

the changing environment of

WATER SERVICES PROVISION

in MEXICO

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New Rules, New Roles: Does PSP benefit the poor?



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Acronyms

CADF	Spanish acronym for Federal District Water Commission
CAN	Spanish acronym for National Water Commission
FINFRA	Infrastructure Investment Fund (of the national government)
MCMA	Mexico City Metropolitan Area
NAFTA	North American Free Trade Agreement
PAN	Spanish acronym for the National Action Party
PRI	Spanish acronym for the Institutional Revolutionary Party
UNAM	Spanish acronym for the National Autonomous University of Mexico

I. Executive Summary of the Synthesis Report

Governments, both northern and southern, have rightly placed themselves under much pressure to achieve better water and sanitation coverage. The Millennium Development Goals aim to halve the proportion of people without access to water and sanitation services by 2015. Millions die every year from lack of access to safe water and adequate sanitation. On one hand there is an undeniable urgency about these issues that makes prolonged discussion frustrating and a questionable use of resources. But on the other, the risk of the blanket promotion of one debatable method of reform is an unnecessary waste of scarce resources.

Most southern governments have consistently failed to deliver affordable and sustainable water and sanitation to the poor. It is difficult to summarise the causes for this failure as each situation is different and complex. However, some broad problems cut across many public utilities and municipal services: bad financial management, low funding priority, lack of staff experience and qualifications, absent or weak customer service orientation, political interference, little or no independent regulation and an absence of civil society consultation. Many of these problems have been described as attributable to weak government capacity – equally acute in urban and rural contexts.

Our research shows that the policy of private sector participation (PSP) does not comprehensively tackle the underlying causes of water utilities' failure to serve the poor. In four key areas capacity building, community participation, finance and institutional reform, major problems persist, making it unlikely that the multinational private sector is going to play any significant role in achieving the Millennium Development Goals.

Currently the pursuit of a policy of PSP generally undermines local and national government capacity. For one, it limits the ability of the public sector to take services back should PSP fail or when contracts end. Private sector contracting must not result in irreversible dependence on private companies, and there must be clauses in contracts to prevent this dependence.

Without adequate government capacity, no reform processes can be successful. The private sector cannot be contracted without tackling failing government. The government's role to facilitate, monitor and regulate is as much an essential element in PSP as in public and user-managed utilities. Yet, it seems that this requirement is being practically ignored in the rush to establish PSP. It is essential that donors refocus efforts to building government capacity at local and central levels.

The involvement of local communities is often lacking in PSP reform programmes. Where PSP has failed to deliver the promised gains, the case often is that the poor are seen mainly as recipients, rather than contributors to development. Whether projects involve large or small-scale PSP, the focus is on giving contracts or concessions to the private sector. Social mobilisation and community participation, proven time and again as prerequisites for sustainable development, are seen as burdens and non-essential components of the task. Failure to consult communities means that the interests of the poor are often not being represented. It results in a lack of ownership over projects and an absence of accountability between users and service providers. It seems that the lack of community involvement that led to previous failures is continuing, raising serious doubts over the sustainability of PSP projects.

Cost recovery and capital cost contributions are in most cases necessary for water services to be sustainable. However, there are problems in the application of these principles, which often results in denying the poor access to services. Expensive technology choices and a failure to consider the non-cash contribution of the poor are widespread in PSP contracting. Donors are guilty of promoting an approach that is narrow and mechanistic, allowing for little flexibility and absence of perspectives incorporating community action and considering the complexities of poverty.

Changing the role of government, by effectively reducing its capacity through reductions at central level, but not increasing personnel at local government levels, erases benefits that could be gained from decentralisation per se (such as responsiveness to people's needs, greater accountability etc.). Weak decentralised agencies cannot be expected to quickly learn about tenders or forms of contracting and keep track, monitor and supervise the activities of contractors fanning beyond provincial capitals.

In the rural areas that were studied, reduced government roles had a detrimental impact as work was often sub-standard leaving the communities with a costly and unreliable service. The rural case studies also show that there are, so far, no improvements in accountability. In some respects, accountability was compromised in the dilution of responsibilities that accompanied the change in roles. Because projects are between governments and contractors (communities are typically not a party in the contract), the supposed beneficiaries are in no position to seek redress for sub-standard work. Accountability is lost in the commercial/ contractual, quick-fix arrangements of private sector involvement.

Political interference has been seen as contributing to the failure of many public utilities to deliver to the poor. In established democracies there is 'interference' in the running of utilities but this is seen as government exercising its duty to keep institutions to account. There is a fine line between 'interference' and the need for accountability, the difference seems to be the depth and strength of democratic institutions in individual countries.

Civil society working to strengthen the hand of government through, for example, commenting on tender documents prepared by external advisors, increases the likelihood that reforms will further the concerns of the poor. It is in the interests of government to involve a broad constituency, especially one that represents the interests of the poor and poor people themselves in the shaping of privatised basic services. Pro-active openness and transparency by government in reform processes lessens the possibility of civil strife.

With these findings, we are opposed to donors pressuring developing countries to accept PSP in

water services as a condition of aid, trade or debt relief. To promote a policy regardless of specific contexts increases the likelihood of failure especially when the likelihood of success of that policy is intensely contested. Furthermore, the enforcement of PSP as the central policy reform limits the options for governments and civil society to improvise and innovate using the best possible arrangements. We believe rather that policies should be used to ensure that in any reform process the poor will be protected, their access to services increased, and the process itself actively seeks the opinion of civil society.

This does not mean that we are rejecting private sector involvement. The private sector has a role that should not be denied. But, where there is corruption and/or political resistance to serve the poor, the private sector can do very little and can, in fact, compound the problem. Where there is lack of information, participation and democratic processes, the situation is thrown wide open to opportunistic behaviour from the private sector. However, given a situation with stable rules, enough political commitment to address the underlying causes, good governance and an informed and active citizenry, the private sector can be a responsible partner in development and an important player in reforming and improving water services.

In order to move forward on this contentious issue, a multi-stakeholder review should be undertaken. We believe that it is only through such a review (similar to the World Commission on Dams) that the final, authoritative word can be made on whether PSP benefits the poor. We also believe in the necessity of building the capacity of civil society actors to influence privatisation processes and to hold governments and the private sector to account. This needs to start with improving their knowledge and understanding of the issues surrounding failing water services, and enabling civil society groups around the world to learn from each other's experiences of intervention in privatisation processes.

II. Case Summary

The Mexican government appears to regard private sector participation (PSP) as the key reform measure to solving the country's water and sanitation problems. In Mexico City four private companies have been invited to run the system. Though much of the network has improved, collecting revenue and water wastage remains a problem. A study of private versus public provision in two poor settlements revealed that water was more expensive for the community served by the private operator, but residents had better water awareness. The private operator was found to be no more efficient than the public. There needs to be robust studies to prevent PSP from harming the poor in Mexico City and elsewhere in the country.

Mexico has a federal system of government, but in reality power is highly centralised in the President of the recently elected right-leaning Partido Accion Nacional (National Action Party). An estimated 18 million people live in extreme poverty. A further 27 million are considered poor. One in five Mexicans live in the capital region, Mexico City, which is the largest urban conurbation in the world with a population of 21 million. Mexico face two problems relating to water. First, the society has been very passive, rarely demanding political rights or holding the government accountable. Secondly, corruption is pervasive, meter avoidance, altering and corruption in the water billing system are serious problems, as are illegal connections and more sophisticated schemes.

Through a \$15 billion programme, the 2001-2006 National hydraulic Programme aims to provide an extra 25 million people with access to piped water, and an additional 30 million with access to sewerage. Given the size of the investment needed, the Mexican government is pinning its hopes on PSP. The government is also tightening up legislation which will make it legal for private firms to disconnect non-payers from the water network, which has previously been illegal.

In Mexico City, four private companies have been awarded the management contracts for servicing the city's water needs. The companies have to be 50% Mexican owned, but four multi-national operators, Vivendi, Azurix, Ondeo and United Utilities, hold significant stakes in them. According to studies, there have been positive and negative results following the introduction of PSP in Mexico City:

Positive: Cost recovery of operation and maintenance costs has risen from 30% to 80%, meters have been installed, customer databases have been created, about 100km of network has been refurbished, 20,000 service connections have been substituted and 72.4% of bills are being collected. (The claim on water metering should be viewed with suspicion, since our study found thousands of people in poorest areas without meters).

Negative: Unaccounted for water is still at a very high level. Unpaid bills prevent expansion and development of the network, both public and private sector still struggle to collect payment.

There has been no comprehensive study on the direct impact of PSP on the poor in Mexico City.

A field study was conducted in two poor communities to compare their experiences. Piru, within Mexico City, a hilly area occupied in the early 1980s, featured very poor conditions in the beginning, but paved roads and basic houses are now emerging, and water and electricity have become available. In contrast Huicholes, on the outskirts of the city, is a flat and dusty area squatted by refugees in the 1990s. As an 'illegal' settlement, it has received few paved roads or sidewalks, and has no water or legal electricity connections. Huicholes is served by a semi-private operator – a not for profit firm which is economically and politically independent from the government. Piru is served by local government.

Both Piru and Huicholes pay more than the average fixed water fee for Mexico City, but households in Huicholes pay \$0.71 per cubic meter, five times the city average and more than twice that paid by households in Piru (\$0.30). Huicholes is paying the full cost of water, despite being entitled to a subsidy. Families in Piru considered their water to be cheap, while families in Huicholes considered it to be expensive. Families in Piru have a significantly higher income than in Huicholes, so water payments in Huicholes are a significantly larger proportion of income than in Piru.

Households in Huicholes considered water valuable and demonstrated a deeper awareness about water-related issues, such as water conservation, health and hygiene, and that it comes from a private provider. This awareness seems to be due to its expense, but also because the people of Huicholes ran a mobilisation campaign in order to get their water supply. In contrast, such awareness is lacking in Piru, where respondents mistakenly think their water comes from the National Water Commission, rather than the municipality. People in Piru did have better water containers than in Huicholes, and a better standard of living, but poorer education about the links between water and hygiene. In Piru, where water services were easier to obtain, there appears to be more disregard for water.

There seems to be widespread confusion in both communities about what happens when water bills are not paid, showing a failure of communication of both public and private providers.

It would appear the public operator provides better quality water to Piru. This may be because the water is received from the MCMA as a bulk supply, while the private operator serving Huicholes gets its supply from a variety of sources. While the Piru community is fairly satisfied with the water they receive, the Huicholes community are not. In terms of maintenance and promptness, Piru fairs better than Huicholes.

For Huicholes, the quality of their water 'shines' when compared with their living conditions, so they value its quality even more. In both communities, having easy access to water is regarded as enhancing the dignity of the residents, and improving quality of life.

The Mexican government seems to be betting on PSP as the key reform measure to solve their serious water and sanitation services problem. But it is highly unlikely the PSP will be able to do this without a more rigorous and comprehensive government programme. There is an ambiguous legal framework, and increasing water scarcity is a major threat.

Nevertheless, a gradual, low-profile, take-over of the private sector has already begun. Checks on progress are likely to come from government as regulator, community parties and NGOs. The introduction of PSP, especially the legal entitlements to disconnect, the introduction of metering, and the phasing out of multi-family connections, has the potential of greatly harming the poor. There is fear amongst the people that their rights are being abolished and they are facing higher prices. The government and private sector must consider the latent potential of social movements arising in consequence.

In the experiences of Piru and Huicholes there is a mixed picture. The Huicholes community is suffering more because of the higher price it has to pay for water, but it may have benefited by gaining better water awareness, and valuing more the service they now have. It seems wrong that Huicholes, a poorer community than Piru, is paying significantly more for its water, which is also of poorer quality.

Contrary to the prevailing ideology, that the private operator is more efficient, the public sector is much quicker at repairs and provides a better quality of water. Many of the problems being experienced could be solved by community accountability mechanisms for the providers, and regulation by the government.

III. Introduction

This study is part of the Private Sector Participation (PSP) Research, Advocacy and Learning Project that looks at the impact of PSP in water services on the poor.

This research was carried out by Armonia. Armonia is a Christian organisation working primarily in and around Mexico City. The ethos of Armonia is to assist the community using “resources and influences to be agents of Christian change in zones of high marginalisation and poverty, principally in urban areas”. Armonia operates an integrated urban development programme covering: relief for minor emergencies, job training skills, support for schools, community health, sanitation and Christian celebrations.

In this report the focus is on comparing and contrasting the experiences of two poor communities on the outskirts of Mexico City in the context of the wider experience of private sector involvement in water services in Mexico. One community, Huicholes, is served by a semi-private operator; the other, Piru, by a public operator.

PSP in water and sanitation services in Mexico is very new and the regulatory framework for service providers is ambiguous. There are many water and governance-related issues in Mexico that have been practically ignored for a long time. The service has been subsidised by government to such an extent that people treat water as though it is limitless and squander it at will. The government is pinning its hopes on PSP to solve all these problems and so is heavily promoting the involvement of private companies in water services.

Alongside the policy of encouraging PSP, the government is tightening up disconnection

legislation. Previously, users could not be disconnected for failure to pay; new legislation allows disconnection as an option to all service providers.

The study of Piru and Huicholes focuses on the impact of a small-scale semi-private operator on a poor community as compared to a government-served community. The main findings are:

- Social mobilisation makes people more concerned about water
- That Huicholes is paying more for its water than Piru and probably more than is necessary to cover costs
- Private does not necessarily mean more efficient
- Huicholes is developing a water awareness culture because it considers water to be expensive
- The poor are suffering from an ambiguous legal framework and lack institutional protection.

The study then outlines some recommendations that the government should consider in order to improve services to the poor whilst protecting the natural resource base.

Methodology

This report is based on a combination of bibliographical sources, official documents, press and mass media releases; semi-structured interviews, and in-depth interviews with users, officials and insiders contrasted with hard data and documentary evidence gathered in a field study.

IV. Background: water policy and PSP in Mexico

Politics

Mexico has a federal system of government but, in reality, power is highly centralised in the President. Promises have been made to decentralise power but this has not happened as yet. A right-leaning party – the Partido Acción Nacional (National Action Party) or PAN – has recently come to power after years of domination by the Partido Revolucionario Institucional (Institutional Revolutionary Party) or PRI, which had been in power for over 70 years (Americas Review 2000).

Traditionally, Mexican society has been very passive, allowing the government to treat its citizens as helpless children. In spite of a formal legal framework of checks and balances (i.e. Congress has the power to veto presidential initiatives), the culture, in practice, does not empower citizens to demand their basic rights or assume important responsibilities in terms of holding the government accountable. There is no culture of accountability amongst the Mexican middle class, let alone the poor. As a nation, they have suffered from a long history of repression. This has resulted in a tendency to absorb abuse passively instead of dealing with the powers that be in society. It has only been in the latest 34 years or so that a small fraction of Mexican civil society has awakened and begun to struggle for justice and equality.

However, Mexican society *is* experiencing an important transition: with the present government adopting a new liberalism to modernise the country, civil society is abandoning its passive position of the last 70-plus years and is taking responsibility for its own problems.

Environment

Mexico is blessed with great supplies of water (Saade, 2001). However, there are several factors which result in not enough water being available at the right place at the right time. The uneven distribution of rainfall regionally greatly affects the northern populations during (and often beyond) the dry season. Moreover, there is no

correlation between the geographical distribution of water and the distribution of the population. Over three quarters of the population live where only 20 per cent of water resources are located (ibid). Droughts and flooding (particularly localised flooding) are frequent across Mexico. A major contributing factor is deforestation. It is estimated that Mexico has already lost 95 per cent of its tropical humid forests (Roper & Roberts, 1999). Water is rapidly washed across the ground leading to soil loss and generating erosion. Deforestation is also responsible for the droughts that recently occurred in Chiapas and Oaxaca (Valero, 2002).

Over-exploitation of aquifers is increasing all the time. Over-exploited aquifers comprise about a third of all underground water. Eighty-three per cent of the 78 billion cubic metres of water used annually are devoted to agriculture. The National Hydraulic Programme reports that the current water situation in the Mexico City Metropolitan Area, “has reached its limit, the environmental damage caused by over-exploitation is palpable and irreversible”.

Approximately 40 per cent of domestic water supplies in Mexico City is lost through leakage or unaccounted for waste (Saade, 2001). The absence of a culture of payment and massive government subsidisation means there is little or no awareness of the economic and environmental cost of water. Many people needlessly squander water for uses such as washing down sidewalks.

Poverty and economics

Despite an average per capita annual income of over US\$4000, Mexico presents huge inequalities in the distribution of income. An estimated 18 million people live in extreme poverty and this figure is rising. A further 27 million are considered poor but have some resources to cope with this poverty. Some 20 per cent of the country’s population live in the capital region. Mexico City is the largest urban conurbation in the world with a population of about 21 million. Huge numbers of people live in

marginal communities as rural development failed and urban migration accelerated. Urban conditions throw up many problems: poverty, child neglect, poor education and illiteracy, poor housing conditions, unemployment, violence, prostitution, malnutrition and inadequate health services.

Mexico is classified as having medium human development and is ranked 54th on the human development index by the United Nations Development Program (Human Development Report, 2002). The economy has been growing steadily due to the export sector. Mexico's membership of the North American Free Trade Agreement (NAFTA) has encouraged manufacturing, resulting in most of the world's leading companies now being present in Mexico (Americas Review, 2000). Recently, however, Mexico has gone into recession mirroring the global economic downturn.

Water supply favours the rich. While wealthy people in the Mexico City Metropolitan Area (MCMA) get an abundant daily amount of 500 litres per capita, those on low incomes in the south-east receive barely 30 litres per capita. When water availability is reduced, the poor (whether urban or rural) are last in the 'water waiting line', because their settlements are difficult to access; they either get the least amount or are not served at all.

Recent figures from the Comisión Nacional del Agua (National Water Commission) or CNA suggest that about 86 per cent of the MCMA has piped water and 72 per cent has access to water sewerage services. Many poor Mexicans are unable rather than unwilling to pay for water. New migrants, often with no steady income, have little choice but to establish their homes in the most unsuitable places and under very precarious conditions. They are not provided with basic services – e.g. water, electricity, medical attention and paved roads, by the authorities on the grounds that they hold illegal properties. The CNA estimates that in order to pay for their monthly water consumption, the head of such a family in Mexico City would have to work as many as 8.4 days on a minimum wage.

Those who are connected to the main water supply may or may not be metered. If they are not metered, then they will have a fixed, extraordinarily low fee. This mechanism has been designed by the authorities in order to make water affordable for the poor. However, it is unlikely that the very poor are connected to the mains water supply and therefore it is more likely to be the better off rather than the poor who are benefiting from this fixed fee. The Commission claims that it sells a cubic metre of water for US\$0.15, which is well below what is needed to cover costs.

The 2001-2006 National Hydraulic Programme pinpoints caring for the marginal communities as one of its highest priorities. Saade emphasises that sectoral goals for 2010 are "very ambitious" in aiming to provide an additional 25 million people with access to piped water (95 per cent coverage) and an additional 30 million with access to sewerage (88 per cent coverage). It is estimated that the amount required to accomplish these goals is around US\$15 billion. "Given the size of the investment needed", says Saade, "private sector participation is emerging as an appealing option in certain cities" (2001).

Recently, some representatives in the Mexican Congress have voiced a proposal to abolish fixed fees. Isolating this decision from considerations about metering, multi-family connections and tariff structure may result in a highly undesirable outcome for the poor. Metering will be mandatory following the abolition of fixed fees. Multi-family connections benefit the poor only where a fixed fee is in place, unless a special price structure is introduced for multi-family connections. Any tariff structure which 'penalises' high volume consumption works against multi-family connections; metering such consumption is bound to pinpoint the poor users, targeting them for billing and, eventually, for disconnection. Cornering poor people through the threat of disconnection (or worse, through actual disconnection) may have unanticipated reactions; people under these circumstances may feel deprived of a basic right and respond accordingly.

People may react strongly to a new government change in policy towards enforcing payment by means of disconnection and may turn against the providers – whether public or private. This is a latent and delicate issue in Mexico and should not be overlooked.

Water and governance

The Law on National Water

Mexico has three layers of government: federal, state and municipal or local government. Under the terms of Article 27 of the Mexican Constitution, Mexico owns all water and confers the highest decision-making power on the President. Thus the federal government owns the water and has responsibility for its conveyance, sanitation, standards and regulation. The President, in turn, empowers the CNA to standardise and regulate the processes regarding the exploitation and use of national water.

Municipal governments are the *de facto* operators, responsible for providing both water and sanitation. Most of them run an office of “Agua Potable y Alcantarillado” (drinking water and sewerage system). Most municipalities do not have the necessary capacity to meet the ever-growing demands of water-related services. There is a record of failure to provide the service or to regulate and measure both the quantity and the quality of the product actually reaching the consumer and, most important, there is pervasive failure to collect unpaid bills. Revenues contribute only a small part to the total cost of financing the systems (Saade, 2001).

The federal government has created a ‘model state water law’ that provides guidelines on building the capacity and efficiency of water operators, facilitating greater user participation and improved methods of setting tariffs. The model also contains important discussions on the feasibility of creating independent regulatory bodies at state level as well as recognising different types of provider, including private and mixed companies (Saade, 2001). It is up to each state whether they decide to adopt this model, and, once adopted, they can revise it to suit their

own conditions and situation, subject to the approval of the municipalities (Saade, 2001).

The Comisión de Aguas del Distrito Federal (Federal District Water Commission) or CADF is the state-level regulator for Mexico City and has the responsibility for engaging and regulating all operators including the private sector.

Corruption

Corruption is pervasive throughout Mexico. It has permeated all layers of society in both public and private sectors. There are individuals willing to bribe officials and there are civil servants who are more than willing or even actively seeking such bribes to increase their incomes. It is therefore not surprising that nearly 40 per cent of water supplied is lost or unaccounted for. Saade (2001) attributes this to leakage or illegal connections. We, however, believe that meter avoidance, meter altering, absence of metering practices or corruption in the billing system are more serious. Overlooking illegal connections, failure to report altered meters or issuing false receipts are the most prevalent forms of corruption. Other more sophisticated schemes may also be in place.

PSP in Mexico

PSP is a relatively recent phenomenon in Mexico, but supported by two recent government initiatives. The first is the recently published National Hydraulic Programme and the model state water law. The second is that the state-owned bank Banobras will fund certain, mainly private, operators in order to increase their technical and financial efficiency. The programme is funded by federal resources from FINFRA (the Infrastructure Investment Fund) and the CNA, as well as from municipal and state authorities.

In order to obtain federal resources or external credits, private operators supplying drinking water should have a basic tariff structure (one that covers at least operation and maintenance costs) approved. The programme is designed to contribute up to 49 per cent of government-funded investment under a ‘Contract of Partial

Service', targeting some 180 cities. According to FINFRA, "any organisation will be eligible to receive financial support, depending on its efficiency level and as long as it makes private participation possible".

Currently within government there are strong policies favouring cost recovery through realistic tariffs. This trend is explicitly stated in the National Hydraulic Programme and is a prerequisite in any new deal involving the participation of private operators. The inclusion in this plan of consideration for social equity reflects official awareness of prevailing social inequalities: those earning more money should pay more for the service while the poorest should be subsidised through the tariff structure.

Several major cities have already put in place some form of privatisation: Cancún, Puerto Vallarta, Monterrey, Saltillo and Aguascalientes have transferred the provision of drinking water, wastewater and infrastructure to private firms under concession contracts while Mexico City and Cuernavaca have issued service management contracts.

The results vary. In Monterrey reported results have been very positive, with the operator cited as an example of a healthy enterprise with realistic tariffs (an average of US\$0.65 per cubic metre for domestic use), investment in infrastructure, and commercial benefit in the sale of products of treated water to several companies (López, 2002). The whole city of Monterrey seems to be developing a model water culture with around 85 per cent of the people paying on time. The quality of their drinking water is reported by the users as outstanding.

However, in Aguascalientes, where the concession was awarded to a joint venture between Empresas ICA, the country's largest construction firm, and Générale des Eaux (now Vivendi), it was reported that the state governor threatened to cancel the concession following price hikes. In the end, the governor renegotiated the concession with the firms, something that distressed other firms looking for greater institutional clarity (Global Water Report,

1996). Price levels were said to have reached 57 per cent of the monthly minimum wage.

In Puerto Vallarta, a major tourist resort, a World Bank report said there were 'operational, financial and political problems' due to an over-optimistic demand forecast, the political undesirability of price rises, and the provision of a state-bank guarantee for the contractor (Rivera, 1996).

The performance of the Cancún concession was criticised for 'lacklustre performance' by Hugo Toledo of the CNA, at a conference in October 2000. He said the concession "had received minimal investment so far" (Global Water Report 21 December 2000). Earlier, the concession was plagued with bad debts, with MXP 56 million (US\$5.34 million) owed by local hotels, while the municipality prevented disconnections for non payment. (Global Water Report, 1999).

There are also many small private operators whose financial position is poor. A recent report shows the precarious situation of about 2,000 small scale private operators of which only 10 per cent are making profits. Their bankruptcy is a result of the lack of resources provoked by inadequate tariffs and bill collecting systems, as well as to political negotiation (as opposed to economic management) of the "vital liquid" (López, 2002). Current statistics from the Commission indicate that the number of private operators has already decreased to 800 (Zuñiga, 2002).

With regard to costs, as long as the Commission supplies bulk water to private operators at subsidised prices, there will never be enough consideration for environmental limits to the water supply. There is an argument for reflecting 'environmental costs' on the price of bulk water, if only to eliminate wasteful use.

PSP in Mexico City

The state regulator CADF divided the management contracts for servicing the MCMA among four large companies with four districts each. Each winning consortium, which must at least be 51 per cent Mexican, now holds a 10-year contract as of 1994 (Adelson, 2002).

According to Perló (2002), a researcher from Universidad Nacional Autónoma de Mexico (National Autonomous University of Mexico) or UNAM, there is not enough data to determine whether private participation in drinking water distribution services has been beneficial to the people of the MCMA.

Table 1
Companies in MCMA
and their foreign partners

Large companies operating in MCMA
Servicio de Agua Potable
Industrias del Agua
Tecnología Servicios del Agua
Aguas de Mexico

Multinational companies involved
Vivendi
Azurix
Ondeo
United Utilities

However, according to Adelson, there is some initial evidence of both positive and negative results following the introduction of PSP in Mexico City. There are estimates that indicate that when the government transferred the irrigation services to users' associations, cost recovery of operation and maintenance improved from 30 per cent to 80 per cent. In addition, "since the introduction of the private operators, meters have been installed, customer databases have been created, about 100 km of network have been refurbished, more than 20,000 service connections have been substituted and 72.4 per cent of bills are being collected" (Adelson, 2002). The claim with regard to metering should be viewed with caution. We learned from our field study that thousands of people (maybe several hundred thousand) around the Piru community,

not far from the downtown area, do not have a water meter. One company is replacing asbestos cement pipes with polyethylene ones, "asbestos cement is a rigid material which is not ideal for a city that suffers from earth tremors and sinking; polyethylene, in contrast is flexible" (Adelson, 2002).

On the negative side, unaccounted for water is still at a very high level and unpaid bills have crippled the public sector's ability to maintain the infrastructure effectively, let alone expand it. Both the private and public sectors are caught up in a struggle to collect payment of invoices or, in the case of the public sector, to negotiate the involvement of debtors in construction by way of compensation.

As yet, there has been no comprehensive study on the direct impact of this arrangement on the poor, although clearly more financially and environmentally sustainable utilities are in all users' interests.

From interviews with the water authorities and private companies, it emerged that the reaction of the public has been largely negative. When the term 'privatisation' was used, the interviewees (from private companies) became very anxious and answered that "there is no such thing as privatisation of the water services!" They explained that there are only contracts with the CADF, and that all four private companies in the Federal District operate publicly under the name CADF, instead of their own names. We were told that privatisation had virtually become a forbidden word, owing to the social and political conflicts stemming from these policies and associated with the term. Current attempts to implement a system of private rights in Mexico have proved, to date, to be no less contentious. It seems unlikely that, in the short term, privatisation of the water sector will be introduced as a result of social or political consensus. (Castro, 2001).

V. The case study: Piru and Huicholes

In the previous section, we looked at the macro picture surrounding PSP in Mexico and Mexico City. In this section, we will consider the micro issues. We look at a more detailed review of arrangements at the village level, in order to round up our analysis of PSP in Mexico.

Background

A field study was conducted in two poor communities to compare their experiences. The first, Piru, is within Mexico City. The second, Huicholes, lies on the outskirts.

Piru is older than Huicholes – its settlers occupied the area at the beginning of the 1980s. Like other informal settlements in expanding cities, they encountered very poor conditions at the beginning. Piru is situated in a hilly area with winding, narrow alleys around small makeshift houses. But changes are now slowly emerging: roads are being paved; tin shacks are being transformed into basic (brick) houses; water and electricity have become available. Piru is part of Delegación (municipality) Gustavo A. Madero, which has a total population of 1.2 million.

In contrast, the people of Huicholes settled in the 1990s. They are squatters who are refugees from high risk areas elsewhere, which are considered too dangerous for occupation. The government therefore removed them from those areas and “dumped” them in Huicholes. Much of the area still does not have paved roads, sidewalks, water or legal electricity connections. Huicholes is part of Ojo de Agua, a municipality of about 65,000 inhabitants (in 1995), but which rapidly grew as a result of squatter relocation. Huicholes lies on a flat surface of a small hill, and is very dry and dusty.

Huicholes is served by a semi private operator – a non profit firm that is economically and politically independent from the government. Piru is served by the local government. The same kind of observations and semi-structured interviews were used in the field studies for both cases. The aim was to find out the impact of private operation and compare this to local government provision. As the comparison is only of two communities, generalisations cannot be made from the findings, however, pertinent issues and problems are highlighted which reflect both positive and negative aspects of each operator.

Pricing and tariffs

There are no water meters in the two communities (except for one household in Piru). Households pay a small fixed fee that is below the metered rate. According to the Commission, US\$0.15 per cubic metre is being charged, which is a government-subsidised rate. But according to our interviews, Piru pays much more than this average – a total of about US\$4.00 every two months. Huicholes, however, pays much more – a typical household water bill is US\$10.00 every two months. Using a conservative estimate of consumption (i.e. 50 litres per person per day; 3,000 litres consumption per person every two months; 14,000 litres consumption per average family every two months), it emerges that on average, households in Piru pay US\$0.30, while those in Huicholes pay US\$0.71 per cubic metre. This amount paid in Huicholes is nearly five times the US\$0.15 per cubic metre average charge in Mexico City. This charge goes to ODAPAS, the company which extracts water from a series of wells it drilled and treats it before delivering it to Huicholes. Huicholes is paying the full cost for water, despite being a poor community which is entitled to some form of subsidy.

Table 2 Family types in Piru and Huicholes

The type of family variable was placed on a scale from the least stressed families (two parents living and sharing expenses with adult siblings) to the most strained ones (a single parent – usually the mother- taking care of several children) as follows:	
Family Type	Description
1	Couple with no offspring
2	Both parents, adult offspring majority
3	Single parent, adult offspring majority
4	Both parents, with children
5	Single elderly woman
6	Single parent, with children

Given that households in Piru pay around US\$0.30 per cubic metre while those in Huicholes pay US\$0.71, we asked households, grouped into family types (see Table 2 above), what they felt about their water bills. Certain patterns were observed. For example:

- There were families in Piru (types 1, 2 and 5) that considered water to be cheap. In contrast, no family in Huicholes shared this opinion.
- None in the Piru sample considered the water to be expensive. But in Huicholes, all types (1, 2 and 6) of families consider water to be expensive.
- With all types of families, the general pattern is that those living in Huicholes considered their running water to be expensive, while those in Piru tend to think their water is cheap.

The difference in tariffs – with Huicholes paying more than twice what Piru is paying – is significant, as far as the impact on family incomes is concerned. The average bimonthly household income in Huicholes is US\$416, sometimes augmented by income from a relative working in the United States (30 per cent of the households in Huicholes have a relative working

in the US). These families allocate 2.4 per cent of their income to water expenses. Families with no relatives in the US, on average, allocate 4.32 per cent of their income.

Families in Piru, on the other hand, have a significantly higher income than those in Huicholes. A quarter of the families have a relative working in the US sending back money and those families earn on average US\$728 over two months. Since families are paying US\$4 for two months' water supply this constitutes 0.5 per cent of their income. Families receiving no money from abroad would still be spending only 0.67 per cent of their income on water bills.

Water awareness

Although the respondents in Huicholes felt their water to be expensive, they considered it valuable and demonstrated a deeper consciousness about water-related issues, as compared to respondents in Piru. The main differences between the two communities are twofold: (a) people in Huicholes are poorer in terms of their quality of life; and (b) all families in the Huicholes sample pay a private operator for their water. Paying a private operator at a more expensive rate has made the people of Huicholes more generally aware of the cost of water. They are more conscious about the scarcity of water, about its real value, about the environmental equilibrium relating to water and about the relationship between water and health. In summary, the people interviewed in Huicholes would appear to be developing a culture of water awareness.

In contrast, such awareness is considerably lacking in Piru. All respondents in the community mistakenly believe that it is the CAN that provides the service; in fact, it is the municipality. In Huicholes, all respondents stated correctly that ODAPAS was the private operator providing the service.

It is interesting to note the rather low value associated with drinking the running water in both communities. Sixty-five per cent in Piru and 70 per cent in Huicholes are not pre-disposed to drink tap water. This may be related to two factors. First, the consumption of soft drinks

(sodas) in Mexico in general and especially among the poor is impressively large (Mexico is reputedly second to the US in soft drink consumption). Secondly, there may be an intuitive distrust about the quality of the water both communities receive.

Almost all Piru respondents affirmed that they knew ways of saving water and, when asked to be more specific, could come up with reasonable responses. Eighty per cent of Huicholes respondents stated that they knew ways of saving water and could also give examples.

There is a crucial difference between the communities regarding the way in which their water is provided. In Huicholes, the people had to fight for their water supply. There were protest walks, 'sit downs' in front of the relevant offices, and sometimes mediation by Armonia, before they got their connections. In contrast, Piru was connected easily and suddenly when a visit from the President impelled the local authorities to provide water, electricity and paved roads, with no effort whatsoever from the community. This is undoubtedly why the inhabitants of Huicholes appreciate their water service substantially more. Of course, it should not be necessary for poor communities to have to campaign to receive water services. But it has long been proven that some form of community mobilisation or participation in the establishment and running of water services will result in the community having a higher appreciation of and commitment to the service.

As has already been mentioned, although respondents from Huicholes felt their water was rather expensive, they considered it valuable and have a deeper awareness of water-related issues. This finding backs up a statement by Castro (2001) that, "the manager of one of the private companies asserted that against the normal expectations they had a better response from the poorest neighbourhoods where people were anxious to obtain networked water, than in middle class sectors where people were resisting water metering and billing." It is important to stress that it is in Piru – where water services were easier to obtain and where costs were lower – where there is more disregard for water.

Piru lacked a water-culture (or it had no water-oriented culture), whereas Huicholes had a lack-of-water culture (it had cultural awareness of water scarcity).

Our field study would appear to support the common knowledge that people value those resources that have taken more effort to acquire. But what we would like to stress in this study is that it is the collective action of the people of Huicholes – taken as a response to their lack of water – that is more directly responsible for the growth of their water awareness. Other communities in the same circumstances will not have developed water awareness if they have not mobilised collectively to confront their problems. Community mobilisation and collective action is the more significant factor than individual responses to market conditions.

Health and hygiene

Similarly, Huicholes' water awareness extends to health awareness. More Huicholes respondents consistently linked health problems to the lack of water and took dehydration more seriously. (See below)

Table 3
Percentage of respondents identifying the health consequence of lack of water

Lack of water results in:	Piru	Huicholes
Dehydration	80%	90%
Illness	80%	85%
Death	60%	85%
Filth	55%	70%
Parasites	70%	100%
Measures taken to make water safe for drinking:		
Boiling for 20 minutes	35%	65%
Purifying drops	40%	50%
Filtering	15%	15%
Pills	5%	15%
Dehydration is a serious problem:		
Child dehydration	75%	90%
Adult dehydration	60%	90%
Old people dehydration	65%	90%

What is interesting is, despite the lower standard of living, Huicholes respondents are better educated about the links between water and health.

In terms of awareness on safe ways to store water, more people in Piru have better containers than Huicholes. Forty per cent of Piru respondents say they have a closed container for their water – the others run a health risk by relying on buckets and open metal barrels to store their water. Only 10 per cent of the inhabitants of Huicholes have a closed container for their water and the majority, 63 per cent, rely on open metal barrels to store water. The associated risk is great since there is usually a high level of air pollution and, especially, because of the ominous presence of faeces both animal and, occasionally, human.

There was no on-site hygiene promotion or education carried out by either the municipal or the private operator. Government and business associations have put up posters, but most 'soft' activities in both communities were carried out by Armonia. Armonia trains health promoters, a group of neighbours who go door to door explaining health issues, and educates children to encourage them to raise awareness with their peers and families about health and hygiene.

Connection and disconnection

In both sites studied, it is typical to have two families using one water connection. Connections to about 37 per cent of households are shared by more than two families. With multi-family connections, costs are shared between the families, making access more affordable.

Although not explicitly stated as a right, access to water has always been an implied right to everyone in Mexico since all the water in the territory is considered to be public property and of social interest. It was customary, until February 2002, that anyone connected could never be disconnected. Also, the service was still provided even if a user continually failed to pay for it. However, in its recently issued National Hydraulic Programme, the Federal

Government established disconnection as possible a consequence of failure to pay.

There seems to be widespread confusion in both communities about the consequences of not paying. This shows a failure of communication of both public and private providers. Ninety five per cent of Piru respondents indicated that they did not know at what stage a household can be disconnected because of failure to pay, while the remainder believe no one will ever be disconnected. Two out of every three Huicholes respondents believed that a fine is the consequence of failure to pay; the majority did not know households can be disconnected for failure to pay.

On the other hand, an official of ODAPAS confirmed that the company never actually permanently disconnected "delinquent" users. Instead, they reduced the output depending on the amount or delay of the fault. If, by any chance, they suspended the service for one or two days, it was restarted afterwards.

It remains to be seen whether the recent decision over the disconnection policy will in fact affect the communities at all, as implementation of the policy not to disconnect seems to have been rather patchy.

Water service and quality

It seems too early to assert anything about the deteriorating effects of ageing on the privately-installed infrastructure since its mean age is only 3.32 years.

As regards water quality, it would appear that the public operator provides better quality water. This may be because the water is received from the MCMA as bulk water supply, whereas the private operator has to get its own supplies from a variety of sources, some of them less reliable than others.

Sixty per cent of Piru respondents assessed their drinking water quality as clean; the rest said it was "half clean". As far as re-charging time is concerned, 55 per cent said that the time taken for a tank to be refilled was irregular, taking more than four hours in most cases. Eighty per cent of

the respondents said that the water reaches them at medium pressure.

In Huicholes, one out of every two rated their water as clean and the rest as "half clean". All of the tanks are refilled during the day time, which causes inconvenience. Sixty per cent reported that the water reaches them at medium pressure.

More people in Huicholes have higher regard for their water service than in Piru. The reverse situation was found regarding the quality of the product. While the Piru community is fairly satisfied with the water they receive according to its price, the Huicholes community made the opposite assessment.

In terms of maintenance and promptness of repairs, Piru fares better than Huicholes. In Huicholes, 15 per cent reported pipe breaks as the only problem with the service. The operator took from two days and up to more than one week to fix the problem. In Piru, 20 per cent claimed to have suffered from pipes breaking, which were repaired promptly by the next day. While majority of respondents of Huicholes did not complain about piping problems, the few that did certainly complained about the slowness of the operator to fix the problems.

Environment

The two environments studied reveal a low quality of life. Huicholes has a worse situation, however, as they have no paved roads and a higher incidence of rubbish, and animal and human faeces.

An interesting comparison emerges when water quality is considered against the "quality of the environment". For Huicholes, the quality of their water "shines" when it is compared with the living conditions prevalent in their environment. Similar ratios were found when water service was related to the quality of the environment. This means that water quality and the water service are valued all the more by Huicholes residents because they live in worse environmental conditions.

In both communities, having easy access to water is regarded as enhancing the dignity of the residents, and a significant improvement in their standard of living. No longer having to fetch water or having to pay for unsafe water from unreliable vendors are improvements which are seen not just as saving time and effort but also as enhancing the overall quality of life.

Regulation

As Piru is located within the limits of Mexico City, the regulator is the CADF. Huicholes belongs to the State of Mexico, where the regulator is the Comision del Agua del Estado de Mexico (Commission on Waters of the State of Mexico) or CAEM.

We were not able to detect any big issues indicating that rules have been violated or that limits have been exceeded on the part of the operators. The ODAPAS executive who we interviewed says that they are playing by the rules and operating within the norms, and that they have not been sanctioned or fined.

However, it is a well-known fact that the whole infrastructure which brings water to the MCMA from surrounding sources is obsolete and that it has an expected life of less than 10 years. The regulators have not made any official statements indicating commitment to correct the situation. In addition, the significant differences between water bills in Huicholes and Piru shows that the system is unfair – Piru, which is publicly served and the wealthier community, is actually paying less than half for its water than Huicholes, served by a semi-private operator. Huicholes is a poor community but its residents are paying much more under a semi-private operator than those connected to the mains water supply in the MCMA district. Both communities should be able to access subsidised water if there were an effective regulatory scheme in place. The confusion in the regulatory framework i.e. different regulators for Mexico City and the rest of Mexico, and lack of federal level standards is clearly a contributing factor to this injustice.

VI. Conclusion

The Mexican government seems to be betting on PSP as the key reform measure to solve their serious water and sanitation services problem. But it is highly unlikely that PSP will be able to do this without a more rigorous and comprehensive government programme. Currently, there is an ambiguous legal framework and one of the biggest threats to water security for all comes from increasing water scarcity – these are the two main issues that government needs to address.

The introduction of private sector involvement and the new rules it creates – such as disconnection policies, economic pricing of services, metering, and the phasing out of multi-family connections – has the potential of greatly harming the poor. Understanding the impact on the poor, and instituting the necessary measures to protect them, are issues which need to be addressed at the start. More problems may emerge when the impact on the poor has been properly assessed – action is often only taken when the poor have already been harmed. There is a fear amongst people that their rights are being abolished and they are facing the prospect of higher prices for a resource that they feel they are entitled to. The government and private sector must also consider the latent potential of a social movement rising up in response to unwanted changes.

Some business ventures seem to have met with success, for example in Monterrey, while others appear to have been less successful, and still a third group of small entrepreneurs has been pushed to the edge of bankruptcy by its inability to collect unpaid bills.

A gradual, low profile, takeover by the private sector over water-related professional activities has already begun. Checks on the process are expected to come from the government as regulator, from the communities as directly concerned parties, from the political parties through Congress and from the NGOs as catalysts.

The question about other possible effects of PSP on the Mexican poor in general is still

unanswered and comprehensive and robust studies need to be carried out. Trends and data from this study point towards an uncertain outcome for the private sector: (a) its future share of the market depends on the interplay of the social, economic and political factors, all of them of a macro nature, (b) even low fixed fees seem to affect the economics of poor families although their response seems to be to develop a water appreciation culture, (c) abolishing the fixed fees and the multi-family connections, metering each connection and disconnecting late payers would hurt the poor so badly that social turmoil over water rights might emerge.

In terms of the experiences of the two communities, Piru and Huicholes, we see a mixed picture. Generalisations about private and public operators cannot be drawn from these experiences, but the study has highlighted interesting issues. The Huicholes community is suffering more because of the much higher price it has to pay for water. Although, it can be argued that this has resulted in Huicholes having a higher water-awareness culture, there are other mechanisms that could have achieved this and may indeed have contributed to it. The fact that there was some form of social mobilisation involved in Huicholes receiving water has almost certainly heightened their awareness of the value of the service they now have. Greater community participation in the delivery of the service and education about water scarcity and hygiene would also have increased their water-awareness culture. It seems wrong that Huicholes, a poorer community than Piru, should be paying significantly more for its water, which is also of poorer quality. The regulatory system seems to have serious weaknesses, especially when one compares the bills from both communities.

It is also important to note that contrary to the prevailing ideology which promotes the private operator as being more efficient than the public sector, the public sector is much quicker at repairs and provides a better quality of water. Many of the problems that are experienced could be solved by community accountability mechanisms for the providers, and regulation by government.

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