Universität St.Gallen

The Separation of Management and Politics in Water Infrastructure Provision

– Practical Project –

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It is wise to bring some water, when one goes out to look for water.

– Arab proverb

1. Introduction

Having access to clean drinking water sources is essential for leading a healthy life. Still there are hundreds of millions of people without it. The world population has doubled since the 1950s and water use has even tripled. Yet, the available quantity of fresh water remains equal to the amount existing one million years ago. (Schouten, 2009, p. 3) The United Nations Millennium Development Goals (MDGs) try to react to the problems this scarcity brings about, but seem to be failing at putting their goals into action. This is due to various reasons. It may be the unique characteristics surrounding the complex water sector making it very difficult to bring about change, or even to decide about which changes should be made. It may also be due to the fact that governments in many countries fail in appropriately governing their water sectors. Among the many reasons the most important one is mostly not having enough funds available to build, maintain or extend the massive and highly capital-intensive infrastructure. Thus, the private sector is generally highly involved, be it as shareholder, service provider or one of the other many shapes that this involvement may take on. Although the private sector is involved in the water sector it is not as in involved as it could be – as it is for example in the telecommunications or electricity market. This is mainly due to the fact that water provision, especially when involving private parties, is a politically so loaded issue. This paper will therefore focus on how to keep politics from interfering in the provision of water and sanitation infrastructure. Several case studies shall be analyzed in order to show where the problem areas are located and how they may be avoided. As a first case study the "Water War" that broke out in the city of Cochabamba in Bolivia in the year 2000 will be looked at. It shall illustrate nicely the tension that politics may bring about in the water sector and how this might affect reform plans in the water sector. Then an overview over the water provision situation in Azerbaijan will show what problems arise from a history of planned market systems and what plans the SECO had to solve them. The way in which a western country like Switzerland deals with the problems of water infrastructure provision will be shown by analyzing the case of Basel. From these three case studies the key problems shall then be identified and analyzed in order to finally give some possible solutions to them in form of two checklists.

1.1 The Importance of the Water Sector

The provision of improved water and sanitation services directly or indirectly contributes to achieving most of the 8 MDGs. It critically affects the probability of reducing extreme poverty, child mortality or disease epidemics until 2015, at the rates planned. (Schouten & Schwartz, 2006, p. 408) One of the targets to be met among the MDGs therefore explicitly says that the proportion of people without sustainable access to safe drinking water shall be halved by 2015. (UN General Assembly, 2000)

According to the most recent MDG Progress Report today still 884 million people lack access to improved drinking water sources and 2.6 billion people lack proper sanitation services. There has been some progress in achieving the target of improving the access to improved drinking water sources for half the population without it until 2015, but this progress was mainly due to major improvements in China, India and Russia. Improvements in the provision of access to proper sanitation services were clearly less favorable for reaching the target making the repercussions on other MDGs even worse. (WHO & UNICEF, 2010, p. 6-10)

The table below indicates how investments into basic infrastructure in general are divided up across the world. The least developed countries are off worst, as expected.

Region	**Project Investment**
Latin America and the Caribbean	515,137
East Asia and Pacific	293,721
Europe and Central Asia	240,538
South Asia	160,497
Sub-Saharan Africa	82,958
Middle East and North Africa	67,603

Table 1: Regions ranked by investment 1990-2008 (US$ million)
Source: World Bank Group, 2009

This makes the perspective of failure to reach the MDGs eminent unless substantially more investments will flow into basic infrastructure and here especially into the water supply and sanitation sector. Estimates, as to how high these additionally needed investments into the water sector will have to be exactly, vary widely. Depending on who counts they range from 5 billion to 100 billion US$. The World Health Organization's (WHO) rather low estimate amounts to 18 billon US$ – roughly double the current amount. (OECDa, 2009, p. 8)

1.2 Some Economic Dimensions

Because water is nearly as important to survival as air, most people sense it should be a good available to everyone. But considering the high capital-intensity and the complexity of transporting or recycling water it quickly becomes apparent why the supply of it cannot be treated as a public good.

To speak in economic terms a public good has to show the attributes of being non-excludable and non-rivaled. The use of drinking water is hardly non–excludable, meaning people can be denied its use, e.g. if they do not pay their bills. It is also not non-rivaled, meaning that if one person consumes water this reduces the availability for use by someone else. (Schouten, 2009, p. 6-7) Since the private sector is looked upon in so much hope to make more funds available for the water sector it is important to stress that drinking water is rather a private than a public good the fact that water is such a scarce good it is important to also create incentives for a more economical use of it. Still, water is a vital resource, necessary for survival and leading a healthy life. Treating water as if it were an entirely private good might interfere with the most basic human right; the right to life. So, the small and poor consumer should be granted a minimal access to water so that he can satisfy his most basic needs; this might be implemented by way of public subsidies.

Further complicating the provision of water and sanitation services is that it is subject to potential market failure. High capital intensity and the economies of density[1] turn the water sector into a natural monopoly. For this reason it is also mostly provided for by the public making up about 70-75 % of investments flowing into the water sector. The private sector (20-25 %) and the international donor community (5-10 %) make up for the remainder. But all three channels seem reluctant to make more of the so urgently needed funds available for the water sector. (Schouten & Schwartz, 2006, p. 409)

Developing countries, where these investments are most urgently needed, often suffer from high levels of corruption and are generally already so deeply indebted that their governments generally lack necessary funds for the water sector. In most cases there are also high inefficiencies in the publicly owned companies, due to too low pricing, leaks or losses.

[1] The more customers demanding access to a given infrastructure, the smaller the marginal costs of supplying them with the good.

As shown in the table below a low priority has been given to the water sector by international private investments relative to other infrastructure sectors.

Sector	Project Investment
Telecommunications	664,027
Energy	405,451
Transport	232,065
Water and sewerage	59,281

Table 2: Primary sectors ranked by investment, 1990-2008 (US$ million)
Source: World Bank Group, 2009

Not even a tenth of that going into the telecommunications sector is invested into the water sector and, since these numbers consider worldwide investments, only an infinitesimally small percentage of these investments even reaches the poorest who are in need of them the most.

Including the managerial and operational expertise of the private sector in the provision of water services through some form of Public-Private-Partnership (PPP) carries much potential for making the service more efficient but not necessarily for making it more pro-poor. There is no reason to expect a private owner to improve its outreach to small and poor users. (Harper, 2000, p. 22-23)

The core problem is that the benefits of improved water access are often not large enough to cover or possibly exceed the costs for those who will bear them. There are two aspects to this problem. One is distributional, meaning that the bearer of the costs is often not the person receiving the benefit. Often, in these cases it is the taxpayer that pays. The other is that the incremental benefits of an improved access to a given water and sanitation network infrastructure may simply not be large enough to cover the costs of this improved access. Not only are these costs considered to be very high but also the incremental benefit may be very small. This might be surprising but it is precisely because water is that essential to life that the incremental benefit may be so small. Because water is so essential for survival people always manage to have some kind of access to it, however inadequate it might be. For better understanding one might compare water with electricity. Electricity is not essential for survival and so not every household has access to it in their homes. Without the home

access there is no affordable or convenient way to "carry" electricity home, like there is for water, and therefore home access to electricity may be *perceived* a greater benefit than that of a tab. Here we may also find a reason why the private sector involvement in other infrastructure sectors, electrification for example, is much higher. (Whittington et al., 2008, p. 6-8)

Investment decisions in the water sector are not just a matter of economic calculations and humanitarian considerations, however. Otherwise funding would probably be closer to sufficient than it is, especially when considering the rather high cost-benefit ratio of investing in water – when including all benefits it is between US$ 5 and 11 per invested US$ 1. The implementation of particular investment strategies is often problematic for all three investing entities due to the fact that the water sector is inherently intertwined with a countries or regions politics, putting investments at serious risk. (Schouten & Schwartz, 2006, p. 410)

1.3 The Influence of Politics

The provision of water services is always subject to political debate. Numerous stakeholders have (conflicting) interests on the producer as well as on the consumer side. As already mentioned it is difficult to categorize what kind of good it actually is – a merit good, a commodity like any other, a common good? There are always questions arising as to whom the water belongs to, who has the legitimate power to decide over it or who is to be held accountable for bad service. To put it into a nutshell: authority in the domain of water is a contested concept. In developing countries this general problem is, of course, intensified by legal insecurities, political instability and the heightened social and political sensitivity to water in poor regions.

Making long-term commitments and large investments in this politically so contentious sector can thus become very costly and unpleasant if something goes wrong. And that it often has in the recent past, as shown in the case of the "Cochabamba-Water War" in the year 2000, described in further detail below.

All these characteristics of the water sector lead to very high risks for private as well as public investors especially in case of developing countries. There is an urgent need to explicitly include the impact of this politicized climate when deciding on what one is going to pick from the menu of different investment options and how to go about in implementing specific

business strategies. It is important to make the processes transparent, include the general public in important decisions, etc. Not to do so is often the obstacle for sustainable access and use of funds in the water services sector and it is also often the reason for poor performance. (Schouten & Schwartz, 2006, p. 407)

There has been much debate about the merits and downsides of involving the private sector in the provision of water services in developing countries. For reasons of space we shall not elaborate much on the issue.

1.4 Different Forms of Private Sector Participation

When talking about privatization a definition of the term is appropriate so that no confusion may be caused. Otherwise one of the many forms a PPP may assume may be meant without actually having defined with which institution which competences lie. Privatization shall mean that ownership and service provision are transferred from the public sector to private enterprises. It is also important to mention that it may be misleading when talking about "the private sector" because it can accommodate a large variety of actors – including large international conglomerates, local or small-scale actors, and a continuum of partnerships between public actors, private operators and communities. In most cases today the system is increasingly hybrid, making it impossible to speak of them being purely private or public. (OECDb, 2009, p.10)

	Management Contract	**Affermage/Lease**	**Concession**	**BOT**	**Divestiture**
Asset Ownership	G	G	G	P/G	P
Capital Investment	G	G	P	P	P
Commercial Risk	G	Shared	P	P	P
Operations/Maintenance	P	P	P	P	P
Contract Duration	3-5 years	8-15 years	25-30 years	20-30years	Infinite
Retribution of Operator	Municipality	Users	Users	Municipality	Users

Table 3: Typology of different Forms of Private Sector Participation
Source: OECDb, 2009, p. 18

In order to understand better the different shapes, which contractual arrangements between public and private enterprises in infrastructure provision may assume, a shortened typology of different forms is shown in the table above – with divestiture being a synonym for privatization. Depending on the types or modes of private participation there are differences in terms of the level of government participation, risk allocation or investment responsibilities. The table is by no way complete. Mention should be made of joint ventures, which would figure between build-operate-transfer (BOT) contracts and an all-out divestiture.

In management contracts the private party takes on varying degrees of responsibility for the operation and maintenance in turn for a fixed or performance related fee. Like this inefficiencies may be met by private sector managerial and operational expertise. In lease contracts the private party additionally takes on responsibilities for collecting service revenues directly from the customer and retaining a portion of these revenues before the remainder is passed on to the state. In concession contracts the private party takes over the management of the infrastructure assets for a fixed period and performs associated investments but ultimately ownership remains with the state. Under BOT contracts the private sector may build a new infrastructure asset and hold ownership of it for a temporary period before transferring it to the state. Under divestiture arrangements asset ownership may be transferred to the private sector permanently. This is not often the case in water-infrastructure since, as already mentioned, there are legal, constitutional and political impediments. (Andrés et al., 2008, p. 21-23)

In order to better understand the peculiarities of the water sector and how difficult it can be to introduce change therein three case studies will be analyzed in the following chapters. By showing what went wrong and why it did so, we will isolate some key problem complexes that will then be addressed by giving some possible solutions to prevent or tackle them.

2. Case Study 1: Cochabamba

In order to illustrate the issues that arise when project managers neglect to involve important stakeholders we will briefly present the case of the so-called "Guerra del Agua" ('water war'), which took place in the year 2000 in Cochabamba, the 3rd largest city of Bolivia. It is an exemplary case study about a failed attempt to give away a concession to a private company in the water supply and sanitation sector.

The 'water war' is one of the most cited cases when it comes to literature about public-private partnership (PPP) in water infrastructure. It represents somehow a worst-case scenario of private sector involvement in infrastructure. Identifying the reasons for the failure therefore reveals fruitful insight on the aspects that need particular attention for successful private participation in water infrastructure.

To do so we will first give a brief overview about the historical context of water provision in Cochabamba, second we will shortly outline the planned reform, third we present the reasons for the failure of the project and finally we will translate the lessons learnt into a check-list for stakeholder involvement.

2.1 Historical Context

In the 1980's Bolivia suffered from severe macro-economic difficulties with high rates of inflation and public debt. The government implemented ambitious economic reforms advised by the World Bank (WB) and the International Monetary Fund (IMF) that involved the privatization of major industries such as oil and gas, telecommunications, transport and finally the water supply and sanitation sector. (Schouten & Schwartz, 2006). Experiences with a concession granted to a private operator in 1997 in the country's capital La Paz[2], paved the way for the idea to involve the private sector in rehabilitating and refinancing the water infrastructure of Cochabamba.

[2] 30-year water supply and sanitation concession granted to consortium Aguas del Illimani, headed by SUEZ-Lyonaisse des Eaux.

2.2 Pre-Concession Water and Sanitation Infrastructure

Until then the water supply and sanitation sector was operated by an 'autonomous' government agency, the Servicio Autónomo Municipal de Agua Potable y Alcantarillado de Cochabamba (SEMAPA). The water provision service under the SEMAPA was highly deficient:

First, the water network maintained by the public operator only provided 57% of the population of Cochabamba. As a consequence 43% of the population had no accurate water supply at all or had to provide themselves through alternative channels. In fact, many of Cochabamba's inhabitants relied on community service providers, private wells and private vendors for their water. (Schouten & Schwartz, 2006)

Second, the water network had unaccounted-for water levels of 50% meaning that half of the water produced was lost inside the supply network somewhere between the site of extraction and the consumers. Due to its weak financial status the SEMAPA was unable to extend the network or increase the quality of its services.

Third, the Cochabamba region suffered from water scarcity. This was mainly due to increasing demand for water by a growing population as well as decreasing levels of rainfall and water retention. A consequence of this competition was the rationing of the existing water supply. (Schouten & Schwartz, 2006)

Deficiencies of water and sanitation infrastructure in Cochabamba (pre-concession) :

- Weak financial status of the public water provider SEMAPA
- Low service coverage of 57%
- 50% unaccounted-for-water levels (water loss)
- Water scarcity in the Cochabamba region

2. 3 Modernization of Infrastructure and Reform of Service Provision

In June of 1999 the Bolivian authorities carried out their plans to involve the private sector in the public water supply and sanitation sector of Cochabamba. A 40-year concession was granted to the multinational consortium Aguas del Tunari, headed by International Water Limited[3]. The tendering process was barely competitive, Aguas del Tunari, was the only bidder (World Bank, 2006).

Aguas del Tunari's obligations were the management, the operations and maintenance of the water infrastructure as well as to increase the access of the population to the network from 57% to 100% until the year 2034. Additionally the consortium had to carry out the so-called Misicuni Multipurpose Project (MMP). The objective of the MMP was to utilize the water resources of the Misicuni River to supply Cochabamba with additional water and in order to produce hydroelectricity. In return Aguas del Tunari was granted exclusivity over water resources and exclusivity in water provision services in the municipal area. This meant that the consortium was given a monopoly in those sectors, excluding all market competitors.

No public subsidies were envisioned to finance the reform. The costs of the modernization of the water infrastructure and the MMP were planned to be recovered completely through raises in tariffs, i.e. higher water bills paid by the customers. Additionally Aguas del Tunari was granted a 15% real rate of return on their investment. (World Bank, 2006)

Shortly after granting the concession many people of Cochabamba went to the streets. The protestors, headed by trade unions and civil society organizations, demanded the cancellation of the concession, claiming that the government had sold off a vital resource the access to which was perceived to be an unalienable human right and hence could not be treated as a simple commodity. From day to day riots against Aguas del Tunari and the responsible authorities and clashes between the police and protestors became more and more violent. In the end the situation got completely out of control. Many people were injured; one person was killed. Finally, less than six months after the signing of the concession the government was forced to revoke the concession (Schouten & Schwartz, 2006).

[3] Jointly owned by the US construction company Bechtel and the Italian energy company Edison (Schouten & Schwartz, 2006)

Concession contract with *Aguas del Tunari :*	
Award Date:	1999 (terminated 2000)
Duration:	40 years
Obligations:	Management, operations and maintenance Modernize water and wastewater network Increase the share of the population with access to the network to 100 % (2034)
Rights:	**Exclusivity over water resources in the municipal area** **Exclusivity in water provision services in the municipal area**
Cost Recovery:	Full cost recovery through customers No public subsidies 15 % rate of return granted to Aguas del Tunari

2.4 Why Failure?

When looking for reasons for the failure of the project and the negative attitude of many inhabitants of Cochabamba towards the concession, 6 partial explanations can be found. Most of them are related to a lack of involving important stakeholders into the elaboration of the final arrangement:

First, the concession granted did not envision public subsidies to finance the reform. The costs for refinancing the infrastructure were planned to be recovered almost entirely through raises in tariffs, in other words through the consumers. This meant bill increases of 20-30 % and sometimes more than 100% (World Bank, 2006 / Berg & Holt, 2002), which had significant impact on the budgets of low-income households. Although it were mainly the large and high-income consumers who paid the biggest proportion of the tariff raises, many poor consumers feared that exclusive rights over water supply granted to Aguas del Tunari would deny them access to alternative water vendors and that they would have to pay excessive water bills. The government and the project managers did not manage to dispel those fears. It is also important to note that when Augas del Tunari was granted the concession, its first action was to raise the water tariffs without prior improvement of water provision services.

Second, given the problem of water scarcity in the Cochabamba area there was a competition for water resources. On one hand there was the increasing urban population of the city of Cochabamba and on the other hand the farmers of the surrounding areas who needed water for irrigation. The concession contract allowed Aguas del Tunari to find and develop future water resources in the region (Schouten & Schwartz, 2006). Due to the poor communication of the project managers and a profound mistrust towards the authorities rumors and half-truths

started to spread that the operator would be given entire control over the farmer's irrigation water. Seeing such a vital interest at stake local organizations such as the Cochabamba Department Federation of Irrigators Organizations (FEDECOR) immediately opposed the concession contract (Schouten & Schwartz, 2006). This lead to the first major protest against the project.

Third, 43% of Cochabamba's population was not connected to the main water network. Many of them were supplied by alternative water providers, like small-scale commercial private operators, community based cooperative water provision systems or private wells (Berg & Holt, 2002). The concession contract however gave Aguas del Tunari a monopoly over water resources and provision in Cochabamba. In terms of efficiency this made sense. Due to high fixed costs water infrastructure is a natural monopoly. The average costs decline the less a market is fragmented and the more people are connected to one big network. Exclusive rights also reduce the revenue risk to which an operator is exposed guaranteeing a minimal level of income. In developing countries where investment risks can be high these kinds of incentives are even more important. Particularly when wanting to attract the private sector. The exclusive rights given to Aguas del Tunari, however, threatened the vested interests of the existing alternative water providers. The commercial operators obviously saw their business at stake. Communities with own water provision services who usually had low production costs had no interest in connecting themselves to the main network. Finally large water consumers with private ground water access feared that they would no longer be able to use their own wells (Berg & Holt, 2002).

Fourth, Aguas del Tunari was the only bidder. Some critics maintain that the tendering procedure was not transparent and that the government has been excessively generous to the private consortium, especially by guaranteeing a 15 per cent real rate of return on its investment. Given the high investment risks for a company to do business in a country with political and economical instability, a 15% rate of return is less excessive than it might seem. Nevertheless project managers have to pay particular attention that the project arrangement is perceived as fair, particularly in a country with large political opposition to policies that are perceived as "neo-liberal" and "neo-colonial" (see explanation 6).

Fifth, the inclusion of the Misicuni Multipurpose Project (MMP) into the concession sharply increased the costs of the project. The main purpose of the MMP was to supply Cochabamba

with additional water and to produce hydro energy. Studies carried out by the World Bank in a first phase however led to the conclusion that excessive investment costs, estimated at US$ 300 million, made the MMP unfeasible. The MMP then was replaced by a less costly alternative, the Corani project, estimated at US$ 90 million. However the municipality of Cochabamba successfully challenged the Corani project. In the end the more expensive MMP was re-included into the tendering process. The municipality officially claimed procurement law had been violated. Some critics however maintain that the authorities of Cochabamba had been pressured by "politically influential Bolivian engineering and construction companies, who expected lucrative contracts from the MMP" (Nickson & Vargas, 2002). Given the existence of alternatives, the MMP was no absolute necessity and represented a burden that unnecessarily increased the costs of the project and respectively the water bills.

Sixth, Bolivia has a long history of foreign interference in its internal politics, may it be the colonial past or the US interference during the Cold War and in the so-called "war against drugs" 4 (Klein, 2008). Additionally, the economic reforms advised by the WB and the FMI – the privatization of major economic sectors since the 1980's – did not produce significant economic progress nor decreased income inegalities (Schouten & Schwartz, 2006). The privatization process was perceived as the repetition of the country's past. Unions, political and social movement leaders denounced that Bolivia's natural resources were once again exploited by foreigners and that the small local political and economical elite, once again, neglected the poor – mostly indigenous – population of the country. The fact that Aguas del Tunari's main owner was a US company did not help to reduce this perception.

In summary, as necessary as the refinancing and rehabilitation of the water and sanitation infrastructure were, the errors made by the government and the private consortium delegitimized the whole project. The lack of transparency in the tendering process, the excessive rise of water bills without public subsidies and prior service improvement, the skepticism towards economic reform perceived as neo-liberal and externally imposed, and the ignorance of numerous important stakeholders in Cochabamba created a political climate extremely hostile to the reform of the water and sanitation infrastructure.

[4]Since Evo Morales was elected president of Bolivia in 2005 the cooperation of Bolivian authorities with the US government in fighting the plantation of coca leaf has decreased sharply. As a consequence in 2009 the US authorities cancelled the trade preferences it had granted for different Bolivian products.

3. Case Study 2: Azerbaijan

As a second Case Study we will have a look at the water provision in Azerbaijan. After the fall of the Soviet Union, Azerbaijan gained independence on October 18th, 1991 (Azerbaijan, 2010). Subsequently, the country's economy moved from plan to market, a transition many other former Soviet countries experienced as well. Following the logic of the Soviet Union's planned economy water had been seen as an entitlement. The infrastructure and provision mechanisms of water in Azerbaijan bad been built according to this paradigm, where cost coverage and efficient consumption and provision had mostly been left out of the picture. (Wengle, 2006)

Azerbaijan has a population of about 8 million, with around 50% of the inhabitants living below the poverty line. Rapid population growth during the last couple of years put extra pressure on the water provision especially in the area around Baku, the capital of Azerbaijan. Before any projects were implemented, the coverage of water access was rather high. However, water was available only during a few hours each day and the water provided was of very low quality. Additionally, the whole provision system was extremely wasteful, with high amounts of water being lost due to leakages. (Wengle, 2006)

To address these problems, several donors have engaged in projects in Azerbaijan to advance the water provision system. The World Bank and the European Bank for Reconstruction as primary donors funded a project in 2003 to rehabilitate the water supply in Baku. SECO contributed to this project by rebuilding booster-pumping stations, which are needed to provide higher water pressure. Additionally, SECO has further projects in the more rural areas of Ganja and Sheki that are still running until 2011. These projects are also intended to make a substantial contribution to the restructuring of the sector towards a more decentralized system. All projects mentioned have a temporary character. Once completed the systems put up have to be kept running, financed and maintained autonomously by the government. To ensure future continual investments, be it for further projects or for the maintenance of already established infrastructure, an involvement of the private sector is absolutely crucial, since sufficient financial means cannot be raised through a public channel alone. The government is aware of this fact and counts on a successful involvement of a private company. First steps towards this aim have been taken in the Baku area, where projects are running to advise the government on the necessary steps that have to be taken prior to a private sector involvement. (Wengle, 2006)

Yet, several challenges have to be addressed when a private company gets involved in the water provision in Azerbaijan. So far no concrete steps to involve the private sector have been taken in the region. This might be due to the reluctance of the Azeri government to hand over responsibilities to a private actor. More likely, no private company willing to invest has been found. As Wengle (2006), states: "International observers have noted, […], that it is unlikely that a private operator will be interested in investing any significant amount in Azerbaijan at this point". She attributes this fact to the still unstable political environment in Azerbaijan and the lack of reliable information. Also, water infrastructure generally requires enormous capital investments and has only a small return on assets to offer, which materialize only in the long run (OECD, 2006); this is the case in Azerbaijan as well. Another great challenge, already seen in the case study of the "Guerra del Agua", is the public opposition to a profit oriented running of the water sector and a private sector involvement generally. The prospect of rising prices led to public resistance in Azerbaijan as well. A further challenge that will arise with a private sector involvement is the need of an independent regulatory body, which is by no means in place yet. (Wengle, 2006)

To summarize the problems posed in the case of Azerbaijan, the sequence of an actual private sector involvement shall lead the way. As a first step, the **political environment** has to be not only stable but also private sector friendly. Policies and regulations have to be changed in a way that allows an actual involvement. The water law in Azerbaijan of 1999 states the aim that the water provision should be run on a commercial basis and it allows a private sector involvement. This legislation depicts a good foundation for a private sector involvement – but it is not the whole solution. Private actors will only invest in a secure environment, and this also includes a stable regime and a reliable political environment, all of which are not in place yet in Azerbaijan (Wengle, 2006). Once this basis is given, a **private actor willing to invest** has to be attracted. The water sector poses a general problem – high investment, low return – and this dilemma has to be solved through an adequate allocation of risks and revenues. Again, the **involvement of all stakeholders** is absolutely crucial. A public that generally opposes to a private sector involvement is a challenge that can turn out to be very hard to overcome and that can destroy any attempt for a private sector involvement, as we have seen before in the example of Cochabamba.

4. Case Study 3: Basel

It is worthwhile to look at a Western-like approach to the infrastructure provision problem. The city of Basel, Switzerland, shows very nicely the diverse problems and issues related to a private sector involvement in the infrastructure business. Generally, the water provision is in the hand of the state in Switzerland, as it is the case in most Western countries. Due to the country's federal system, the competence for the water provision lies in the hands of the cantons. The most usual model in the provision of water is a public institution or cooperation, such as the company in Basel, the Industrielle Werke Basel (IWB) (Trinkwasser, 2010).

The institution is not only water provider but also in charge of the provision of energy resources. As a consequence of the liberalization of the electricity and gas market in Switzerland the energy politics in the city of Basel, and thus the IWB, were facing new challenges. In order to become more flexible in this evolving environment, the IWB was restructured (Basel Stadt, Departement für Wirtschaft und Soziales, 2010). It remains fully owned by the state but is now an independent company subject to public law with an own legal personality (Art. 2, Gesetz über die Industriellen Werke Basel (IWB-Gesetz), SG 772.100) – through this step the IWB was outsourced from the public administration (Basel Stadt, Departement für Wirtschaft und Soziales, 2010). Through this process the institution underwent several changes and was reorganized in parts. With the establishment of an independent company a new component is introduced into all business activities – that of a private market environment. The entrepreneurial activities of the company don't only have to be in line with the judicial and owner specific standards but also with the environment in the respective markets (Regierungsrat des Kantons Basel-Stadt, 2009). What the organizational structure is concerned, the commission plant was replaced by an administrative board – a change that again shows the transition from public to private – of which four out of seven members are appointed by the legislative organ. To define the content of the operative business of the company the legislative organ of the canton issues a global budget every four years. The global budget consists of the strategic orientation of the company and the total investment per sector (Art. 27 IWB-Gesetz). Because now subject to a private environment, the IWB is able to gather financial resources from the private market. However, equity can never undercut 40% (Basel Stadt, Departement für Wirtschaft und Soziales, 2010). What concerns the tariff structure, the IWB has to stick to the cantonal energy law (Art. 24 IWB-Gesetz). Thus, tariffs are set by the state and not by the company. The annual account has to be approved by the legislative organ, which also decides over the usage of the profits. They

are either distributed to the canton, transferred to reserve or shown as profit carried forward on the new account (Art. 29 IWB-Gesetz). What caused a political stir was the discussion about the employment law to which the employees of the IWB will be subjected (Art. 13 IWB-Gesetz). The decision finally favored the public law: All employees remain subject to public employment policies (Delle, 2009). Another important point of quarrel is shown through this: employees formerly employed in a secure public environment suddenly face the insecurities of a private employer.

We are now able to summarize the main issues that arose in this case and which are specific to an outsourcing of an infrastructure providing company. What has to be kept in mind when considering every single aspect is the fact that a **public and a private business environment** are of a very different nature. Where a public company faces a secure environment ruled by law and subject to a political process, a private environment is shaped by uncertainties, competition and pressure. As a first step the ownership structure has to be clarified. This involves asset-ownership issues, capital accumulation mechanisms, decision competences and so on. The whole organizational structure needs to be reformed according to a private market environment. Risk sharing mechanisms need to be defined carefully to weigh born risks with adequate benefits. The employment laws may cause further discussions. Of course these topics don not cover all problems that may arise. During the process further issues will come up and will have to be overcome.

5. Identification of Problems

So far we have had a look at the provision of water from a general viewpoint and we examined three case studies that illustrate specific problems associated with the involvement of a private actor in the water provision system of a country. The case of Cochabamba mainly focused on the social and political consequences of a badly organized private sector involvement. On the other hand, the cases of Azerbaijan and Basel concentrated more on the technical and contractual side of such an involvement. Always keep in mind that the issues identified here can never raise the claim of being conclusive. Many further fields of difficulties could be elaborated, since the topic is very complex. But in order to be able to elaborate specific solutions to specific problems the issue addressed has to be narrowed down. We will now try to structure the identified problems in a way that makes it possible to elaborate specific solutions.

Generally, all issues that have been identified so far can be grouped into two categories. We shall name them the **"technical area"** and the **"stakeholder area"**. The technical area addresses the actual contract of the private involvement. It reaches from the attraction of a private partner, over the contractual agreements, to the long-term securing of the water provision through the established system. The stakeholder area concentrates on a different topic. It looks at the political and social environment of a given private actor involvement. A water provision-restructuring project makes or breaks with the support of the public, as the case of Cochabamba illustrated. Of course these two areas are always intertwined and have to be addressed simultaneously.

In the following chapter the problems deriving from the "technical area" will be identified as precisely as possible. For reasons of space, and because problems deriving from the "stakeholder area" differ so greatly depending on the region under consideration, we decided to focus, here, on pointing out the more generalizable problems deriving from the "technical area." In the end, two separate checklists will nevertheless capture what has to be paid special attention to in both areas. These two catalogues of guideline principles shall be of help to international donors (and the collaborating government of the developing country) when deciding in which countries, and under which circumstances, efforts to promote a private actor involvement in the water infrastructure system seem most promising.

6. The "technical area"

Drawing from the conclusions of the case studies we can identify general fields where problems arise when involving a private actor into a water infrastructure project – with regard to the contractual side. First of all the country's environment has to be structured in a way to attract investment. The political and economic climate has to be "investment-friendly". Once the government decided that a private actor involvement is needed and desirable, an investor has to be attracted through establishing the right environment and processes. The legislative framework of a country has to be supportive and some judicial standards are needed. Tariff standards have to be in place in order to collect fees and generate revenues; in most countries this involves subsidy systems in addition. Since investment costs are high and returns rather low the risks faced by the investor have to be compensated by proper benefits. The government then has to decide in what form the private actor should be involved. In other words this means choosing the appropriate partnership program most adequate for the country's needs and possibilities. Specifically, this means that the most adequate public-private partnership model has to be chosen. When this decision has been made the contractual subtleties have to be elaborated carefully in accordance with the PPP model chosen and the new circumstances in mind. It has to be made clear again that these issues are not conclusive. Of course further issues will arise and will have to be addressed. These recommendations given here shall have the purpose of guidance principles to stick to in a process of contract building.

6.1 The Political and Economic Environment

As Wengle (2006) noted in the case of Azerbaijan, the unwillingness of private investors to enter the country relates to unstable political and economic conditions. This assumption is coherent to the findings of many other authors examining the relation of a country's stability and private investment. If private investment materializes, and to what extent, is closely linked to a country's political and economic stability. Several studies look at the relation of macroeconomic and political stability and the flow of private investment into developing countries. We will stick to a general view here before looking at the water sector specifically in the further considerations. Greene and Villanueva (1991) state, that there is a linkage of private investment rates and important macroeconomic indicators. They conducted an analysis of the trends of private investment flows in 23 developing countries between 1975 and 1987. Summarizing, their results reflect the following: the domestic inflation rate, the external debt of a country and the real interest rate have a negative impact on private investment, while the

economic growth rate, the public investment rate and the GDP per capita level have a positive impact. Obviously, macroeconomic stability is crucial for private investment flows to materialize in a developing country. Also, growth and high GDP levels positively affect the investment by private actors. What is important as well is the fact that the public investment rate has an impact on the private one – obviously there is a complementary relationship between the two investment channels. Aysan, Pang&Véganzonès-Varoudakis (2009) investigate some further macroeconomic indicators. The authors examine why the investment flows stagnated in the 1980s and 90s in the Middle East and North Africa (MENA) while they remained high in Asia. They summarize three points of focus: structural reforms, external stability and volatility. Under structural reform they look at the influence of financial development and trade policy on private investment. A developed financial market supports private investment just as trade openness does, by enhancing competition. External stability is composed of the two factors foreign debt and current account balance, which are similar to the indicators examined by Greene and Villanueva above. The before found results are supported by the outcomes in this study: Foreign debt hinders private investment just as an unfavorable current account balance, which are both indicators for a weak position of the country externally. As a last factor volatility is broken down into volatility of the GDP growth rate and of prices. As expected, high volatility rates impede especially long-term investments in developing countries.

Not only economic but also political stability is important for private investment in developing regions. Feng (2001) examined the effects of political institutions on private investment. He found out, that countries with a political system that does not promote political freedom, governments that lack consistent policy strength and generally unstable political regimes discourage private investment efforts. Consistent policies are thus crucial for developing countries in order to attract private investment flows. Le (2004) gives a more differentiated picture on the influence of the political environment on private investment, in a study of 25 developing countries over 21 years. To summarize his results, he found that high governmental control over the political processes and gradual legislative changes favor private investment.

What do these findings now tell us about the issue addressed in this paper: How can private investment in the water infrastructure sector be achieved? Or, even more specifically – Where can an international donor expect that his efforts to promote private investment in the water

sector will be successful? It is obvious that donor money is limited and that it is crucial to allocate the money in promising areas and countries. We have seen now, what prerequisites are necessary in the general political and economical environment for private investment to materialize. Summarized, private investors are only interested to invest in countries that are politically and economically stable. Thus it is a necessary requirement for international donors, wanting to promote private investment, to act in countries that show the political and economic stability indicators mentioned above.

6.2 Attracting an Investor

Let us now have a look at how an investor can be won for a water infrastructure project. The government of a country faces diverse challenges and responsibilities in this process. As noted above, the attraction of an investor not only requires an adequate legislative framework but also judicial standards and manageable tariff structures. Water is a socially and politically sensitive good. It is needed to survive and thus a basic human right. Also, water infrastructure requires enormous capital investments and a small return on assets materializes only in the long run (OECD, 2006). Often, the knowledge about the condition of the existing water infrastructure in a given country is poor, which creates uncertainty (Asian Development Bank, 2000). Additionally, water provision is a natural monopoly. This means, that the provision is characterized by declining long-run average costs, which makes the provision through one firm, a monopoly, most efficient, because the provision of the good exhibits economies of scale (Mankiw & Taylor, 2006). The investor thus faces substantial risks that have to be compensated with some kind of a beneficial system.

6.2.1 The Role of the Government

An investment decision of any investor is based on the expected future return of the investment. The higher the investment the higher and the more secure the future return has to be. Of course this return is always shaped by uncertainty. As we have seen, private investors are discouraged by unstable political and economic conditions – so minimal stability is a necessary prerequisite. Once arrived at this point a government has to create an investment-friendly environment in the water-infrastructure sector. The Asian Development Bank, ADB (2000) identifies a three-step process towards private actor involvement. The first reform called “commercialization” creates a more commercial environment for water utilities run and owned by the government. In this process, objectives for the water utility are put on paper and a business plan is developed. These steps clarify the role of the utility, and through the

identification of targets, incentives for institutional reforms are produced. Also, such a plan reflects the peculiarities and special needs of any country. A further important point is the evaluation of the subsidies in place to support poor users.

As a next step on the continuum towards private sector involvement is "corporatization". Again this is a means to introduce market forces in the water provision environment. Corporatization can follow as a next step after commercialization or it can be reached directly. A new way of managing the relationship between the government and the operator of the utility is defined. Legislation is put into place that specifies the responsibilities of both parties. The role of the government is now that of a shareholder while the utility operator has management authority and autonomy. In the steps of commercialization and corporatization the government should check on the possibility of unbundling water supply operations as for example treatment and distribution. It is often conceived now that only some specific parts of the water utility system show the characteristics of a real natural monopoly while others are linked to them traditionally but actually rather show competitive market characteristics. By unbundling, these effects can be exploited best. In order to succeed in corporatization, new institutions have to be created. A reform unit has to be set up that is in charge of the whole reform process. Also regulation is important – an institution that ensures protection of the customers. In the utility management area a board on a commercial basis and with water-specific managerial skills has to be appointed

The last step is now the involvement of a private actor into the water provision area. Whichever public-private partnership model is implemented, more responsibilities are transferred to the private actor. The responsibilities can also stay the same as in corporatization – then it is simply the private investors that replace the ministers as shareholder-monitors. Through this process towards a private sector involvement the environment is gradually changed towards a commercial climate. This of course favors private participation by creating opportunities to realize profits.

6.2.2 The Legislative and Judicial Framework

In order for a private investor to enter a developing country he has to trust in the enforcement of the respective laws. These need to be shaped adequately and governments have to guarantee compensation for uncertainties. Dispute settlement mechanisms are a further very important feature. The law has to specify the institutions in charge, in case of a dispute

needing to be settled. If a judicial system of a country cannot rely on a record of fair and predictable decisions the recognition of foreign institutions can be an option to create certainty. Of course the whole legal system has to be investment favorable – laws cannot impede private actors to invest in a country. Again as seen above the provision of a working financial market in order to borrow is a necessary condition for investment as well. (ADB, 2000)

6.2.3 Tariff Structures

To be able to get a return on the investment of a private actor it is crucial that the water provision has an actual price. As in any competitive market the supplier sets the price of the good according to his marginal costs and augments this if the customers show a higher willingness-to-pay. Prices that are set appropriately, signal efficient consumption, supply and investment and vice versa. Setting the price for water is a difficult task. How can the willingness-to-pay be estimated? First of all charging tariffs requires the installation of a metering system. In the ideal case consumers should pay a price covering their marginal costs however, subsidy needs of the poor population cannot be left out of the picture. Subsidies should be transparent and reflect in some way the costs of the water provision. Even though water is a good of vital importance the basic need of clean water is met quickly; and no further provision should be subsidized in order to create an environment as commercial as possible. Since cross-subsidies form commercial users or similar ones to poor customers are not very transparent the ADB, as an alternative, proposes three different ways of subsidizing: Transparent levies on users, direct cash payments to poor users or direct funding by governments. (ADB, 2000)

6.2.4 Risk Management

A transparent publication of all necessary information is of high importance for a private investor. He has to be able to identify risks and these need to be divided among the contract partners fairly. There is a wide range of risks associated with the water sector in developing countries. The sovereign risk poses the threat of the government expropriating or reneging contracts. All phases of an infrastructure project pose several risks and generally in developing countries there is an additional foreign exchange risk. The table below shows the different options for public-private partnerships and the allocation of risks among the contract partners:

Option	Ownership	Financial risk	political interference risk
Service contract	Public	Low	High
Management contract	Public	Low	High (in management)
Lease	Public	Medium	High dispute potential
Concession	Public	Medium-High	Medium-High
Joint ownership	Public&Private	Medium-High	Medium
BOOT	Private then Public	High	Medium
Outright sale	Private	High	Low

Table 4: Risks in different PPP models
Source: Asian Development Bank, 2000

Obviously there is a trade off between the risk from the market side, the financial risk and the risk from the governmental side, the political interference risk. The more responsibilities are transferred to the private actor, the more he is exposed to market risks and the smaller the possibility of interference from the side of the government is. A general rule can be applied when allocating risks between the partners in a contract: The side of the contract that is most able to influence the risk should bear it. Many different institutions have developed mechanisms to reduce risks associated with infrastructure projects. For example many governments give investors guarantees for specific policy risks in their countries. (ADB, 2000)

6.3 The Contractual Arrangement

Which PPP- model is most adequate depends on the peculiarities of the environment. How is the support for a private actor involvement, what is the actual problem (investment, expertise…) and how fast does the problem have to be resolved? Which model is most adequate depends on the circumstances. As an initial step, to test the involvement of a private investor and the linked political, social and economic effects, a management contract offers the best alternative. The private party is only in charge of managing some or all operational tasks. This form is best suited to overcome strong social opposition gradually and also if the investor finds a deeper participation too risky for the time being. Gradually risks can be addressed by the government to promote further involvement. The contract should also include incentives to move on in order to enhance the competitive climate further. When it is mainly the managerial expertise that is missing, it is a lease contract that should be implemented. Here the private partner runs and maintains the utility for a fixed period of time and in return gets the right to collect tariffs. The asset ownership remains with the state, which

is also in charge of any major investments. Most financial risks remain with the utility this way, so this form is not suitable if broad and long-term investment from the private side is needed. When it is mainly investment that is needed quickly, the adequate form is a BOT contract. The private investor builds (B) and operates (O) the facilities for a period of time and then transfers (T) them to the government. Any underlying assets are leased to the investor for this time. The investor provides the service to the municipality or government. This implies that this form does not require in-depth management systems down to the end user, as other contractual forms do. If the government is strongly committed to the involvement of a private actor but just not all the way to full divestiture, a concession contract can be the solution – also if the legal and regulatory framework is not developed enough for full privatization. The investor has the right to use all existing assets but is also required to invest in upgrading the system. Generally he is in charge of delivering all the way to the customer. In the last form, the divestiture of the BOO (built-operate-own) the government only keeps the role of the regulator. This form requires in-depth information about all existing assets and low country risks. (ADB, 2000)

7. Checklists

After having thoroughly examined the technical part of a private actor involvement in the water infrastructure sector, to conclude, two checklists will be presented. The first one is concerned with the "technical area" and shall help determine where and how a private sector involvement may be expected to be fruitful and where and how international donor communities might want to go about in promoting this involvement. The second checklist belongs to the "stakeholder area" – it captures the importance of paying enough attention to all important interest groups and to the particular political, social or cultural circumstances. The main errors committed by the project managers in the case studies presented beforehand may be avoided when taking into account the recommendations we bring forward below. They should be especially useful for international donors that want to promote private investment in the water sector in developing countries, also when advising the governments of these countries what measures to take.

7.1 Checklist for Private Actor Involvement

As we have seen throughout this paper there are several important characteristics that determine how attractive a specific environment will be for international investments. The following checklist shall provide some insight into where and how a private sector involvement would make sense and where and how international donor communities might want to go about to promote it.

Economic and political environment

Do not try to promote private actor involvement where the political and economic system is not ready. (When acting in such countries rather promote the development of these factors)

Look for:
- high levels of GDP
- high growth rates
- high public investment rates
- low inflation rates
- low interest rates

- low foreign debt
- a good current account balance
- stable GDP growth and prices
- developed financial markets
- trade openness

- political freedom
- consistent policies
- stable political regime
- governmental control
- gradual policy changes

Source: Greene&Villanueva (1991), Aysan, Pang&Véganzonès-Varoudakis (2009), Feng (2001), Le (2004)

Political framework

Prior to the private actor involvement create an adequate political framework

- define objectives of utility and measurable targets
- introduce competition by unbundling
- create an adequate tariff structure (set an adequate price and measure the consumption)
- define a transparent system of subsidies
- ensure functioning dispute settlement mechanisms

Source: Asian Development Bank (2000)

Model of private actor participation

Choose an adequate model of public-private participation

Management contract: - as a first step towards deeper private actor involvement

	- to test out the acceptance - should include incentives for the government to move on
Lease contract:	- when investment funds are available and managerial expertise is missing - creates incentive to improve operational efficiency - not adequate if substantial long-time funds are required
BOT:	- when investment funds are needed quickly - if the capital market of the country performs poorly - adequate and time intensive bidding process required - appropriate contracts are crucial
Concession:	- if the government is strongly committed to private sector involvement but not yet to the extend of full divestment - if the legal framework for a full privatization is missing
Divestiture:	- if the government is strongly committed - the contract is well-researched and negotiated - there is a strong regulatory and institutional environment - good information about the utility's asset base available - low country risks

Source: Asian Development Bank (2000)

Risk management

Allocate risks adequately

Always ensure that the party most able to influence the risk is the one bearing it.

Source: Asian Development Bank (2000)

Transition public - private

Always keep in mind that the transition from a public to a private environment implies far-reaching changes in all areas

7.2 Checklist for Stakeholder Involvement

As seen above many of the reasons for the failure to involve the private sector into the water infrastructure sector in Cochabamba were due to a lack of consideration of the interests of various interest groups and the wider social and political environment. The checklist put forward here shall help to prevent too big a neglect in the consideration of these important interests.

1. Involve all stakeholders

Generally speaking, the success of any private participation process depends on the extent of support from stakeholders. If people understand the objectives of a reform, know their views have been heard and understood, and have had an opportunity to influence the arrangement, they are more likely to accept the results (World Bank, 2006).

Identify the key stakeholders and their interests in the design and outcomes of the process.

This involves outreaching to traditionally marginalized groups such as poor households, people in informal settlements, and alternative providers.

Develop effective ways of interacting with stakeholders.

This involves collecting information, communicating decisions, as well as finding ways to engage in dialogue and involving them in decision-making.

Identify issues that are likely to be politically sensitive anticipate conflicts

The interests of the stakeholders can conflict whit a project. And the interest of different stakeholders can conflict with one another so that the government will have to trade off competing interests. Customers, for example, benefit from subsidies; but subsidies have to be funded by taxpayers etc. When knowing the interests at stake, the government/company can find a solution that maximizes the benefit for all stakeholders and minimizes the opposition to private sector participation.

Source: World Bank (2006, p. 21)

2. Existing water infrastructure and water provision

Carefully examine the existing water infrastructure and water provision in a given area and identify all types water providers and consumers.

This will help you to identify the market structure of the water sector and enables you to identify the different actors and stakeholders in a given area and their interests. This way potential opponents of a project, such as alternative water providers, can be identified and ways of coping with their concerns respectively instruments of cooperation can be included into the arrangement. When doing so opposition to a reform can be minimized and the support maximized.

3. Political, social and economical environment

Carefully examine the social, political and economical context of a country/region.

This involves learning about the political culture, the social structure and the distribution of political and economical power as well as identifying political parties, important interests groups, trade unions, environmental and civil society organizations etc. Knowing precisely in what environment you are working in is crucial. Only that way you are able to develop a successful project strategy that takes important cultural and social aspects into account and enables you to bypass political pitfalls.

4. Communication / Transparency

Communicate transparently with all key stakeholders on every step throughout the whole process of introducing private sector participation.

If people are kept in the dark and feel that their concerns are disregarded mistrust and suspicion arises. Bad communication involves the risk that rumours and half-truths spread. They not only create unnecessary conflict jeopardizing the enterprise but can also be instrumentalized by interest groups that oppose the project. When people understand the objectives of a reform they are more likely to accept the results. For instance if consumers understand that the creation and maintenance of water infrastructure has high costs that need to be recovered somehow, they will be more likely to accept raises in water bills.

The checklists elaborated above give insight into several specific problems related to the involvement of a private actor in the provision of water infrastructure. These checklists shall by no way raise claims of being complete. There exist many further fields of tension and several other problems and issues will have to be overcome in an actual private sector involvement project.

8. Conclusion

Despite all the efforts the target of ensuring everyone in the world the access to at least basic water and sanitation services is, as we have seen, still far from being met. This failure is due to various reasons, which all lead back to problems deriving from the great complexity and the distinct characteristics of the water sector, be it in the "technical" or the "stakeholder area."

In order to realistically change the state of things there have to be found ways to make the water sector more interesting, i.e. less risky for private actors in order for them to be inclined to invest more of the so direly needed funds into it. In this paper we therefore looked for ways that may give private investors more certainty in this politically so loaded, high-risk/low-return environment. In order to avoid the failure of systematically dealing with this complexity we deemed checklists to be an appropriate tool.

For reasons of space our analysis had to be limited to three case studies, which means we make no claims of completeness, especially regarding our checklists. In our studies for this paper we had to realize that not much literature is to be found with differentiated empirical research on how to make the much-needed private involvement in the water sector more fruitful. We believe it would be very rewarding if future research would. It could engage in drawing up further checklists, preferably according to a broader range of parameters. It would certainly also be useful to create a sort of benchmarking system in order to better be able to categorize for which project what kind of system is most promising. It is certainly time to recognize the need for more expertise and academic research in this field.

References

Andrés, L.A., Guasch, J.L., Haven, T. & Foster, V. (2008). *The Impact of Private Sector Participation in Infrastructure. Lights, Shadows, and the Road Ahead*. Washington: World Bank.

Asian Development Bank. (2000). *Developing Best Practices for Promoting Private Sector Investment in Infrastructure – Water Supply*. Retrieved May 5, 2010. http:// www. adb.org

Aysan, A., Pang, G. & Véganzonès-Varoudakis, M.-A. (2009). Uncertainty, Economic Reforms and Private Investment in the Middle East and North Africa. *Applied Economics, 2009,* 41, 1379 – 1395.

Azerbaijan. (2010). *The History of Azerbaijan – General Information*. Retrieved May 3, 2010. http://www.azerbaijan.az/portal/History/General/generalInfo_e.html

Basel Stadt, Departement für Wirtschaft und Soziales. (2010). *IWB-Verselbstständigung*. Retrieved May 3, 2010. http://www.wsu.bs.ch/politikdossiers/iwb-verselbststaendigung. htm

Camacho, H. (2005). *Water Privatization Policies and Concession Arrangements in Bolivia: Case Study of La Paz and Cochabamba*. MSc Thesis WM 05.08, Delft: UNESCO-IHE Institute for Water Education.

Delle, R.F. (drf). (2009). *Grosser Rat beschliesst Ausgliederung der IWB*. Retrieved May 3, 2010. http://bazonline.ch

Feng, Y. (2001). Political Freedom, Political Stability and Political Uncertainty: A study of Political Institutions and Private Investment in Developing Countries. *International Studies Quarterly,* 45, 271 – 294.

Greene, J. & Villanueva, D. (2001). Private Investment in Developing Countries – an Empirical Analysis. *Staff Papers – International Monetary Fund,* 38 (1), 33 – 58.

Harper, M. (2000). *Public Services Through Private Enterprise. Microprivatisation for Improved Delivery.* New Delhi: Vistaar.

Hoffmann, S. (2005). Gemeinsames staatlich-kollektives Wassermanagement in Cochabamba, Bolivien. *Schweizerisches Jahrbuch für Entwicklungspolitik*, 24 (2), 183-194.

Klein, H. S. (2008). *Historia de Bolivia.* La Paz: Librería editorial G.U.M.

Le, Q. (2004). Political and Economic Determinants of Private Investment. *Journal of International Development, May 2004.* 16, 586 – 604.

Lobina, E. (2000). *Cochabamba—Water War. PSIRU Report*. London: Public Services.

Mankiw, N.G. & Taylor M.P. (2006). *Economics.* London: Thomson Learning.

Nickson, A. & Vargas, C. (2002). The Limitations of Water Regulation: The Failure of the Cochabamba Concession in Bolivia. *Bulletin of Latin American Research*, 21 (1), 128-149.

OECD. (2006). *Infrastructure to 2030 – Telecom, Land Transport, Water and Electricity.* OECD Publishing.

OECDa. (2009). *Managing Water for All. An OECD Perspective on Pricing and Financing. Key Messages for Policy Makers*. Retrieved March 24, 2010. www.oecd.org/dataoecd/53/34/42350563.pdf

OECDb. (2009). *Private Sector Participation in Water Infrastructure. OECD Checklist for Public Action.* Retrieved March 30, 2010. http://www.oecdbookshop.org/oecd/display.asp?lang=EN&sf1=identifiers&st1=202009031p1

Regierungsrat des Kantons Basel-Stadt. (2009). *Bericht zum Leistungsauftrag und den Gesamtinvestitionen der IWB für die Periode 2010- 2013 (Planungsbericht IWB 2010-2013).* Geschäftsnummer: 09.1724.

Schouten, M. (2009). *Strategy and Performance of Water Supply and Sanitation Providers.* Retrieved March 28, 2010. http://publishing.eur.nl/ir/repub/asset/15566/PhD-THESIS_MARCO-SCHOUTEN-170409.pdf

Schouten, M. & Schwartz, K. (2006). Water as a Political Good: Implications for Investment. *International Environmental Agreements*, 6, 407-421.

Trinkwasser (2010). *3000 Wasserversorgungen.* Retrieved May 3, 2010. http://www. trinkwasser.ch/dt/frameset.htm?html/trinkwasser/nav_tw.html~leftFrame

UN General Assembly. (2000). *United Nations Millennium Declaration.* Retrieved May 1, 2010. http://www.un.org/millennium/declaration/ares552e.htm

Wengle, S. (2006). *Current State of Reforms in the Water Provision of Azerbaijan.* Retrieved May 3, 2010. http://www.seco-cooperation.admin.ch/laender/00627/ index. html?lang=de

Whittington, D., Hanemann, W.M., Sadoff, C. & Jeuland, M. (2008). *Copenhagen Consensus 2008. Water and Sanitation Challenge Paper.* Retrieved March 25, 2010. http://www.copenhagenconsensus.com/Default.aspx?ID=1324

WHO & UNICEF. (2010). *Progress on Sanitation and Drinking Water: 2010 Update.* Retrieved March 30, 2010. http://www.who.int/water_sanitation_health/publications/ 9789241563956/en/index.html

World Bank. (2006). *Approaches to Private Participation in Water Services – A Toolkit.* Retrieved March 30, 2010. http://www.worldbank.org/

World Bank Group. (2009). *Private Participation in Infrastructure Projects Database.* Retrieved March 30, 2010. http://ppi.worldbank.org/explore/ppi_exploreRankings.aspx