Is Private-Sector Participation in Water Provision the Right Option for Developing Countries?

An Analysis through Case Studies

Raymond Saner, Lichia Yiu and Victoria Khusainova[1]

CSEND Policy Brief Nr. 15, ISSN 2235; Geneva 3rd August 2014

[1] Prof Dr Raymond Saner, Director Diplomacy Dialogue, Prof. Dr Lichia Yiu, President, CSEND and Victoria Khusainova, assistant researcher at CSEND, Geneva

-The digital version is accessible at http://www.csend.org/csend-policy-briefs/item/310-csend-policy-briefs

2014

Table of Contents

Introduction

Context and Background

As a resource that is critical for life, water plays a central role in the workings of society. However, factors such as population growth, pollution, and poor allotment and distribution mechanisms all place severe pressure on water in today's world. Thus, it is necessary for the provision of water to be efficient and sustainable – especially within developing countries. The principle of universal and consistent access to clean water – necessary not only for overall health but also for disease prevention – has led to one of the most consequential Millennium Development Goals on the global agenda: specifically, MDG target 7.C aims to "halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation."[2] Although the drinking water aspect of the target was quantitatively met in 2012, the problem has not been alleviated, as over 780 million people continue to remain without access to an improved water source.[3] The issue arises from the capability of countries to expand water networks and maintain or improve infrastructure in order to supply water to even their most marginalized populations in an efficient manner.

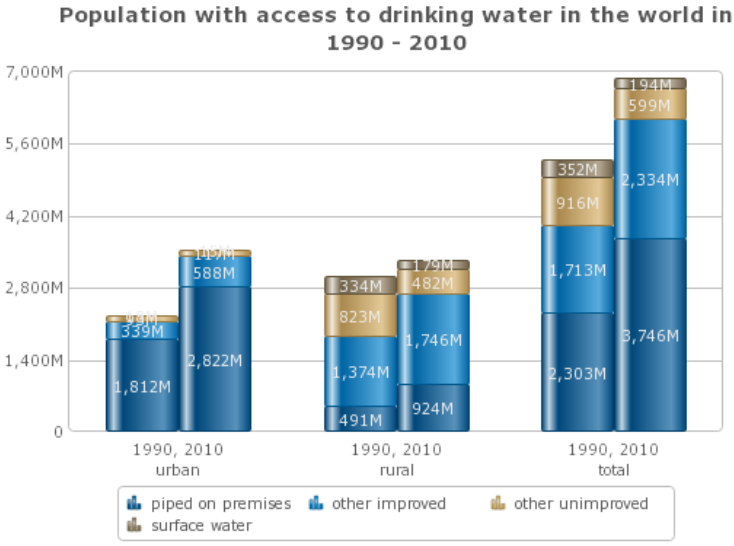


Figure 1. There is still a large proportion of the population without access to safe drinking water. *Source: WHO / UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation,* http://www.wssinfo.org/data-estimates/graphs/

Herein lays the debate to which this paper aims to contribute: that between government provision of water and private sector participation (PSP) in this process (often generalized as privatization). The argument supporting PSP points to the private sector's ability to bring in additional investments and relieve financial stress at the government level related to the construction, operation, and upkeep of infrastructure used for supplying water. This advantage is especially magnified in developing countries, whose governments are often overburdened with economic stress of all types, and stands as one of the most prominent reasons explaining why international organizations such as the IMF

[2] "Goal 7: Ensure Environmental Sustainability." United Nations, accessed November 08, 2013, http://www.un.org/millenniumgoals/environ.shtml

[3] "MILLIONS LACK SAFE WATER." Water.org, accessed November 08, 2013, http://water.org/water-crisis/water-facts/water/

and World Bank champion intervention by the private sector in such cases. Moreover, many believe that the private sector increases the efficiency of water provision by following the guidance of market principles.

Although the privatization of water has been compared to the assimilation of other utility industries, such as electricity and telecommunications, into the private sector, critics differentiate the case of water due to its nature as an essential human need. Here, the proponents of government provision argue that access to water is a human right, and that the resource should be treated as a common good that cannot be commodified. In either case, the socio-political issues associated with provision, including transparency, accountability, and affordable pricing must be taken into consideration.[4]

Rationale

This study analyzes a controversial aspect of the pressing issue of water today, and provides an overview of the options for water provision currently available to countries in different stages of development. It discusses why certain countries have rejected the methods successfully implemented by others, and how even countries in the same geographical region (see Brazil and Bolivia) can face different challenges or adopt dissimilar solutions. It also examines the initiatives and proposals made by international organizations such as the World Bank in responding to extending access to safe drinking water and sanitation to marginalized populations.

Potential Contribution and Objectives

This paper aims to contribute insight into the discourse on sustainable water resources management in developing countries and to present both successful and failed efforts in water provision to highlight best practices and recurring difficulties in this issue, respectively. Amidst a lack of consensus on the correct method of providing water, this discussion is important in shedding light on the possibilities of adapting different options to specific national circumstances.

Methodology

This paper will combine both quantitative research from primary sources and analytical information from secondary sources to discuss the various factors encircling the issue of water privatization. It will look at this issue from an objective perspective, exposing both the benefits and setbacks of privatization, government control, and public-private partnerships in this area. The paper will focus on the case studies of Brazil and Bolivia, and compare them to the advanced countries of the Netherlands and England and Wales.

[4] Naren Prasad. "Privatisation of Water: A Historical Perspective," 3/2 *Law, Environment and Development Journal* (2007), p. 219.

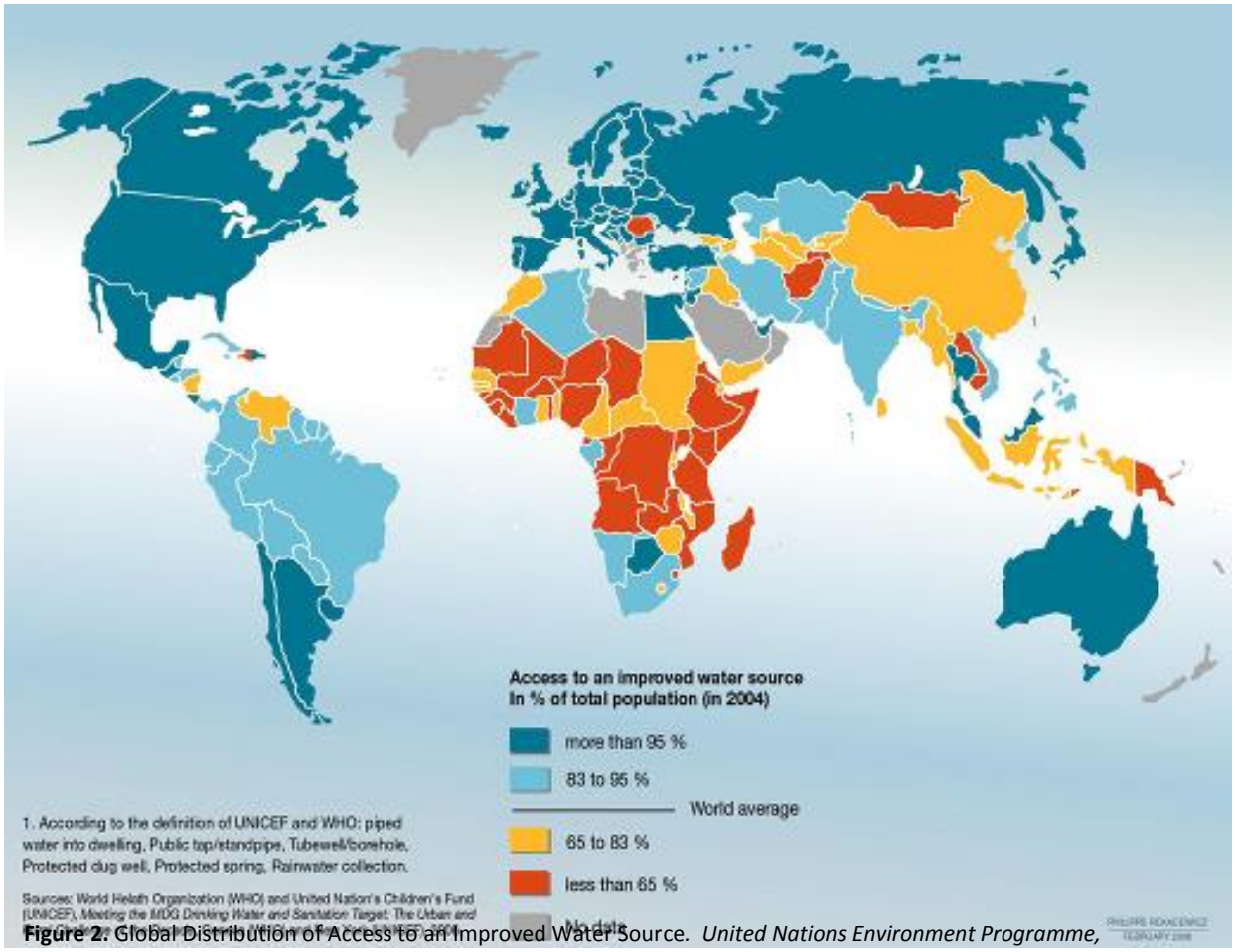


Figure 2. Global Distribution of Access to an Improved Water Source. *United Nations Environment Programme,* http://www.unep.org/dewa/vitalwater/index.html

Operational Options for Water Provision

Overview

In many countries, both developed and developing, water is provided by a government authority using public infrastructure. In some cases this system is successful in reaching most households, but in others, corruption prevails and infrastructure deteriorates as funding to this sector diminishes. Where public provision is judged inadequate, municipalities often turn to private sector participation, which can be divided into two main categories: full privatization and public-private partnerships. The latter can be further split into three different varieties, and is the most common form of privatization today. However, the debate between these options for provision of water remains so heated that certain countries have even passed laws banning privatization (including countries both in the developing world, such as Nicaragua and Uruguay; and in developed countries like the Netherlands). Fortunately, the choice between supplying water publicly

or privately need not be definite, but can instead be subject to change depending on circumstances, and often occurs in cycles of privatization and deprivatization over long periods of time."[5]

Government Provision of Water

The process of decolonization had produced dozens of newly independent states in the 20th century, all of which contributed to the expansion of the so-called 'developing world'. Antipathetic of their former colonists, whose large corporations dominated the economy, these postcolonial countries– namely on the continents of Latin America, Africa, and Asia – nationalized several key industries, including the provision of water to their people.[6] The governments saw this acquisition as vital for stimulating economic growth by "attracting heavy investments in physical facilities, including in water and sanitation," and since then the task of supplying water has lingered in the public sector.[7]

Nowadays, the public sector supplies water to approximately 90% of the world's population.[8] This can occur in a variety of different forms, ranging from provision by state authorities to local cooperatives,[9] and do not aim to generate a profit, but rather to deliver a common good to the public. In many countries, this responsibility falls under the jurisdiction of individual municipalities, which typically manage these services through the direction of a particular department or a distinct water board.[10]

Unfortunately, municipal providers in middle and low-income countries constantly undergo financial, legal, and institutional constraints, as well as political interference that often leads to low labor productivity and over-staffing, altogether producing a challenge for providing high-quality service. [11] For example, the influence of politics is depicted in the argument by opponents of privatization, who cite a "potential political cost of privatizing water supply," in which "even when it follows

[5] Edouard Pérard, "Water supply: Public or private?: An approach based on cost of funds, transaction costs, efficiency and political costs," Policy and Society, Volume 27, Issue 3, February 2009, p. 214. http://dx.doi.org/10.1016/j.polsoc.2008.10.004.

[6] Herath Gunatilake and Mary Jane F. Carangal–San Jose, "Privatization Revisited: Lessons from Private Sector Participation in Water Supply and Sanitation in Developing Countries." Economics and Research Department Working Paper Series No. 115. Asian Development Bank, May 2008: 2. http://www.adb.org/sites/default/files/pub/2008/Wp115.pdf

[7] Ibid.

[8] Madhoo, "International Trends in Water Utility Regimes," cited in Gunatilake and Carangal-San Jose, "Privatization Revisited," 2.

[9] A cooperative is "a business or organization that is owned and operated by the people who work there or the people who use its services." (Definition provided by Merriam Webster, http://www.merriam-webster.com/dictionary/cooperative)

[10] "Main Service Provider: Municipality." MIT, accessed October 24, 2013, http://web.mit.edu/urbanupgrading/waterandsanitation/customers/providing-services.html#main_service_provider

[11] Ibid.

economic rationality, privatization is often negatively perceived by the population," therefore public officials may sacrifice the advantages of privatizing in order to maximize electoral support.[12] For example, legal impediments may include the issue of extending water pipeline networks beyond a city's limits: while this can efficiently increase connectivity, it may also run into the problem of legal jurisdiction and conflict with the interests of the consecutive municipality.[13] Moreover, the meddling of politics with public service, especially in the area of personnel management, can lead to a digression of focus from poor neighborhoods that need it most in favor of more politically-influential ones.[14] Additionally, a collective pressure to maintain low prices traps the municipality in a position in which not only does it fail to extend water networks to un-served areas, but also it can barely afford even to maintain its existing water infrastructure.[15] Overall, such challenges interfere with water accessibility for low-income households, ultimately invoking the question of whether public provision actually has the ethical pursuit of the common good in mind.

One of the main advantages of government provision in the water sector remains the vast opportunities to exploit the economies of scale of this option in the long run, reducing the cost per unit of supplying the utility.[16] In addition, municipal providers can foster cooperation between different departments on various water-related activities, and can thus bring together specialists from diverse fields to work on improving the efficiency of water provision.[17] Finally, the sense of social responsibility present in effective municipal water utilities greatly boosts their public image.[18]

Non-Market Failures

Besides the possible wide-range of benefits, however, public providers can experience non-market failures –occurring when the government intervenes in supplying water, but in fact allocates resources much more inefficiently than would a company operating under market forces. This occurs due to the lack of competition, so "pressures on the water utilities to increase efficiency and to pass the gains on to consumers [are] very weak or [nonexistent]."[19] Such circumstances often explain the poor performance that the government sector is usually criticized for in the water industry.

---

[12] Pérard, "Water supply: Public or private?" 202.
[13] "Main Service Provider: Municipality."
[14] Ibid.
[15] Ibid.
[16] Economies of Scale are defined as "the reduction in long-run average and marginal costs arising from an increase in size of an operating unit".
Source: http://www.businessdictionary.com/definition/economies-of-scale.html#ixzz2lvm0WDOv
[17] "Main Service Provider: Municipality."
[18] Gunatilake and Carangal-San Jose, "Privatization Revisited," 6.
[19] Ibid, 7.

Non-market failures occur with more severity in developing and low-income countries, "where they could barely cover operational costs, [thus] leaving no surplus available to finance the expansion of water networks."[20] Often in developing countries, the ubiquitous nature of nonmarket failures create a downward spiral characterized by "weak performance incentives, low willingness of customers to pay, insufficient tariffs to recover costs, and lack of funding for maintenance, ultimately leading to a deterioration of assets and squandering of financial resources."[21]

In order to minimize the risk of these non-market failures, several operational aspects of the public water utility can be improved. To start, both internal and external accountability can be increased: the first by holding all managers and employees involved in supplying water responsible for maintaining both the "effectiveness (the degree to which the utility realizes its goals) and efficiency (the cost-effectiveness of resources used to produce water)" of the utility.[22] This internal accountability can be supplemented by earmarking more budget resources for staff training and development, to ensure the employment of best practices in the workplace and to promote a thorough understanding of the importance of providing these services.[23] On the other hand, external accountability can be strengthened by increasing the representation of stakeholders who could provide a counterbalance to the short-term objectives of intervening politicians, as well as including participation by customer organizations and non-governmental organizations.[24] Furthermore, public providers can help to prevent non-market failures by becoming more customer oriented, and regularly seeking customer feedback on services – this means increasing "strong oversight capabilities, routine customer satisfaction surveys, and a flexible partnering approach between those who monitor and the operator."[25]

All of these approaches can contribute to better assessing customer needs and improving service quality accordingly. However, in developing countries, populations that are scattered and primarily rural create technical challenges to these advances due to fragmentation and resulting inaccessibility. In such cases, small scale independent providers often take up the water provision role, operating individually at kiosks or delivering water on bicycles.[26] These service providers are generally quite reliable, since they "invest their own resources in the business," but also elevate the cost of water for the poor populations they serve, who

[20] Ibid, 2-3.
[21] Ibid, 3.
[22] Ibid, 4.
[23] Ibid, 4.
[24] Ibid, 6.
[25] Ibid, 5.

[26] Definition: "Small scale independent providers are typically self-employed entrepreneurs who provide water supply and/or sanitation services to a segment of the municipal population." Source: "Main Service Provider: Municipality."

end up paying much more for water access than wealthier households with a regular water connection.[27]

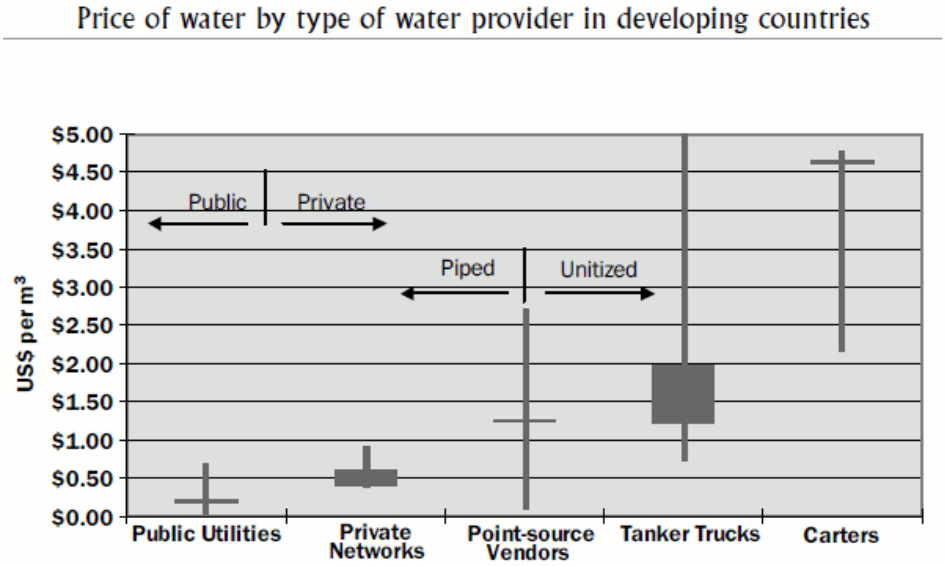


Figure 3. Informal vendors (aka Small Scale Independent Providers or Point-Source Vendors) charge a relatively high price for water. *Global Water Intelligence, (taken from OECD)* http://www.globalwaterintel.com/archive/7/12/analysis/chart-of-the-month.html

A reduction in non-market failures through the bettering of the aforementioned factors, by increasing the efficiency and creating an expanded capacity of the government to provide water services, would thus benefit the low income, isolated families above all. Also because the public sector accounts for the vast majority of worldwide water provision today, these improvements can potentially make a tremendous difference in the lives of those who currently have little to no access to water.

Full Privatization

Historically, "private initiatives were instrumental in establishing modern water supply systems, which led to privately owned or operated systems."[28] In fact, privatization was the dominant method used in most European countries and in the United States since the mid-1800s, until the public sector took over the business due to complaints of "inefficiency, high costs, and corruption" the late part of the century.[29] In full privatization, government assets related to water supply are permanently sold to private investors – because of the extreme and long-lasting nature of this decision, this type of privatization is almost non-existent on the world stage, limited to select areas such as England and Wales, Chile, and parts of the United States.

There is often strong bias towards privatization from an economic standpoint, commonly through the arguments of the increased efficiency and improved service quality that would result from handing water supply services over to the private sector. In experience, this is not always true, but many countries – especially those in developing stages – have turned to private sector

[27] Ibid.
[28] Prasad, "Privatisation of Water," 219.
[29] Ibid.

participation in water provision as a consequence of "increasing debt burden, fiscal and macroeconomic burdens, public health crisis and ideological shifts."[30] Again, politics plays a role in the decision to privatize: in this case because reform of public water supply systems, although containing significant social gains if correctly modified, has relatively little political benefit, thus sometimes inducing governments to pursue the privatization path out of convenience.[31]

When a commodity such as water is placed in the private sector, this arena leaves price and quantity determination up to the interplay of market forces, thus, in theory, generating supply and demand equilibria and leading to an optimal allocation of resources and increased efficiency. However, this is based on an assumption of perfect competition in the marketplace, which is not the case for this particular resource. The water industry is, in fact, naturally monopolistic[32] – creating the infrastructure necessary to fulfill the related services becomes a costly barrier to entry for competing firms, and results in the first or largest company maintaining its cost advantage over others, while simultaneously increasing its economies of scale. Upon achieving monopoly status, the supplier loses incentive to produce more and can potentially cause a market failure in which price will be greater than marginal cost for the firm (leading to allocative inefficiency and disequilibrium), generating a social welfare loss by raising price and restricting output.[33] To prevent utility companies from exploiting their monopolies in such a way, the water industry must be strictly regulated by the government: either by setting a price that the firm can charge for its services or by fixing a percentage of profit above cost that it can retain.[34] Moreover, due to natural monopolization, privatized utilities generally have no incentive to seek customer feedback on their services, which may cause them to lag behind in quality improvement.

Despite these shortcomings, from 1990 to 2005, "55 countries (representing 383 projects) had introduced some form or other of PSP in the water sector," especially "after the collapse of the USSR, [when] the privatization of state industries became important for the countries that were formerly centrally planned and where most

[30] Ibid, 226.
[31] Ibid.
[32] "A "natural monopoly" is defined in economics as an industry where the fixed cost of the capital goods is so high that it is not profitable for a second firm to enter and compete. There is a "natural" reason for this industry being a monopoly, namely that the economies of scale require one, rather than several, firms. Small-scale ownership would be less efficient." (Source: Fred E. Foldvary, "Natural Monopoly," *The Progress Report*, 25 February 2006, accessed 05 December 2013. http://www.progress.org/tpr/natural-monopoly-2/)
[33] Gunatilake and Carangal-San Jose, "Privatization Revisited," 2.
[34] Foldvary, "Natural Monopoly."

industry was state owned."[35] In addition to the fact that innovation in water technology has always been developed within the private sector (demonstrating the importance of keeping this actor involved in the process of water provision), whether or not a government decides to privatize water on a small or large scale should depend on its assessment of absolute efficiency advantage.[36] This economic concept is a useful measuring tool in ascertaining the benefit or disadvantage of private provision over public supply. It stipulates that in order for a private firm to have an absolute efficiency advantage, the following is required to attain the highest possible consumer surplus: "(a) its product is superior in terms of quality, (b) it can supply the good at a lower unit price, and (c) the production does not entail any negative externalities."[37]

Public-Private Partnerships

Public-Private Partnerships, or PPPs, currently represent the most common form of private sector participation in the water sector. Under a PPP, governments work with private companies, delegating to them certain functions of supply while maintaining public ownership of the assets, thereby combining the strengths of both public and private supply systems to enhance the resulting benefits.[38]

Public-private partnerships characteristically involve long-term provisions of service, and come in a wide array of different forms, thus allowing for significant flexibility in choosing the right option for a particular region.[39] The spectrum of PPPs revolves mainly around the factor of allocation of risks and responsibilities to different degrees between the public and private partners, and divides into two encompassing categories: joint ventures, which entail shared responsibilities, and contractual PPPs.[40]

---

[35] First quote from: Prasad, "Privatisation of Water," 227. Second quote from: Mohammed H.I Dore, Joseph Kushner, Klemen Zumer, "Privatization of water in the UK and France—What can we learn?", Utilities Policy, Volume 12, Issue 1, March 2004, pp. 41, ISSN 0957-1787, accessed 18 November 2013. http://dx.doi.org/10.1016/j.jup.2003.11.002

[36] Dore et al., "UK and France," 50, 42.

[37] Ibid, 42.

[38] "Comparing institutional forms for urban water supply," Aurecon Group, accessed 8 December 2013. http://www.aurecongroup.com/en/thinking/current%20articles/comparing-institutional-forms-for-urban-water-supply.aspx

[39] *Guidebook on Promoting Good Governance in Public-Private Partnerships.* United Nations Economic Commission for Europe, United Nations, Geneva (2008): 1. http://www.unece.org/fileadmin/DAM/ceci/publications/ppp.pdf

[40] Ibid, 2.

Figure 4: Common Types of Public-Private Partnerships

Contract Type	Description	Level of Risk
Management contract	Operator receives fee to perform operations and routine maintenance. Asset owner pays for repairs, extensions, etc. Little risk to private operator.	Asset Holder
Lease (affermage) contract	Operator keeps revenue but must pay specified operating and maintenance costs and lease fee, and possibly percentage of revenue. Operator loses money if costs and fees exceed revenue and thus has incentive to lower costs and increase water connections and bill collection.	
Build-and-operate contract	Eventual operators construct or rehabilitate and sometimes design water system, then manage operations under either management or lease (affermage) arrangements.	
Invest, build, and operate contract	Contractor-operator is also required to provide portion of investment costs. Schemes are operated as concessions, in which operators assume all costs and retain all revenue for extended period (e.g., 10 years in Paraguay, 18 years in Bangladesh)	Private Operator

Figure 4. Overview of PPPs commonly found in the water sector. *"Public-Private Partnerships for Rural Water Services," IRC International Water and Sanitation Centre* http://water.worldbank.org/sites/water.worldbank.org/files/publication/Public-Private-Partnerships-for-Rural-Water-Supply.pdf

The concession model, a type of contractual PPP, remains the most common form in the water sector, "bringing private sector management, private funding and private sector know-how" to provide service financed by user fees.[41] Similarly, there are certain models in which public authorities, rather than individual users, pay for the service that is provided by the private partner, and many other types of contracts with varying extents of management and lease (generally concluded for shorter periods of time than concessions).[42]

Benefits

PPPs in water provision are often a means to lower cost, heighten levels of service, and reduce the risk experienced by

[41] Ibid, 1.

[42] "Public-Private Partnerships for Rural Water Services," Briefing Note No. 4, IRC International Water and Sanitation Centre, 2012: 5.

http://water.worldbank.org/sites/water.worldbank.org/files/publication/Public-Private-Partnerships-for-Rural-Water-Supply.pdf

the public sector ("by diverting risks to parties that can better manage them").[43] This type of cooperation brings forth innovation from the private sector, for example in delivery infrastructure, and increases the probability of completing projects both on time and on budget.[44]

Besides improving service quality and increasing efficiency, PPPs offer crucial new financing tools to help overcome infrastructure deficits that arise when a government's tax base alone can no longer adequately fund the infrastructure required for providing water to its constituents.[45] Yet, PPPs are distinct from privatization, as the public sector remains accountable for the delivery of services to its customers, and no complete transfer of utility ownership to the private sector occurs.[46]

Challenges

Despite the advantages that PPPs offer in the field of water provision, most countries are still only in the first phase of PPP development, with few actual projects underway.[47] The primary reason behind this slow progress is a combination of the need to establish new institutions and functional procedures, and the need to gather a type of public expertise that will push such projects forward successfully and track their progress over time.[48]

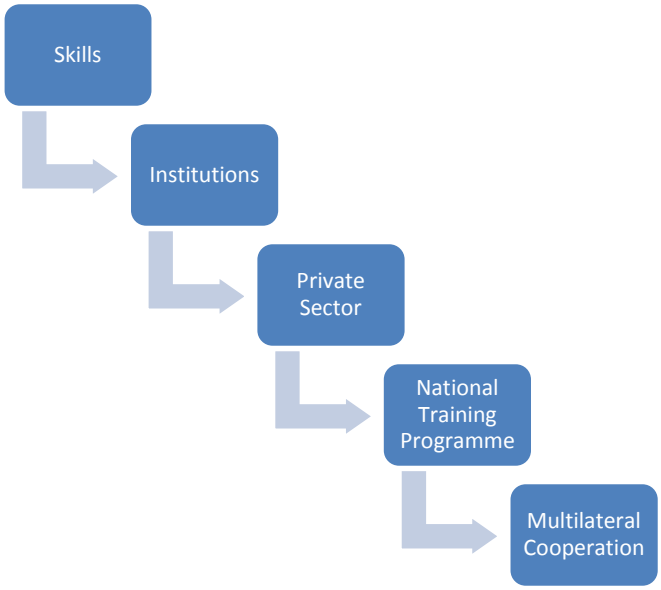


Figure 5. Steps for Successful PPP Capacity-Building. Establishing public-private partnerships for water or virtually any other industry previously controlled by the public sector requires multiple steps, and thus cannot be completed overnight. This helps to explain why the PPP programs initiated by many countries are not yet fully developed.
Guidebook on Promoting Good Governance in Public-Private Partnerships. United Nations Economic Commission for Europe, United Nations, Geneva (2008): 24.
http://www.unece.org/fileadmin/DAM/ceci/publications/ppp.pdf

[43] UNECE, *Guidebook*, 5-6.
[44] Ibid, 5.
[45] Ibid, 5-6.
[46] Ibid, 4.
[47] Ibid, 6.
[48] Ibid, vii, 8.

Among the many factors that influence the success of PPPs, the most critical are good governance and a "clear [national] framework of law and regulation" with fewer but better laws put into place.[49] One of the central concerns of private sector participation in water supply is the tendency of subsequent tariff increases to isolate economically and socially disadvantaged populations. In PPPs, since the government remains actively involved, it is thus vital that it places safeguards on water supply to "ensure ongoing public access" to the service and protect those who would be most affected by elevated prices.[50]

The public-private partnership thus holds an immense potential for successfully providing water and sanitation services, but currently remains an underused model whose implementation will likely grow over time as countries realize its benefits and work to accommodate such a system.

[49] Ibid, 29-30.

[50] Ibid, 62.

Type of Organization	Sub-Category	Reasons for Emergence	Strengths	Weaknesses	Conditions for Success
Public	Public	-Historically determined -Strong public institutions (legitimate, sufficient tax revenue, etc.) -Monopolistic tendency of network water supply -Water supply externalities	-Protects customers against exploitation -Can ensure equitable distribution of services -Could give customers a voice	-Lack of access to capital -Lack of political will to charge cost-recovering tariffs -Lack of institutional capacity -Inefficient operation -Exposed to cross-subsidization to other government services	-Strong political legitimacy for government -Government charging cost recovering tariff (no history of subsidization) -Long-term view taken by government -Public sector reform to improve efficiency -Access to sufficient capital
Private (For-Profit)	Fully Private	-Unmet need -Areas that are costly to provide with network water -Entrepreneurial private sector -Environment not attractive for large companies	-Provides access to unserved areas -High level of competition	-More expensive than network water -Environmental concerns -Price fixing could occur	-Unfeasibility of central network -Regulating of private providers (to avoid price fixing and ensure quality standards)
	PPP	-Lack of public capital or technical capacity -Weaknesses of public supply (low tariff levels, poor maintenance)	-Increases competition (during tendering stage) -Provides inflow of private capital -Introduces private sector knowledge, technology and capacity	-Private monopoly (erodes public power) -Inequitable supply -Lack of transparency with regulator -Consumers have little voice	-Political Legitimacy -Stable institutional environment (legal, political, etc.) -Strong regulatory control by public sector (equity, tariff level, environmental and quality standards, etc.) -Full information disclosure to public regulator

Figure 6. Comparison of the three main types of water provision.
Source: "Comparing institutional forms for urban water supply," http://www.aurecongroup.com/en/thinking/current%20articles/comparing-institutional-forms-for-urban-water-supply.aspx

Case Studies

As previously noted, water supply exists in various forms in all regions across the world. Some countries, such as those in Latin America, introduced privatization into this sphere to combat the "excessive political interference in public utilities" produced as a consequence of government corruption.[51] However, the extent and nature of water provision services and private-sector participation often differ even within such regions. For example, Chile and Brazil show a much higher investment in water-related infrastructure projects with private participation than any other Latin American countries.[52] The following section will examine four prominent cases in which countries have provided water services through differing systems – some establishing a more or less successful and permanent method, while others fail to achieve similar, stable results.

The Netherlands: Government Provision

Since the 13th century, when water cooperatives were established in the Netherlands, the management and distribution of water resources has been in the hands of the public sector. The current system has its roots in the 18th century, when the government instituted the Rijkswaterstaat as an agency to implement the decisions and plans of the Ministry of Infrastructure and Environment – with administering the water system listed as one of its central functions.[53]

Responsibilities for water provision in the Netherlands are divided by the national and regional levels, with the District Water Control Boards (known simply as water boards, which developed out of the cooperatives formed in the 1200s) and the Department of Public Works and Water Management responsible for monitoring and maintaining the quality and quantity of regional water.[54] Water management policies enacted by the national government are adopted and implemented by provincial governments in 'regional water plans', while government-owned companies supply the drinking water.[55] These ten companies

[51] Prasad, "Privatisation of Water," 226.
[52] "World Development Indicators: Private sector in the economy," World Bank (2013), accessed 29 November 2013. http://wdi.worldbank.org/table/5.1
[53] Rijkswaterstaat, "Water Management in the Netherlands," Ministry of Infrastructure and Environment (February 2011), accessed 3 December 2013: 18. http://www.rijkswaterstaat.nl/en/images/Water%20Management%20in%20the%20Netherlands_tcm224-303503.pdf
[54] "Dutch Water Sector," Vewin, accessed 3 December 2013. http://www.vewin.nl/english/Dutch%20water%20sector/Pages/default.aspx
[55] Sjef van Put, "Some administrative, policy and juridical aspects in relation to groundwater protection (groundwater used as a drinking-water source) in the Netherlands," Ministry of Housing, Spatial Planning and Environment,

comprise the Association of Dutch Water Companies, and successfully preserve an efficient distribution network, experiencing less than 6% leakage losses as compared to the common 12% and higher of other European countries.[56]

The companies ensure this efficiency by utilizing the techniques of benchmarking and yardstick competition. Benchmarking involves the use of indicators including "water quality, customer service, environment and finance & efficiency" to assess the performance of the companies, and aims to provide public accountability, heighten transparency, and produce information to improve the system.[57] Yardstick competition, on the other hand, is used to set prices by changing the dependency of a single firm's payoff from its own performance to that of other firms, thus essentially creating artificial competition when monopolies are present (as in the water sector).[58]

The success and efficiency of water provision services in the Netherlands is also largely due to the strict regulatory policies set forth by the legislation passed by national authorities as a response to the European Union regulation concerning the area of water quality and provision that the country is subject to.[59] The Dutch Water Supply Act of 2005 and the resultant Decree on the Water Supply regulate this sector by setting conditions and standards for drinking water.[60] The act also "combines in reality the best of both worlds: Public ownership married with operation according to cost effective business principles" in public limited companies (PLCs) whose shares are mostly owned by local and national governments, and whose advantages include improved cost recovery and financial transparency.[61]

The Water Act of 2009 promotes integrated water management, highlighting the "relationship between water, land use, and water users," and also imposes requirements on the water system, including standards for water quality, flood defense structures, and "storage or drainage capacity of regional water systems."[62] This act also stipulates the mutual supervision of government bodies implicated in water provision, giving provinces the power to oversee and guide regional water authorities as well as municipalities.[63]

November 2001. Accessed 30 November 2013: 7, 11. http://www.unece.org/fileadmin/DAM/env/water/meetings/groundwater01/netherlands.pdf

[56] "Dutch Water Sector."

[57] Pieter van Geel, "Innovative practices in the Drinking Water Supply in The Netherlands: Private Business, Public Owners." UNEP/GMEF (2004), accessed 1 December 2013: 2. http://www.unep.org/gc/gcss-viii/NetherlandsWatSan.pdf

[58] Gunatilake and Carangal-San Jose, "Privatization Revisited," 4.

[59] UNECE*, Guidebook*, 49.

[60] "Dutch Water Sector."

[61] Va Geel, "Innovative Practices," 2.

[62] Rijkswaterstaat, "Water Management," 75-6.

[63] Ibid, 78.

England and Wales: Full Privatization

England and Wales are an example of full privatization of the water sector accompanied by strict regulations. They introduced PSP into this field and became the "precursor to modern water supply systems, which later spread to Germany, elsewhere in Europe and to the United States."[64] The current water provision system in England and Wales began in the 1980s, when Margaret Thatcher launched a successful privatization campaign in order to "raise revenue for the state, promote economic efficiency, reduce government interference in the economy, promote wider share ownership, introduce competition, [and] subject state-owned enterprises to market discipline."[65] By 1989, the British government had completely privatized both the water and sewage utilities, giving monopoly rights for 25 years each (by region) to ten water and sewage companies, who proceeded to invest £40 billion in the sector over this period.[66]

Subsequently, with the aim of balancing out the monopolistic market power of the private companies, the government established three regulatory agencies to oversee all aspects of water provision: the Office of Water Services (OFWAT), which regulated price; the Drinking Water Inspectorate (DWI), which ensured water quality; and the Environmental Agency (EA), which monitored river and environmental pollution.[67] Legislation was also later passed Legislation passed "prohibiting companies from disconnecting for non-payment," to address the issues of continuous access regardless of ability to pay and customer satisfaction.[68]

One of the hindrances of this privatized network, however, proved again to be heightened tariff charges for the utility – with prices rising 46% in just ten years (by 1999), resulting in exceptionally high profit rates for UK firms by international standards – which inhibited the private sector from ultimately gaining the absolute efficiency advantage described earlier.[69] Essentially, this aspect of the privatization scheme entailed a redistribution of wealth to the new company owners (from the public to the private sector).[70]

Nevertheless, the full privatization of water services in England and Wales achieved remarkable improvements in drinking water quality (though this was also attributed to the "more stringent regulatory regime" that accompanied the

[64] Prasad, "Privatisation of Water," 219.
[65] Ibid, 226.
[66] Dore et al., "UK and France," 42-43.
[67] Ibid, 43.
[68] Ibid, 45.
[69] Ibid, 46-49.
[70] Jean Shaoul, "A Critical Financial Analysis of the Performance of Privatised Industries : The Case of the Water Industry in England and Wales," in *Critical Perspectives on Accounting* (Academic Press Limited, 1997), 501.

privatization), environmental aspects (such as the cleanliness of waterways and beaches), and compliance with standards set by the European Union (which rose from 76% in 1989 to around 92% in 2000).[71]

Brazil: Public-Private Partnerships

After decades of mainly public water provision, in 2003, the Brazilian government decided to take the PPP approach – spurred by the public sector's rapidly waning ability to finance infrastructure development and operation and the growing need for private investment in this sphere.[72] Burgeoning urban population growth placed additional pressure on the State Sanitation Companies, which faced a growing number of unserved households as a result of financial hardships that prevented them from adequately extending and/or maintaining water and sanitation services.[73]

The initiation of the National De-Statization Program ("Programa Nacional de Desestatização" – PND) by Act 8.031 passed in 1990 made way for private sector participation in federal public services, which, for water supply and other parts of the sanitation industry, began at the municipal level.[74] The private sector has participated in water and sanitation services provision in Brazil since the mid-1990s, with a total of 112 privately-funded projects inaugurated in this field as of 2012.[75] The majority of these contracts (95, to be exact) were completed in the form of concessions – a common type of PPP as mentioned previously in "Operational Options" section of this paper. In fact, Brazil today remains one of the South American countries with the highest investment commitments in infrastructure projects with private participation (and growing) in the water and sanitation sector, with $1,234.4 million committed during the time period between 2000 and 2005, and $1,708.5 million in the 2006-11 period.[76]

---

[71] Dore et al., "UK and France," 44-45.

[72] Frederico Araujo Turolla, Tomas Anker, and Ricardo Meirelles de Faria, "Infrastructure Services in Brazil: The Role of Public-Private Partnership (PPP) In the Water & Sewerage Sector," November 5 2004: 6. http://dx.doi.org/10.2139/ssrn.616241

[73] Ministry of Cities, National Department of Environmental Sanitation, Modernization Program for the Sanitation Sector – PMSS, "Verification of the Private Sector's Participation in Providing Water Supply and Sanitary Sewage
Services in Brazil: Executive Summary," São Paulo, October 30, 2008: p. 6. Accessed 11 December 2013. http://www.waterdialogues.org/documents/VerificationofthePrivateSectorsParticipationinprovidingWaterSupplyandSanitarySewarageSer_000.pdf

[74] Ibid, 5.

[75] "Country Snapshots: Brazil," Private Participation in Infrastructure Database, *World Bank Group* (2012), accessed 18 December 2013. http://ppi.worldbank.org/explore/ppi_exploreCountry.aspx?countryID=104

[76] "World Development Indicators."

Brazil's PPP efforts in its water sector are still largely a work in progress, but have been faring relatively well since their creation, with only minor setbacks, as 91% of the country's population currently has access to an improved water source.[77] Only one in-depth study has been recently conducted to thoroughly evaluate the performance of PPPs in Brazil's water sector, namely by *The Water Dialogue,* as part of a worldwide multistakeholder dialogue on water.

Results from this study, assessing operational and financial performance, as well as sector investments, indicated that, in general "coverage [level] evolution and compliance with goals" post- PSP (private sector participation) showed good performance, though sewage services were not faring quite as well.[78] The analysis also showed lower distribution losses and reduced revenue losses by water service companies after PSP; on the financial side, operating return on assets improved by almost 5% from 2001 to 2006, and indebtedness did not increase.[79] In terms of affordability for the country's low-income population (20% poorest households), water-services expenditures relative to household income dropped, observing an improved payment capacity (although this can also be attributed to rising average incomes); prices of water also increased, but predictably along with improved quality and higher concessionaire expenses.[80] A largely positive consumer surplus was also observed, indicating a positive impact on use well-being, as well as good regularity in supply (mostly uninterrupted), and a good appraisal from newly connected users.[81]

Aside from some technical difficulties faced in the early stages of water service provision, one of the main factors influencing the success of Brazil's PPPs is political continuity, or lack thereof, in the city or state administrations heading the PSP in each case.[82]

Bolivia: Failed Privatization

Privatization of water in Bolivia came about in two concessions: one for La Paz and El Alto in 1997 (together the largest metropolitan center in the country – 1.6 million people[83]), and the other for Cochabamba in 1999, as a requirement upon which the country's retention of its World Bank loans was contingent. After violent uprisings in the two regions in 2005 and 2000, respectively – due largely to water price increases – the concessions were

[77] "Country Snapshots: Brazil."
[78] Ministry of Cities, "Verification," 16-18.
[79] Ibid, 19-20.
[80] Ibid, 20-22.
[81] Ibid, 22-25, 30-31.
[82] Ibid, 36-37.

[83] Degol Hailu, Rafael Guerreiro Osorio, Raquel Tsukada, "Privatization and Renationalization: What Went Wrong in Bolivia's Water Sector?" World Development, Volume 40, Issue 12, December 2012: 2565, ISSN 0305-750X, http://dx.doi.org/10.1016/j.worlddev.2012.05.032

removed, thus leaving Bolivia as an example of failed privatization efforts.

Household surveys taken during the privatization period in La Paz and El Alto reveal that access to water by low-income consumers actually increased under private concessions, thus expanding coverage to poor areas and depicting an "improvement in equitable access to water."[84] The problem, however, was that this expansion did not meet the targets set out in the company's contract: wealthy communities already retained high levels of coverage, and access could only be expanded to poorer households who could still afford the tariffs and connection fees – but this limit was reached when the company could no longer achieve cost-recovery from further coverage expansion, and pushing this limit caused public outrage, eventually leading to the termination of the contract.[85]

In Cochabamba higher water tariffs and differentiation of price according to housing type under the newly privatized services created public outcry.[86] In addition to this, transparency issues in government-concessionaire negotiations arose, the World Bank announced that no subsidies would be handed out to counter rate upsurges, and the Bolivian government passed a law transferring to consumers the entirety of water provision costs, altogether leading to the premature termination of this concession as well (which was subsequently replaced by a municipal provider).[87]

Service costs were the primary reason for the 'water wars' that occurred in Cochabamba, resulting from poorer households having to bear a higher burden – spending on average 4.6% (Cochabamba) and 4.7% (La Paz) of their income on water expenditures in 2001 (keeping in mind that the accepted affordability measure is 3% of income).[88] High costs also originated from the requirement of in-house connections for receiving water from the concession's network, as opposed to the communal standpipes that remained a cheaper alternative for low-income households.[89]

All in all, the privatization efforts in Bolivia focused on expanding access as a top priority rather than maintaining low prices for the water utility. This was attained with PSP, and, in fact, when privatization efforts were abandoned in Cochabamba in 2000, access coverage declined rapidly.[90]

[84] Ibid.
[85] Ibid.
[86] Ibid.
[87] Ibid.
[88] Ibid, 2573.
[89] Ibid, 2575.
[90] Ibid.

Positions and Recommendations of International Organizations

Due to the high costs of financing and maintaining water supply networks in low-income countries (about 0.70-6.30% of GDP)[91], largely because initial infrastructure is either lacking or insufficient, international financial institutions and development banks have generally been proponents of privatization as a means to promote investment and capital flow into the water sector of these countries. International donors to developing countries, including but not limited to the International Monetary Fund (IMF) and the World Bank, wield high degrees of influence when it comes to the internal financial policies of recipient countries. Moreover, "the World Bank is able to shape the policy agenda of other regional development banks, development agencies, donor countries, academic community and penetrates the borrowing country government's decision making machinery," thus extending its reach into many different spheres, and advocating privatization of such industries as a form of decentralization.[92] Although since the 1990s, the World Bank has "adopted a strong position in favour of privatised water," it has recently come to realize the difficulties involved in attracting and maintaining large capital investments in developing countries (especially through experiences with failed privatization efforts), and that affordability and profitable operation of a water service rarely go hand in hand.[93]

The United Nations, World Trade Organization, Organization for Economic Cooperation and Development and other international organizations and NGOs also exert significant influence over states in terms of negotiations for accepted standards and suggested practices for sustainable development. Though it does not possess financial leverage over developing countries, UN makes its positions clear by shaping policies at its conferences and through its declarations. For instance, the UN's Dublin Statement of 1992, which declares water as containing an economic value and therefore asserts the need to recognize it as an economic good, has been "used to justify the commercialisation of water supply," even though it implies the principle of full cost recovery, thus contradicting access to water as a fundamental human right regardless of ability to pay.[94] In the 21st century, however, the UN's view of water privatization has become abstruse after it declared access to water a human right, turned the expansion of access to water into one of its Millennium Development Goals, and issued a statement suggesting that several factors (political,

[91] R. Ashley and A. Cashman, "The Impacts of Change on the Long-term Future Demand for Water Sector Infrastructure in Infrastructure to 2030: Telecom, Land Transport, Water and Electricity," 241-349 (Paris: OECD, 2006). Quoted in Prasad, "Privatisation of Water," 229.

[92] Prasad, "Privatisation of Water," 229-230.

[93] Ibid, 230-231.

[94] Ibid, 231.

institutional, cultural, and social) contributed to the success and/or usefulness of private sector participation in a country's water sector.[95] Like the World Bank, the UN has also recognized the problems in attracting private investment and implementing PPPs in the water sector, particularly since it was discovered that "the private sector [was] not interested in going to countries (or zones) where it [was] most needed, especially to poorer countries."[96]

Attempts at Implementation:

Failures:

The failures of privatization efforts have certainly been more publicized than the successes, largely due to public discontent in those countries due to elevated prices. Many of these attempts at involving the private sector in water provision in developing countries were originally instigated by the World Bank or other financial institutions as a requirement for obtaining development loans or other assistance. In the situation in 1990s Bolivia, the World Bank (along with foreign donors) considered privatization to be a "convenient solution in contexts of deteriorated infrastructure and unbalanced public finances."[97] In other instances, such as Argentina and Sub-Saharan Africa, PPP contracts were also terminated, often due to the increases in prices – making water largely unaffordable for the poorest populations – which accompanied the treatment of the resource as an economic good.[98]

Successes:

Aside from the successful fully- or partially-privatized water systems throughout Europe, in countries such as the UK, France, and Germany, some developing countries too have had advancements in this sphere. In fact, 84% of the PPP projects in water provision services started since 1991 are still active, with only 9% terminated early.[99] For example, Colombia has exhibited stable private-sector participation in its water and sanitation services provision, with the private sector serving 35% of the country's urban population, ever since the World Bank's recommendation of PSP (also as a prerequisite for aid loans).[100] Sweeping sector reforms have created strict regulations on tariff prices according to production costs, and a policy framework that is "sufficiently broad for the emergence

[95] Ibid.
[96] Ibid.
[97] Hailu et al., "What Went Wrong," 2565.
[98] Philippe Marin, "Public-Private partnerships for Urban Water Utilities: a Review of Experiences in Developing Countries," (PowerPoint) World Bank, 2009: 6. Accessed 11 December 2013. http://www.oecd.org/env/outreach/44576275.pdf
[99] Ibid, 7.
[100] Luis A. Andres, David Sislen, and Philippe Marin edit., "Charting a New Course: Structural Reforms in Colombia's Water Supply and Sanitation Sector," The World Bank Colombia (2010): pp. 17,27. Accessed 12 January 2014. http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/10/18/000333037_20111018013441/Rendered/PDF/646930WP0Chart00Box353803B00Public0.pdf

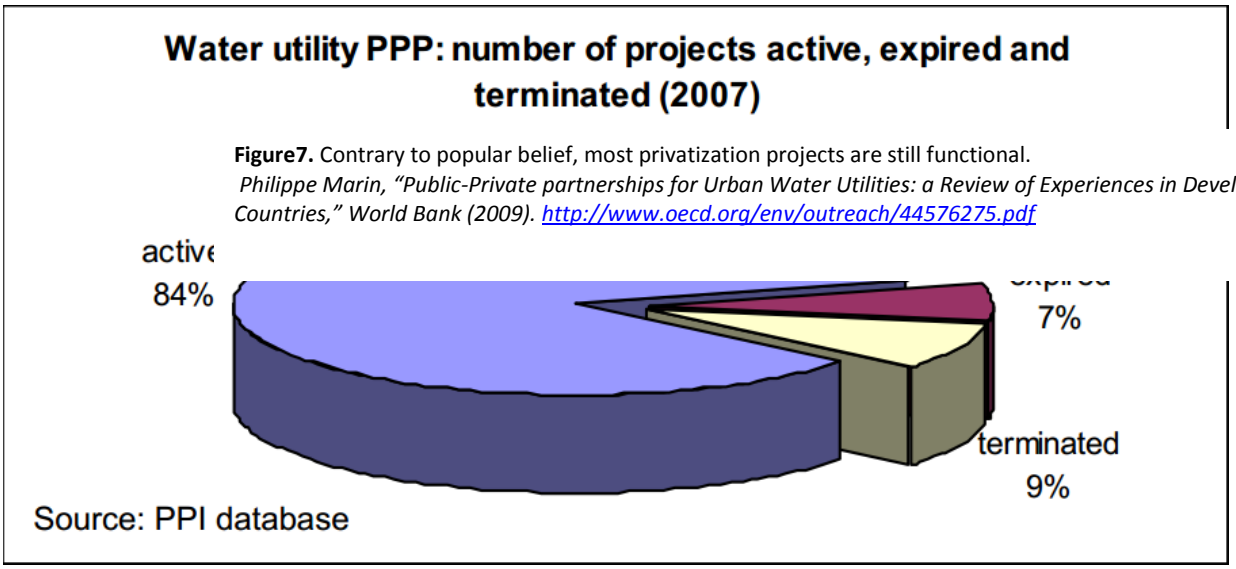


Figure7. Contrary to popular belief, most privatization projects are still functional.
Philippe Marin, "Public-Private partnerships for Urban Water Utilities: a Review of Experiences in Developing Countries," World Bank (2009). http://www.oecd.org/env/outreach/44576275.pdf

and coexistence of several schemes of private participation, corporate development, and competition," making it possible "to restructure some public companies at a municipal level so that they are more competitive today, using flexible schemes of private-public partnership."[101]

Preferences

The governments of some developing countries have adopted privatization policies in order to relegate the responsibility of water provision to other entities, not always understanding that private-sector participation in such provision necessitates even more rigorous public regulation to enforce standards and ensure adequate access to the resource (including cost and quality regulation). Others recognize the need to view water as a public good and try to facilitate its distribution through national infrastructure and federal frameworks. Thus, preferences range by country and can rarely, if ever, be generalized.

Conclusions:

What can we learn?

Since water has been labeled a human right, expanding access has become

Figure 8. Comparison of competing water uses by domestic income. World Business Council for Sustainable Development, "Facts and Trends: Water." 2005. *http://www.unwater.org/downloads/Water_facts_and_trends.pdf*

[101] Ibid, 75.

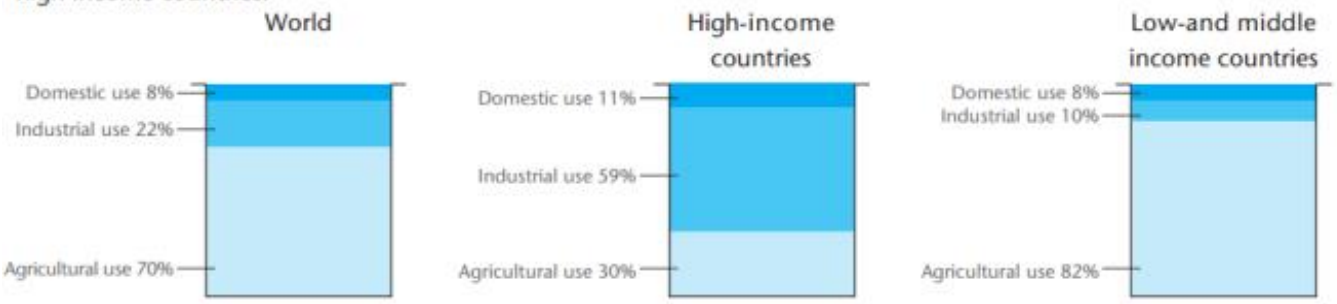
the central issue, and to this effect, the challenge has not been necessarily one of scarcity, but one of governance. Although MDG target 7.C has arguably been achieved on a global level, many individual country targets remain unmet.[102] Nearly 80% of the people currently without access to safe drinking water reside in rural areas, making the issue of extending coverage all the more difficult, often because the initial infrastructure for water utility connection is nonexistent in these areas.[103] The overall goal of extending the reach of safe drinking water providers must also keep in mind that the cost or affordability of this resource also poses a challenge – so increasing availability does not always mean increasing access.

In the developing world, access to clean sources of water can mean the difference between life and death, when unfiltered or unpurified water can be a vector for diseases such as cholera, or poorly maintained water provision systems can contribute to the spread of malaria, E. coli, dysentery, legionellosis, dengue fever, and many more.

In today's world, however, competing uses of water are not making the struggle easier for low-income households. For this reason, many countries have produced orders of importance for water allocation needs, thus setting priorities in this sector and reflecting the growing trend toward the treatment of water as a human right. Changing environmental circumstances around the world – especially desertification and groundwater salinization – are also building urgency in the need for efficient water management and sharing practices. Thus, any effort to implement new water provision techniques, whether through PPPs or the public sector, must ensure (through regulation and specialized policy frameworks) that other major users of

Competing water uses for main income groups of countries[6]

Industrial use of water increases with country income, going from 10% for low- and middle- income countries to 59% for high-income countries.



Ref. 6: "Water for People, Water for Life" United Nations World Water Development Report, UNESCO, 2003
www.unesdoc.unesco.org

[102] Hailu et al., "What Went Wrong," 2564.
[103] "Rural Water," World Bank (2014), accessed 10 January 2014. http://water.worldbank.org/topics/water-supply/rural-water

Figure 9. Order of water allocation in the Netherlands.
Rijkswaterstaat, "Water Management in the Netherlands," Ministry of Infrastructure and Environment (February 2011).
http://www.rijkswaterstaat.nl/en/images/Water%20Management%20in%20the%20Netherlands_tcm224-303503.pdf

water, namely industry and agriculture, are employing sustainable practices in their consumption of the resource.

Another pressing question is what exactly constitutes access to constant water supply: this may range from water connections directly in the home to outdoor wells to public "standposts on the street corner" to itinerant vendors.[104] In this sense, "water supply is not a single, well-defined intervention, but can be provided at various levels of service with varying benefits and differing costs."[105] In quantifiable terms, the joint WHO-UNICEF *Global Water Supply and Sanitation Assessment 2000 Report* defines 'reasonable access' as "the availability of at least 20 liters per capita per day from a source within 1 kilometer of the user's dwelling."[106]

[104] Jamison DT, Breman JG, Measham AR, et al., editors. "Chapter 41, Water Supply, Sanitation, and Hygiene Promotion," Disease Control Priorities in Developing Countries. 2nd edition. Washington (DC): World Bank; 2006. Accessed 19 November 2013. http://www.ncbi.nlm.nih.gov/books/NBK11755/

[105] Ibid.

[106] WHO and UNICEF (World Health Organization and United Nations Children's Fund). 2000. *Global Water Supply and*

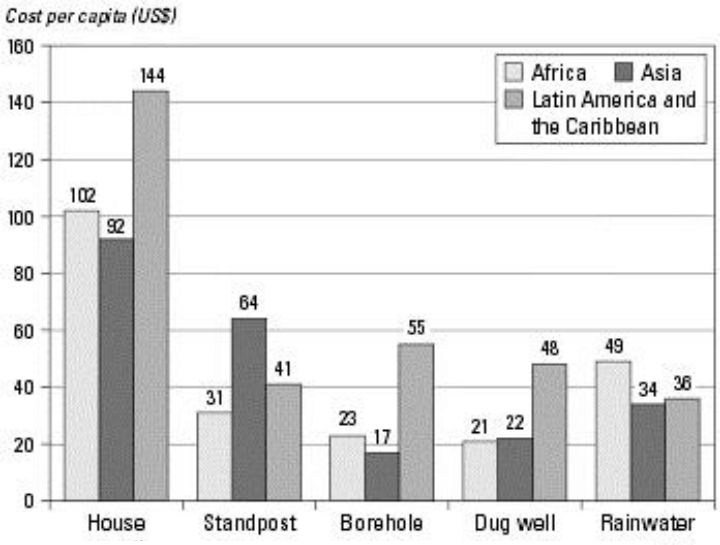


Figure 10. Construction Costs for Water Supply Facilities. *Disease Control Priorities in Developing Countries.* http://www.ncbi.nlm.nih.gov/books/NBK11755/

When tackling the matter of water provision (in developed and developing countries alike, keeping the public informed and consulting them to ensure that their interests and needs can be addressed also proves critical.[107] The case studies and other examples discussed in this paper clearly demonstrate that privatization of water utilities is often associated with upsurges in price due to higher costs of production and the private sector's profit incentive. Thus, regulation must accompany such efforts in order to set quality standards and reign in the excesses of monopolistic tendencies. Ultimately, however, private sector participation in water provision has fostered significant improvements in most cases – whether in quality, access, or regulation.

With improved access to water and a sustainable management system for the resource, standards of living will undoubtedly rise and room for their continued elevation in the future will increase, and the peoples of developing countries who are struggling now because of water access deficits can become more productive (by allocating the time usually lost to obtaining water daily to more meaningful tasks for the betterment of society) and contribute to further development.

Regardless of how attractive a black and white method may sound, there is no single, universal solution to worldwide water provision. Rather, the decision of what type of system of water provision to adopt must be made by each country independently, taking into consideration individual national circumstances and possibilities, as well as consultation with civil society and the private sector. The processes leading to such decisions should be supplemented by thorough research and support from NGOs, CSOs, and to some extent IOs – so long as political influence from these sources remains at a minimum level or is eliminated altogether. International organizations, especially those concerned with financing development matters, such as the World Bank, Inter-American Development Bank (IADB), and IMF, instead of placing a contingency on their aid disbursement upon

Sanitation Assessment 2000 Report. Geneva: WHO with UNICEF. Quoted in Jamison et al., "Chapter 41."

[107] UNECE, *Guidebook*, 59-60.

acceptance and implementation of a certain, narrow set of water provision system requirements, should invest in the unique plans for water provision devised by each developing country that will be the most economically, environmentally, and socially sustainable (as well as inclusive and efficient) in the long run. Only then can sustainable development in the water sector be achieved, access to all marginalized populations encompassed, efficient practices established, human health improved, and water security enhanced for current and future generations.

Finally, the findings of this paper and our recommendations relate directly to the emerging SDGs (Sustainable Development Goals, or post 2015 Millenium Development Goals). As analyzed in our current paper on the MDGs (Yiu & Saner, 2014), water has been Nr. 7 MDG Goal titled "Environmental Sustainability" and is now proposed in the emerging SDGs as Nr 6 SDG Goal titled "Ensure availability and sustainability of water and sanitation for all" and SDG Nr 14 Goal titled "Protect and preserve sustainable use of oceans, seas and marine resources" (zero draft, 2014, see goals and sub-goals in annex). It will be of paramount importance that the final negotiated text of the Sustainable Development Goals will ensure adequate guarantees that water will be sustainably provided in sufficient quantity and quality which further entails that the findings of this paper in regard to private versus public provision of water are taken into account by policy makers no matter whether developed, developing country, transition or least developed country. Water is essential for the survival of the human species, to make such provisions of water sustainable requires competent and inclusive policy making of our governments coupled with continuous policy involvement of civil society .•

References

Andres, Luis A., David Sislen, and Philippe Marin edit., "Charting a New Course: Structural Reforms in Colombia's Water Supply and Sanitation Sector," The World Bank Colombia (2010). Accessed 12 January 2014. http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/10/18/000333037_20111018013441/Rendered/PDF/646930WP0Chart00Box353803B00Public0.pdf

Aurecon Group. "Comparing institutional forms for urban water supply." Accessed 8 December 2013. http://www.aurecongroup.com/en/thinking/current%20articles/comparing-institutional-forms-for-urban-water-supply.aspx

Business Dictionary, "Economies of Scale," http://www.businessdictionary.com/definition/economies-of-scale.html#ixzz2lvm0WDOv

Dore, Mohammed H.I, Joseph Kushner, and Klemen Zumer. "Privatization of water in the UK and France—What can we learn?", Utilities Policy, Volume 12, Issue 1, March 2004, Pages 41-50, ISSN 0957-1787, accessed 18 November 2013. http://dx.doi.org/10.1016/j.jup.2003.11.002

Foldvary, Fred E. "Natural Monopoly," *The Progress Report*, 25 February 2006, accessed 05 December 2013. http://www.progress.org/tpr/natural-monopoly-2/

Gunatilake, Herath and Mary Jane F. Carangal–San Jose. "Privatization Revisited: Lessons from Private Sector Participation in Water Supply and Sanitation in Developing Countries." Economics and Research Department Working Paper Series No. 115. Asian Development Bank, May 2008. http://www.adb.org/sites/default/files/pub/2008/Wp115.pdf

Hailu, Degol, Rafael Guerreiro Osorio, Raquel Tsukada, "Privatization and Renationalization: What Went Wrong in Bolivia's Water Sector?" World Development, Volume 40, Issue 12, December 2012, Pages 2564-2577, ISSN 0305-750X, http://dx.doi.org/10.1016/j.worlddev.2012.05.032 (http://www.sciencedirect.com/science/article/pii/S0305750X12001544)

Husch, Jerry; Saner, Raymond; Yiu, Lichia; Zeitz, Paul; (2014), "Monitoring of SDG Implementation Infrastructure and Methodology – Proposal for Action" in (2014) Prototype Global Sustainable Development Report, 0nline unedited edition. New York: United Nations Department of Economic and Social Affairs, Division for Sustainable Development, 1 July 2014.(p. 82), http://sustainabledevelopment.un.org/globalsdreport/ United Nations (2014).

IRC International Water and Sanitation Centre. "Public-Private Partnerships for Rural Water Services," Briefing Note No. 4 (2012), accessed 30 November 2013. http://water.worldbank.org/sites/water.worldbank.org/files/publication/Public-Private-Partnerships-for-Rural-Water-Supply.pdf

Jamison DT, Breman JG, Measham AR, et al., editors. "Chapter 41, Water Supply, Sanitation, and Hygiene Promotion," *Disease Control Priorities in Developing Countries.* 2nd edition. Washington (DC): World Bank; 2006. Accessed 19 November 2013. http://www.ncbi.nlm.nih.gov/books/NBK11755/

Marin, Philippe, "Public-Private partnerships for Urban Water Utilities: a Review of Experiences in Developing Countries," (PowerPoint) World Bank, 2009. Accessed 11 December 2013. http://www.oecd.org/env/outreach/44576275.pdf

Merriam Webster. "Cooperative," http://www.merriam-webster.com/dictionary/cooperative

Ministry of Cities, National Department of Environmental Sanitation, Modernization Program for the Sanitation Sector – PMSS, "Verification of the Private Sector's Participation in Providing Water Supply and Sanitary Sewage Services in Brazil: Executive Summary," São Paulo, October 30, 2008. Accessed 11 December 2013. http://www.waterdialogues.org/documents/VerificationofthePrivateSectorsParticipationinprovidingWaterSupplyandSanitarySewarageSer_000.pdf

MIT. "Main Service Provider: Municipality." Accessed October 24, 2013, http://web.mit.edu/urbanupgrading/waterandsanitation/customers/providing-services.html#main_service_provider

Pérard, Edouard. "Water supply: Public or private?: An approach based on cost of funds, transaction costs, efficiency and political costs," Policy and Society, Volume 27, Issue 3, February 2009, Pages 193-219, ISSN 1449-4035, http://dx.doi.org/10.1016/j.polsoc.2008.10.004. (http://www.sciencedirect.com/science/article/pii/S1449403508000465)

Prasad, Naren. "Privatisation of Water: A Historical Perspective," 3/2 *Law, Environment and Development Journal* (2007), p. 217-233, accessed 12 November 2013, available at http://www.lead-journal.org/content/07217.pdf

Rijkswaterstaat. "Water Management in the Netherlands," Ministry of Infrastructure and Environment (February 2011), accessed 3 December 2013: 18. http://www.rijkswaterstaat.nl/en/images/Water%20Management%20in%20the%20Netherlands_tcm224-303503.pdf

Shaoul, Jean. “A Critical Financial Analysis of the Performance of Privatised Industries : The Case of the Water Industry in England and Wales,” in *Critical Perspectives on Accounting*, 479-505. Academic Press Limited, 1997.

Turolla, Frederico Araujo and Anker, Tomas and de Faria, Ricardo Meirelles, Infrastructure Services in Brazil: The Role of Public-Private Partnership (PPP) in the Water & Sewerage Sector (November 5, 2004), accessed 19 December 2013. Available at SSRN: http://ssrn.com/abstract=616241 or http://dx.doi.org/10.2139/ssrn.616241

United Nations. “Goal 7: Ensure Environmental Sustainability.” Accessed November 08, 2013, http://www.un.org/millenniumgoals/environ.shtml

United Nations Economic Commission for Europe. *Guidebook on Promoting Good Governance in Public-Private Partnerships.* United Nations, Geneva (2008), accessed 20 November 2013. http://www.unece.org/fileadmin/DAM/ceci/publications/ppp.pdf

Van Geel, Pieter. “Innovative practices in the Drinking Water Supply in The Netherlands: Private Business, Public Owners.” UNEP/GMEF (2004), accessed 1 December 2013. http://www.unep.org/gc/gcss-viii/NetherlandsWatSan.pdf

Van Put, Sjef. “Some administrative, policy and juridical aspects in relation to groundwater protection (groundwater used as a drinking-water source) in the Netherlands,” Ministry of Housing, Spatial Planning and Environment, November 2001. Accessed 30 November 2013. http://www.unece.org/fileadmin/DAM/env/water/meetings/groundwater01/netherlands.pdf

Vewin. “Dutch Water Sector.” Accessed 3 December 2013. http://www.vewin.nl/english/Dutch%20water%20sector/Pages/default.aspx

Yiu, Lichia; Saner, Raymond; (2014)”Sustainable Development Goals and Millennium Development Goals: an analysis of the shaping and negotiation process”, Asia Pacific Journal of Public Administration, Vol. 36, No. 2, 89 –107, Routledge, Taylor & Francis Group.

Water.org. “MILLIONS LACK SAFE WATER.” Accessed November 08, 2013, http://water.org/water-crisis/water-facts/water/

World Bank. “Rural Water.” Accessed 10 January 2014. http://water.worldbank.org/topics/water-supply/rural-water

World Bank. “World Development Indicators: Private sector in the economy.” Accessed 29 November 2013. http://wdi.worldbank.org/table/5.1

World Bank Group. “Country Snapshots: Brazil.” Private Participation in Infrastructure Database (2012), accessed 18 December 2013. http://ppi.worldbank.org/explore/ppi_exploreCountry.aspx?countryID=104

World Business Council for Sustainable Development, “Facts and Trends: Water.” 2005. http://www.unwater.org/downloads/Water_facts_and_trends.pdf

Zero Draft, Sustainable Development Goals, OWG-UN-DESA, July 2014, New York

Further Readings

OECD (2011). “Providing access to services”, in *Benefits of Investing in Water and Sanitation: An OECD Perspective*, OECD Publishing. http://dx.doi.org/10.1787/9789264100817-7-en

Water Partnership Program, “Sharing Smart Solution in Water: 2012 Annual Report & Phase I Summary.” *World Bank* (2013). Accessed 06 November 2013. http://water.worldbank.org/water-partnership-program/resources/wpp-annual-reports

World Bank, “Water Partnership Program.” http://water.worldbank.org/wpp

World Business Council for Sustainable Development. “Water.” http://www.wbcsd.org/work-program/sector-projects/water.aspx

World Health Organization. “Costs and benefits of water and sanitation improvements at the global level (Evaluation of the).” Water Sanitation and Health, WHO, 2004. http://www.who.int/water_sanitation_health/wsh0404summary/en/

Annex

SDGs nr. 6 & Nr. 14 (Zero Draft)

Proposed goal 6. Ensure availability and sustainable use of water and sanitation for all

6.1 by 2030, achieve universal access to safe and affordable drinking water for all

6.2 by 2030, achieve adequate sanitation and hygiene for all, paying special attention to the needs of women and girls

6.3 by 2030, improve water quality by reducing pollution, eliminating dumping of chemicals and hazardous materials, doubling wastewater treatment and increasing recycling and reuse by x% globally

6.4 by 2030, improve water-use efficiency by x% across all sectors and bring freshwater withdrawals in line with sustainable supply

6.5 by 2030 implement integrated water resources management at all levels, and through transboundary cooperation as appropriate

6.6 by 2030 decrease by x% mortality and y% losses caused by water-related disasters

6.a by 2030, expand international cooperation and support in water and sanitation related technologies, including water harvesting and desalination technologies and wastewater treatment, recycling and reuse technologies

Proposed goal 14. Conserve and promote sustainable use oceans, seas and marine resources

14.1 by 2030, prevent and control, and reduce by x% globally, marine pollution of all kinds, particularly from land-based activities

14.2 by 2020, sustainably manage, restore and protect marine ecosystems from destruction, including by strengthening their resilience, and address ocean acidification and its impacts

14.3 by 2020, effectively regulate harvesting, end overfishing, illegal, unreported and unregulated (IUU) fishing and destructive fishing practices, to restore by 2030 fish stocks at least to levels that can produce maximum sustainable yield

14.4 By 2020, conserve at least 10% of coastal and marine areas, including through establishing effectively managed marine protected areas and other effective area-based conservation measures, consistent with international law and based on best available scientific information

14.5 by 2020, eliminate fisheries subsidies which contribute to overcapacity and overfishing, and refrain from introducing new such subsidies, taking into account the importance of this sector to developing countries, notably least developed countries and SIDS

14.a increase scientific knowledge, and transfer of marine technology, and develop research infrastructure and capacities to enhance the contribution of marine biodiversity to the development of developing countries, in particular SIDS and LDCs

14.b by 2030 increase the economic benefits to SIDS and LDCs from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture, tourism and provide equitable access of small-scale artisanal fishers to marine resources and markets

14.c enforce international law on territorial waters to stop illegal fishing and exploitation of marine resources in territorial waters, particularly of developing countries