can correct the weaknesses of the market and the weaknesses of the state, which evidently exist, although in practice it may fail to do so if it is not properly established, or if the critical success factors are not precisely defined.

The experience of countries with PSP is not linear, especially because PSP is lower in the water supply than in other infrastructure sectors (telecommunications, roads, etc.) and more confronted with political challenges. Econometric analyses also do not give preference to either the public or private sector.

Since 1991, when Gdansk, the first among transition countries, started with PSP, various arrangements for such participation in transition countries have been practised, to the extent that the private sector in Czechia, along with those in Chile and the United Kingdom, has become the most dominant in the world, which should be used to better understand the critical success factors in the field of water supply.

It can be concluded that the five factors critical to success of PSP in water supply are:

1. *Quality of water supply resources* (quality assets, labour)
2. *Strength of consortium* (strong private partner, preferably a global TNC in the first place)
3. *Commitment of partners* (strong commitment of partners involved in the project, competent partner from public sector, internal coordination of authorities and flexible contract with fair risk sharing)
4. *Public support* (public acceptance and funding support)
5. *Political environment* (bidding procedure conducted in a high-quality manner and commitment of the authorities to the project).

4. Responsibility for development of water supply

Although PSP was undoubtedly successful in East Manila (measured by service availability, access to services, reduction in the amount of non-revenue water, reduction in the number of employees, etc.), there was a problem of responsibility for the development of water supply services, more precisely for ensuring sufficient quantity of produced water, which became apparent in 2015 and especially pronounced in March 2019, when the volume of services decreased, as shown in Table 2. Namely, during March 2019, there were interruptions in water supply not only for households but also for the economy and even for health services, which raised the question of responsibility of regulators and/or private companies-concessionaires (Mendoza and Torres, 2019).



Table 2: Water levels at dams; Manila, March 2019 (in m)

Dam	Standard operating level	Very critical level	Current level
La Mesa	78-80.15	69	68.54
Angat	180-210	180	203.58

Source: Philippine Atmospheric, Geophysical and Astronomical Service Administration (PAGASA) (according to Mendoza and Torres, 2019)

Of the total amount of water produced at the Angat source of 4,000 million litres per day (mlpd) - which is the maximum amount that can be distributed with the existing infrastructure - 60% is used by the West Manila and the remaining 40%, or 1,600 mlpd, by the East Manila. However, due to the increase in the number of connections (the number of connections increased from three to almost seven million from 1996 to 2019) and the unreduced water pressure, there was a need for 1 740 mlpd, i.e. there was a shortage of water of 140 mlpd. The shortage was temporarily solved by using water from the La Mesa reservoir from the beginning of 2016.

Who is to blame for the inadequate development of the distribution network: the regulator and/or the concessionaire? The answer may be given by a different interpretation of the concession contract. The concession contract can be said to mean that during the first ten years of the concession contract, the increase in the number of users and the increase in consumption should be dealt with by the concessionaire based on savings achieved by reducing non-revenue water and modernizing old and developing new wells, so not at the expense of customers (by increasing prices) or at the expense of the concessionaire (by reducing profits) (Mendoza and Torres, 2019).

The concession contract can be interpreted in such a way, because (Esguerra, 2003: 11): *the two companies in question had initially offered to provide high-quality services at a very low cost, and then, when the contract was signed, tried to renegotiate to accomplish lower quality, lower quantity and to postpone the set goals, as well as to use insufficiently precisely defined regulatory rules to adjust prices (...) Trying to get out of provisions of the contract they had originally signed, both companies caused long-term damage to the credibility and viability of not only the regulatory processes, but also of the private sector as a whole.*

According to some studies, concessionaires' returns were indeed high by international standards (Mendoza and Torres, 2019). An explanation, and probably the underlying cause of the problem, may perhaps be sought in the nature of the concession contract concluded by the concessionaires with the regulator, better to say with the captured regulator, which therefore, inter alia, did not adequately monitor the water level at the dam, and in that case, for example, it could have ordered that water pressure be reduced, as was done in 2015. Possible explanations, such as a decrease in precipitation due to El Niño, are not convincing because its occurrence was predicted at least seven months before the outbreak of the March 2019 crisis (Mendoza and Torres, 2019).

5. Conclusion

In PSP arrangements, the private party takes actions, often including investment, that sometimes result in unexpected outcomes, such as a higher than expected service cost, and therefore it is necessary to identify the critical success factors of PSP arrangements.



The following are of critical importance for the success of PSP: quality of water supply resources, strength of consortium, commitment of partners, public support and political environment.

In order to introduce PSP in local water supply services, it is generally necessary to develop awareness of the need for reform and adequate regulation of water supply, to develop an environment for PSP, to analyse the space for implementation of PSP (identify key systemic weaknesses of the state and the market and combine the best aspects of public and private sector), to develop an appropriate PSP model (how to select the appropriate private partner, to define key contract variables and how to measure success).

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