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# Paying for water and sanitation – the essential role of public finance

by

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## 1. The crisis

The economic crisis makes it doubly important that governments use public spending on infrastructure such as water and sanitation. Firstly, because this is the best way of countering the effects of recession. The USA reflationary package is centered around public spending on infrastructure. The World Bank recommends that as many countries as possible adopt similar policies. Infrastructure spending has a far greater economic impact than tax cuts.

Secondly, because private corporations now find it very hard to raise any finance. They are being charged much higher interest rates to replace existing debts, because of fears of default. And there is almost no interest in financing ventures in developing countries. The IFC, the private sector financing arm of the World Bank, believes that the credit squeeze will make it even harder to finance PPPs. Private investors are less interested in infrastructure in developing countries: "private equity funds are hoarding capital; Asian and Middle Eastern sovereign wealth funds may divert more of their portfolios to their regions; investors are demanding higher returns for a given level of risk; poorer developing countries are being crowded out as private investors are focusing on the largest emerging markets." [1] The IFC estimates that $110 billion worth of proposed PPPs may be delayed or cancelled, and that $70 billion of existing PPPs are at risk because of increased costs of financing these projects for the private sector.[2]

## 2. Private sector investment: the failed experiment

Even before the crisis, it was already clear that the private sector had failed to deliver the promised investment in water and sanitation in developing countries. A World Bank research paper in 2006, reviewing actual private investment in infrastructure in developing countries between 1983 and 2004, concluded:

> "PPI [private participation in infrastructure] has disappointed - playing a far less significant role in financing infrastructure in cities than was hoped for, and which might be expected given the attention it has received and continues to receive in strategies to mobilize financing for infrastructure…" [3]

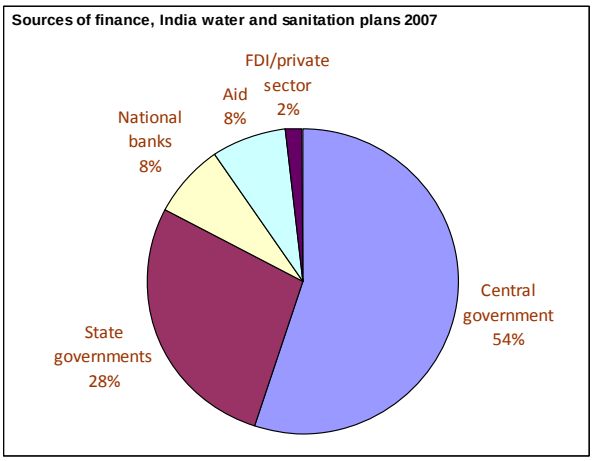
The details of this failure in water and sanitation are set out in two previous PSIRU reports, one on water ("Pipe Dreams"[4]) and one on sanitation ("Sewerage Works"[5]). Recent reports from the PPIAF have also acknowledged that private operators did not deliver the investment promised. Where investment in extensions to the system did happen, as in Senegal, they were financed by the public sector.

A key problem has been that commercial operators have to be selective about the countries and cities they choose to operate in, in order to deliver an adequate rate of return. As a result, only one-third of developing countries have received any kind of private investment in water and sanitation. Even in middle income countries the private sector investment is very small in comparison to investment by the state. In South Africa, for example, total private investment in urban infrastructure over the last 20 years "has been quite insignificant …. much less than 1% of one year's local government spending."[6]

## 3. Importance of public finance

It is now generally acknowledged that public finance is the crucial source of money for investment in water in developing countries. A World Bank review notes the failure of private sector investment in recent years and concludes that: "Local governments need good sources of public finance to fund those services, and some form of government borrowing is needed for major investments in these areas to avoid inter-generational inequities."[7] Even the secretary-general of the OECD, Angel Gurria, has reluctantly acknowledged that: "significant public budget spending may be needed in order to help overcome affordability constraints that exist in the population."[8] This should come as no surprise. The water and sewerage systems of OECD member countries were overwhelmingly developed through public finance, not through the private sector.

Donors and international institutions are therefore wrong to place so much emphasis on commercialisation and full cost recovery from users as a way of financing water and sanitation systems. International aid from donors and development banks is also far less significant than the public finance from national budgets. The reality can be seen in India's plans for investment in water and sanitation: over 90% of this is to be financed by central and state governments and national banks; only 8% by aid; and only 1.5% by the private sector.




Source: Planning Commission of India [9]

## 4. Taxes

The key issue is therefore not increasing user charges but whether countries are raising sufficient taxation: "how much can be achieved depends heavily on how much a government is willing to contribute for meeting social goals."[10] But tax levels in many developing countries are too low: in 2002 India only raised 9.9% of GDP in taxes, Bangladesh only 7.0% of GDP.[11] The greatest resistance to higher taxation comes in the most unequal societies, "small government and low taxes are not the answer for reaching the MDGs."[12]

Apart from general taxation, countries can use other special taxes to help finance water services.

- Taxes on water abstraction by private companies, for example drinks manufacturers, are one possible source of money. This was one of the elements used in France, where special water boards, the Agences de l'Eau, collected special water pollution and abstraction charges from water bills.[13]
- Special charges on other services. In the 1980s Ecuador introduced a special 10% tax on telephone bills, used to pay for extending water networks to households previously not connected.[14]

## 5. Affordability

The explicit or implicit position of most of the official donor publications is that, despite the clear balance of benefits, household water and sewerage connections cannot be afforded. The WWDR argues that: "In many nations, at least in the next five to ten years, it will not be possible for the provision deficiencies in most urban areas to be addressed by

the conventional model of a (public or private) water utility extending piped water supplies and sewers to individual households." The most recent estimates of costs for various options, published by the WHO in 2008, reinforce these assumptions with much higher figures.[15]

But none of this is supported by comparison with national economies. As the table below shows, the countries with most of the population needing water and sewerage connections could deliver these over a 10-year period, with less than 1% of GDP per year. The calculations are based on the WHO's latest high cost estimates, and actual data on GDP. This level of spending on such a crucial infrastructure has to be considered affordable, especially in light of the need for expanded government spending to combat the effects of the economic crisis.

Indeed, some developing countries are already investing in rapid extension of water and sewerage systems, with full household connections, using public finance.

China has been investing over $10 billion per year (0.4 percent of GDP), constructing full water and sewerage connections, and is on course for achieving the MDGs - the urban sewerage connection rate in China rose from 30% in 1990 to 50% in 2002, for example.[16]

In 1996, Brazil started on a major sanitation programme in the city of Salvador (pop. 2.5 million). A government programme increased the coverage of the sewerage system from 26% to 80% of households in eight years, at a cost of $440 million. This extension reduced diarrhoeal diseases in children by 22%, and 43% in the highest risk areas inhabited by the poorest.[17]

**Table 1. The affordability of household water and sewerage connections**

| COUNTRY | People needing water & sewer connection (m.) | % of global total | Annual cost $m. | Annual cost as % of GDP | Aid needed for costs >1% of GDP ($m.) |
|---|---|---|---|---|---|
| China | 251 | 22% | 7878 | 0.30 | - |
| India | 184 | 16% | 5764 | 0.64 | |
| Indonesia | 73 | 6% | 2291 | 0.73 | |
| Brazil | 60 | 5% | 1881 | 0.21 | - |
| Nigeria | 43 | 4% | 1364 | 1.48 | 440 |
| Philippines | 34 | 3% | 1069 | 0.89 | |
| Pakistan | 32 | 3% | 1000 | 0.82 | |
| Bangladesh | 27 | 2% | 855 | 1.22 | 156 |
| Iran | 25 | 2% | 790 | 0.38 | - |
| Congo DR | 15 | 1% | 485 | 6.29 | 408 |
| Total in all developing countries | 1,141 | 100% | 34,900 | | 2236 |
| *Total of top 4 (China, India, Indonesia, Brazil)* | *568* | *50%* | | | |

Source: Hall and Lobina 2008[18]

## 6. Borrowing and bonds

Countries can borrow to accelerate investment in water and sanitation or other infrastructure. They key mechanism is borrowing within a country, from banks, or direct from the public by selling bonds. Historically, this was a crucial part of the process by which northern countries developed water. In the USA, for example: "the central issue was the ability of cities to incur debt to fund major projects and to sustain the high costs of operation. As the 19th century unfolded, city finances underwent changes in scope and complexity that ultimately made the development of public water supply systems achievable."[19]

Various countries in Asia and Africa have issued bonds on their domestic markets; Egypt and Namibia have both issued 20 year bonds.[20] In nearly all developing countries there is a much larger potential demand for such bonds. Most bonds are issued by central governments. Municipal bonds may be issued by cities, for example Ahmedabad (India),[21] but many countries have developed Municipal Development Funds for pooling the borrowing, for example, the state of Tamil Nadu in India created a sector-specific Water and Sanitation Pooled Fund (WSPF) to issue bonds.[22] Other

similar mechanisms include revolving funds, as used in the USA, where municipal water undertakings can systematically access investment finance through a central government 'revolving credit' fund. A state development bank may also have the remit to provide low-cost investments in order to develop the national economy: for example, the Brazilian Banco Nacional de Desenvolvimento Economico e Social (BNDES).[23] Another kind of institution is a special Water Bank, as created by the Netherlands, which attracts savings and then lends money to the water boards.[24]

## 7. Crisis: need for more government borrowing

The current economic crisis actually increases the need for government and municipal borrowing from savers in their own countries. Because of the crisis, banks and investors are extremely reluctant to lend to consumers or to businesses, and so the public sector has to borrow to maintain levels of economic activity. In east Asia, the total amount of bonds issued in local currencies rose by over 15% in 2008, to a total of $3,700 billion. Over half of this is in China, but other Asian countries are rapidly increasing their use of bonds, with Vietnam growing the fastest in 2008. The ADB expects a further strong growth in bonds in 2009, with several governments likely to sell debt to pump-prime their economies.[25]

Public finance for water and sanitation in developing countries is necessary, affordable and economically important. Countries should focus on developing tax systems and markets for bonds. Donors should concentrate aid on countries where the amount of investment required is an exceptionally high proportion of GDP.

## 8. Notes

[1] IFC Infrastructure Crisis Facility Fact Sheet. 2008 http://www.ifc.org/ifcext/about.nsf/AttachmentsByTitle/IssueBrief_ICF/$FILE/IssueBrief_ICF.pdf .
[2] IFC Infrastructure Crisis Facility Fact Sheet. 2008 http://www.ifc.org/ifcext/about.nsf/AttachmentsByTitle/IssueBrief_ICF/$FILE/IssueBrief_ICF.pdf .
[3] Patricia Clarke Annez. Urban Infrastructure Finance From Private Operators: What Have We Learned From Recent Experience? World Bank Policy Research Working Paper 4045, November 2006 http://go.worldbank.org/N7HA8M3E20
[4] Pipe Dreams. WDM. 2006. http://www.wdm.org.uk/resources/reports/water/pipedreamsreport01032006.pdf
[5] Hall D. and Lobina E. 2008 Sewerage Works PSIRU March 2008 www.psiru.org/reports/2008-03-W-sewers.pdf
[6] Clarke Annez, op.cit.
[7] Clarke Annez, op.cit.
[8] Water: How to Manage a Vital Resource Angel Gurría, OECD Forum: Innovation,Growth and Equity 14-15 May 2007, Paris http://www.oecd.org/dataoecd/41/54/38583737.pdf
[9] http://planningcommission.nic.in/aboutus/committee/strgrp11/str11_hud1.pdf, p. 55-56
[10] PPIAF 2008 Public-Private Partnerships For Urban Water Utilities A Review Of Experiences In Developing Countries December 2008
[11] World Development Indicators 2003, 2004b. Table 5.6.
[12] Terry McKinley MDG-Based PRSPs Need More Ambitious Economic Policies. 2005 UNDP www.undp.org/poverty/docs/MDG-based%20PRSPs%201-05%20Background%20Paper%20(New%20York).doc
[13] Barraqué, Bernard (2007) 'Small Communes, Centralisation, and Delegation to Private Companies: The French Experience', Journal of Comparative Social Welfare, 23:2, 121 – 130
[14] PPIAF 2008 Public-Private Partnerships For Urban Water Utilities A Review Of Experiences In Developing Countries December 2008 p. 24
[15] Hutton G. and Bartram J. 2008 Global costs of attaining the Millennium Development Goal for water supply and sanitation Bulletin of the World Health Organization. January 2008, 86 (1)
[16] JMP Coverage Estimates Improved Sanitation Chine 2006 www.wssinfo.org
[17] Mauricio L Barreto, Bernd Genser, Agostino Strina, Maria Gloria Teixeira, Ana Marlucia O Assis, Rita F Rego, Carlos A Teles, Matildes S Prado, Sheila M A Matos, Darci N Santos, Lenaldo A dos Santos, Sandy Cairncross. Effect of city-wide sanitation programme on reduction in rate of childhood diarrhoea in northeast Brazil: assessment by two cohort studies Lancet 2007; 370: 1622–28 November 10, 2007 www.thelancet.com
[18] Hall D. and Lobina E. 2008 Sewerage Works PSIRU March 2008 www.psiru.org/reports/2008-03-W-sewers.pdf
[19] Melosi, M.V. 2000. The Sanitary City. Urban Infrastructure in America from the Colonial Times to the Present. The John Hopkins University Press
[20] Local Currency Bond Market Developments In Mediterranean, African And Caribbean Countries By Peter Kuenzel. In Economic Report On Partner Countries 2005 A Report By The Development Economics Advisory Service (DEAS) Of The European Investment Bank (EIB) July 2005 p.18
[21] Hall D., Public Services Work 2003 www.psiru.org/reports/2003-09-U-PSW.pdf
[22] Source: Innovations and Solutions for Financing Water and Sanitation Background Paper Planning and Development Collaborative, Inc. with George Peterson, The Urban Institute Washington, D.C. December 5, 2003 http://www.developmentfunds.org/pubs/Innovations%20and%20Solutions%20for%20Financing%20Water%20and%20Sanitation.pdf
[23] See Lobina and Hall 1999: ' Public Sector Alternatives To Water Supply And Sewerage Privatisation: Case Studies, http://www.psiru.org/reports/9908--W-U-Pubalt.doc
[24] 'Government-Supported Enterprises Special Edition 2003' February 2003 • 139 www.standardandpoors.com
[25] ADB Asia Bond Monitor 2009 Q1 http://asianbondsonline.adb.org/regional/regional.php