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US organisations set out utility management guidance

Seven key US water and environmental organisations have issued a report outlining recommended utility performance measures and encouraging the use of these tools and management qualities by utilities around the country.

The seven are the US EPA, the American Public Works Association, American Water Works Association, Association of Metropolitan Water Agencies, National Association of Clean Water Agencies, National Association of Water Companies and Water Environment Federation. The report from the Effective Utility Management Steering Committee makes a number of

observations about challenges and barriers as well as making various findings and recommendations.

The key elements are ten identified attributes of effectively-managed water sector utilities, plus five 'keys' to management success and a proposed toolbox and set of example measures.

Supporting strategy elements are also examined, as ways of providing motivation to adopt the new practices.

The report makes a number of recommendations, including rolling out the strategy as soon as possible and calls for ongoing collaboration between the seven parent bodies. (See Analysis, p4) ●

Contract award for Northern Irish asset management

Northern Ireland Water, the new government company that replaced the Northern Ireland Water Service at the beginning of April, has announced that a consortium led by environmental engineering consultancy MWH has won a contract to implement an asset management model to deliver the Northern Ireland Asset Management Plan 3 (NIAMP3).

Although the old Northern Ireland Water Service was not subject to regulation by economic regulator Ofwat, it did produce asset management plans that generally followed the guidance in Ofwat's manual, hence this is the third of the province's five-year asset management cycles.

The approach was, however, varied to allow for the special status of the Water Service: for example, NIAMP2 did not address issues of prices or funding nor, obviously, information relating to shareholder-owned commercial

companies.

The Department for Regional Development commissioned an independent technical audit of NIAMP2. This was carried out by consultancy Halcrow, which reported that NIAMP2 was satisfactory for planning purposes, and that more detailed work would be needed to verify the extent of future infrastructure investment. The Water Service was urged to look into the opportunities for further capital cost efficiency savings.

The OneAM consortium, which has won the contract to produce an improved model for NIAMP3, consists of MWH, multi-utility United Utilities, management consultant EC Harris and IT consultancy ICS Consulting. OneAM will work with the new GoCo on the 30-month project to implement its asset management model, and will also undertake its strategic investment planning for the 2010 to 2015 period. ●

Canadian report calls for private sector investment

A new report from independent research organisation the Fraser Institute says that cash-short governments across Canada need to encourage private investment in their water and wastewater systems if the nation wants to provide better protection for public health and the environment.

Although it is not known how many communities across Canada have substandard water and wastewater systems, the problems are well-documented. Walkerton remains symbolic of what can happen when there is treatment system and monitoring failure, and significant amounts of wastewater on both coasts are discharged without treatment.

There are several key problems: the age of the system, population growth exceeding capacity, poor management, ill-trained staff, lax regulation

and a lack of capital and operating funds.

Elizabeth Brubaker, executive director of Environment Probe and author of the report, said: 'For many years, local governments have refused to raise water prices to sustainable levels, thereby starving their water systems of much needed capital for upgrades. Clearly we can't count on the status quo to meet the challenges facing our water systems. Governments need to consider the benefits provided by private investment and private expertise.'

She says that says the estimated cost for maintaining, refurbishing, and expanding Canada's water and wastewater infrastructure in the coming decades could be as much as \$90 billion, an investment the public sector has been unable or unwilling to provide. (See Analysis, p3) ● **Lis Stedman**

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Water Utility Management International focuses on the needs and interests of senior water utility managers. The aim is to provide those heading water and wastewater utilities with an international reference point on the strategic issues affecting their organisations. Water Utility Management International will also be of value to consultants and others following developments in this area.

Presented in a newsletter format, Water Utility Management International contains news, interviews, and in-depth briefings on topical issues. Other articles take an executive briefing approach or be based on landmark case studies. Regular themes for articles include financing, investment, regulation and personnel matters. There is also a central theme of achieving efficiency in water utilities, encompassing topics such as benchmarking, billing, tariffs, IT and service standards.

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UK regulator makes international performance comparison

Economic regulator Ofwat's 2007 international comparison of water and sewerage service report has found that the UK companies generally compare well with counterparts from across the world.

The regulator noted: 'Where we can make comparisons of customer service the England and Wales companies perform well at a cost to customers and a level of efficiency that appears comparable to elsewhere.'

'The statistics on water use and leakage in the recent drought in the south-east of England are also

interesting. Our consumption figures lie in the middle of the range of European comparators (where, unlike in England and Wales, universal metering is typical).

The report found that average leakage rates are also among the typical range of performance seen in Northern Europe. It notes: 'We find that very low leakage is generally explained by external factors and where England and Wales companies operate in comparable conditions they have similar low levels of leakage.' (See Analysis, p5) ●

News

EUROPE: Italy withdraws support for PPIAF

Italy has withdrawn its support for the World Bank's Public-Private Infrastructure Advisory Facility – PPIAF – saying that the 'negative consequences' of the system need to be examined. PPIAF sponsors a range of water and sanitation infrastructure projects in developing countries through involving the private sector. The European Commission and France, Germany, the Netherlands, Sweden and the UK still contribute funds to PPIAF.

Business

MEXICO: Earth Tech jv wins wastewater DBFO

An Earth Tech joint venture has been awarded a \$32.8 million contract to design, build, finance and operate a wastewater treatment facility in Querétaro, Mexico. Earth Tech and jv partner Servicios de Agua Trident, a subsidiary of Mitsui, were awarded the 20-year contract by the Querétaro State Water Commission.

MIDDLE EAST: UAE preferred bidder announced

Biwater and two Gulf-based partners, Kuwait's Mohammed Abdulmohsin Kharafi & Sons and Abu Dhabi-based Al Qudra Holding, have been named as preferred bidders for a \$544.7 million contract to build wastewater treatment works in the UAE. The preferred bidder will take a 40% stake in a sewage company that will be set up, with the rest held by Abu Dhabi Water and Electricity Authority.

QATAR: Doha programme management award

US-based engineering company CDM, in association with Kuwait-based KEO International Consultants, is to provide programme management services for the design, construction, and commissioning of a \$1.35 billion wastewater collection, treatment, and reuse project for the Public Works Authority of the city of Doha, Qatar.

CHINA: Veolia win in Haikou

Veolia Water has just won its 23rd major contract in China, for the complete management of the drinking water service and the operation of a wastewater treatment plant in the leading economic city of Haikou, the capital of one of China's top tourist destinations, on the Island of Hainan, South China. The 30-year contract was signed with the Haikou Water Group who launched an international tender for the acquisition of 49% of the Haikou First Water Co. Ltd, which assures the total management of the drinking water service to 800,000 inhabitants in the area.

SWEDEN: Award for Singapore's PUB

This year's Stockholm Industry Water Award has been awarded to PUB, Singapore's national water agency, for its holistic approach to water resources management in a challenging urban island environment. PUB's holistic approach has resulted in a lower dependence on external water sources by diversification of water sources, including water re-use, desalination, stormwater storage in new water storages and supply of very high quality recycled water to industry with some internal reuse of this supply.

Loans and tenders

AFRICA: Bank involvement in pan-African fund

The African Development Bank (AfDB) has teamed up with major African investors to generate up to an initial \$450 million to finance a pan-African infrastructure development fund, a private equity fund that will invest in infrastructure projects in the energy, transport, ICT, water and sanitation sectors.

CAMEROON: World Bank provides credit for low-income infrastructure project

The World Bank has provided an IDA credit of \$80 million to Cameroon to increase access by the urban population, particularly in low-income settlements, to basic infrastructure and services, including water supplies. The project will also support water sector reforms, in particular implementation of public-private partnerships and rehabilitation of urban water facilities.

INDIA: ADB agrees loan for basic services in Jammu and Kashmir

The ADB is providing \$300 million to support an investment programme requested by the Indian government to help improve the delivery of basic services in the state of Jammu and Kashmir. The programme will expand water supply, sanitation, waste management, urban transport, and other municipal works.

TATARSTAN: EBRD lends funds to reduce wastewater discharges to Volga

The European Bank for Reconstruction and Development has lent 350 million roubles (\$13.5 million) to reduce the discharge of untreated sewage into the Volga River by Kazan, the capital of the republic of Tatarstan, which is Russia's seventh biggest city with a population of 1.1 million. The 10-year loan to Kazan Vodokanal, the city's wholly-owned water and wastewater management utility, will finance the rehabilitation of the city's main wastewater treatment plant.

Calls for the private sector to meet Canada's cash needs

A new report calls for greater involvement of the private sector in Canada's water sector.
LIS STEDMAN reports.

A new report from independent public policy research organisation the Fraser Institute says that cash-short governments across Canada need to encourage private investment in their water and wastewater systems if the nation wants to provide better protection for public health and the environment.

The country's water and wastewater utilities face severe challenges, the report warns: although the full extent of the problem is not known, Canada has suffered a number of high profile water pollution problems, notably the Walkerton tragedy and the more recent Kashechewan incident.

Most of Canada's water and wastewater utilities are publicly owned, operated, financed and regulated. However, there are serious issues: statistics show that 47% of municipal wastewater in Atlantic Canada was discharged without treatment, and on the Pacific coast, almost 85% of wastewater was discharged with only primary treatment or, in some cases, just screening.

There are several key problems, the report finds: old systems at the end of their useful lives, systems too small to meet the needs of growing populations, poor management and ill-trained staff, lax regulation and a lack of capital and operating funds.

Elizabeth Brubaker, executive director of Environment Probe and author of the report, says the estimated cost for maintaining, refurbishing and expanding Canada's water and wastewater infrastructure in the coming decades could be as much as \$90 billion, which the public sector is unwilling or unable to provide.

By encouraging private investment, the reasoning goes, private capital would be injected, public funds would be freed for other purposes and financial risks would be transferred from the public to the private sector, and the funds would be likely to be used more efficiently.

The report notes: 'Private firms can bring to water utilities a great deal of expertise. Several large international water companies have more than a century of experience. They invest hundreds of millions a year in research and development. They have thousands of specialised employees, whose skills can be

harnessed to solve local problems.'

Although Canada's experience with privately-funded water infrastructure is limited, those projects in existence have been deemed a success including Moncton in New Brunswick, where USF Canada built a filtration plant for at least 25% less than the city had planned to spend.

Walkerton itself and the surrounding municipality recently concluded a fixed-fee O&M service agreement with Veolia Water Canada. The report adds: 'Private service providers have numerous incentives to construct and operate systems effectively and efficiently. Facility owners can build incentives into operating agreements, structuring contracts to reward

to the contractor responsibility for operation and capital investment, creating incentives to reduce long-term total costs and enhance accountability.'

The report also suggests that the Federal government has a significant role to play by encouraging private sector involvement in oversight of Canada's worst-run water facilities, those on First Nation reserves. The report notes: 'The government is sensitive to native communities' desires to determine for themselves how best to solve their widespread water and wastewater problems. However, discretion in moving towards locally-appropriate solutions must not come at the expense of health and safety.'

Government-run systems are often 'paralysed by conflicts of interest that prevent effective regulation.'

good performance and to penalise bad performance.

'Competition for contracts and their renewal also motivates bidders and operators to perform well and to continually discover and implement cost-effective alternatives.'

The report goes on to note that private operators are 'inherently more accountable than public operators', saying government-run systems are often 'paralysed by conflicts of interest that prevent effective regulation.'

Distancing the operator from the regulator, the report argues, enables governments to focus on regulation. Private operators' legal liability makes them accountable to the public and enforceable contracts with specific performance criteria make them accountable to municipalities. The market itself provides accountability, in that a poorly-performing company cannot increase its shareholder returns or market share, and risks being put out of business.

Despite the advantages, partnering with a private firm will not automatically solve a community's water problems, the report warns. Municipalities can get the best results by entering into long-term concessions that assign

If health and safety are at immediate risk, the Federal government should be prepared to intervene and appoint an expert operator to provide safe water until the community can do so itself, the report adds.

Across Canada, the federal government can do much more, the report suggests: educate decision-makers and the public about the benefits of private involvement, and help develop models for the effective economic regulation of water and wastewater services. It can also enforce existing health and environmental standards, prompting municipalities to seek assistance from those with greater expertise and ensuring that those providing that expertise perform satisfactorily.

The report also suggests that the Federal government can ensure the success of any privatisations that do occur, by helping municipalities to avoid bungling the contract process. It can achieve this by ensuring that these are drafted and implemented in ways that protect the long-term interests of municipalities, workers, consumers and investors, and by generally helping municipalities to navigate the privatisation process. ●

The report, 'Water and wastewater treatment in Canada: tapping into private-sector capital, expertise, and efficiencies', is available at www.fraserinstitute.ca.

US utilities get the guidance they need to improve management

Leading water sector organisations in the US have provided utilities with guidance and tools to help them improve their management.

LIS STEDMAN summarises the key messages.

Six national US water associations and the US EPA have issued a report outlining recommended utility performance measures and encouraging the use of these tools and management qualities by utilities around the country.

The EPA and the American Public Works Association, American Water Works Association, Association of Metropolitan Water Agencies, National Association of Clean Water Agencies, National Association of Water Companies and Water Environment Federation have produced the new document, entitled 'Findings and recommendations for a water utility sector management strategy'. These associations, with about 80,000 members, represent some of the largest utilities in the country.

The report is the final output from the Effective Utility Management Steering Committee to its parent group, and is the result of a statement of intent created last May between the seven to 'formalise a collaborative effort among the signatory organisations in order to promote effective utility management'.

One consistent theme was the difficulty of generating and sustaining support for a governing body and the community at large for enhanced management efforts.

One general finding is that water utilities across the US face common challenges such as rising costs, regulatory requirements, funding cuts and ageing infrastructure, and that they needed to focus attention on these problem areas to deliver quality products and services and sustain community support.

The Committee also looked into the barriers that can inhibit improved utility management, where efforts should be targeted. One consistent theme was the difficulty of generating and sustaining support for a governing body and the community at large for enhanced management efforts. Utility managers struggle to convey the value of their services, the report notes, and there is an 'if it ain't broke why fix it' mentality in many organisations.

In that context, a number of findings and recommendations were made, and ten attributes of effectively-managed water sector utilities identified. The outcomes

are intended to help utilities manage progress in daily operations, infrastructure and overall performance through a common management framework.

The ten attributes provide a reference point for improving performance. They are:

- product quality
- customer satisfaction
- employee and leadership development
- financial viability
- operational optimisation
- infrastructure stability
- operational resilience
- community sustainability
- water resource adequacy
- stakeholder understanding and support

Complementing these, the Steering Committee also identified five 'keys to management success' as consistently-used management approaches and systems that have been shown to engender utility management success. These will provide a framework for using the attributes and example measures, also outlined. The keys are:

- leadership (key throughout the management improvement cycle)
- strategic business planning
- organisational approaches, such as participatory culture and change management processes
- measurement
- a continual improvement management framework

The Committee recommends that the sector adopt and utilise the ten attributes and that the collaborating organisations explicitly reference the 'keys' in sector efforts to promote the Attributes and enable effective management.

Measurement is seen as particularly critical. The Committee identified a set of high-level example water utility measures but does, however, note that these 'are not, however, equivalent to a utility measurement programme: they are high-level, illustrative examples and are not presented with enough information for "off the shelf" use.'

The Committee recommended including a set of example measures, related to the Attributes, in the sector strategy. These could be based on or the same as those

that the Committee identified. Either way, it is seen as important that the measures are accompanied by a preamble that includes the sorts of caveats and considerations identified in the report.

It also asked for a set of example measures to be circulated to a broader sector audience as soon as possible, and for a longer-term effort to be initiated to establish a programme to support a 'cohesive set of targeted, generally applicable, individual water sector utility measures'. The idea is to provide utilities with a robust measuring system to gauge and improve their internal operational and managerial practices and for communicating with external audiences.

Tools are also seen as vital and many utilities would benefit from a 'helping hand' to guide them to useful resources that address their management needs, particularly in the context of the Attributes. Resources were identified as the starting point for developing a 'resource toolbox' and the Committee considered options for its scope, structure and format although it notes there is currently no funding or concrete plan for this.

It recommends that its parent bodies pursue this avenue, and that a toolbox, even in an interim form, be made available to a wider audience as soon as possible. The Committee also urged that the toolbox allow for resource cross-referencing and categorisation with, if possible, some sort of interactive functionality.

A set of supporting strategy elements was also explored. These are designed to create incentives for and reduce barriers to adopting management practices that would lead to Attribute-related improvements. The other elements of the approach focus on informing and enabling change, whereas the strategy elements focus on providing extra motivation.

The Committee also recommends rolling out the sector strategy as soon as possible and providing a brief, standalone primer for water sector utility managers. It also urges that its parent bodies continue to collaborate and asks for a continual improvement approach to implementation to be taken. ●

To obtain the report, visit www.epa.gov/ogwdw/waterinfrastructure/.

The value of an international perspective when regulating water

Water sector regulation in England and Wales is based on comparing the performances of water companies. The regulator also sets this process in a wider context by comparing these performances with international practice. **LIS STEDMAN** reviews the findings of the latest comparison.

Economic regulator Ofwat has benchmarked the water companies of England and Wales with enterprises from Scotland, the 6-cities benchmarking group in Scandinavia, the US, Northern Ireland, The Netherlands, Portugal, Canada and Australia, and included information from other countries where it was available, in an effort to expand comparative competition beyond its native shores.

The regulator notes that the unique scale and structure of the companies in England and Wales made benchmarking difficult. To make comparisons easier, it concentrated on enterprises that to an extent had a distinct corporate identity and independence rather than being consolidated within local government.

Ofwat looked at a number of areas: customer bills; customer service levels; water quality and environmental performance; water delivered, leakage and water efficiency; unit costs and relative efficiency; network activity and financial performance.

Meter penetration was found to be a key difference, as in most countries apart from the UK it is nearly universal. Metering has benefits – it allows more accurate measurement of leakage and enables tariff structuring, but has associated operating costs.

On billing, the report finds that England and Wales are 'not out of step' with other countries, with a trend for increasing prices being repeated across Europe, though generally at a slightly lower rate.

The report adds: 'The two main exceptions to this are in Germany where prices are rising more slowly, partly because large scale investment has already taken place, and in Spain where prices are rising much more steeply.'

Many factors influence bills: lower costs in Sweden reflect the fact that companies are not allowed to make a profit from water, and consumption levels are also lower.

Water in Italy is relatively cheap because of low levels of investment in infrastructure compared with other European countries, and

ongoing water price subsidies.

Higher prices in Berlin reflect the high level of investment in infrastructure to improve the network and the need to meet demanding quality standards. Water in the US is relatively cheap compared to Europe, the report adds. This may be because municipalities can access tax-exempt finance, younger networks and weaker environmental regulation that reduces the incentive to invest.

On customer service, generally Ofwat notes: 'Where it is available, it can give comfort to both the regulator and the customer that companies, in the absence of full competition, provide an appropriate service.'

Only Scotland provides a parallel data comparison, though. For this measure, England and Wales were found to significantly outperform their northern neighbour. Few companies collect customer service data in the detail that is required in England and Wales – the US, for instance, collects none.

On water quality, an increasing trend to treat sewage to tertiary level was found, with some countries treating all or most of their wastewater to this standard, including Australia. For compliance with the Bathing Water Directive, England and Wales have one of the highest rates of compliance in the EU, behind only Greece and Spain.

On water delivered, leakage and water efficiency, the different definitions for water balance components and the lack of metering in England and Wales were found to make direct comparison difficult.

Water saving campaigns and initiatives have helped Denmark, Australia, Germany and Helsinki to significantly reduce per capita water consumption. Drought has achieved a gradual reduction in use in Australia. Ofwat praises the initiatives in England and Wales, and Waterwise information suggests consumption there is within the

middle range and lower than France, Sweden and Norway in Europe, with the highest use countries being the US, Canada, Australia and Japan.

On leakage Ofwat notes that 'robust information...can be difficult to find outside England and Wales'. The Netherlands and Copenhagen report very low levels of leakage, whereas Scottish Water's is considerably higher than the range found in England and Wales.

Dutch companies' low rates are explained by several factors including low operating pressures due to the flat terrain and a newer post-war infrastructure. Australian leakage is similar to England and Wales but US companies appear to have higher levels, particularly in larger systems.

For water service unit costs, on a per-property basis total costs are broadly similar in Australia, The Netherlands, England and Wales. Four members of the 6-city group and one or two others report costs 'notably below' and US companies report very high per-property costs.

Comparisons of volumetric unit costs suggests the 6-cities group, Australian companies and many US companies provide water and sewerage services at a lower cost than England and Wales, whereas costs in The Netherlands are higher. With costs adjusted to remove currency fluctuation effects, England and Wales do better compared to Australia.

On network activity, England and Wales compare to the 6-cities group and have higher water main activity rates than Australia. England and Wales companies have a lower long-term burst rate than Australian companies but a higher rate than the 6-cities group.

On financial performance, indicators appear broadly similar across countries though individual companies vary significantly. Accounting practices and assumptions are likely to distort the comparison process. ●

The report, 'International comparison of water and sewerage service 2007 report', can be obtained at www.ofwat.gov.uk.

Russia's road to water sector reform

The Russian Federation has set a course for implementing major changes to its water sector, including greater involvement of the private sector. **LIS STEDMAN** outlines developments as set out in a new report on the Russian water sector.

The Russian Federation is going through a complex period of upheaval as it moves into the capitalist free market after rejecting the socialist economic model. Since the dawn of glasnost in the 1980s, the amount of reform has been extraordinary – not least that relating to the Federation's water and wastewater utilities, or Vodokanals.

A new report from IWA Publishing by Sergey Ivanov, Sergey Sivayev and Ella Shalukhina looks in depth at the changes in Russia's water industry. Notably, the various models for change adopted and the ways in which the authorities have reacted to the pressure for change have differed radically from city to city, area to area.

This is not surprising, as Russia is the world's biggest state, and one of the most diverse both geographically and socially. Its land area is a massive 17M.km² and it borders countries as far apart geographically as Norway, Korea and China. With a population of 143 million at the beginning of 2006, over 100 national and ethnic groups and over 1100 cities, the scale of the task of reform has been, and continues

to be, huge.

The reforms began with government moves to increase the attractiveness of the water and wastewater sector to investors. Key ambitions were the reconstruction of ageing infrastructure; increasing operational efficiency, economic

At a federal level, the aim has been to initiate changes in the pattern of ownership to facilitate acceptance of effective corporate management methods in the municipal water and wastewater sector.

soundness and customer service levels; ensuring that regulation and economic independence worked in harmony; as well as optimising assets.

There are a number of challenges that the government has had to face along the path to reform. Most importantly, the government sought to change the patterns of ownership of the Vodokanals. But the obstacles are considerable: for instance, unreformed Vodokanals do not work directly with their domestic customers, with

payments in many cases being collected by the local government's Municipal Services division, which acts as an intermediary. Under this system it is practically impossible to recoup unpaid debts, which has driven some Vodokanals into bankruptcy.

Funds from water and wastewater payments also get diverted to other municipal causes and there is a complicated system of cross-subsidy, with industrial users paying more to ensure domestic consumers pay less. Metering is rare, so there is no mechanism to encourage water efficiency.

Because the Vodokanals are municipal enterprises, they are also often influenced by political decisions that may run counter to water quality objectives. Another obstacle is personnel expertise – lacking a path to a senior managerial post, some Vodokanals find staff have no incentive to undertake training. These factors, combined with low tariffs (and incomes set just at break-even) as well as somewhat oblique accounting methods, have been a major disincentive to foreign private involvement.

The reform process

At a federal level, the aim has been to initiate changes in the pattern of ownership to facilitate acceptance of effective corporate management methods in the municipal water and wastewater sector. Legislative and policy changes have set up a framework to attract private sector resources and overcome many of the common problems that the industry faces.

At Vodokanal level, this has meant taking several paths: reforming the water enterprises into legally-independent joint-stock companies, under the control of the municipal administration; or getting in private sector operators through a competitive bidding process to run the Vodokanals, with a contract setting out how to achieve a set of service level indices.

In terms of management, a formal relationship has been established between the Vodokanal and the local administration, in which the administration can set service level objectives, the enterprise is guaranteed a level of income in perpetuity and also, critically, autonomous management.

Parallel access to investment funds

Utility management challenges

An OECD report on private involvement in the sector noted that 'Unfortunately, the majority of Municipality administrations in Russia have had a shortage of qualified personnel for quite a long time. Participants in the review specified this as a problem. As a result private sector engagement in the supply of public services is a political decision in most cases, in which importance is placed on random and subjective factors.'

'At the same time contractual relationships between municipal governments and private operators mainly appear to be agreements of intent rather than full contracts to delegate management. It is necessary to note that private initiative involvement on the basis of management contracts that do not impose major responsibilities on the private sector still provides a remarkable improvement within a short period (one to two years). The arrival of "private owners" leads to an improvement in performance (a reduction in the incident rate and water losses) and the financial state of the Vodokanals.'

from government funds and the private sector has also been ensured, to make up for the years of under-investment. The municipal authorities have had to undertake numerous reforms to ensure that it is possible to bring all of these ideals into reality.

In terms of the models that are being used, there are four main groups: those where the capital of the Vodokanal comes entirely from the municipality; those where a controlling block (50% plus one share) of stock is held by the municipality; those where the municipality holds between 25 and 50% of the shares; and those where the municipality has no shares.

Although there are no laws excluding the possibility, authorities at all levels have decided that title to infrastructure assets should remain the property of the municipalities.

The principles applied are that property used directly in operations, such as networks, facilities and process equipment will remain state property. Property for maintaining process equipment, buildings outside the boundary of the state assets and movable assets can either stay in state hands or be transferred to the private sector. And any property belonging to the water supply and sewerage systems can be transferred to the Vodokanal to manage, under a lease or concession. Other forms of private sector engagement are possible, provided they comply with federal laws.

There is an exhaustive list of which types of asset belong in which group, and also definitions of consumers (system owners or housing associations that control or manage infrastructure assets), and sub-consumers (customers) as well as the Vodokanal's rights and obligations, customer obligations and rights, tariff and payment systems, sampling regimes and a host of other regulation.

The task

The scale of the task to be undertaken is considerable: statistics show that 23% of Russia's water conduits (some 30,000km) needs to be replaced, as does 38% of the mains network and 33% of the main sewerage networks. Water losses are increasing at 5% per year on average, a trend that if not halted will see average losses exceeding 30% by 2020. The amount of investment needed varies widely depending on the district concerned, with the Southern and Volga areas requiring most investment.

Private operators

The prescriptive nature of the framework has not deterred the formation of private operators. In 2003 and 2004 a number of private

operators working in the public utility services market for water supply and wastewater disposal were founded in Russia. These are Rossijskiye kommunalnye sistemy, Novogor-Prikamye, Evrazijskoye vodnoye partnerstvo, and Rosvodokanal.

In 2005 Don-Yug and Don-Sever, companies with foreign capital involvement (ABB), joined the local operators. They implement reconstruction projects for the Vodokanals in the Rostov region and the Stavropol territory.

In addition, several Vodokanals (for

At present in Russia there is 'practically no possibility' of getting bank credits for long-term investments in municipal infrastructure without associated budget guarantees.

instance in Syzran, in the Ulyanovsk region and in Krasnogorsk in the Moscow region among other cities) were corporatised with private sector participation.

It was estimated that by the end of last year, private operators would be providing water supply and sewerage services in cities to 15 million people (over 10% of the country's population). By 2010, it is predicted that 40 million people – 30% of the population – will be served by private operators.

To date, the private operators have mainly been involved in water and sewerage contracts for cities with populations of not less than 200,000 although it is expected that they will

expand to smaller towns in the same area as they become more secure.

The operators

Rossijskiye kommunalnye sistemy (RKS) was one of the first projects in the country set up to reconstruct infrastructure management systems. It was formed in 2003 and its main task was to raise large-scale investment in the regional municipal economies.

RKS is mainly involved in short-term (11 month lease contracts in cities with populations between 25,000 and one million, mainly combining infrastructure leases with a municipal order for repair and improvement. Contract terms provide the flow of funding. The leases have evolved to something close to a concession contract, whereby a labour contract migrates into a lease contract when the operator makes improvements from funds paid in long-term instalments by the municipal government.

The RKS approach is to found a subsidiary in the regional administrative centre. The Vodokanal property is then transferred to the municipality and liquidated, after which the subsidiary takes over the infrastructure assets in a short-term lease. After this, the subsidiary either undertakes services in its own right or creates a new legal entity, a Vodokanal.

Evrazijskoye vodnoye partnerstvo (EVP) undertakes operation and management functions and implements state-private partnership projects. It aims, by 2008, to have long-term contracts in seven to 10 cities serving

New report on the Russian water sector

Municipal water and wastewater services reform in the Russian Federation

Authors: Sergey Ivanov, Sergey Sivaev and Ella Shalukhina

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Russia is going through a complicated period of transforming its economy with a focus on the expansion of private sector activity. This includes reforms in the field of municipal water supply and wastewater disposal.

This report presents an analysis of the condition of the municipal water supply and wastewater systems in Russia in the early part of the 21st Century and tries to provide answers to the eternal questions: what are the causes of problems faced and what needs to be done to solve them?

The objectives of the reform of Russia's Vodokanals are described, along with the regulatory framework governing the sector, including the way tariffs are regulated. The current condition of water and wastewater infrastructure is assessed. The most prominent examples of private sector involvement to date are examined. The report concludes with a short-range forecast of developments.

The report will be of interest to those wanting to understand the transformation processes taking place in Russia in the field of municipal water supply and wastewater disposal. It will also be of value to potential investors who are looking to take advantage of the favourable investment climate created recently in the country and who are considering possible long-term investment in the management, reconstruction and development of municipal water-related infrastructure.

This title belongs to the Water21 Market Briefing Series.

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five million people with a turnover of \$200 million per year.

The company was established in 2004, and now manages the Omsk and Rostov-on-Don Vodokanals.

In Omsk, EVP was awarded a contract for the long-term development of the water supply and wastewater disposal infrastructure. With the 25-year lease agreement came an investment agreement for funding for water supply and sewerage assets valued at \$17.5 million over three years to April 1, 2008. The long-term investment programme is worth around \$155 million, and to date more than \$3.9 million has been transferred for upgrading and developing the municipal water supply and sewerage systems.

In Rostov-on-Don, EVP has a management contract to run the water and wastewater systems. The Vodokanal serves over one million residents and has an annual turnover of \$30 million. Work has been funded partly through a \$10 million IBRD credit for development and repair of the water supply system, and a GEF grant to construct a nutrient removal system for the city's wastewaters, with EVP also providing funds from its own sources. Here, the city administration owns the Vodokanal but not the infrastructure assets, which were not included in the authorised capital of the joint-stock company and were transferred in the Vodokanal lease.

Novgor-Prikamye (NP) is a management company subsidiary of Novgor, which was established to implement investment projects in the Perm region's housing sector. In turn, Novgor is a subsidiary of Interros, one of the largest private-investment companies in Russia with assets worth \$10 billion under its control. NP's objective is to provide high-quality water and wastewater services at a reasonable price. The company employed Severn Trent Water International to help with its aim of aligning its performance with that of European city utilities with similar infrastructures and population sizes.

The investment programme envisages joint management of the operation, and there are plans to set up a technical council at NP involving the participation of the city administration, to work out the technical policy and organisation for the city's capital investment committee. The city approves NP's annual programme and monitors it, and if issues arise either side can suggest modifications to the planned projects. NP has to achieve efficiency measures within specified key areas, and it has to comply with an extensive list of operational and societal requirements.

Rosvodokanal (RV) was founded in

1949 and is a central repository of information on the organisation of water supply and wastewater disposal systems in Russia's cities. In 2003, it was reorganised and has become part of the Alfa-Group. It has successfully reformed a number of municipal enterprises and undertakes asset management for such enterprises, serving over two million people in cities including Orenburg, Barnaul and Orsk.

One of its arms is Rosvodokanal-Consulting (RC), which has foreign partners and provides engineering and consultancy services. RV has been involved in a number of successful long-term lease agreement projects that have helped improve numerous aspects of municipal utility systems. The projects typically begin with signing an agreement and creating a new

Although there are many challenges ahead – not least in changing municipal mindsets and behaviours – Russia is gearing up for a major change in the way it views and operates its water and wastewater enterprises.

company, followed by typical house-keeping tasks and development of a budget system for operational activities and a cost-optimisation programme.

These early projects have proved that significant cost savings can be made by transferring assets to private sector management. Initial operational cost reductions have been achieved by improving management efficiency and motivation rather than large, long-term infrastructure investments. Management teams have also benefited from the lessons learned from their private sector partners.

However, it is acknowledged that there are still a number of factors holding back progress. One is that at present in Russia there is 'practically no possibility' of getting bank credits for long-term investments in municipal infrastructure without associated budget guarantees. Investors are still reluctant to input significant amounts of their money into municipal infrastructure as the investment risks are seen as high, and do not increase the capitalisation of the company as the investor does not own the assets.

Another problem lies in obtaining true market values for the infrastructure assets as their costs can only be estimated and not related to any real estate market. The political risks are also extremely high, as tariffs are decided by representatives on the regulatory body. Current legislation also foresees the possibility at federal level of setting maximum water and wastewater tariffs

whatever the real investment needs. And while things remain so uncertain, it is not possible to make reliable long-term forecasts and financial models.

Future plans

The plan to 2010 is for the key Vodokanals for Moscow and St Petersburg to be corporatised with their city administrations retaining the controlling shareholding. Vodokanals in cities with populations of over 500,000 will be reorganised into a model in which the investor has the controlling shareholding either on corporatisation or within a year of this, along the lines of the French model. Engineering infrastructure will be transferred to the operator's lease on condition of an assumed annual investment of 10 to 15% of the Vodokanal's annual turnover.

In smaller cities, with populations between 200,000 and half a million, the Vodokanals will be reorganised mainly as joint-stock companies with the municipalities retaining all of the capital in their ownership, as in the German model. In some exceptional cases these enterprises will be transferred on a short term (up to five year) management contract to an investing company.

Vodokanals in cities with populations from 50,000 to 200,000 will mainly be corporatised with the municipality, leading city companies and Vodokanal management all participating in the authorised capital.

Vodokanals in cities with populations up to 50,000 will be corporatised mainly by transferring all of their engineering infrastructure into the ownership of a joint stock company, which is included in the authorised capital, and the simultaneous or subsequent transfer (sale) of shares to private investors as in England and Wales. In some rare cases the shares in such companies will remain the property of the municipality.

There is also a commitment to create a modern regulatory framework to regulate all areas of Vodokanal activity. It is anticipated that five to six national management companies will be active, each in its own geographical area. It is recognised that soon it is likely that private sector participation in Russia's water and wastewater sectors will be seen as natural. Effective regulation is viewed as the remedy for any areas of service that leave customers dissatisfied. Clearly, although there are many challenges ahead – not least in changing municipal mindsets and behaviours – Russia is gearing up for a major change in the way it views and operates its water and wastewater enterprises. ●

Cooperation in the Dutch water sector: developments in North Holland

Government and legislative pressures are increasing the impetus for cooperation in the Dutch water sector.

LILIAN BERNHARDI describes activities in the province of North Holland to achieve such cooperation.

Producing and supplying drinking water and collecting and treating effluent constitute a water supply chain made up of distinct activities. In the Dutch water supply chain, the water companies produce and supply drinking water, while the municipalities collect and dispose of effluent via the sewer system and public water boards treat effluent.

Central government policy in The Netherlands is to increase the effectiveness and transparency of the water supply chain in the public interest. The Dutch government considers a year-on-year improvement of between 1% and 2% is feasible for the regions within and between the sectors over the coming ten years. This target is based on regional experiences, current studies, benchmarking and monitoring of water supply chain data (source: *Toekomstagenda Milieu*, a document published by the Dutch government in 2006 on the future of

environmental policy in the Netherlands). Central government has not imposed a structure or blueprint for cooperation in the water supply chain. It has been left to the regional actors to determine the details of their effectiveness and transparency objectives.

The European Union Water Framework Directive also plays a role. The efforts necessary to improve water quality as required by the Directive can be made in large measure in the water supply chain. A more effective approach will therefore be beneficial for the environment.

All stakeholders in the water supply chain recognise that significant efficiency gains are still achievable by improving cooperation between the parties involved. Cooperating in the water supply chain, organising operations differently and optimising business processes will not only reduce costs, but also result in an even higher standard of service and a better product.

Waternet, a total water organisation

A few years ago the city of Amsterdam and the 'Amstel, Gooi en Vecht' water board embedded the operation of sewers and the treatment of sewage in a single department called 'Dienst Waterbeheer en Riolering', serving the entire Greater Amsterdam conurbation. Merging these operations in 1997 produced a saving of €15 million (\$20 million) per year.

On 1 January 2006, this department and the drinking water company were merged to create Waternet (a foundation under Dutch law). This is expected to yield additional savings of €15 million (\$20 million) per year. Waternet is the first organisation in the Netherlands that accommodates the entire water cycle.

Waternet's general business conduct is controlled at arm's length by a three-man board. In 2008, residents will start receiving a single water bill through the post. The bill will itemise four charged services: drinking water, sewerage, effluent treatment and management of surface waters. It will give people a greater insight into their water charges. Other benefits of such a construction include:

- joint management of pipes
- a service-enhancing single point of contact for customers
- a joint fault repair service
- sharing of knowledge with other parties.

Another beneficial feature is the Amsterdam Coordination System (which includes 'Cocuwo', the body that coordinates the planning of public works in the city). This coordinates the management of roads and sewers.

Investment requirements and the potential gains from cooperation

There is a lot of money involved in the Dutch sewage system, with replacement values put at:

- sewerage: around €60 billion (\$80 billion)
- transport and treatment of effluent: around €10 billion (\$13.3 billion)

The extra burden from replacement is €6 billion (\$8 billion) in 10 years (2006-2015), a total of €14 billion (\$18.7 billion) to 2027.

As well as this there are the large costs for the Dutch water quality task of meeting EU Water Framework Directive requirements plus the water quantity task of creating enough water capacity. All this will lead to the burden of regular expenses.

The Dutch drinking water sector has already improved its effectiveness significantly over the past few decades. Today's challenge mainly concerns the effluent treatment part of the chain. The sewerage system will require replacement investments totalling €10 billion (\$13.3 billion) over the next ten years, for example. Municipal authorities have a duty of care for collecting effluent, while the public water boards are responsible for further transporting and treating the effluent. By working together they can achieve financial and/or environmental gains from which the public and business community also stand to benefit.

Developments in North Holland province

North Holland province consists of 61 municipalities (which are members of 'Vereniging van Noord-Hollandse Gemeenten', the association of the province's municipalities), three water boards ('Hoogheemraadschap Hollands Noorderkwartier', 'Hoogheemraadschap van Rijnland' and 'Hoogheemraadschap Amstel, Gooi en Vecht') and two drinking water companies ('Waternet', and 'PWN waterleidingbedrijf Noord-Holland').

North Holland province already has many good cooperative initiatives. Waternet is the first water cycle company in the Netherlands to combine water management duties with drinking water, sewerage and effluent treatment operations (see box 'Waternet, a total water organisation'). The joint approach that the water boards and municipalities adopted to cleaning up effluent discharges in rural areas has served as a model for numerous similar initiatives elsewhere in the Netherlands. And cooperation

Cooperating successfully in Noordkop

Over the past few years the Hollands Noorderkwartier water board has established cooperation with nine municipalities in Noordkop, an area in the north of North Holland province. Fruitful optimisation studies have been completed and a project has been launched to build individual effluent treatment plants in outlying areas. The water board is responsible for their construction, management and maintenance.

These initiatives triggered fine-tuning of investments and collective operation between the municipalities and water board, not only about the care for the sewerage system but also the rest of the water chain.

Cooperation has been taking place in Noordkop for five years. This focuses on such matters as the joint outsourcing of operational work, the studying and reporting of disconnections, the joint establishment of monitoring systems, and the harmonisation of policy with a view to joint action. This approach has produced benefits: external costs and hours worked at the participating organisations are now divided according to predefined arrangements. A steering committee made up of representatives of all ten parties issues work instructions to two working groups that address maintenance, management and the maintenance of knowledge. Dealing substantively with other water tasks has created sufficient challenge and perspective for continuing the cooperation.

between municipal authorities enables joint calls for tenders for the maintenance of sewerage systems (see box 'Cooperating successfully in Noordkop').

There are also examples of cooperation in the field of knowledge exchange (see box 'Joining forces in management and maintenance'), and how improvements relating to wastewater are being sought by introducing cooperation on a permanent basis (see box 'Effluent cooperation in Rijnland district').

A salient point is that cooperation is not confined to the water supply chain. The parties are increasingly working together on water volume and quality issues, and on challenges arising from European and national policy objectives (such as the EU Water Framework Directive).

Conference

Together with its partners in the water supply chain, North Holland province wants to give an extra boost to bottom-up cooperation in the chain. Under the banner of 'Cooperate with each other', on 15 November 2006 the province organised a conference on cooperation in the North Holland water supply

chain in association with the partners.

Managers and employees of municipalities, water boards, drinking water companies, industry associations and provincial authorities examined options for harmonising in a better and smarter way the separate efforts of the water supply chain. The objective is to enhance quality of service, secure greater environmental gains and, ultimately, reduce costs for the public.

The conference showed that cooperation and harmonisation in managing and organising the effluent supply chain can increase effectiveness and transparency and that the municipalities and water boards hold the keys to success. The parties recognised the administrative necessity of cooperation. It was also acknowledged that cooperation could be intensified and expanded in the North Holland water supply chain. After all, there are even more opportunities for cooperating and there are many more potential partners who can join in. The conference provided a stepping stone towards intensifying and expanding cooperation in North Holland.

Next steps

North Holland province wants to

Joining forces on management and maintenance

Since early 2004, the municipality of Heerhugowaard and the Hollands Noorderkwartier water board have been cooperating in managing and maintaining sewerage facilities and return pumping stations. The cooperation came about because of the specialised knowledge necessary to run a large and complex sewerage system. The municipality possesses only some of this knowledge. The missing know-how (about pumps and process control) is available at the water board.

Patience is a key success factor. Other important building blocks for cooperation are willingness, capability, trust and clearly-defined arrangements. It is the people in the organisation who cooperate, not the organisations themselves. This calls for a different mindset and different work skills. The conclusion that may be drawn a few years down the road is that this cooperation has proved a success and can act as a model for other parts of the country.

actively stimulate and facilitate efforts to improve cooperation between water companies, water boards and municipalities. The provincial executive gave the official go-ahead in March 2006 for the role the province will adopt in forming the water supply chain. The development under way in the water supply chain is in line with central government's view that it is necessary to increase the effectiveness of the water supply chain. North Holland province drew up a plan of action after the water supply conference. The plan is based on two tracks, one establishing a voluntary administrative agreement, and the second designing a bottom-up approach to cooperation.

Draw up a voluntary administrative agreement

All partners will help draft and will sign a voluntary agreement (in the form of a letter of intent) that will define goals, an approach and a time frame for further cooperation. After all, the agreement of all parties is essential to ensure effective cooperation. The voluntary agreement will include provisions to the effect that the initiators will stimulate and initiate cooperation in the water supply chain in 2007 to 2009. Together, the initiators will formulate effectiveness targets, as requested by central government. The spearhead will be the effluent chain, particularly sewerage. A precondition is that the present duty of care must remain unchanged. Continuation of the agreed arrangements will be evaluated in early 2008.

Design bottom-up cooperation

Together with the water boards and VNHG (Association of Municipalities in North Holland), the province will lead the initiative to bring parties together wherever this will produce significant added value in the water supply chain, locally or regionally. The goal is to improve and intensify cooperation in North Holland. This will benefit both the public and the environment.

Conclusions

Central government policy in the Netherlands is to make working practices in the water supply chain 10% to 20% more effective over the coming ten years. There is wide-ranging cooperation in North Holland province between parties in the water supply chain. To fulfil the objectives of central government policy, however, it is necessary to expand and intensify the cooperation.

The conference on cooperation in the North Holland water supply chain recognised that more opportunities

Effluent cooperation in Rijnland district

Rijnland water board is pursuing cooperation in the effluent system on the grounds that this approach presents the best opportunities for improving quality with municipalities and for reducing costs. The starting point is that the effect of cooperation will be optimum if all municipalities work together on the scale of the collection catchment areas for sewage treatment plants. The cooperation needs to be permanent, not incidental.

Permanent cooperation is the only way for the effluent chain to absorb the consequences of changing legislation and climate change at the lowest possible cost.

Rijnland wants to set up permanent cooperation through a step-by-step approach. The first step is an exploratory study. The findings will be laid down in an initial effluent agreement along with agreed arrangements for the joint follow-up steps. All catchment areas will be contacted in the coming years through an approach that consists of stand-alone programmes.

exist for cooperation and that there are still numerous potential partners who can join in. The same conference agreed that the province would initiate follow-up steps to flesh out cooperation in North Holland. The provincial government wants to stimulate and facilitate the process by bringing parties together and giving them an incentive for closer harmonisation.

At the administrative level, the parties will sign a voluntary agreement to give new governmental momentum to cooperation in the North Holland water supply chain. This will be done in the interests of delivering better service, securing greater environmental gains and, ultimately, reducing costs for the public.

Each partner in the water supply chain has its own qualities that can be used perfectly well beyond the borders of their own organisation. The aim and challenge for the future is to combine the essential qualities of water board, drinking water company and municipalities and to make use of these qualities. This is also what central government expects. ●

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The Philippine Water Revolving Fund: sustainable financing for water supply and sanitation

The Philippine government has committed to achieving the Millennium Development Goal targets of cutting by half the population without access to safe water and sanitation by 2015. However, the investment required to meet this target far exceeds what the government can provide from public resources. This means that mobilising private financial resources is imperative. Alongside this, the government has issued a new financing policy requiring, among other changes, that creditworthy water service providers move from concessional to market-based lending.

DANIEL MOORE describes the Philippine Water Revolving Fund, an innovative funding mechanism being set up to use limited public resources to leverage private financing, to ensure that financing is on terms and conditions affordable to local users and acceptable to private financial institutions, and to establish a fund with revolving capacity.

The Philippine Government is reshaping its financing model for water supply and sanitation. From the traditional public resources, including official development (i.e., donor) assistance (ODA), it is opening new avenues for commercial bank participation and ultimately the broader domestic capital market. One such approach is the Philippine Water Revolving Fund (PWRF), a new lending programme designed to leverage private funds using ODA and government resources.

The PWRF is a work in progress, an initiative of the Philippine government's Department of Finance, with technical and financial support from the United States Agency for International Development (USAID) and the Japan Bank for International Cooperation (JBIC). While the fund is

still being established, the ongoing efforts to address policy and institutional barriers to private sector participation in the water financing sector are notable, as are the emerging trends in private bank interest in water and sanitation infrastructure financing. This article describes and discusses the relevance of these efforts.

Background on the Philippine water and finance sectors

Water utility ownership structure, coverage and service levels

The ownership structure of water service providers in the Philippines is highly fragmented. There are more than 1500 utilities, 90% of which have service connections of less than 5,000. These utilities consist of two private concessionaires operating in Metro Manila, roughly 500 water districts (government-owned and controlled corporations), about 1000 local gov-

ernment unit (LGU)-run systems, and a number of small-scale private providers. Eighty percent of the country's population has access to water supply, of which 67% have piped connections. Those with access are served by Metro Manila private concessionaires (10%); water districts (23%); LGUs (50%); and small private providers (17%).

In terms of sanitation, 74% of the population have basic sanitation but only 4% have sewerage connections. On-site sanitation systems such as septic tanks are the most common. Utilities currently allocate minimal levels of investment in wastewater treatment facilities. However, with the recent passage of the Clean Water Act, it is hoped utilities will be compelled to increase investment in sanitation.

Water utility financing sources

Virtually all water utilities in the Philippines rely on some form of public subsidy. Water districts, as a group, operate efficiently and generate sufficient income to meet operations and maintenance (O&M) and debt service costs. While their tariff structures provide for full cost recovery, they do not, however generate sufficient revenue for system expansion. Conversely, the majority of LGU-operated water systems generate insufficient income to meet even recurrent O&M costs, much less the replacement of capital infrastructure or system expansion. As a result, 60–70% of LGU expenditures on water services go toward offsetting O&M losses.

The main financing sources of water utilities still come from public resources, either from local government budgets or from ODA re-lent through government financing institutions (i.e., local development banks). Apart from the two Metro Manila concessionaires and a handful of the small private providers, no utilities are able to access private financing.

Water districts are served mainly by the Local Water Utilities Administration (LWUA), which offer rates at par with commercial rates, but fixed over a 15–20 year tenure – historically three to four times longer than what commercial banks offer. Water districts being autonomous corporations, lending is on a project finance basis: i.e., lenders rely on revenue streams for repayment. In case of default, LWUA has 'step in rights,' i.e., to exercise management takeover. LUWA loans also generally have senior position over other loans of the water district, meaning they take precedence in repayment.

LGU-run utilities rely on their internal revenue allotment (IRA);

loans from the Municipal Development Fund, a government-administered fund for LGU projects; or government financing institutions with ODA re-lending programmes. LGU loans are almost always secured by their IRA funds.

Financial market

Private sector financing for water infrastructure projects has not developed due to several constraints. Central Bank and Commission on Audit regulations restrict water districts and LGUs from using private financing institutions (PFIs) as depository banks. Consequently, PFIs have little familiarity with water utilities. And since PFIs do not have collateral business, they have no motivation to develop the market for water sector lending.

While the PWRF design is crafted to suit the unique conditions and constraints in the Philippines, its basic underlying structure can be replicated in other settings

In the case of LGUs, existing financial record keeping procedures do not provide the depth of information required by commercial banks to do due diligence in assessing accounts. Because the bulk of their capital comes from short term deposits, PFIs generally do not lend beyond 7–10 years – far short of the loan tenure required for the long term capital requirement of water projects.

Regarding possible access to private funds through a bond market, the industry's fragmented ownership structure and debt service cap of LGUs (up to 20% of regular income) restrict the size of the bond offering. Water utilities are also perceived as high risk; hence, bonds for water projects would likely be less attractive to investors than other available investments, such as treasury bills. Another constraint is that interest earned on bonds is still subject to 20% withholding tax.

Rationale and objectives of PWRF

Two main drivers prompted the development of the PWRF: the 'funding gap' required to achieve MDG targets in water and sanitation, and second, the need for a catalytic mechanism to implement the government's new financing policy of shifting creditworthy water utilities to market-based lending.

Funding gap

The investment costs of meeting MDG targets far exceed levels historically programmed by government from internal resources

and official development assistance (ODA). Conservative estimates place the gap at around \$3 billion, while estimated available government and ODA resources are just over \$1 billion, leaving a 'funding gap' of about \$2 billion.

New financing policy

Tight fiscal constraints limit the government's budget and borrowing capacity for new ODA loans. In response, the government passed Executive Order 279, a new financing policy to shift financing of credit-worthy water utilities to market-based lending. Concessional financing (with government and ODA funds as the source) will be dedicated to the less than creditworthy utilities, but tied to policy and governance reform conditionalities.

The transition to the new financing policy, and resultant bridging of the funding gap, will not happen spontaneously. While PFIs have liquid balance sheets and are on the look out for new investment opportunities, they are also highly risk averse. And to PFIs, water and sanitation infrastructure lending is unfamiliar territory. Thus, for PFI to participate in water sector financing, they have to be assured of an attractive yield and an adequate credit risk cover. An immediate shift to pure commercial financing is also not affordable even to the creditworthy utilities. In particular, PFIs offer a term of 7–10 years maturity – far short of the economic lives of water and sanitation projects, which are typically over 20–25 years. This means that water utility projects typically cannot support short repayment periods for long term capital investments.

The PWRF supports the new financing policy by offering a mechanism to implement the policy in a practicable and affordable manner. By design, the PWRF will provide incentives to both water utilities and PFIs, and thereby catalyse and ease the transition for utilities from the traditional concessional funding to commercial lending; ultimately, this will support the move from commercial lending to the domestic capital market.

Objectives

The objectives of the PWRF are to use limited public resources to leverage private financing, ensure that financing is on terms and conditions affordable to local users and acceptable to PFIs, and establish a fund with revolving capacity.

PWRF financial structure

Both the objectives and associated constraints shaped the structure of

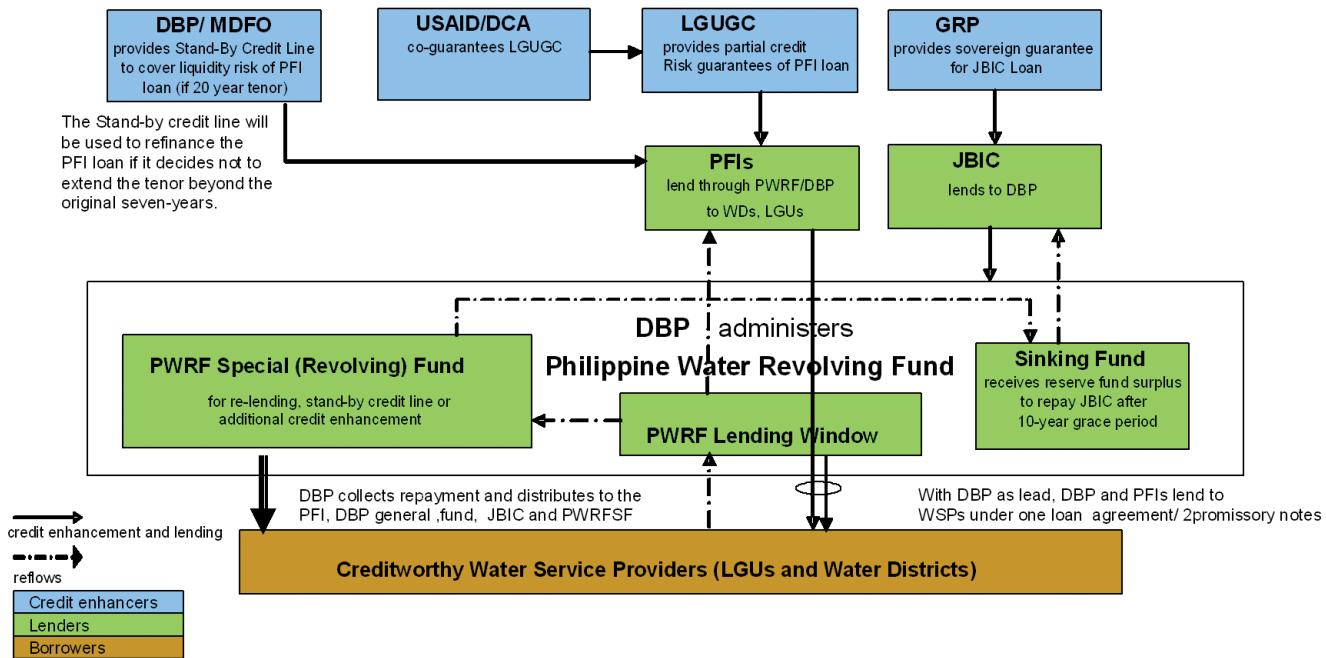


Figure 1. Financial structure of the Philippine Water Revolving Fund

Acronyms:

DBP	- Development Bank of the Philippines	LGUGC	- LGU Government Corporations
GRP	- Government of the Republic of the Philippines	MDOF	- Municipal Development Fund Office
JBIC	- Japan Bank for International Cooperation	PFI	- Private Financing Institutions
LGU	- Local Government Unit	USAID-DCA	- United States Agency for International Development - Development Credit Authority

the PWRF

The Philippine government does not have the resources for a dedicated fund to collateralise bond issues. Hence, for its immediate operations, the PWRF is structured as a direct lending facility, and will rely on its internally generated resources to build up a reserve fund that can be used as collateral for future bond issue. Once in place, the reserve fund constitutes the revolving element of the Fund.

Also, PFIs have no experience lending to water utilities. As government entities, utilities are fraught with political risk. Hence, to encourage PFI participation, the PWRF provides credit risk and liquidity enhancements that will help mitigate risk.

The PWRF financial structure is illustrated in Figure 1.

The main feature of the PWRF is the blending of concessional funds and private funds. Funds come from two sources: a concessionary JBIC loan to a government financing institution, the Development Bank of the Philippines (DBP); and second, a lending PFI, most likely a commercial bank. The financing ratio (i.e., blend) can range from 75%-25% to 50%-50% DBP vs. PFI loan share. The JBIC loan is be

backed by a sovereign guarantee from the Philippine government and being an ODA loan, it has concessional terms, i.e., an interest rate far lower than prevailing commercial rates, plus a long (30-year) tenure, inclusive of a 10-year grace period.

By blending concessional and PFI financing, the PWRF offers the following benefits.

Affordable pricing

The resulting blended rate will be lower than pure commercial financing, providing a critical incentive for both borrowing utilities and participating PFIs.

Longer maturity

The loan to end borrowers will have a 20-year tenure. To enable this, the structure includes a liquidity mechanism for the PFI loans: while the PFI loan component will have a 20-year tenure, the PFI will be given the option to pre-terminate (i.e., cash out) the loan in the seventh year (seven years is currently the upper limit for commercial bank loan tenures). Two PWRF mechanisms are available for this 'liquidity risk enhancement' – through a stand-by credit line from the Development Bank of the Philippines

for water district loans, and from the government's Municipal Development Fund Office for LGU loans.

Acceptability to PFIs

The PFI loan component will be lent at market terms. Lending decision criteria and due diligence will be based on what the PFIs normally use. In short, PFIs will not be asked to compromise any of their terms to participate in the PWRF, and the PWRF will cater to creditworthy water service providers. Also, for LGU-run utilities, the loan's security package features intercept of the IRA in case of default and the establishment of a debt service reserve fund.

Guarantee

Another important credit enhancement for PFIs is a credit risk guarantee for to 85% of the PFI loan. This guarantee is provided by a private domestic guarantee corporation, the LGU Guarantee Corporation (LGUGC), and backed up by a co-guarantee from USAID for up to 50% of LGUGC's exposure. As a result, PFI's exposure is limited to 15%.

Revolving capacity

To build the capital of the PWRF, DBP

will deposit principal repayments during the 10-year grace period of the JBIC loan into a trust account. These reflows can be re-lent or invested in low-risk government securities, and placed in one of two PWRF Funds. The first, a Reserve Fund, will set aside funds needed for repayment of the JBIC loan, with the remaining funds placed in the Revolving Fund. Once sufficiently capitalised, the Revolving Fund will be used for refinancing PFI loans, to leverage new loans, or used as collateral for bond issuances.

Challenges and risks

As the fund moves from establishment toward operations, the following challenges and risks being addressed.

Competition from concessional funding sources

Notwithstanding the issuance of the financing policy, existing credit programmes still offer concessional terms to all utilities, regardless of creditworthiness status. The PWRF, which will offer higher rates intended to catalyze the transition to the new financing policy, can not and should not compete with other, purely concessional, sources. It is critical that government rigorously enforce the new policy of using concessional lending only for the less than creditworthy utilities. This is the most critical risk to the viability of the PWRF. USAID is currently supporting the Philippine government's efforts to prepare and enforce guidelines to rationalise credit programmes for the sector.

Deal flow risk

This risk is caused by lack of prepared projects and/or low demand from water utilities. JBIC plans to provide a technical assistance loan facility to accompany the PWRF and provide funding for project preparation and design, as well as for systems and management improvements critical to the viability of projects. In the case of low demand from water utilities, this risk will be addressed through an intensive marketing strategy to promote the value proposition of the PWRF, and advocacy with industry associations and local government leagues to prioritize investments in the sector, and among sector constituencies to pressure utilities to provide better services.

Poor participation by private financing institutions

PFIs look for profit maximising investments with manageable risks. PFI involvement in the PWRF's conceptualisation has helped the design team come up with incentives attractive to

PFIs. However, until the PWRF is actually up and running, the level of PFI participation will remain an unknown. The Philippine government is working to provide an additional incentive, by including PWRF loans among its eligible 'development projects' scheme. Current banking laws require banks to set aside at least 25% of their loan portfolio for development projects (e.g., agriculture, socialised housing, etc.). Banks are penalised for non-compliance, and therefore eager to lend to such projects – should water be included, PFIs will have an additional incentive to participate.

Conclusion and way forward

The PWRF offers several benefits: it mobilises new resources by opening commercial sources of credit previously untapped by the sector; because of its revolving capacity, it creates a sustainable financing mechanism that can continue to operate beyond the initial ODA loan; it is the most practicable way to catalyse the transition of water utilities from concessional to market-based lending; and credit ratings and appraisal guidelines (to be supported separately as part of the reform process) will help foster hard credit discipline among utilities that will consequently lead to better utility management and therefore services.

While the PWRF design is crafted to suit the unique conditions and constraints in the Philippines, its basic underlying structure can be replicated in other settings – indeed, its design drew inspiration from pooled financing schemes such as the state revolving funds (SRFs) in the US and recently in India. It uses easily understood and commonly used financial tools and legal architecture. It expands the options for entry of private financing into water and sanitation infrastructure financing, especially for utilities not yet ready to move to purely commercial lending. Finally, it is acceptable to PFIs, since it does not compromise their lending terms.

Finally, and looking further into the future, while the PWRF is initially designed as a lending facility funded by JBIC loans, some favourable financial market trends can be noted; these include growing PFI interest in funding water supply projects, the shift of PFI preference from short- to medium- to long-term debt instruments, and the initiatives by players to establish better infrastructure for the bond market in the Philippines (see box). These trends bode well for the eventual transition of PWRF from direct credit to pooled bond financing, and a much larger market for private funds. ●

Positive trends for Philippines water sector bond market development

Early PFI interest in some water projects

Some PFIs are now actively in discussion with some water districts for project financing for as long as 10 years, a trend that was unthinkable just a couple of years ago when PFIs tended to shy away from water infrastructure projects. This is partly due to the declining overall yield on government securities, a traditional haven for excess liquidity for banks. With larger water districts having already established years of profitable operation, water service providers could prove to be an attractive market for PFIs.

PFIs going to bonds with medium and long tenures

In recent years, the maturity profile of the domestic bond market has changed substantially. In the past, the local bond market was dominated by short term securities with maturities of one year or less. However, the longer tenure instruments are gaining in popularity. In 2006, medium term securities with 2-10 year terms accounted for roughly 70% of the market. This is positive for the future of PWRF, which will rely on longer tenure bond issues to fund new water projects.

Bond market infrastructures being laid out

The Bankers Association of the Philippines launched an electronic Fixed Income Exchange in 2005. The exchange provides an electronic platform for trading, clearing and settlement, and depository and custodianship of fixed-income securities and its derivatives. The exchange will likely lead to more secondary market trading and more corporate bond issuances. As this market infrastructure continues to develop, it will increase the options for the PWRF to tap banks and mutual funds for raising lending capital.

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A question of cost: UK guidance on cost forecasting

Representatives from across the UK sector have collaborated to prepare a guide to improve cost forecasting. **STEVE WHALLEY** summarises the main conclusions and explains how it will contribute to greater efficiency in the sector.

Recent research completed by industry association British Water identified a number of issues raised by its members as important to the industry. Working groups were established to investigate these issues and provide guidance, with representation from water companies, contractors, suppliers and consultants at various levels of responsibility.

The objective of each group is to analyse the issues and establish what is best practice, to provide guidance, and to deliver a tangible output.

Cost forecasting and reporting was identified as a real area of concern for the industry. The quality and reliability of cost forecasting and reporting has implications for all organisations throughout the supply chain of the industry, from project level through to water company boards and the regulator.

The challenge

Cost forecasting and reporting was seen as a significant problem area, with client water companies consistently identifying a need for improved performance. The water company efficiency targets in the current five-year regulatory period, which runs from 1 April 2005 to 30 March 2010, are more challenging than in previous regulatory periods. The targets will become even tougher in the next period, which starts on 1 April 2010. Commercial processes and procedures need to be more reliable, accurate and timely if we are to achieve and outperform the regulatory targets.

The systems and processes used for

cost forecasting and reporting in the industry have been developed by individual companies, largely in isolation and in the absence of any common best-practice code or protocol. Procurement methodologies in the water industry have led to closer, more collaborative ways of working over longer periods of time. Water companies have tendered for new framework agreements with their suppliers to coincide with the start of the new regulatory period. The intention of water companies is to select the most appropriate partners, which can best deliver the regulatory targets for their capital investment and maintenance programmes.

Many water companies are using performance measures such as key performance indicators, (KPIs) to measure the performance of their partners and encourage knowledge

The guidelines enable all participants in the cost reporting and forecasting regime to understand the client, stakeholder and regulatory requirements, as well as enabling the supply chain to understand why it is being asked to provide specific data.

sharing and collaboration. Indeed, some water companies are linking performance with workload through a performance partnering arrangement, in which good performance is rewarded with additional work and poor performance with less, and ultimately the loss of any further work

if the poor performance continues.

In order to realise the maximum benefit from these new arrangements, it has been recognised that a considerable level of trust and cooperation is needed between the water companies and their supply chain. The resulting introduction of integrated teams and the allocation of responsibility to the party best placed to carry it, has highlighted the need for accurate, timely and efficient communication at all levels.

This is apparent in the area of cost forecasting and reporting – the ‘Guide to cost forecasting and reporting’ seeks to address the need for a set of clear best practice guidelines in order to remove the uncertainty throughout the supply chain.

The methodology

The investigation to prepare the guide began with a study, using a questionnaire to capture the issues and problems that both water companies and contractors experience with cost forecasting and reporting. This questionnaire was issued to the water companies and their contractors, and returned to management consultancy EC Harris. The findings were reviewed and the issues identified and confirmed.

The working group then sought to identify proposals to improve the current situation. This was achieved through a series of workshops, and the draft proposals were circulated to the wider British Water membership for comment, including economic regulator Ofwat. The comments were then included in the final document where appropriate.

The solution

Our solution, the ‘Guide to cost forecasting and reporting’, was launched for the industry in November 2005. The guide is divided into five sections, whose main conclusions are outlined below.

Processes

Time spent developing appropriate and adequate processes at the outset will be rewarded by efficient, accurate and timely reporting throughout the

project. Planning the cost forecasting and reporting (CF&R) system is essential. All supporting processes such as risk management, schedule management and change management need to support this system. The data requirements, and how they link to the CF&R system, should be clearly understood. This is a real area of uncertainty if many of the processes have been drafted in isolation.

People

An integrated team using effective communication techniques will produce robust forecasts and valuable data that will support the overall management of a project. It is necessary to build an extended team, with the right people in the right roles. A project team will have to work with people from other teams and from other stakeholders if it is to achieve success, and it is important to recognise that other people from outside the team may hold the necessary information required to achieve success. It is important to identify the key players in the CF&R system and give them ownership of the results, involving the right people at the right time and creating the right culture to enable team working, visibility and communication to work.

Client requirements

Understanding and satisfying the client's requirements is paramount to the success of the project. The outputs of the cost forecasting and reporting system determine the inputs, though only too often inputs are designed first without proper consideration of what the business requires from its CF&R system. Client requirements should define the work that needs to be done, and responsible people and/or organisations should be allocated to deliver it.

For example, there is a need to manage the client's internal costs as well as external construction costs, and for accurate and timely data to facilitate project management decision-making. Other requirements include the need for early warning of change, and for collecting data for the regulator. The business must also clearly understand all of its supply chain and stakeholders, and their expectations of the CF&R system. The more onerous the client's requirements become, the more costly it becomes to provide the information. The client must be expected to pay for the information it requires.

Systems

Robust and capable systems are necessary to enable the processes to operate effectively and efficiently, and links should be forged between

systems. It is necessary to review what is required to populate the client reporting system and to seek electronic solutions that provide only the data that is really necessary for your work, allowing the supporting details to remain in the feeder systems. It is important to remember that the focus of a CF&R system is providing analysis and conclusions – not data collection and entry. The only value that information has is the story it tells.

Performance measures

KPIs are vital to monitor and measure the effectiveness and accuracy of systems and processes alongside the project teams' performance, in order to drive continuous improvement. There should be a mix of hard and soft measures, to be sure that the CF&R process is working, that stakeholder objectives are being met and that it is living up to expectations rather than just being an administrative burden.

People's perception of performance has a real impact on the overall success of the project. KPIs should be communicated and agreed with all of the stakeholders whose performance is to be managed. We need to know how they are linked to performance improvement: are they really influencing performance? KPIs should be tied into providing stakeholders with incentives, and lead to more work, but less work decisions.

In summary, the guide:

- defines what is required to establish an effective cost forecasting and reporting system
- describes what information is necessary and why it is required to meet the client's reporting requirements
- defines how this can be achieved through the implementation of people, processes and systems
- recommends that organisations measure the performance of their cost forecasting and reporting processes through the use of KPIs.

The guide is directed at management level, for adoption throughout the supply chain. There is a small amount of jargon, but where used, it has been defined. The guide is not prescriptive and does not promote one system above another. It provides specific guidance on the issues, and enables all organisations to review their current cost reporting systems.

The benefits

The guidelines enables all participants in the cost reporting and forecasting regime to understand the client, stakeholder and regulatory requirements, as well as enabling the

supply chain to understand why it is being asked to provide specific data.

Teamworking is essential if project teams are to produce an effective cost forecasting and reporting system. This encourages more collaborative ways of working and greater integration, which promotes commonality in systems and methodologies. It also means that risks are identified and understood, so uncertainty is managed out of the process.

The guide, therefore, facilitates the adoption of best practice through the supply chain, leading to increased efficiency and improved performance. Good project control leads to good project management, which is never more evident than in cost forecasting and reporting.

What next?

The aim of the new guide is to increase awareness of cost forecasting and reporting throughout the supply chain. Use of the guide facilitates all organisations to thoroughly review and challenge their cost forecasting and reporting system. It will identify, as well as promote, best practice code and protocol.

Paul Mullord, the UK director of British Water, commented: 'British Water members identify issues and areas of concern in the water industry. Focused working groups have been established to investigate issues, answer questions and provide guidance. This guide follows on from our Guide to sustainable procurement, and will be the first of a series that will include partnering, framework agreements and KPIs.'

As lead sponsors, EC Harris is working with British Water to roll out a series of presentations and workshops to the water companies. Workshops have been held with Severn Trent Water, South West Water, Scottish Water and Northern Ireland Water Services. Presentations have been given to various water industry organisations, including Ofwat and Water UK. ●

Acknowledgement

Other sponsors of the guide include Purac, Franklin & Andrews, Saint-Gobain Pipelines, Costain, SEAMS and United Utilities. Because of sponsorship, the guide is available for free from the British Water website, on www.britishwater.co.uk and the EC Harris website on www.echarris.com.

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Why water utility customers don't pay their bills promptly

What makes customers reluctant to pay their bills? **JOSSES MUGABI, SAM**

KAYAGA and **IAN SMOOT** look at the lessons for utility managers from important evidence gained in developing country studies.

Field studies carried out in many developing countries have shown that cost recovery is a key prerequisite for sustainable water service provision^{1,2}. The chief means of recovering the costs of service provision is through user payments for the services provided. As a result, a key determinant of overall cost recovery efficiency is the service provider's ability to recover payment, within a reasonable timeframe, for all the bills sent to customers.

However, many water utilities, particularly in Africa, are unable to recover even 50% of their total billed amounts in any billing cycle.³ Customers struggle to pay their bills and eventually get disconnected, leading to the accumulation of huge unpaid bills.

It also appears that this problem is not unique to less-developed countries. According to a study⁴ commissioned by Ofwat (the economic regulator for the water industry in England and Wales), the levels of arrears, the amount of revenue written off and the numbers of customers in water debt have continued to rise since 1998–99 (the last full year in which disconnection of domestic water supplies was permitted for non-payment of water bills).

The report estimates that the total domestic revenue outstanding for up to 48 months, for the period 2002 to 2003, was £781 million (\$1555 million), an increase of £115 million (17%, \$229 million) since 1998–99.⁴ Recent figures from Ofwat reveal that on average UK water companies are chasing close to £763 million (\$1519 million) per year in outstanding revenue for up to 48 months, of which close to £100 million (\$199 million) is eventually written off as bad debt.

Delayed bill payments and huge arrears can greatly undermine a utility's capacity to deliver water services. This is particularly true for small water utilities in developing countries that depend on a constant revenue stream

from their customers to survive. If a utility is not able to collect the revenue from all the bills that are sent out in time, cash flow problems set in which in turn impacts on the ability to cover operating expenses and extend service coverage.

Such a situation may result in low service coverage and potentially poor customer service, leading to customer dissatisfaction, which may breed more non-payers and trigger a cycle of poor performance. Thus minimising the amount of bad debt and increasing the rate of revenue collection is critical for sustainable service provision.

In order to respond to problems involving delayed or irregular payments, utility managers need to determine precisely why customers might not be paying their water bills in time. Yet little empirical research exists in the literature on the factors influencing customer decisions when it comes to this issue.

As part of a wider research project on bill payment behaviour in urban water utilities in Uganda (Box 1), we examined customer attitudes towards paying water bills regularly and promptly and explored what they perceived to be the facilitating factors

Box 1: Study area and methods

Study area

This article is based on a study undertaken in five small urban centres (towns) in Uganda, with populations in the range of 5000 to 25000 inhabitants. The centres included Nkokonjeru, Kamuli, Kayunga, Ibanda and Rakai. The study towns were randomly selected from a sampling framework of 32 towns with more than 10% of their customer accounts inactive in the 2004 to 2005 reporting period.

Water services in Uganda's small urban centres are managed by private operators under management contracts with the local government water authority. Services in larger urban centres are provided by the National Water and Sewerage Corporation (NWSC), the national utility. The sampling framework did not include these larger towns served by NWSC.

Methods

A combination of face-to-face interviews and focus group discussions was used. Between November and December 2005, 10 interviews were conducted with utility managers in each of the towns. The interview with managers was designed to obtain, among other things, basic information about customer accounts, tariff structures and revenue levels, billing and collection procedures, as well as their perceptions of the reasons why customers fail to pay water bills regularly and promptly.

All five water utilities require customers to pay their water bills within 15 days of receiving them (the bills are distributed between the 29th and 31st of each month). Focus group discussions with customers were based around the following questions:

- what do you believe are the advantages and disadvantages of paying your water bills within 15 days of receiving the bill?
- what factors or circumstances would enable you to pay your water bills at the utility office within 15 days of receiving the bill?
- what factors or circumstances would make it difficult or impossible for you to pay your water bills at the utility office within 15 days of receiving the bill?
- are there any other issues that come to mind when you think about paying your water bills within 15 days of receiving the bill?

As is customary with qualitative research, analysis of the resulting information involved identifying important factors, themes and relationships and making sense of emerging meanings. To aid this process, a procedure was adopted in which emerging issues based on the above discussion questions were each given a count equal to the number of participants in the group. If a particular issue did not emerge from a group, it was given a count of zero for that group. The counts for each theme were summed across all the five groups to generate an aggregate count, which was used to rank the emerging issues and give an indication of the most commonly-held perceptions.

Box 2: Abridged list of perceived benefits / disadvantages of paying water bills promptly

Perceived benefits:

- an uninterrupted supply of water to my house (no disconnection)
- staff at the utility will have the necessary facilities, equipment and motivation to serve me better
- the utility will be able to meet all its operation and maintenance targets so I can continue to get a reliable water supply
- I will avoid accumulating large debts
- it gives me peace of mind

Perceived disadvantages:

- there is an unreliable service after paying bills promptly
- I will be foregoing other household needs to make water payment the top priority
- it is difficult to remain consistent

and barriers to engaging in that behaviour. We also interviewed water utility managers in the study areas to compare their understanding of the reasons for irregular and delayed payments and that of their customers.

This article draws on this exploratory research to shed light on the motivations of water utility customers when it comes to paying promptly for water. Based on these insights, we identify possible ways in which urban water utilities could encourage prompt and regular payment of water bills.

Paying bills promptly: what customers perceive as the benefits and sacrifices

Across all the five study towns, customers generally believed prompt payment behaviour has a lot more benefits than sacrifices (Box 2). They generally consider the water bill to be an essential bill that has to be paid in time, although many admitted to deliberately delaying payments, especially when the service is unreliable: 'It is very frustrating to pay in time and yet the water supply continues to be on and off. I would rather keep my money to pay the water vendors.' [Nkokonjeru focus group]

Box 2 shows, in rank order, what most customers believe to be the benefits and disadvantages of paying water bills in time. The primary benefit of paying promptly seems to be the assurance of uninterrupted services, as it is the only way to avoid disconnection. This is not entirely surprising, given the vigilance of the utilities in disconnecting non-paying customers.

However, there are also indirect benefits that emerged across all groups. Many customers believed that when they paid their water bills promptly the utility would be in position to cover operational costs, and most importantly, utility staff would have the necessary facilities, equipment and motivation to serve them better. This finding demonstrates customer

awareness of the importance of paying for water in time.

Paying bills promptly: what customers perceive as the barriers and facilitators

In addition to assessing attitudes towards paying water bills promptly, we also inquired into the factors or circumstances that might facilitate or make it difficult for customers to engage in this behaviour. Boxes 3 and 4 show (in rank order) what most customers believe to be the main facilitators and barriers respectively.

With the exception of the factors that relate to tariffs and whether or

By isolating those issues that are within the full control of a water utility, it is possible to identify strategies that can be implemented to promote prompt and regular payment of water bills by customers.

not a customer has regular paid employment, the other top five barriers and facilitating factors that emerged relate to service delivery issues that are entirely within the control of the water utility.

However, when asked what they considered to be the main factors preventing customers from paying their water bills promptly, the responses of utility managers differed significantly from what the customers perceived as the main barriers (see Box 5). In particular, all 10 managers interviewed pointed to low incomes as the main barrier to paying water bills promptly, whereas their customers mainly identified service delivery issues such as reliability, poor customer service, poor billing systems and delivery, and faulty meters.

In conclusion, what motivates a customer to settle an outstanding water bill seems to relate mainly to the overall quality of the service provided. This has implications for water utilities and their regulators in terms of policy, operations and incentive mechanisms for

promoting prompt and regular payment of water bills. Based on the qualitative insights obtained in this study, the next section briefly looks at managerial actions that can be implemented in the short to medium term to encourage prompt payments in the present context.

Encouraging prompt payments: lessons for water utility managers

The first step in seeking to respond to problems involving irregular or delayed payments is to determine why customers might not pay their bills. We attempted to gain insight into some of the reasons with a view of making some recommendations applicable to urban water services in Uganda and elsewhere. Obviously, it is difficult to make sound proposals for action given the myriad of factors that emerged. (A key objective of our ongoing research on bill payment behaviour is to determine, using a suitable theoretical framework, the factors that significantly contribute to variations in prompt bill payment behaviour.) However, by isolating those issues that are within the full control of a water utility, it is possible to identify strategies that can be implemented at the micro level to promote prompt and regular payment of water bills by customers.

First, in the current context, ensuring reliability of supply – that is, consistency and adequacy of supply according to the promised service level – seems to be the single most important action that managers can take to promote prompt bill payment. In the long term, this may require additional investment to increase production levels in areas such as Ibanda and Nkokonjeru, where there is a substantial supply deficit.

Second, managers need to work on improving customer relations through appropriate and timely communications in the event of service failure, providing a quick response to customer complaints, payment reminder notices or visits, and

Box 3: Facilitating factors / circumstances

- reduction in tariffs
- reliability of supply
- bills delivered on time
- having a regular paying job
- threat of disconnection
- selling water to neighbours
- reminder visits / radio announcements
- regular promotions / discounts to promote prompt payments
- quick responses to repair requests
- good water quality
- good customer care
- flexibility and choice in payment options

Box 4: Barriers to paying bills promptly

- poor customer care/complaints not addressed in time
- incorrect bills and mistakes in reading meters
- unreliable service
- faulty meters
- high water tariffs
- lack of money
- irregular income (especially during the dry season)
- unexpected circumstances such as death or illness
- poor water quality
- failure to understand the bill
- presence of alternative water sources
- misappropriation of funds by authorities
- ignorance about government water policy

generally improving the quality of service relating to the interaction process between customers and the organisational elements such as staff and the service environment.

Third, there is a need to improve billing systems and procedures, ensuring the minimum errors in billing, timely delivery of bills to customers and providing flexibility and choice in payment options. In line with this, utilities need to segment customers into categories based on how quickly they react to water bills. This would enable managers to design targeted strategies for debt management and recovery.

For instance, those considered to be high risk would be flagged for personal follow-up immediately a payment is missed; those deemed low-risk would be sent a reminder letter and vulnerable customers, who are struggling to pay, could be offered additional help and advice. Adopting such a proactive customer-centric strategy has potential not only to transform revenue collection but also to increase customer satisfaction. Small urban water utilities need to take advantage of their relatively small number of customers by adopting a customised approach to debt management and recovery.

Fourth, incentive mechanisms such as discounts or vouchers for prompt and regular payment could be explored, perhaps for a limited period of time. These could be designed to

incentivise customers who have found it difficult to pay their water bills, rather than rewarding those who can afford to pay.

Last, although the disconnection strategy seems to be working well in the current context as a facilitator for prompt payment, it appears that in some instances it is being implemented indiscriminately without due consideration to the particular circumstances of customers.

For instance, it would be particularly inappropriate to disconnect customers who are facing short-term payment difficulties. Moreover, disconnection of service in these circumstances does not protect the utility against any future loss of revenue. Instead, it has the potential to affect customer relations and hence satisfaction levels, which

In particular, these findings suggest that cost recovery strategies that rely heavily on revenues from customers are unlikely to succeed if aspects of the service itself (such as service quality, reliability, operational costs/tariffs and so on) are not addressed appropriately at both the micro and macro levels.

At the macro level, the key lesson for policy makers in the sector is to appreciate that cost recovery through customer payments is affected by a multitude of factors and different aspects of service design and operation, which are rarely fully acknowledged when implementing urban water projects.

When cost recovery is viewed as the need to collect enough revenue from users to cover the costs of the installed systems, the challenge of getting people to pay becomes apparent. Although there may be strategies that can be adopted at the operational level to promote payment (such as those discussed above), there are also long-term policy issues that need to be addressed, particularly those relating to tariff structures, technology and service level choices.

Getting customers to cover the cost of services provided is a well-established approach to improving cost recovery. But utilities and their regulators need to realise that changing the cost or the characteristics of those services can also contribute to improving cost recovery. ●

Small urban water utilities need to take advantage of their relatively small number of customers by adopting a customised approach to debt management and recovery.

might be damaging in the long term. The key message is that utility managers should adopt a customised approach when dealing with customers in arrears.

Conclusions

This article has provided some insight into the motivations of water utility customers when it comes to paying their water bills promptly. Based on an exploratory study in five small urban utilities in Uganda, we found evidence of a positive attitude towards regular and prompt paying of water bills among utility customers. However, what motivates a customer to settle an outstanding water bill seems to relate mainly to the overall quality of the service provided by the utility.

Contrary to the usual explanation that low-income levels are responsible for the low cost recovery levels in developing countries, we found evidence that supports the view that poor service quality is a key consideration for customer decision-making when it comes to paying water bills regularly and promptly. This has implications for small urban water utilities and their regulators in Uganda and elsewhere.

References

¹Evans P. *Paying the piper: an overview of community financing of water and sanitation: Occasional Paper 18*. The Hague: IRC International Water and Sanitation Centre; 1992.

²Katko T. *Paying for water in developing countries*. Tampere: Tampere University of Technology; 1991.

³Kayaga S, Franceys R, Sansom K. *Bill payment behaviour in urban water services: empirical data from Uganda*. Journal of Water Supply: Research and Technology-AQUA 2004; 53(2004):339-349.

⁴Accent Marketing and Research. *Paying for water: customer research*. London: Report prepared for UK Water Voice and Ofwat; 2003.

Box 5: Utility manager's perceptions

What do you consider to be the main factors preventing customers in your service area from paying their bills promptly?

- low incomes
- customers are not used to paying for water
- political interference
- intermittent supply
- low production
- water quality problems
- high water consumption leading to high bills

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This article is based on the preliminary results of a wider research on the determinants of utility water customer decisions to pay water bills promptly. For further details contact: J.Mugabi@lboro.ac.uk.

Water and liberalisation of services: European scenarios

European Union policy is directed at increasing competition in industries with network infrastructure. A recent assessment looked at the challenges of implementing this policy in the water sector.

JEREMY ALLOUCHE describes the findings, which are the subject of a new book from IWA Publishing.

Understanding the major challenges relating to private sector participation and liberalisation of water services provision and comparing the water supply and sanitation sectors with other network industries is crucial at a time when the Directorates General of the European Commission are discussing possible extension of internal market rules to the water sector, following the same model as other network industries.

The European Union is responsible for ensuring that competition in the European internal market is not distorted. Underlying this is its aim of creating an internal European market in terms of goods, services and people as defined in the Treaty of Rome and subsequent treaties. Until well into the 1980s, the European economic integration process largely ignored the network industries. However, new economic theories and experiences in countries across the world led the Commission to reconsider its position, and it decided to open up competition in these specific sectors.

This strategy was based on the idea that by separating the network infrastructure (transmission lines for electricity, water pipes for the water supply industry, or cables for telecommunications) from the services provided over this infrastructure, it would be possible to introduce new forms of competition. The Commission is pursuing a pro-competitive policy, which would involve enabling third party access to networks, a process that has had a considerable impact on the management of network industries.

Two different models describe and forecast the evolution of network industries. The first is based on the assumption that network industries are no different to any other industry, and consequently the final outcome of their liberalisation is that they will be governed by general competition rules

(that is, not by sector regulation). From this perspective, it has been suggested that the opening up of network industries to competition has paved the way for potentially replacing the traditional regulatory paradigm with

Two different models describe and forecast the evolution of network industries... In the light of the findings, it is possible to ask whether the water supply and sanitation sector is likely to evolve towards one of these models.

competition policy. Some authors defend the need to introduce more competition in the water supply and sanitation sector, reducing regulation both in scale and scope (for instance Robinson, 1997: 167).

The second model, the 're-regulation' approach, is based on the assumption that the gradual introduction of competition will not make it possible to reduce the intensity of regulatory control. According to this view, regulation is not a transitional period but an end state in itself. Neither of these approaches under-consider the specifics of different network industries but both of them believe that the liberalisation process will lead to a common outcome.

Models of network industry evolution

In this context, water supply and sanitation services have usually been depicted as one of the last remaining networks to be completely transformed and, as such, they are seen as being in a preliminary stage of this evolution. In the light of the findings of a new book from IWA Publishing (see box), it is possible to ask whether the water supply and sanitation sector is likely to evolve towards one of these models.

This book, which is the result of a large European research project, aims to answer all these questions and look at the extent to which the sector is

likely to evolve. In doing this, six possible scenarios for the water supply and sanitation sectors are identified:

- scenario 1: delegation of contracts and strong regulation
- scenario 2: delegation of contracts and extreme competition
- scenario 3: outsourcing
- scenario 4: regulated monopoly
- scenario 5: direct public management
- scenario 6: community management

In the light of these six scenarios, it can be seen that only two correspond to the models identified for network industries. The first, delegated contracts and strong regulation, recognises the need for regulation despite competition. It clearly corresponds to the second model presented above. The second, delegation of contracts with extreme competition, follows the model of increased competition.

Both of these scenarios are influenced by a key driving force, that is, the desire to introduce more competition. In fact, this reveals the main assumption in network industry literature – competition, at least in the long-term, is always possible for every sector and only technical barriers slow down this process. This may be proved to be wrong, at least for water supply and sanitation. Indeed, even these two scenarios do not consider the idea of third party access as it has clear limits in the water supply sector. None of them actually corresponds to the deregulation or re-regulation models described above.

The four remaining scenarios follow different paths. Their main features are not necessarily based on competition but a combination (or not) of the perceived specific issues of water service provision compared to other network industries and/or the modernisation of management methods. By modernisation of management methods, we mean increasing the professionalism and autonomy of the various services provided by water and sanitation operators, as well as improving accountability and defining clear responsibilities within the organisational setup.

The third scenario, outsourcing, is probably the best illustration of this process, at least in terms of increasing professionalism and defining responsibilities. All the services are clearly defined and separated in order to get the benefit of using firms and/or individuals that specialise in these areas. In this scenario, it is possible to have a strong combination of private and public actors, each contributing according to their specific expertise.

In the fourth scenario, the regulated monopoly, one of the main features is

increasing the autonomy of the operators, which is directly related to the modernisation of management methods. In the fifth scenario, direct public management, new measures such as separating the accounting system also contribute to this so-called modernisation of management methods. Finally, in the last scenario, the community management scenario, modernisation of management methods is triggered by the introduction of decentralised technologies, leading to a greater degree of responsibility for the different users.

According to the scenarios identified in the book, there are many indicators that the water supply and sanitation sector may not follow the same path as other network industries, for which there are three reasons. The first one relates to the limits of introducing competition in this sector. Compared to other network industries, the main form of competition is competition for the market (as opposed to competition within the market). There is a tendency to opt for shorter term contracts to introduce more competition, but the limits of this form of competition are clear-cut.

Another possible form of competition in water supply and sanitation is comparative competition. Germany, Italy, The Netherlands and the UK have already introduced this type of competition. The logic behind it is that competition by comparison is useful in stimulating the under-performing companies to emulate those that are performing better. However, some specialists emphasise that such a system is not very successful as it is very difficult to standardise sufficiently to make cross-company comparison useful.

In addition, many specialists are sceptical about the real possibilities of introducing competition in the market. England and Wales have introduced compulsory third-party access to the water networks for the supply of industrial customers following the adoption of the Water Act 2003. In this Act, several methods are set out in order to increase competition in water supply and sanitation management, namely inset appointments, cross-borders supplies, connection agreements and common carriage. However, the first results seem to indicate that the possibilities and dynamics of this type of competition are restricted, at least for the moment.

Overall, the scope for competition in this sector is very limited compared to other sectors. The second reason why the water and sanitation sector may not follow the same route as other network industries is the lack of any

New book: *Water and liberalisation: European water scenarios*

Establishing an understanding of the general evolution of the water supply and sanitation sectors in Europe is the purpose of a new book from IWA Publishing called *Water and liberalisation: European water scenarios*. In particular, it aims at analysing the major challenges pertaining to private sector participation and liberalisation, and to compare the sectors with other network industries.

The book is in two main parts: the first one describing the water supply and sanitation sectors today in Europe; and the second one focusing on possible scenarios for the evolution of the water sector, and their main implications in social, economic, and environmental terms. The book concludes with the main theoretical contribution of our project in the field of water management. More precisely, part one provides a clear picture of the main dynamics of the water supply and sanitation sectors in Europe, and it is divided into four chapters.

Chapter I presents a framework designed for analysing the sector's market structure and dynamics. Then this framework is applied to single out distinctive markets within it. Four closely interrelated markets are identified and their relevant driving forces to change analysed – the market for drinking water and sewerage services, the market for suppliers, the market for abstraction and discharge, and the market for delegated contracts. The chapter's conclusion assesses the main characteristics of all markets, and an overview of their limits and scope.

Chapter II features a comparative policy analysis of the legislation at national level. It aims to present common trends and differences in the current administrative regulatory frameworks that govern the sector at national level in EU member states including Belgium, Germany, Spain, England and Wales, France, Italy, The Netherlands, Portugal and Sweden. These countries were selected because they are representative of the main water policies conducted in Europe. By taking into account the most different institutional arrangements, water situations and political systems, the comparative study seeks to isolate the relative influences of the different dimensions on the evolution of sector policies.

The following two chapters look in more depth at the two most important actors in the water sector in Europe, namely the different types of operators and the European Commission. Chapter III explores whether the current EU policy for water standards, resources management and liberalisation of network industries could constitute a general framework for analysing the possible evolution of the sector in terms of liberalisation, while Chapter IV describes the different types of European water and sanitation service operators, and analyses their strategies.

Part two focuses on the future evolution of the water supply and sanitation sectors in Europe, and comprises five chapters. Chapter V integrates the main dynamics of the sector markets identified in part one in formulating likely European water scenarios. This set of contrasting scenarios represents what is plausible, not necessarily what is either desirable (that is, normative) or probable (that is, trend based).

Chapter VI addresses the economic implications of these scenarios. It aims at going beyond analysis of the traditional indicators for financial-economic performance by addressing the degree of effectiveness and efficiency with which the sector systems, under the various scenarios, are able to respond and react to various diverging societal and environmental demands.

Chapters VII and VIII analyses the environmental and social implications of each of the six scenarios on the basis of a set of sustainable water management criteria. One of the key aspects concerns the incentives that the institutional and management framework of the scenarios sets in terms of sustainable water management.

Chapter IX addresses the main cross-cutting issues within each scenario. It provides a discussion of the main regulatory issues characterising private sector participation and develops an assessment model aiming at evaluating the outcomes of alternative scenarios, considering environmental, economic and social aspects.

Water and liberalisation: European water scenarios. Editors: Matthias Finger, Jeremy Allouche and Patrícia Luís-Manso, European Commission Community Research, London. IWA Publishing, 2007. ISBN: 1843391139. Pages: 264. Price: £65.00 / \$130.00 / €97.50 (IWA members price: £48.00 / \$96.00 / €72.00). This book can be ordered on the IWA Publishing website, www.iwapublishing.com.

major technological innovations altering the structure of the industry, as has been the case in other sectors. This is linked to the scope of competition. With major innovations, the current situation in the water sector could radically change. For example, if filters could allow people to make good quality drinking water from lower quality drinking water coming from the grid at a low cost, it would then be economically viable to build a national grid, shared by a number of drinking water companies which could sell the filters and provide other services for customers at competitive prices.

Finally, the main network

industry theories also considerably underestimate the specific perception people have of water compared to the other network services. In the minds of many peoples water is (still) something very special, and as such reflects an ancestral view of our civilisation's relationship with one of its most vital resources: water, it is said, is an essential good, something that humans and cultures rely on for their existence and development, not to mention the fact that water also has religious meaning. In short, water, in overall perception, remains public and special, something that cannot be commodified, commercialised, or traded. ●

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Institutional governance and regulation of water services

Some of the major challenges in successfully providing good water services lie in understanding the sector's key basic governance and regulatory needs. **MICHAEL ROUSE**, author of a forthcoming book on governance and regulation, looks at the issues and solutions.



Why is it that the provision of water services is one of the most important of all government functions, yet so often the policies and governance structures necessary for their effective delivery are not in place? My view is that it is a complex subject but one in which the normal market drivers do not exist. Although there are attempts being made now to introduce direct competition into water supply, water services are a monopoly. This is due to the limitation of having just one distribution system, for both cost and logistical reasons.

Monopolies have to be either public functions or publicly-regulated functions. The complexity lies in the governance and regulation of these public functions. I see a number of key elements for success, which are critical for both developed and developing countries although their application may be different. In this short article it is not possible to cover any subject in depth, but I will try to give an appreciation of some of the most important aspects.

Important policy matters

There are a number of important high-level policy issues:

- there should be an integrated approach to policy and planning of water and sanitation services, preferably within one government department, or with a designated lead department having the authority to lead and coordinate
 - policy, regulation and delivery should be separated to give focus to the application of the required expertise, and to provide transparency. This requires governments to establish policies and then to allow independent regulators to implement and monitor them
 - implementation of policies requires
- an integrated planning and tariff setting process managed by an independent regulator. This ensures a sense of realism within governments about what is achievable and affordable
- there can be a dilemma regarding the scale of operations, with the need for units large enough to attract high quality management, yet devolved from central government to allow local public participation. However, decentralisation is not about scale of operations but rather allowing local management to operate without political interference
 - for sustainable services, there should be a policy of full-cost recovery. Generally, a move to full-cost recovery requires a well-structured transitional phase with effective public participation

The above issues pose very difficult changes for many governments. In particular, because government ministers feel responsible for water services, they believe that they have to retain direct control. This means that they are reluctant to release control of regulation and operations, with the consequence that they interfere in the operation of both.

Their inputs are no doubt well-meaning, but often they lead to operations being unsustainable. The most common example is the unwillingness, due to likely public reaction, to allow tariff increases even though they are essential for sustainability (see box). Another is requiring utilities to retain or take on staff to reduce unemployment. Such actions are in one sense laudable, but they result in increasingly inadequate water services, to the detriment of the population, especially the poor.

Also, experience tells us that generally government personnel are not good at managing operations. These personnel incline towards policy

development and not the day-to-day minutiae of utility operations. Efficient operation of utilities with a focus on delivery requires different skills to policy determination. The above and other matters, such as the need for policy on how sanitation provision should be approached, suggest the need for national water and sanitation plans. In considering the needs of developing countries, such plans are proposed in the UNDP Human Development Report 2006.

Regulation and regulators

My definition of regulation is the process of interpreting and implementing laws, policies and regulations, to achieve the intended objectives. World Bank Explanatory Notes give a definition of economic regulation as 'the rules and organisations that set, enforce and change the allowed tariffs and service standards for service providers'.

These definitions refer to the function of regulation, and not to the way in which it is carried out. Some people advocate self-regulation. This has been successful in some parts of the world through associations: a good example is the Tankering guidelines being developed in Ghana. However, it is the form of regulation practised generally by local authorities, where so often it has failed to produce efficient and sustainable water services. The main reason for this is the setting of water charges for political expediency rather than objectively, based on operational requirements.

It is also suggested that there can be 'regulation by contract'. Certainly, contracts define what has to be delivered, and the associated financial provisions. However, water service contracts are usually made between a city authority responsible for water services and a service supplier. There is no independent scrutiny and little transparency. Should there be failures

leading to recrimination between the parties, the only recourse is arbitration.

Studies of failures, for example in Atlanta in the US, show that cities had unrealistic expectations and that service providers either failed to obtain a good understanding of the operational circumstances, or hoped to renegotiate later. To avoid these pitfalls there is a need for an independent body to set down the conditions on which contracts are based, and to manage contract reviews to take into account changed conditions.

The value of independent regulators is becoming increasingly recognised by governments, whether for private or public sector operations. A good example is the state of Victoria in Australia, which is served wholly by public sector utilities. Initially, independent regulation was considered to be unnecessary, but subsequently the need for independence in tariff setting was recognised.

I believe that this growing recognition is partly due to governments wishing to avoid being seen as responsible for tariff setting, but because regulation requires special skills and experience. The most developed regulatory systems are in the UK for both private sector regulation (England and Wales), and public sector regulation (Scotland), and in Chile. In developing countries, the most effective model is in Zambia, where it has been demonstrated that effective regulation can be achieved at low cost.

Financing and cost recovery

Most water service operations in the world are under-funded because there is low cost recovery from charges, and generally subsidies are insufficient to make up the difference between revenue income and that needed to maintain the infrastructure. This situation results in deteriorating water services (see box).

The usual argument against full-cost recovery is that it would adversely affect the poor. The reality is that in many parts of the world, the inadequate service arising from inadequate revenue has a much more serious impact on many of the poor, who are not connected to the public supply system and have to rely on water vendors. They can pay up to 25 times the cost of tap water for sufficient, doubtful quality water just to survive.

The concern for the poor should be about the method of payment. The poor live 'day by day' and are unable to save. They are able to pay on a daily basis (they pay water vendors for each purchase) but are unable to save up to pay monthly or quarterly bills. They need assistance with access connection

charges, and 'pay as you go' schemes through the use of prepayment meters or by some means of small regular payments. Prepayment meters provide the opportunity to include a lifeline tariff specifically aimed at the poor.

Concern for the poor is not limited to developing countries. Some countries, for example Northern Ireland, have set a limit on water service payments of not exceeding 3% of disposable income. I do not know whether that is an appropriate figure. I wonder how much of disposable income goes on mobile phone use in developed countries. A 3% limit in developing countries for this most basic need is not realistic, and would be counter-productive in that it would reduce the prospect for full-cost recovery. The consequence would be continuing deterioration of services, with the poor suffering most.

A lack of understanding of the needs and situation of the poor has also led to government decisions to ban disconnection of services for non-payment. This has resulted in an increasing level of non-payment, with the suggestion that it is not a matter of not being able to pay, but rather many choosing not to pay. Ultimately this affects the charges of those who do pay, and puts sustainability of services at risk. South Africa, which has gone further than most countries in making provision for the poor, has recognised that unless there is the threat of cut-off, people will choose not to pay. There is a

need for a safety net for those who genuinely cannot pay. In parts of India, there is free water from public standpipes financed out of revenue from those who have a house connection.

In most parts of the world, decades of insufficient cost recovery have resulted in a lack of maintenance and refurbishment of the infrastructure, resulting in high leakage levels and a need for a substantial increase in investment in system replacement for many years to come. In England and Wales, prior to privatisation in 1989, there were at least 40 years of under-investment in the infrastructure. This is reflected in undesirable leakage levels, such as those currently found in London.

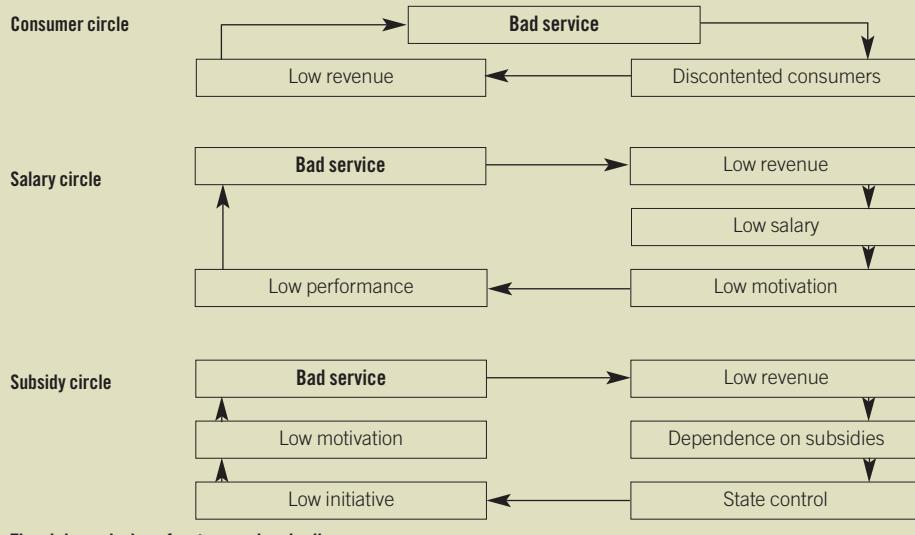
This cannot be solved overnight, largely due to logistical reasons – systems have to continue to operate during refurbishment, and transport considerations limit the number of streets that can be dug up at any one time. A useful measure of the scale of the underground structure is to imagine putting all the water mains in the UK end to end – they would go round the world six times.

In developing countries the consequences of deterioration due to lack of refurbishment are much worse. For example in Ghana, system deterioration has resulted in increased leakage and the inability of the system to meet growing demand. The consequence has been less frequent

The case for water service reform

I do not know who was the originator of the 'vicious circles' shown below, but that person should take a bow to the accompaniment of a fanfare of trumpets. The circles are self-explanatory and require no additional comment, other than to raise the question as to which aspect is the ultimate cause.

I think it likely that water charges, plus subsidies, have generally been too low to adequately maintain the infrastructure. This resulted in a deteriorating service, which in turn resulted in discontented consumers and lower revenue. A deteriorating service followed, ad infinitum.



supplies for many people, as available water has to be rationed, and others have to rely on road tankers. These unsustainable conditions arise largely from low cost recovery resulting in under-investment in the infrastructure.

General subsidies are unreliable – governments always have too many competing demands for money – and benefit the rich (who consume more water) more than the poor. Therefore the most urgent reform should be to subsidy and charging policies. General subsidies should be phased out, and targeted to assist the poor through the extension of distribution systems and payment of access connection charges. In developing countries, international donors have an important role to play with the priority being substantial investment in the refurbishment of distribution systems.

Transparency and public participation

Transparency is important in combating corruption and also preventing the concealment of politically-unpalatable information such as water revenues being used for other purposes, or the concealment of water quality incidents from the public. There can be resistance to effective public participation by governments not recognising that strong public involvement strengthens their position rather than diminishing their power.

In those parts of the developed world with consistently good water services, the public can be satisfied with the knowledge that there is full and good information available. The situation depends critically on whether the media are confident that there is full transparency, as any suspicion that something is being hidden will undermine the credibility of the authorities.

However, in the developing world, public participation may be necessary to provide the stimulus for better services and the means through which improvements can be achieved. The most important ingredient may be a means of achieving government accountability to the people. This is the objective of a recent initiative led by WaterAid, involving local NGOs. Early results are very promising, with governments responding to the pressures coming from community groups. There are many good earlier examples from India and Pakistan of communities taking the initiative in the establishment of affordable and well-managed water and sanitation systems.

Stimulating improved performance

Poor performance is associated with the malaise of poor cost recovery, general subsidies, political interference and poor motivation (see box). Full-cost recovery must not be full-cost

recovery of an inefficient operation, so a move to increased tariffs must be accompanied by improved performance. This can be done over time through capacity building in utility management, as has been demonstrated by a Finida-financed project in Vietnam.

However, for more rapid progress there is a need first for institutional reform. Most fundamentally, this requires separation of operations from government and consolidation of utilities to a viable size to attract good quality management. Ideally, the establishment of an independent regulator to provide objectivity and give structure and improvement targets to the reform process should accompany these changes.

Performance measures with metric benchmarking provide a useful tool to assist the reform progress. There should be just a few key measures that reflect policy priorities, with management efforts concentrated on generating accurate and reliable data. In due course comparative competition between utilities can be introduced, but initially it is more appropriate for each utility to make year-on-year improvements. The International Water Association has been very active in promoting performance indicators and benchmarking, and the International Benchmarking Network for Water and Sanitation (IBNET) provides advice on setting up benchmarking schemes.

Private versus public operations

There are examples around the world of good public water service operations. In successful public utilities, there is separation of operational management from policy functions, and there is recognition of the need for full-cost recovery. Equally, there are examples of the benefits of tapping commercial energy in the private sector; this relies on sound procurement practice, transparency and an effective regulatory system.

So all forms of water service operation can be successful, provided there are sound government policies, some form of independent regulation or scrutiny, and incentives to perform better. The public-private argument is unproductive, and detracts from those policy matters that are important in achieving effective, efficient and sustainable water services. This is recognised in the UNDP Human Development Report 2006.

Summary

The development of sustainable water services is complex, requiring sound policies from central governments. Operating units should be of a size large enough to attract good

Forthcoming book on governance and regulation

Michael Rouse is the author of the forthcoming book, *Institutional governance and regulation of water services*, published by IWA Publishing.

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management. There is a need for separation of policy and operational functions, so that utility managers can concentrate on the development of effective and efficient operations without political interference.

The public versus private argument is non-productive and diverts attention away from the important issues. One such key issue is full-cost recovery, which is essential for sustainability. Public understanding of this and other aspects requires public participation and transparency. Independent regulators provide vital objectivity in matching desirable objectives with affordability, and can provide the public with confidence in the integrity of the governance structure. ●

About the author:

Michael Rouse is an independent expert advisor on water industry issues, and is the Immediate Past President of the International Water Association. He currently chairs the Association's Group on Institutional Governance and Regulation, and is a Distinguished Research Associate at Oxford University, also managing the Institutional Governance and Regulation module of the University's MSc Course on Water Science, Policy and Management. He is a member of the Stockholm International Water Institute Scientific Programme Committee and is Chair of the Chadwick Trust. In 2000 he was awarded the CBE (Commander of the British Empire) for services to water. Mr Rouse was also head of the UK's Drinking Water Inspectorate from 1993 to 2003, and before that chairman of the Water Research Centre.