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Quenching thirst through policy and planning

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For many of us, getting a cup of water may be as easy as turning on the tap. However, this is not the case for one in six persons worldwide, who struggle daily for a sip of clean water.

The United Nations recommends that every person should have 20 to 50 litres of safe freshwater daily to drink, cook and to clean with. Yet, this is a 'luxury' that some 894 million people cannot afford, due to the lack of availability or the high cost. The situation is expected to worsen, especially as the global urban population explodes. This poses a serious challenge for countries.

Yet the situation is not a hopeless one. In commemoration of World Water Day 2011, UN Secretary-General Ban Ki-Moon, urged governments to consider increased investments in water and sanitation services while noting that urban water shortages are more likely due to poor policy and planning, rather than scarcity.

Indeed, some countries have attempted to privatise urban water provision in the hope that capitalism will address public sector inefficiencies. But is this the only solution?

Eduardo Araral from the Lee Kuan Yew School of Public Policy does not believe so. Speaking at SMU's School of Social Sciences (http://www.socsc.smu.edu.sg/)Capstone Seminar Series (http://www.socsc.smu.edu.sg/events/seminar_series/social_sciences_capstone_2011.asp), Araral highlighted the paradoxical case of the Phnom Penh Water Supply Authority (PPWSA) in Cambodia as an illustration of how the public provision of urban water can be substantially improved if the fundamentals are fixed.

The problem with public sector

There are reasons why public sector monopolies suffer from bad 'cred'. Studies from the World Bank (1994) estimate that each year, the losses from inefficiencies and unsustainable pricing policies in developing countries for public sector monopolies are nearly equal to the annual investment in infrastructure.

Experiments to improve performance – from grant of financial autonomy, corporatisation and performance management contracts – have largely been unsuccessful. Scholars suggest that the poor results are due to three fundamental incentive problems associated with public provision.

First, governments in developing countries tend to succumb to populist pressures to keep prices below cost even though these subsidies do not benefit the poor. Second, public enterprises are faced with conflict of interest as the owner is also the regulator and therefore performance contracts are not credibly enforced. Third, public enterprises are faced with perverse organisational incentives arising from non-credible threat of bankruptcy, weak competition, agency problems, rigidities and performance measurement problems.

Many developing countries have been pressured by donors to involve the private sector in the provision and financing of goods and services. However, as Araral pointed out, this presents problems too: governments cannot dictate where private money should go. For the urban water supply sector for instance, only 5% of total private investment in all infrastructure projects in developing countries went to water investments between the years 1990 and 2001.

Araral also pointed out that most investors prefer to invest in middle income countries (50%) compared to low income countries (18%) where the need for water investment is greater. Even so, the private sector did not do that well: about 37% of all private investments in the water and sanitation sector worldwide became distressed, cancelled or renegotiated.

The Cambodian success story

The PPWSA's roots go as far back as 1895 when the first water supply system was established in Phnom Penh by the French colonial regime. After the French left in the 1950s, the authority became attached to the Phnom Penh Municipal Government. By the time the elected Cambodian government was formed in 1993 (14 years after the end of Pol Pot's destructive regime), the capital city's water supply was already in a dismal state.

Water scarcity was never a problem for the city as it is situated at the converging point of the mighty Tonle Sap River and the Mekong River. Yet, less than half of the city could be served due to a pipe network of merely 280km, and water pressure so low that the service was largely unreliable.

Residents would count themselves lucky if they could get 10 hours of water a day. This desperate situation drove the appeal of illegal water – the stealing of water, man-made 'leaks' and other system losses. It is estimated that as much as 72 per cent of water produced is 'lost' before reaching customers. The 'business' was constantly operating in the red, with expenditures twice as high as operating income.

Turning red to black

In 1996, concerted efforts were made to address this unsustainable operation. PPWSA was made an autonomous public enterprise – no longer attached to the city government – and had a mandate to operate with commercial principles.

This was greatly influenced and supported by donors who played a major role to reform the authority. In 1993, Japan – a major donor in Cambodia – helped prepare a master plan study that would form the blue print of PPWSA's rehabilitation. It also injected $66.3m from 1993 to 2004 to the water authority.

France was instrumental in the initial phases in the improvement and expansion of a water treatment plant and distribution network, and also helped in the computerisation of the authority's operations. The Asian Development Bank and the World Bank gave concessional loans to PPWSA to expand its service to urban and urban fringe areas. The United Nations Development Fund and the World Bank provided soft loans and grants to build the authority's technical, managerial and commercial capacity.

Donors also recognised the value of investing in customer research and education which would help the authority understand their customers' willingness to pay as they appeal to residents' sense of ethics to stem the flow of 'system losses' (also known as 'non-revenue water').

Through all of these reforms, production capacity shot up 262 per cent and service coverage expanded by 70 per cent. The distribution network increased from 280km of pipes to 1,084km – up 287 per cent. The number of households and establishments with piped water connections increased by 347 per cent to 120,000 units, with 100 per cent of them metered, compared to 12 per cent in 1993.

Most significantly, non-revenue water – a barometer of efficiency – dropped from 72 per cent in 1993 to 15 per cent in 2004. This put Phnom Penh at a level even better than more developed Asian cities like Kuala Lumpur and Bangkok, according to a 2003 Asian Development Bank report. Even the best of the privatised water utilities in England and Wales, for instance, achieved non-revenue water of around 10 per cent.

With all of its operational improvements, operating costs were reduced whilst operating income expanded by 40 times to US$8.5 million in 2004. This empowered the authority to expand service coverage to adjacent areas and to help other provincial utilities in Cambodia.

The transformation was so remarkable that the Asian Development Bank named it as one of the top water supply utilities in Asia in 2004. Two years later, its Director General Ek Sonn Chan was given the Ramon Magsaysay Award for public service – touted as Asia's Nobel Prize equivalent.

When the price is right

The most crucial element that led to the authority's success was its ability to get the prices right through tariff reforms. Before 1993, water was treated as a pure public good, its tariff highly subsidised below cost, and all Cambodians were charged a flat rate regardless of their consumption.

In 1996, urban water was considered a commercial commodity and priced according to the principles of cost recovery. This paradigm shift – driven by government authorities – enabled PPWSA to establish a tariff structure that is based on cost recovery, and to offer differential pricing among and within domestic, government and commercial/industrial consumers.

According to Araral, this convergence of politics and economics, was due to several factors. First, the old business model was simply unsustainable given the high rate of migration to Phnom Penh from other provinces. Second, research showed that low income households with no access to piped water were actually (willing and able) to pay private water supplies as much as four times more to get piped and treated water. Third, PPWSA was able to mobilise urban poor communities to petition the politicians on their willingness to pay water tariffs at breakeven levels if substantial improvements could be made in coverage, water quality, reliability and price. Fourth, it was not difficult for PPWSA and the political leadership to commit to improvements as on-going rehabilitation was already underway.

When governance structure is right

The second element for success, according to Araral, was PPWSA's move to get its governance structures right. Making it an autonomous public corporation allowed it to adopt certain commercial principles and best practices.

The authority also used a slew of clever methods to reduce water loss. Trained technicians, for instance, had their performance bonuses contractually tied to the actual reduction of non-revenue water. In 2006 alone, such bonuses amounted to 25 times their annual salaries. On the customer end, the authority forged social contracts with village associations that compelled them to report theft and leakages. In return, they received subsidised connection fees.

PPWSA also installed underground instruments that would periodically measure water pressure drops that indicate leaks and rolled out policies that strictly enforced the metering of customers. An important investment was made to automate and integrate customer database management with billing, collection, payroll and auditing systems. All these helped drive down water loss from 72 per cent in 1993, to 15 per cent in 2004.

Araral pointed out that progressive human resource management played a key role in the authority's success too. It recruits staff through an open selection process, puts them through provisional on-the-job training or internship, followed by a year of provisional contract before they could be made permanent staff. Employees are also non-unionised, which gives management a leverage on personnel matters, especially when it comes to dismissals. Yet, PPSWA staff's salaries are, on average, five times more than counterparts in other government agencies in Cambodia. And compared to 47 water utilities in the region, the authority spends the most in terms of staff training and study tours, with 9% of staff being trained for an average of 12 days per year.

Keeping it clean

PPSWA's Director General Ek Sonn Chan's contempt for corruption has been widely reported by local media. The man would stridently go after those who refused to pay for water – including people in powerful positions.

Chan was once threatened at gun point by an army general. He later returned with a group of journalists and turned off the general's water supply – a risky move, but one that sent a clear message across the county.

Araral pointed out that one of the two main challenges facing the water authority is the conflict of interest of being both regulator and owner. Politicians would inevitably try to interfere in the running of public enterprises. Here, he recommends a regulatory framework to provide oversight, which currently is dependent on donor monitoring and pressure.

The second challenge is to gradually adopt flexible pricing mechanisms (to ensure long term financial viability and to meet rising demand). These could include measures such as adjustments for inflation based on consumer price index, and water conservation tax. As incomes increase in Phnom Penh and quality of life improves, water demand will rise. A more dynamic pricing model would be helpful in the longer term, he concluded.

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