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Bank to double Asian spending

The Asian Development Bank (ADB) is to more than double spending in water and sanitation over the five years to 2010, the bank has announced. Around 200 million more people are forecast to receive safe water and sanitation services. More are expected to benefit from improved irrigation, drainage and flood mitigation measures.

In ADB's new Water Financing Programme, US\$2.4 billion of investment is scheduled for this year. Another US\$3.5 billion is planned for the next two years, pointing to a total of around US\$12 billion by the end of this decade.

As a result of its new spending plans, ADB now considers water and sanitation are 'core' to

its operations. The programme will focus on combining increased spending on water infrastructure with capacity building and increased private sector participation.

'Despite good progress made, the Asia and Pacific region is still falling short of (water) targets due to rapid population growth and greatly increased urbanisation, as well as low performance in delivering water services,' reports ADB.

Some 700 million people in the Asia-Pacific region lacked clean water in 2002, according to the bank. Furthermore, two million Asians were without adequate sanitation, representing three quarters of the world total, it adds. ●

Peter Reina (See Analysis, p5)

US utilities unite to ensure infrastructure sustainability

The US Environmental Protection Agency, along with six US water and wastewater utility organisations, has announced a statement of intent to promote effective long-term utility management. The formal partnership will focus on improved water and wastewater utility performance through education, management tools and performance measures.

The announcement follows a Collaborative Working Session held in May 2005, where 140 asset management professionals from the US and 11 other countries voted to adopt common standards of best practice as a top priority.

Over the next 12 months, EPA and the associations will work with utilities to identify the

key attributes of sustainable management. They also will develop measures to use in gauging utility effectiveness, and develop a strategy to promote widespread adoption of sustainable management practices across the water sector. Additional contributions will be solicited through focus group meetings and other communications with individual utilities.

The six signatories of the statement are: the Water Environment Federation, National Association of Clean Water Agencies, American Water Works Association, Association of Metropolitan Water Agencies, American Public Works Association, and the National Association of Water Companies. ●

SOUTH AFRICA: Hearings told of potable and wastewater problems

Hearings held by South Africa's water affairs portfolio committee have heard that many municipalities have 'hopelessly inadequate' budgets to properly manage the quality of drinking water they supply to their customers. A recent survey by the Water Research Commission of wastewater treatment works also found that almost a third needed immediate intervention to avoid a crisis such as an outbreak of water-borne disease. The rest needed short to medium-term intervention. The hearings heard that some municipalities were 'grossly underbudgeted' for water quality monitoring requirements, having an average of just ZAR 4000 (\$550) a year when they need ZAR 300,000 (\$41,300) a year to comply. The research also found a lack of awareness among municipal officials about the importance of water quality. In addition, over half of the country's large dams are affected by eutrophication.

ARGENTINA: Buenos Aires province governor re-nationalises water company

The governor of Argentina's Buenos Aires province has withdrawn a private water and sewer concession contract held by Aguas de Gran Buenos Aires, led by Italian construction company Impregilo. Felipe Sola announced that he had taken the action because of the concession holder's 'non-compliance'. The private consortium had not fulfilled investment plans to extend and upgrade the drinking water and sewer services, he explained. The concession will now be run by Aguas Bonaerenses, which is 90% owned by the state and 10% owned by its employees. It will invest \$9.7 million in improvements within 60 days, Sola announced, saying the move would 'ensure that the expansion of running water and sewerage networks is done in the neediest places, with sanitation being the criterion, not business'.

EDITORIAL

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Water Utility Management International is a new publication focusing on the needs and interests of senior water utility managers. The aim of this publication 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 will contain news, interviews, and in-depth briefings on topical issues. Other articles will take an executive briefing approach or be based on landmark case studies. Regular themes for articles will include financing, investment, regulation and personnel matters. There will also be a central theme of achieving efficiency in water utilities, encompassing topics such as benchmarking, billing, tariffs, IT and service standards.

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Tariff dispute for Sofia's utility

The privatised water utility operator Sofiyska Voda, which provides services to Bulgaria's capital, Sofia, is looking for a 70% rise in household tariffs to 1.44 levs/m³ (\$0.92/m³).

The information is contained in the company's business plan, which has been submitted to the regulator for approval.

The price hike is expected to add four to five levs (\$2.55 to \$3.22) to household bills. The utility operator has also pledged to invest 139 million levs (\$89.6 million) in water main upgrades, water meters and water treatment installations over the next three years.

If the business plan, handed to Sofia's mayor by CEO Kevin Starling (formerly of Anglian Water) is cleared then its implementation will begin in October, according to Sofiyska Voda chief secretary Ivan Ivanov.

The utility is responsible for providing water and wastewater treatment services to a total population of 1.5 million. Its investments for the first four years totalled 130 million levs (\$83.8 million).

The tariff change was first requested by Sofiyska Voda in 2005, with the operator arguing that the price of water was too low to qualify for grants under EU's ISPA programme, which could net up to 85 million levs (\$54.8 million).

Sofiyska Voda has a programme that involves installing sewerage in the Benkovski and Moderno Predgradie residential district over the next three years. Around 40 districts and villages around Sofia

have no centralised sewerage.

The utility operator also said that leakage has been reduced - the city's water consumption has fallen by 21M.m³ since the concession contract began in 2000. Sofiyska Voda has said it will continue to reduce transmission losses by 5% a year.

Sofiyska Voda took over the operation of the water and wastewater services of Sofia in 2000, in a 25-year concession agreement signed between the municipality of Sofia and International Water/United Utilities, with EBRD later replacing International Water as a partner. The public assets (the treatment works and pipe networks) remain the property of the city.

As *WUMI* went to press, news was coming through that the Municipality of Sofia has extended the concession term but has refused to agree the utility's business plan. It is to recommend to the regulator, the State Energy and Water Regulatory Commission that it not approve the proposals.

According to Bulgaria's Focus news agency, the chair of the Municipality's Economic Commission, Plamen Iliev, has said that the municipality will insist on the utility completing connections from areas without sewerage systems to the Kubratovo treatment works, and that the profits made every year must be invested in projects coordinated with the municipality. The municipality council chair also warned that extending the term of the concession does not preclude discontinuing the concession. ●

Lis Stedman

Business

FRANCE: Angers awards contract to Veolia

The Angers-Loire Métropole Communauté d'Agglomération (Metropolitan Community) has awarded a design and build contract for a new wastewater treatment works for the town of Angers to Veolia Water Solutions and Technologies subsidiary OTV France and partners. This contract, worth around €55 million (\$70 million), with Veolia's share standing at €21 million (\$27 million), includes demolition of the existing works and construction of a completely new one on the La Baumette site. The tertiary treatment plant is scheduled for completion in 2011.

COLOMBIA: EPM wins majority stake in Aguas de Urubá

Colombian multi-utility Empresas Publicas de Medellín has signed an agreement that will give it a majority interest in water company Aguas de Urubá. The company serves 34,000 people in the municipalities of Mutatá, Chigorodó, Apartado, Carepa and Turbo. It will need a total investment in the order of 206bn pesos (\$79M) over the next 30 years, of which EPM will contribute 22.3 billion pesos, the national government 28.6 billion pesos and the department government 15 billion pesos.

OMAN: Veolia wins management services contract

The Oman Wastewater Services Company has signed an operation management services contract worth over OMR 5M (\$13M) with Veolia Water. The agreement will see Veolia Water providing technical support to the company for five years, with an optional three-

year extension, to help OWSC realise its ambition to build and operate a world-class wastewater system and achieve its strategic goals. The contract scope includes delivering project management, O&M and marketing services as well as providing key personnel to work alongside company staff.

UK: Venture group sets up market forum

Leading water industry players, law firm Pinsent Masons, private equity and international venture capitalists 3i and professional support services firm Mouchel Parkman, have launched the Wet Event Network, a new forum designed to encourage the industry to exploit market opportunities by bringing together water technology companies, investors and other stakeholders.

FIJI: Government takes step towards corporatisation

Work to corporatise Fiji's Department of Water and Sewerage has begun following a cabinet declaration of the department as a reorganisation entity under the Public Enterprise Act. The reorganisation process will entail setting a structural and legal framework suited to corporatisation, which will result in the department becoming a commercial statutory authority, in line with the country's strategic development plan. Consultants from the Asian Development Bank will undertake the initial restructuring process under the ADB Technical Assistance programme. Work already under way involves capacity building, strengthening the department, developing planning systems, asset management systems, financial management and other support systems.

In brief

MIDDLE EAST: Report warns of need for \$100bn investment

A report from Energy Management Services warns that Arab states will have to invest \$100 billion in desalination technologies over the next decade if demand keeps growing at its current level. It said: 'With a surging population and large-scale economic diversification across the area, governments predict a further investment of \$100 billion would be required over the next 10 years to meet escalating demand for water.' Speedy economic growth in Dubai was also singled out as putting an unprecedented strain on the Emirates' energy and water resources.

AUSTRALIA: CSIRO report warns of massive price rises

CSIRO has issued a report that warns the cost of water may jump massively in some of Australia's state capitals unless new ways of trading and supplying water are found. Increases could be avoided, it adds, if water can be bought from farmers and new supply sources found. The

increases forecast are substantial: Perth and Brisbane could face a ten-fold increase in water costs over the next 25 years if nothing is done, and Sydney and Melbourne could face six-fold increases in their water bills. The report focuses on water trading, as well as desalination, wastewater recycling and capturing stormwater.

EU: Bidding closed on EU-backed funding

Developers of water and wastewater projects for the poorest communities of 77 countries in the Asia, Caribbean and Pacific regions had until this June to bid for grant funding from the second, €250M tranche of the Brussels-based ACP-EU Water Facility. With 97 projects selected to benefit from the first tranche this January, the second allocation is due to be made before this year's end. Individual grants from the second batch will range in value from €100,000 to €20M depending on the type of project. For less costly projects, the grants will contribute up to three quarters of the total financing. More capital intensive infrastructure programmes will receive up to 50% support.

Loans and tenders

BULGARIA: Agreement signed to pave the way for PPPs

Bulgaria's Regional Development Ministry and International Finance Corporation have signed an agreement to pave the way for public-private partnerships in the water and wastewater industries. The agreement comes with \$1.5 million in funding, including \$300,000 in co-financing from the state. The aim is to help the country meet its targets for these sectors prior to acceding to the EU.

MOZAMBIQUE: EIB lends for water supply improvements

An €31 million (\$39 million) loan agreement has been signed by the EIB for the improvement and expansion of the water supply services in Maputo, Mozambique. The loan will go to Fundo do Investimento e Património do Abastecimento de Água (FIPAG), the country's implementing agency for water supply programmes in urban areas. It will be spent on improving and expanding the water supply services within the Greater Maputo metropolitan area, which has a population of 1.7 million, 48% of whom live in absolute poverty.

INDONESIA: World Bank approves funds for water and sanitation

The World Bank has approved the Third Water Supply and Sanitation for Low Income Communities project, which will cover some 100 districts in 12 provinces over seven years. The project aims to improve the water supply, sanitation, and hygiene of around 5,000 of Indonesia's poor communities. The \$275 million project is supported by a \$137.5 million IDA credit with the balance from the Indonesian government and beneficiary communities. The project is being implemented by the Ministry of Public Works and will bring benefits to an estimated six to 10 million poor.

CHINA: World Bank approves loans for water projects

The World Bank has approved a \$150 million loan for the Henan towns water supply and sanitation project, which will help improve water supply and wastewater management in 38 towns within 12 municipalities of Henan province, by constructing water production facilities, water distribution networks, wastewater collection pipes and wastewater treatment facilities.

NIGER: World Bank lends further funds for water sector project

The World Bank has approved a \$10 million International Development Association credit, in additional financing, for an ongoing water sector project in the Republic of Niger. The Niger Water Sector project, which began in 2001, aims to increase and maintain access to potable water and sanitation services in urban and rural areas by rehabilitating facilities and strengthening institutions responsible for oversight and policy making. The extra financing will scale up the projects impact and support unanticipated costs associated with rehabilitation and provide about 5000 new private connections to the water distribution network, 70 public standpipes and 1500 household latrines to meet a strong demand.

MADAGASCAR: IDA credit obtained to help restore utility

The World Bank has approved an International Development Association credit of \$10 million to help restore the power/water utility in Madagascar to a minimum level of operational and financial performance. The Power/Water Sectors Recovery and Restructuring project will support progress made in the country's reform agenda and the future role of the energy and water sector as engines of growth as well as the government of Madagascar strategy, which has a commitment to the public-private partnership and the implementation of cost-reflective tariffs.

ROMANIA: Funding help for municipal services

The World Bank has approved a loan to Romania for €106 million (\$134 million) for a municipal services project. This will help Romania to meet EU environmental directives in the water and wastewater sectors by supporting infrastructure development in the municipalities of Bucharest and Arad, as well as by preparing a tranche of projects in 11 counties to be funded by the EU. Romania is expected to join the EU in 2007, and it is estimated that the costs of bringing water and wastewater services up to EU standards will total some €9.5 billion (\$12 billion) by the end of 2018.

MEXICO: NADB signs loan for wastewater improvements

The North American Development Bank has signed a loan for a project to expand the wastewater system in Monterrey, Nuevo Leon. The \$86 million project, to be undertaken by the Monterrey water utility, Servicios de Agua y Drenaje de Monterey, will expand the current infrastructure to take full advantage of the wastewater that can be re-used in industrial and commercial processes in the country, giving significant water savings in a drought-prone area. The Bank has also authorised a further \$109.2 million for projects in Baja California, Sonora and Tamaulipas.

ROMANIA: EIB to provide funds for Bucharest wastewater plant

The European Investment Bank is lending €25 million (\$31.4 million) for the construction of the first phase of Bucharest's new wastewater treatment plant. It is the first plant of its kind in the Romanian capital, and will help to significantly improve water quality in the Dambovitza river, which is a tributary of the Danube. The plant – once both phases are completed – will be one of the largest wastewater treatment plants in Europe, serving almost two million people whose untreated wastewaters are currently one of the main sources of water pollution in the Danube river basin.

RUSSIA: EBRD agrees loan for Kazan infrastructure improvements

The EBRD is to provide an €26 million (\$32.7 million) loan to the municipal water and wastewater utility of the city of Kazan, capital of the Russian Republic of Tatarstan. The proceeds will finance priority improvements to the city's municipal water and wastewater infrastructure and services, which will significantly reduce polluting discharges into the Volga river and the Caspian sea basin. The project will improve the quality and efficiency of drinking water supply and sewerage collection services and improve water and wastewater management.

Double hit for Thames on leakage and customer service failings

Ofwat, the Economic regulator for England and Wales, has given notice that it proposes to fine Thames Water for customer service failings under the Guaranteed Standards Scheme, which deals with metrics such as answering enquiries and dealing with complaints.

The company has also failed to pay compensation to its customers for these failings as it is legally required to do. The move is a procedural step, similar to that which Ofwat has taken for Southern Water and Severn Trent, which must be taken before any financial penalty can be imposed.

The announcement came just two weeks after the company made a binding agreement with its regulator to spend an extra £140 million on improving leakage levels following widespread criticism.

Thames could be fined up to 10% of its turnover – around £140 million – though a fine of this level would be unlikely. It is, however, possible that the spectre of such a charge could affect the company's sale or IPO, which parent RWE is set to start shortly.

Following the announcement Ofwat and Thames appointed Ernst & Young LLP to investigate the problem. Ofwat also asked Ernst & Young to examine whether there had been any mis-reporting of Thames's customer service performance. This investigation is ongoing, but no evidence has been found of deliberate mis-reporting.

Ofwat said it would consider what further action needed to be taken, including the amount of any penalties, after the investigation was completed.

Philip Fletcher, Chairman of the Water Services Regulation Authority (Ofwat's formal name), said: 'From

the evidence we have seen it is clear that Thames Water has failed to meet the GSS performance standards. The failures were within the company's control, and some customers have not received the standard of service to which they are entitled. As a result customers' interests have been damaged.

'It is extremely disappointing that we have had to take this action against Thames Water for its customer service failures, coming on top of the company's breach of its leakage target. This is a clear warning to Thames Water that it must be focused on delivering the services that customers have paid for.'

Thames Water issued a statement saying that it regretted the mistakes and apologised to customers affected by the failings. It said it would pay compensation after the investigation had been completed.

The Consumer Council for Water Thames (CCWater Thames) said it was disappointed that customers of Thames Water faced another blow to their confidence.

David Bland, Chairman of CCWater Thames, said: 'We are extremely disappointed that Thames has failed consumers again, this time on customer service. We recognise that the water company itself exposed the problem and reported it to Ofwat.'

He added: 'Customers of Thames Water do not expect a sloppy and slow response to their needs therefore, we expect to see a rapid change in the company's performance in the very near future.'

With respect to leakage, Thames narrowly avoided a large fine by accepting a legally-binding under-

taking to spend an extra £150M (\$275.6M) on combating leakage, at its shareholders' expense rather than – as would normally be the case – out of customer bills.

Neither will the new pipelines become part of the regulated asset base, according to Ofwat chairman Philip Fletcher, which means that neither shareholders nor the company can benefit from the increase in its value.

Mr Fletcher noted: 'Thames Water's failure on leakage is unacceptable. Our job as regulator is to protect customers, who have been outraged by Thames' inability to control leakage sufficiently in London.

'Thames has bound itself to spend an extra £150M, at the cost of its own shareholders, to replace more ageing pipes than planned. This will directly address the issue of London leakage and achieve more secure supplies. It is more than double the maximum possible fine which the regulator could have imposed. A fine would not have gone to protect customers, but to the Exchequer. This is the right answer for Thames' customers and for London.'

The extra spend will involve Thames replacing at least 368km of mains in addition to the 1,235km which it is already in the process of replacing in London, between 2005 and 2010.

Ofwat has also reset the company's leakage targets, which it had failed to meet three times in succession, so that it has a gentle start at 840MLD for 2006 to 2007 but has to reach a much tighter 720MLD by 2010. It currently loses 894MLD from its ageing London network, 34 million litres over Ofwat's maximum current limit

of 860MLD.

Various bodies including the Consumer Council for Water and the Federation for Small Businesses endorsed the alternative to a fine as better for customers. The FSB called for the drought order that Thames has requested to be turned down 'until their performance in stopping leaks improves dramatically'.

Their sentiments also chime with the London Assembly's Health and Public Services Committee report, which had noted ahead of Ofwat's announcement that it would be wrong for any punitive cash return to go to Government rather than to customers.

Environment Minister Ian Pearson said: 'The cornerstones of government policy on regulation of the water supply industry are value for money for consumers and environmental sustainability. We welcome the fact that the powers extended in the 2003 Water Act have given the regulator the necessary weight to take action against companies who are not serving those interests.'

'£150M of additional investment in replacing leaking mains – more than double the maximum imposable fine – which comes from the shareholder and not the bill payer, added to a more stringent leakage target by the end of the review period – 2010 – stands squarely behind those principles.'

However, some analysts warned that the punishment would mean German parent group RWE would be likely to get a lower price for Thames when it puts it up for sale shortly. One analyst noted that future shareholders 'are signing up to extra costs with no benefits to themselves.' ● **Lis Stedman**

Technical advice for China

UK-based consultancy Atkins has signed a major long-term cooperation agreement with Beijing Capital Water Investment Co (BCWI) to provide technical advisory services on investment and management of water and sewerage facilities throughout China. BCWI is the Hong Kong subsidiary of Beijing Capital (BCC), which is wholly-owned by the Beijing municipal government.

The government is investing

heavily in water infrastructure over the next few years, with an objective of increasing water and wastewater capacity by investing £1.34 billion (\$2.47 billion) by the end of 2008.

BCC is China's leading water company, with a daily water treatment capacity of some seven million tons and gross assets of more than 7.5bn RMB (\$925 million). BCG is investing heavily in water infrastructure over the next few years, in order to increase its

water and wastewater treatment capacity to 15 million tons per day through investment of 20bn RMB (\$2.5 billion) by the end of 2008.

The agreement was signed by Ge Ze Ming, general manager of BCWI, and Susana Bezy, head of Atkins China's Water and Environment business, following the recent completion of Atkins' technical advisory services to BCC on a water treatment works facility in Huainan.

Samson Sin, MD of Atkins China,

said: 'This mutually beneficial long-term co-operation agreement provides a strategic alliance between BCC and Atkins, and is a significant step forward in promoting our water services in China.'

Roger North, director of Atkins Water and Environment, added: 'We look forward to providing Atkins technical expertise to BCWI on their investments and to our mutually successful long term relationship in China.' ●

Bank provides budget boost for the Asia region

Water and sanitation are becoming one of the Asian Development Bank's 'core businesses' now that the Philippines-based institution plans a big jump in funding for the sector, reports **PETER REINA**.

Following a period of what it calls 'modest and unpredictable investment', the Asian Development Bank (ADB) plans to pump up spending in its region's water sector to over US\$2 billion annually from this year to 2010. Since financial support for water development from rich to poor countries remains unimpressive, ADB's new largesse may help turn the tide.

ADB's broad aim is to boost international efforts to achieve the UN Millennium Development Goals of halving the proportion of people without safe water and adequate sanitation by 2015. Poverty reduction, child and maternal mortality, and hunger are also in the bank's sights.

These three linked goals represent the fundamental weaknesses of current international funding arrangements, according to recent 'Gurria report' that helped shape ADB's new spending programme.

Increasing water spending was a key recommendation of a recently completed year-long review, led by UN Special Ambassador for Millennium Development Goals Erna Witoelar, of the bank's fundamental policy, which was launched in 2001.

But making more money available is not the answer by itself. There is also a demand deficit.

A report this April, chaired by Mexico's Finance Minister Angel Gurría, found little progress in international funding since its predecessor identified a huge financing gap in plans to meet the millennium goals.

In 2003, the earlier Panel for Financing Water Infrastructure, known as the Camdessus report after its chairman, made a plea for funding to double. And, recognising that donor governments would not fill the water funding gap alone, Camdessus called for innovation in attracting money, including from the private sector.

Three years on, Gurría tracks an actual decline in funding by both

international donors and the private sector. And recipient governments have not been spending available funds. Financing, according to Gurría, is available, but not in a form attractive to governments. So governments are not asking for enough cash to achieve the millennium goals.

It appears that recipient governments fail to value water sector investments as a path to economic development, according to an ADB analysis. Governments also neglect to reform laws and regulations in way that would attract the sort of private investment urged by Camdessus.

But neither increasing funding

ADB aims also to set up multi-donor facilities to support water investments, such as a fund for grants and guarantees for private sector investments that also serve poor communities. Another proposed fund would catalyse urban funding without state guarantees.

nor greater governmental capacity to spend available cash necessarily benefits the poorest communities. Money does not flow to where it is needed most, according to Gurría.

Countries which are home to 90% of the world's 1.1 billion people with no access to safe water receive under 40% of aid money. Their percapita aid, at US\$16, is nearly 30 times less than that of middle income states.

Seemingly learning from these lessons, ADB says the strategy for its enhanced spending plan is to combine greater investment with capacity building and private sector participation.

Its new programme will exploit 'new modalities', it says. These include lending directly to local governments and, at times, without recourse to state guarantees. Other devices include phased financing, lending in local currencies, refinancing and flexible borrowing charges.

The programme 'combines expanded investments in water infrastructure with a strong emphasis on good governance to manage water as a resource and as a service, with people in the centre, leadership at the national level, and a focus on better decision-making and implementation,' according to Geert van der Linden, ADB's Vice-President for Knowledge Management and Sustainable Development. 'In the end, we are not just talking about investment,' adds van der Linden.

In the case of Asia and Pacific region, water development has been missing necessary targets, 'despite good progress made',

about 80% of ADB's current water programme. But other countries will also be eligible for increased funding, especially the poorest. Rural and water services, and river basin management will be the ADB's three target areas.

An important thrust of the bank's programme are measures rapidly to raise funding for urban water. This Special Initiative on Urban Water will tap novel funding sources, such as local currency financing to generate more than US\$5 billion of investments over the programme's five years in loans, guarantees and technical assistance.

But, as Gurría discovered, institutional and cultural obstacles remain strewn before these potential funding flows. To help the sector navigate through these, ADB plans to increase technical assistance funding for sector reforms, projects and capacity building US\$12 million a year now to US\$20 million.

ADB aims also to set up multi-donor facilities to support water investments, such as a fund for grants and guarantees for private sector investments that also serve poor communities. Another proposed fund would catalyse urban funding without state guarantees.

In numerical terms, ADB's targets for the new programme are to provide water and sanitation for about 200 million people. Additionally, 40 million people should benefit from improved irrigation and drainage, and 100 million from reduced flood risk. Meanwhile, integrated resources management is to be introduced to 25 river basins.

Even at the planned new level of investment, ADB's share will be just one quarter of the region's total annual water spending needed over 10 years to meet millennium goals targets, according to the UN's The Asia Water Watch 2015 study. And yet more funding will be needed for irrigation and resource and flood management. ●

Seattle provides a design-build-operate benchmark

Experience in Seattle of using a design-build-operate approach to upgrading the city's water infrastructure provides the rest of the US with a benchmark on taking this approach. **PAUL GARRETT** spoke with Seattle Public Utilities Deputy Director **SCOTT HASKINS** about the utility's work.

With US water professionals having to address challenges across regulation, resources, security and asset management, 'More than anything else you'll hear questions about how utilities will pay to address these issues,' American Water Works Association executive director Jack Hoffbuhr wrote recently.

One US water utility is leading the way in finding just such a route to funding and managing a step change in upgrading its water service – Seattle Public Utilities in the north west United States.

It was Seattle which took the decision back in 1995 to go down the design-build-operate (DBO) path for its Tolt water treatment works. This involved a competitively bid construction contract for a 120 million gallon a day (450 MI/day) filtration plant on the Tolt River awarded with an independent design engineer's specification. It opened in 2000, and since then a second DBO water treatment facility has also been

commissioned at Cedar River.

Scott Haskins, Deputy Director of Seattle Public Utilities, believes the city's DBO philosophy is the best way of maximising value for money and leveraging the very best of breed water treatment technology. 'At Tolt, the initial US\$170 million cost of the new plant was cut back to \$101 million through the DBO approach' he says. 'The requirement was for upgraded water treatment to meet more stringent water quality regulations and replace simple chlorine technology with a plant which would improve taste and odour and turbidity conditions in its source water supply.'

Like many public sector administrations across the world, Seattle faced many calls on its finances and the decision was made to approach the city's water needs in a different way. In the US's first DBO water project, a consortium of CDM, Dillingham Construction and Philip Environmental Services (which later became Azurix and then RWE Thames's American Water) was award-



ed the contract.

The contract was for design, construction and long term plant operation. It is primarily performance based, allowing the project to be undertaken in the most efficient manner and encouraging co-operation between designer, constructors and operators and encouraging innovation in design wherever possible. In addition, the contract is explicit about the water quality, supply, maintenance and engineering standards required.

The original Tolt source was developed in the early 1960s – along with Cedar it supplies 1.3 million people in the Seattle region. It is centred on an isolated reservoir in the Cascade Mountains surrounded by a protected and uninhabited watershed. Historically this has been a high quality water source requiring minimal treatment, but sediment problems and the need to increase water yield, coupled with tighter quality regulations, meant that an upgrade of Tolt, and Cedar, were required. The DBO scheme has introduced both filtration and ozonation.

On the Cedar River supply, in partnership with the DBO consortium from CH2MHill, new technology was introduced with construction of the largest ultraviolet water treatment facility in the world. 'I believe we now have the highest quality drinking water in the country,' says Haskins. 'Filtration and ozonation increases the reliability and flexibility of the water supply system by allowing the Tolt supply to be operated over a much wider range



of weather and reservoir levels. We can also get an extra 9 million gallons of water a day (34Ml/day) out of the facility, which overall yields 120 million gallons a day'.

While Tolt and Cedar are the first DBO water schemes in the US, other utilities are now following suit. Haskins sees this model as one clear way to address the industry challenges set out by Hoffbuhr. 'Regulation does throw down new challenges for our water sector,' he says. 'In Seattle we already had high quality water to start with, so the challenges are not as great as in other parts of the country, but new investment was still needed to comply with tighter regulations.'

'The water industry also faces issues around security. The Mayor of Seattle wants the city to have the most protected water system possible and we are currently investing in a ten year, \$100 million programme to cover our service reservoirs. We have also invested in vulnerability assessments, drills, training, detection and prevention systems, as well as access control and system hardening projects.'

The industry also faces challenges around ageing infrastructure and an ageing workforce. 'In Seattle we are applying asset management principles which I believe are making us a leader in the field in the US,' says Haskins. 'We have been aided in this respect by our partnership with Hunter Water in Australia, who have helped us implement our asset management programme.'

The Hunter collaboration has helped reduce the cost of Seattle's overall capital programme by 15 per cent and reduced operational and maintenance costs by 10 per cent. These efficiency savings are commendable, but looking at the bigger picture, is not the US water sector hampered by its fragmented structure?

There are over 50,000 water and wastewater utilities in the US,' says Haskins. 'The trend is towards consolidation and the marketplace will drive this further. Seattle is actually the wholesale water provider for 26 cities and water districts in the region.'

Seattle is in a part of North America blessed by plentiful rainfall. Other parts of the US are less lucky and water resources are an acute issue. A fragmented water industry reliant on public funds to develop water resources and improve water quality is clearly not sustainable in the long term. Seattle has shown that combining the virtues of scale with a focused partnership with the best that the private sector can offer provides a credible way forward. The best water quality in the United States is surely evidence of that. ●

Seattle Public Utilities

Water

- 1.35 million people served
- 720,000 wholesale population
- 630,000 retail population
- 142 million gallons (540 M.l) used per day on average
- 159 gallons (600 l) per day per single family household (2004)
- 1800 miles (2900km) of pipeline
- 104,000 acres (420km²) in two watersheds; three wells
- Number of direct connections:
 - 154,000 single family (includes duplexes)
 - 23,500 multi-family/commercial/government
 - 122 wholesale

Business structure

- Water sold to 21 wholesale water customers
- Retail sale water to homes and businesses in Seattle and adjacent areas north and south of city.

Revenue

- Total 2004 revenue: \$136.2 million
 - Direct service revenue: \$101.2 million
 - Wholesale revenue: \$38.5 million
 - Other revenue: \$1.5 million

Major capital projects

- Capital Investment Programme 2004: \$62.4 million
- New Cedar River Treatment Plant (2004)
- Reservoir Covering Programme (18 year programme)
- Tolt Pipeline
- \$515 million in Capital Projects planned (2005-10)

Wastewater

- 530 miles (850km) of sanitary sewers
- 500 miles (800km) of storm drains
- 1020 miles (1640km) of combined sewers
- 73 pump stations
- 113 City-owned and permitted Combined Sewer Overflow points
- 43 Combined Sewer Overflow control detention tanks/pipes

Business structure

- Long-term contract with regional (King County) authority for treatment
- City collection system discharges to King County interceptors
- Service area extends outside the City and overlaps with Southwest Suburban Sewer Agency
- All laterals to mainlines are private

Revenue

- Wastewater Service Revenue: \$132.2 million (2004)
- Charges based on water usage
- Charges appear on monthly/bi-monthly combined utility bills

Major capital projects

- Wastewater Capital Investment Programme: \$25.9 million (2004)
- Sewer pipe and pump station rehabilitation
- CSO facility retrofit and South Lake Union CSO

Drainage

Facts and figures

- 460 miles (740km) of storm drains / 170 storm drain outfalls
- 40,000 catch basins
- 38 miles (60km) of creeks within city limits
- 151 miles (240km) of culverts
- 12 detention / treatment ponds
- 300 underground detention facilities
- 13 underground treatment facilities

Revenue / rates

- Drainage Service Revenue: \$28.1 million (2004)
- Rates based on lot size and % of impervious surface
- Charges appear as a Surface Water Management fee on King County property tax statements.

Major capital projects

- Drainage Capital Investment Programme: \$25.1 million (2004)
- Natural Drainage Systems
- Regional Water Quality Treatment Facility
- Creek Restoration and Monitoring
- Neighborhood Drainage Improvements
- Landslide Mitigation Projects

Profile: Scott Haskins

Scott Haskins is Deputy Director of Seattle Public Utilities, responsible for utility systems management for drinking water, surface water, wastewater and solid waste functions. He also provides executive oversight for emergency management and security, asset management and major interdepartmental projects.

Scott has also provided leadership for major industry innovations, particularly in asset management, benchmarking, and alternative project delivery.

Scott has been a very active participant in the water/wastewater utility industry. Currently, he is incoming Chair of QualServe and is active on AWWA and WEF committees. He has participated in numerous AwwaRF and other research projects and was Chair of QualServe's Benchmarking Clearinghouse and Western Regional Water Utility Benchmarking Group. He is co-author of the AWWA books, 'The changing water utility: creative approaches to effectiveness and efficiency', and 'The evolving water utility: pathways to high performance'.

Scott is the past president of the American Society of Public Administration, Evergreen Chapter, and Seattle Management Association. He has received numerous awards for leadership and management excellence, and has written many papers and journal articles and given frequent presentations at national and international water symposiums, workshops and conferences, particularly on utility management, asset management, benchmarking and contracting issues. He holds a Master of Public Administration and a Bachelor of Arts Degree in Political Science from the University of Washington.

Belgrade's milestone on a path to economic sustainability

Last year saw Belgrade Waterworks and Sewerage achieve an operating profit for the first time. **VLADIMIR TAUSANOVIC**, the company's managing director, reviews the reforms at the utility and the move to use modern asset management approaches as the basis for achieving economic sustainability.



Belgrade Waterworks and Sewerage (BWS), a public utility company, was founded in 1892 to provide the water supply and wastewater disposal services for the city of Belgrade, the capital of what is now the Republic of Serbia. The total number of city inhabitants is 1.4 million and the utility also supplies the area's entire industrial base and other commercial consumers. The water supply system serves an area of 21,000ha and annual water production is approximately 230M.m³. The maximum water treatment capacity is 8.5 m³/sec. The company was founded by the city of Belgrade, and the assets and capital that BWS uses in operating its business are state-owned.

Before the 1990s the city of Belgrade was the capital of Yugoslavia, which disintegrated after the civil war and a deep political and economic crisis that lasted for 10 years. Yugoslavia was in the western part of the Balkan Peninsula and belonged to the group of medium-developed countries. After 2000 what was left of the country formed a state union with the official name of Serbia and Montenegro. Recently, following a referendum in Montenegro, this latter part also separated, so the city is now only the capital of Serbia.

The communal economy of this region has always been influenced by current political affairs: the state, republic and local administration. As such, it had always been a key element in social policies and worked by

maintaining unrealistically-low (insufficient) cost-recovery tariffs.

In addition, the company management did not always have the key management tools that it needed. The tariff had always been set on a non-profit basis (where the price only covers the costs of running the current operation) - in other words, it was oriented towards simple tick-over, meaning that capital investments and development had to be financed from external sources.

However, during the years of crisis the charges hardly ever covered either the total or operational costs, and BWS operated at a loss: from 1990 to 2000, the average sales price dropped from €0.24/m³ (\$0.30/m³) to €0.06/m³ (\$0.07/m³), reaching nearly €0.5/m³ (\$0.63/m³) only in 2005. Given the simultaneous impact of insufficient revenues for current and capital maintenance and the need to cover depreciation costs on one hand, and the lack of capital investment on the other, the company was exposed to a systemic deterioration of assets. The average annual investment during this period was approximately €9 million (\$11.3 million) a year although, based just on the level of depreciation, it would have been necessary to invest around \$15 million a year.

The role of the management boiled down to daily, urgent patching up of the system and being the scapegoat for occasional water supply problems. The consequences of such practices during a period of the disintegration of the country, the civil war, international isolation and the million hyperinflation

were numerous. These range from enormous debts owed to suppliers and the company's own employees, to jeopardising the safety of the operation of technical systems used in the everyday undertaking of the company's activities.

Towards economic sustainability

From the end of 2000, following the move to democracy, the entire country began a gradual economic recovery (in 2000 GDP per capita was \$830; in 2005 it was \$3420) although there were many difficulties operating within the economy while society was undergoing this transition, particularly given the general political instability in the country and region.

The company management made a detailed analysis of its current state and reviewed all its operational plans, setting priorities for areas that needed urgent improvement, both on the technical side and in the administration. I would particularly like to draw attention to the studies prepared by foreign consultants including Stone & Webster and Mott McDonald, which pinpointed the company's weaknesses and potential directions for future development. Financial consolidation was gradually achieved, both by increasing tariffs and by direct inputs from the city government and many international donors.

The period from 2000 to 2005 was marked by significant investment activity - a total of some €170 million (\$214.8 million) - that is, an annual spend of over €30 million (\$37.9 million) on the elements of the process and technical systems' functions and management that needed the most urgent rehabilitation and upgrading, as well as on energy saving, reconstruction and expansion of the network, and institutional strengthening (personnel training, information technology, the gradual development of a Geographic Information System and Management Information System). This work was financed from foreign grants, the city budget and BWS's own assets. In this way, despite operating at a financial loss, the company's assets and capital increased in real terms by over 30%.

With the rapid, though insufficient, increase in tariffs (from €0.06 to €0.50/m³), BWS's turnover increased from €11.2 to €67.5 million (\$14 million to \$85.3 million). The company management attempted to find ways to improve the company's operational and financial performance. Given its operating circumstances, the company is working hard on finding internal resources to optimise its operation (cut down its costs), carry out its own reorganisation and provide additional

sources of revenue (by providing services to other entities related to the core business).

With the relative reduction of all costs (except maintenance), particularly labour (the number of employees has gone down from 3700 to 3000), third party services and energy (consumption has been reduced from 1 to 0.8 Kwh/m³ of distributed water), in 2000 to 2005 the amount of costs covered by the approved tariffs per cubic metre of billed water increased from 27% to 72.5%, and operating cost coverage from 33% to 93%.

Company efficiency increased from 49% in 2001 to 60% in 2005 because of the impact of the work that we had undertaken on the factors affecting efficiency. Thus non-revenue water was reduced from 33.6% to 27.2% (by finding illegal connections, reducing losses, replacing water meters, taking more efficient and regular measurements, billing of consumption and so on) and the collection rate increased, with these extra efforts, across all consumer categories from a total of 77% to 86%.

The company's effectiveness has increased, because of all the previously-mentioned measures, as well as the increase in tariffs from 26% in 2000 to 62% in 2005 (the percentage of total costs covered by cash collected from consumers).

All of these actions resulted in an operating profit of €5.3 million for BWS in 2005 for the first time. Furthermore, the combination of the internal impact of achieving set targets and serious investment in rehabilitating and modernising the company's process, technical and administrative (overhead) activities (taking the 'spend now to save later' philosophy) shows that an alternative means of reconciling the required full cost-recovery tariff to the external (limited) rates is possible.

Do we know the economic price of water?

The utility faces a further question: how do we know what should be the economic price of water. Modern asset management methodology and its tools ('to create and acquire, maintain, rehabilitate, replace, dispose and increase assets in the most cost-effective (lowest life-cycle cost), sustainable manner, at the level of service required by present and future generations of regulators and customers, at an acceptable level of risk': Orange County Sanitation District, California – 'Asset Management Plan 2005', June 2005) should provide the answer to this. Developed overseas countries lead in these techniques and we are using their experience and literature.

Major projects currently under way at Belgrade Waterworks and Sewerage

The Makis 2 potable water treatment works, with a capacity of 2m³/sec, an investment value of €50 million (\$63.2 million). The sources of financing are an EBRD bank loan and the city of Belgrade. The main contractor is Tahal Israel.

A SCADA system for managing the Belgrade Waterworks and Sewerage distribution system, with an investment value of \$10 million. The source of financing is a Japanese government grant. The main contractor is the Ebara Corporation, Japan.

Institutional strengthening of Belgrade Waterworks and Sewerage, consulting services. The source of financing is a German government grant. The main contractor is Berlinwasser International.

Preparations are under way within future development programmes for a great many projects to complete the sewerage system and wastewater treatment works for the city of Belgrade. This mega-project is estimated to be worth over €500 million (\$632 million) and is one of the municipal-level priorities.

As well as preparing plans and designs, various means of financing this project are being analysed. An alternative was also prepared that would involve private capital participation. These decisions will be made shortly.

The first and the biggest step in that direction has already been taken at BWS, namely the assessment of asset values, their state and remaining useful life. The reasons for this approach are twofold:

- the first is essential: we need to learn the actual (fair) value of assets, not based on their historical book value and costs, but on the actual, current value required to replace all of the assets, based on the costs for complete renewal and rebuilding – both the remaining and expended assets.
- the many years of implementing inadequate and inconsistent accounting practice in Serbia and the introduction of International Accounting Standards (IAS) from 2004. The current book data give an incorrect picture of the state and value of the fixed assets (property, plant and equipment).

Extremely rough calculations show that in case of BWS, an estimated fair value would mean calculating a significantly higher annual depreciation (as much as 100% higher), requiring in the near future a regular annual reinvestment in renewal (replacement) of the remaining (existing) assets, as well as additional investment to recover expended (written off) assets, to preserve a fair value and ensure the fixed assets are in a functioning condition.

Based only on such a simplified calculation, the average total cost-recovery tariff should be at least €1/m³ (\$1.26/m³). The asset management methodology and tools that BWS is attempting to master and turn into practice will provide additional

accurate calculations of the required economic level of rates and the investments needed to improve the operational state of Belgrade's water and sanitation system.

In lieu of a conclusion

Utility companies experience significant difficulties in maintaining sustainable operations in the water supply and wastewater sectors, above all in terms of short-term and long-term economic efficiency.

A total cost-recovery tariff level should include, among other things, adequate amounts to account for depreciation (however, this should not be based on the historical book value of the assets, but on the current cost of replacing the fixed assets), as well as the costs of financing (from various sources) the renewal of expended – in reality, missing – assets.

For this reason, we propose, within the activities of the International Water Association, that there should be an attempt to develop an acceptable approach and, as far as possible, universal recommendations and economic procedures for the adequate management of assets and finances – almost a model, specifically created for utility companies, particularly those in developing and transitional countries. ●



About the author:

Dipl. Ing. Vladimir Tausanovic is Managing Director of Belgrade Waterworks and Sewerage and President of the Serbia and Montenegro Waterworks Association.

KOWACO builds from its Korean bulk supply base

South Korea's state-owned bulk water supplier is moving into direct service provision, wastewater services provision, and has plans to be the world's third largest water company, according to its president and CEO, **DR KYUL HO KWAK**.

KEITH HAYWARD reports.



South Korea's state-owned bulk water supply company KOWACO is already a sizeable organisation. It has an annual turnover of around US\$1.5 billion and supplies the water for 60% of the country. But it has even bigger ambitions, including having stated that it aims to become one of the top three water services corporations in the world.

'I am confident that we have both the technical and financial strength, as shown by our very successful track record in water management, spanning a total range of activities from engineering, project management,

operations, training, and R&D services,' comments its new chairman and CEO, Dr Kyul Ho Kwak.

But while the major French utilities, for example, have established and stable domestic operations, KOWACO's international aspirations are set against a backdrop of considerable change in the South Korean market.

As a bulk supplier of water, KOWACO provides water to local governments, who in turn provide the service to the public. There are around 170 local governments functioning as local water service providers, and KOWACO sees this as a market, taking over such operations.



'As of December 2005, we have reached preliminary agreements with 37 local governments,' notes Kwak. 'After conducting studies as to the feasibility of the projects including detailed diagnostics of the plants, KOWACO will enter into negotiations regarding the scope of the project, conditions regarding the takeover of operation and maintenance (O&M) services of the plants, capital investments, fees, etc.'

Kwak sees clear advantages in KOWACO moving into this area: 'Many of these plants controlled by the local governments suffer from a lack of new technology and expertise due to their small scale, outdated facilities and inefficiency, on top of a shortage of capital. In reality, the services from these plants cost significantly more, and small cities and rural areas are forced to carry this burden.'

A further benefit is the greater integration that will be achieved. 'KOWACO works to promote a gradual integration of water services nationwide, ranging from an intake of water sources to water supply to end-user households,' says Kwak. 'The optimum method to achieve this is through integration of the O&M of as many water services facilities as possible, by both KOWACO and local governments, nationwide.'

Kwak sees considerable potential in this type of activity. 'KOWACO is committed to signing long-term O&M services agreements with 110 plants by 2009,' he says.

'One of the greatest challenges to Korea's current structure for water and

wastewater services provision is about the economy of scale. Due to a lack of scale, most local government plants face a huge gap in the quality of services they provide as well as technology and training levels they possess. In terms of scale, KOWACO has enough access to the latest technology, training and techniques. Further, with 167 local governments providing services, there are great variations in services, both in the number and quality, due to differences in sizes, technology levels, capacity and funding. A better balance of services is indeed necessary to ensure a more consistent development, both socially and economically.

'I feel strongly that greater integration is necessary with regards to operation and maintenance of plants in order to ensure the equality of benefits provided to all. Integration on a



Seongnam Water Treatment Plant

national scale will provide a great deal of benefits, including less water leakage losses, less likelihood of contaminated water supplies and increased flow improvements. Further, with consolidation there will be fewer examples of overlapping investments throughout the industry. Therefore, increased consolidation of services obtained via agreements between KOWACO and

local governments allows more efficient O&M services that could result in substantial efficiency gains.

'Finally, integration and consolidation present a win-win scenario. Local governments will see dramatic reductions in the number of complaints received thanks to facility refurbishing and advanced technology adoption; the public will benefit from decreased prices and improved services, including an around-the-clock water quality monitoring and customer service centre.'

A move into wastewater

Alongside such developments on the clean side of the business, KOWACO is also moving into the wastewater side. In particular, it has entered into a memorandum of understanding with the Environmental Facilities Management Corporation. 'The purpose of our partnership is to exchange technology and to jointly participate in projects in the sewerage field,' explains Kwak. 'Under this agreement, both KOWACO and EFCO have benefited from extensive collaboration.'

An initial driver for this activity is that KOWACO has an interest in the way resources are managed upstream of its dams. 'To provide the best quality of water, the water upstream of the dam needs to have an initially good quality,' says Kwak. 'Unfortunately, modernization of the economy has set back efforts to control pollution. Thus we have seen a continued degradation in the quality of upstream water. KOWACO is now entering this

About KOWACO

Created in 1967 by the 'KOWACO Act', KOWACO is a state-owned utility established primarily to manage national water resources. It is statutorily mandated to develop and manage national water resources infrastructure, which includes dams, reservoirs, and other related facilities. As a service provider, KOWACO supplies bulk water services to municipality-owned water providers and industrial water users, providing about 60 percent of all clean water needs across the nation.

KOWACO's corporate mission is 'serving the Korean Public by providing safe and clean water, at an affordable price, while protecting and preserving Korea's natural water resources and environment'. According to the Act, the corporation is entitled to full financial and managerial autonomy.

Headquartered in Daejeon, KOWACO has 44 regional offices across the country and employs 3880 staff. It has an annual turnover of US\$1.5 billion and over US\$10 billion in assets as of December 2004. The organisation describes itself as one of Korea's best performing state-owned enterprises and notes that international credit agencies have recently assigned it higher credit ratings than the sovereign ratings for Korea.

Ownership of the company is regulated by the Act, which stipulates that only the Government of Korea (which holds 89.8%), the Korea Development Bank (holding 10.1%), and municipalities (holding 0.1%) are allowed to obtain ownership equity in the company. The Act further stipulates that the Government of Korea must maintain at least 50% ownership in KOWACO. A total dividend of US\$21.1 million was paid to the three shareholders, according to their equity ratios, as of December 2004.

KOWACO is also involved in energy and land development. As well as hydropower, KOWACO has recently turned to its attention to the renewable energy business. It is currently building the world's largest tidal power plant and is planning to construct wind power plants. The organisation's land development activities focus on industrial estates and development of new towns.

KOWACO also has plans for small- and mid-sized dams, which it states will be 'environmentally-friendly'. 'Korea is a small country, with a very great population, and is by and large mountainous,' explains Kyul Ho Kwak. 'Most plains regions have been relatively densely inhabited. Constructing large-scale dams requires vast areas of land to be covered and utilized by the project. We simply have few areas where such construction projects are feasible, so the focus has shifted to constructing more small- and medium-sized dams.'

Kwak says that the company has become an advocate of 'environmentally-friendly dam construction', utilizing state-of-the-art technology, advanced scientific theory and expert personnel to ensure that all construction is as non-invasive as possible. He also states that KOWACO is a staunch supporter of public involvement in project decision-making processes. 'In the past, dam construction was carried out unilaterally by the central government with little consideration of public opinions by giving more weight to a necessity to build national economic capacity... However, things have changed dramatically. Dam construction is now open to public debate and a large number of interest groups, including citizen coalitions, NGOs, interested parties and various coalition groups, are voicing their opinions, objections and suggestions.'

business area to improve the quality of the upstream water of dams. We feel that source water protection is a national priority. Therefore, there is a great need for the development of new environmental facilities and better O&M services of existing facilities upstream of dams. Therefore an expansion in our scope of business to include sewerage facilities is a natural progression.'

He continues: 'This opportunity provides a significant opening for KOWACO... With respect to the scale of the opportunities, the initial stage will see KOWACO become directly and actively involved in quality control with respect to upstream water. Participation in the sewerage field will directly lead to water quality improvement that could result in improved water for the public. These improvements will be continued in the long-run as KOWACO carries out steady improvements through gradual integration of water and wastewater facilities and regional O&M.'

Competition

Such opportunities have not escaped the attention of the main French operators, for example, and Kwak notes that Veolia and Suez have been involved in the market. 'They have acquired private industrial water treatment facilities and numerous public wastewater treatment plants on a BOT basis,' he says.

It has however been less than clear how KOWACO will respond to such activity. In its 2002 Annual Report, for example, the company announced contracts in partnership with Vivendi, now Veolia. Yet two years later, in its 2004 Annual Report – before Kwak's arrival – the company stated that it aims 'to defend the Korean water market against foreign multi-national companies'.

'Some activists and local water utilities' employees have viewed their foray into the Korean water market as

threats. On the contrary, I strongly believe that their presence in Korea will bring about many financial and technical benefits to local water utilities,' responds Kwak.

'We have a strategy of working together with them to seek business opportunities, particularly in deregulating the water rehabilitation market. Forging alliances with foreign partners would not only provide our companies with the access to local water concession markets, but also offer KOWACO a better understanding of the local utilities environment. This strategy would also allow our companies to better utilize our technology and management skills in international markets, especially in Asia, where these advanced services are in high demand but cannot be fully made available by local companies.'

Investment potential

Against this backdrop, KOWACO itself has been increasingly active domestically in the municipal wastewater market. Kwak explains that the 'Act on Private Participation in Infrastructure' allows the joint participation of private companies and public corporations in infrastructure construction projects and that KOWACO takes part in such projects as a member of a Special Purpose Company (SPC).

'Generally, each SPC is made up of KOWACO with responsibility for operations and management of the project, construction companies responsible for the project development, and investors such as mutual funds or investment groups responsible for providing the equity for the project. Each SPC is project-specific and is closed when the project is completed. Additionally, they are not subsidiaries but stand-alone companies. These companies are responsible for negotiations with the local governments regarding the amount of capital investment, the project and maintenance

range and the costs for maintenance.'

Kwak mentions the Chilgok wastewater treatment plant as an example of this type of project, which KOWACO has been operating since July of last year. The company has also had discussions with the Pohang local government after submission of plans for operation of their plant, with both of these agreements being based on BTOs (Build-Transfer-Operations) developed through a consortium with private firms. The company, he says, is also undertaking sewer pipe network improvement projects, which are BTL (Build-Transfer-Lease) projects under development in Kyeryong, Jeungpyoung and Sangchu.

'The amounts of investment will vary greatly with each project,' says Kwak. 'With some projects KOWACO will supply the majority of the capital necessary, but in the case of larger projects investment will be obtained from various sources, including construction companies as well as investment and mutual funds. For example, KOWACO was responsible for about 70% of the capital of the Chilgok project, while in the case of the Pohang project we will provide about 10% of the investment.'

KOWACO has also undertaken a number of other domestic innovations, including having outsourced functions such as water intake operations. 'At this point KOWACO has no further plans for outsourcing any part of its business,' Kwak says. 'Of course this may change, but we feel very comfortable with our business as it is now.'

International opportunities

Alongside these domestic developments, KOWACO is planning to expand its international work, the scale of which is indicated by its plans to be one of the world's top water services companies.

'To date we have focused our international activities on consulting and engineering services in developing countries,' says Kwak. 'In order to achieve profitable growth and to make best use of our know-how, we are now strategically positioned to seek out international investment opportunities, particularly in the hydropower and water sector. Our regional target for investment projects will be in the developing East Asian countries where there are plentiful investment opportunities due to chronic shortages resulting from insufficient or inefficient water infrastructure.'

He is also confident KOWACO is well-placed to deliver on this aim. 'Our financial strength is supported by both Moody's and Standard & Poor's assigning us higher credit ratings than the sovereign credit ratings for the

Dr Kyul Ho Kwak – a management role for a former government minister

Kwak, 60, was named the Chief Executive Officer of KOWACO and Chairman of the Board in September 2005. Prior to joining KOWACO, Dr Kwak served as the Minister of the Environment. He began his career as a civil engineer with the Ministry of Construction and Transportation in 1974. He held various engineering, programme management and leadership positions with both the Ministry of Construction and Transportation, as well as the Ministry of Environment. At the former agency, he served as the Bureau Chief of the Water and Wastewater Bureau, while at the latter he was the Director General of the Water Quality Conservation Bureau, as well as the Vice-Minister.

Dr Kwak holds a doctorate in Environmental Engineering from Hanyang University, and attended Columbia University in New York for advanced executive education. He is a Professional Engineer in the fields of water and wastewater, construction, construction quality and safety management.

country of Korea. In an effort to achieve cooperation with foreign countries we have built partnerships with many governmental departments throughout East Asia and have also provided customized training services for water engineers from developing countries. These efforts, coupled with our corporate resources, will enable us to obtain access to water-related markets, particularly in the East Asian region.

In terms of the financial resources needed to deliver on its domestic and international activities, Kwak notes that the Government of Korea is currently decreasing its commitment in funding to the company's capital expenditures. 'Therefore, we will need additional external financing for infrastructure construction and improvements, which will be done by issuing domestic and international debentures or commercial loans. With our excellent credit rating, we will continue exploring international capital markets, but international financing will be very limited as our domestic capital markets are becoming more favourable.'

He notes that, since the company's international activities have to date mainly been related to engineering services, these have been financed by the project beneficiaries. 'As for the sources of financing in planned investment projects, our international projects will be financed on a corporate balance sheet and also from banks or financiers secured by the future revenue stream of the project (project financing),' he explains.

'As a parent company, we are fully exposed to any and all business risks inherent to doing business in foreign countries. In order to protect our company from potential liabilities and the risks of doing business overseas, a separate incorporated subsidiary is required to be set up. Additionally, international activities are maintained as a separate account so that they will not affect domestic customers in any manner,' he adds.

This said, Kwak can be reassured about the prospects of the organisation as it seeks to realise its ambitions. 'There is a general perception from both the public and Government that KOWACO needs to be kept as a state-owned company given that it carries a public commodity, water which is a necessity for life. No discussions or debate concerning the privatization of KOWACO has occurred among either national policy makers or the general public to date. Therefore, we can confidently say that there will be no chance of a change in terms of ownership of KOWACO in the foreseeable future. ●

Performance contracts between Governments and state-owned enterprises – a review of Uganda's National Water and Sewerage Corporation

A performance contract with the Ugandan Government has helped turn around the fortunes of the National Water and Sewerage Corporation. **DAVID ISINGOMA** reviews the factors behind the success.

The National Water and Sewerage Corporation (NWSC), the major stakeholder in the provision of water and sewerage services in the urban precincts of Uganda, operates within the framework of a performance contract with the Government of Uganda. The contract was first initiated in 2000 and marked a turning point in the relationship between the Government and NWSC. In order to sustain the gains in NWSC's performance, and as a sign of the confidence the Government had in NWSC, the Government signed a second performance contract with NWSC which took effect from 1 July 2003 for another three years. The contract is a regulatory tool by Government aimed at ensuring the Corporation adheres to obligations of service standards and achievement of key targets.

This article attempts to show why the performance contract in Uganda has been a success, despite the dominant paradigm and empirical studies carried out in a number of countries which support the view that performance contracts do deliver on the purposes they were set up for. The NWSC case suggests that performance contracts can provide a framework for innovation and a fall-back position in regard to the specification and monitoring of the obligations of the contractual parties to the contract. An overarching performance contract can also be an effective means of promoting internal re-engineering of strategies and promotes focused operations. There is however need for an internal tracking/monitoring system to ensure that remedial action is taken in case of any failure.

The empirical evidence

One important type of performance contract involves a written agreement between a state-owned enterprise and a Government, be it national, regional, or municipal. Such performance contracts are widely used to reform state-owned enterprises. In the public sector, they are viewed as a device to reveal information and motivate management to exert effort. The contracts specify explicit targets that state-owned enterprises pledge to achieve within a given timeframe, and where performance is measured at the end of the specified period.

Literature and empirical studies often conclude that performance contracts are not effective in delivering expected performance gains. Weaknesses outlined include the following:

- They do not improve productivity (Mary M. Shirley and L. Colin Xu, 1997)
- The existence of information asymmetry implies that the principle only observes outcomes and therefore cannot measure accurately the effort expended by the agent or distinguish the effects of effort from other factors affecting performance (Laffont and Tirole 1986). Since the agent has more information than the principle, the agent may choose how much effort to expend (Ross 1991; Stiglitz 1974; Sappington 1991)
- Performance contracts generally provide weak incentives.
- There is lack of commitment to the contracts by the contracting parties. For example, Governments renege on payments (part of its commitment to the state-owned enterprises). In addition, management is seldom committed to the contract.
- Many performance contracts are

based on outdated or inaccurate data, such as information based on audited accounts from two years earlier.

However, it has also been established that the design of performance contracts matters. When performance contracts contain good features, profit orientation, higher wage elasticity and lower mark-up ratios, the firm's productivity growth rate could increase by as much as 10% (Mary M. Shirley and L. Colin Xu, 1997).

NWSC's performance contract

NWSC was established in 1973 by an Act of Parliament with the main objective of providing water and sewerage services to the major urban precincts in a commercial and viable manner.

Prior to 1998, the operational and financial performance of NWSC was lacklustre. The situation came to a head in 1999, when a combination of operational inefficiencies and eroding revenues resulted in the Ministry of Finance Planning and Economic Development freezing NWSC debt obligations to the Government in order to allow NWSC to continue its operations while at the same time obliging NWSC to improve its operational efficiencies.

This resulted into the formulation of the first performance contract between the Government and NWSC in 2000. The contract was the first of its kind in Uganda. The contract was initiated at a time when NWSC, in tandem with the overall Government reform initiatives, had started implementing novel performance enhancement measures including the 100 Days Programme and the Service and Revenue Improvement programmes (these were part of a series of performance enhancement initiatives implemented by NWSC and are discussed in Mugisha, Berg and Muhairwe (forthcoming)). The programmes were aimed at improving and expanding service delivery while at the same time rescuing the Corporation from the doldrums of low performance equilibrium.

The contract was therefore a sign of the confidence the Government had in NWSC, and was aimed at fostering further growth. Furthermore, the performance contract was aimed at placing NWSC on a firmer financial footing. Based on the lessons learnt from the first contract and as a means of maintaining the momentum of activities in the Corporation, a second performance contract was signed with the Government for the three-year period June 2003 to June 2006.

The performance contract was a tripartite agreement between the Government of Uganda on one hand,

represented by the Ministry of Finance Planning and Economic Development and the Ministry of Water, Lands and Environment, and NWSC on the other hand. The tripartite arrangement was to ensure technical and financial oversight in regard to the implementation of the contract. The contracts clearly spelt out the obligations of all the parties. In regard to financing of the contract, four main sources were envisaged – internally generated funds, savings from debt freeze, grants from the Government for social mission activities (non-viable), and from development / donor partners (for large long term projects).

Outcomes of the first and second performance contracts

Over the last six years, under the auspices of the performance contracts, NWSC has undergone tremendous structural, operational and financial improvements. NWSC largely met the performance indicators set out in both contracts, and all indications are that NWSC operational indicators are beginning to reach efficient levels. The Corporation is now an efficient water utility producing about 58Mm³ per annum, operating at an average unaccounted for water rate of 28%, a staff productivity ratio of seven staff per 1000 connections, a customer base of about 151,000 accounts (which has grown from a paltry number of 50,000 five years ago), and a trebled turnover which increased from a stagnant level of Shs 21 billion (US\$11.5M) to the current Shs 58 billion (US\$31.9M). Furthermore, the Corporation's operating profit (after depreciation) has moved from a perpetual deficit to a sustained surplus over the last four years.

Success factors in Uganda's case

The implementation of the NWSC performance contract with the Government achieved a number of successes for Uganda. The reasons for the success of the NWSC performance contract are varied, ranging from both internal supporting factors to external support factors as detailed below.

Strong commitment

The Uganda case was a show of strong commitment from all parties to the contract. On the one hand, the Government was committed to seeing NWSC re-awaken from slumber and laxity in its operations. The Government held as a high priority its obligations to the contract. On the

other hand, NWSC was also anxious to ensure that it upheld its commitments to the contract and to show that on its own, the operations of the Corporation could be revamped.

Leadership

Leadership also played a significant role in this respect. We give credit where it is deserved. With the inspirational and foresighted leadership of the Managing Director, Dr William Muhairwe, the performance contract was a catalyst and a foundation for renewed innovation. Indeed the Managing Director rallied NWSC management to ensure systematic achievement of the contract goals. For example, in the various operational areas, he challenged the management to specific performance targets.

Integration with planning

Another key element of NWSC performance contract was the fact that it was set within the normal operating framework of NWSC Corporate planning process. This implied that the performance contract was a back to back document within NWSC's normal planning process. Targets and key activities were harmonised with the normal planning processes avoiding the shortcomings of an extraneous contractual framework.

Translation of the performance contract into a cascade of lower level contracts

This was a mechanism aimed at putting the Government performance contract into operation. The NWSC had a total of 15 operational areas under its jurisdiction. With the coming into force of the performance contract with Government, NWSC management translated the contract into a series of increasingly ambitious and challenging internal performance contracts with each of its operating areas. This effectively devolved NWSC operations into separate profit centres, each responsible for operational improvements. The contracts were also extended to service providers such as the block mapping section, information technology department, water quality department and the procurement department. In the first performance contract (2000–2003), the business unit contracts were referred to as Area Performance Contracts (APCs), and in the second performance contract they were referred to as Internally Delegated Area Management Contracts (IDAMCs). The difference between the two was the increased level of autonomy in the later case. In the second instance, the IDAMCs were further devolved into Zonal Performance Contracts (ZPCs) which were a layer below the

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area-level contracts. (See Mugisha, Berg, and Skilling (2004) and Mugisha, Berg and Katashaya (2004)).

Setting stretched targets at the lower levels of contracts

In line with the creation of a sub-strata of performance contracts, management put in place stretched targets which cumulatively and holistically exceeded the Government of Uganda performance contract targets. The stretched targets were characteristic of the 'Stretch out programme', one of the innovative performance enhancement strategies adopted by NWSC. The stretched targets were envisaged to be achieved through the reduction of bureaucracy, the removal of organizational boundaries, the establishment of an appropriate reward system and the increase in speed and worker involvement.

Two-level incentive framework

The incentive framework following the signing of the performance contract with Government was at two levels. With the devolution of authority to the business units, each business unit earned incentives (including bonuses) for meeting and surpassing agreed targets. The business unit incentives were paid on a monthly basis as opposed to the Government performance contract incentive which was paid annually and only to the non-business unit staff. The uniqueness of incentive structure was that the business unit incentives were internally assessed depending on the performance of each individual area, while that of the headquarters, the overseers of the internal performance agreements, was hinged to the Government of Uganda performance contract. This dichotomous incentive structure resulted into a quest for innovation and performance improvement at the area level, which in the end translated into a remarkable performance in the whole Corporation. Incentives have proven a viable method of driving performance (Mugisha et al 2005). The Government performance contract incentives were paid after independent assessment of the Corporation's performance vis-à-vis the targets was carried out by a performance contract review committee.

The formidable combination of stretched targets and the incentive mechanism was a key player in ensuring the achievement of the performance contract targets.

Payment of incentives from internal resources

In regard to the payment of incentives, NWSC circumvented the possibility of Government renegeing on payment of incentives by paying the incentives

from the Corporation's internally generated resources. In this respect, as long as the Independent performance review committee ascertained the achievement of the targets and sanctioned the payment of the incentive based on an agreed formula, then the funds were paid out from internal sources, provided for in the budget.

Freedom to operate and non-interference policy from Government. Key features of the contract where NWSC was granted full commercial freedom in carrying out a number of its activities, including capital expenditure, commercial borrowing, staffing and tariffs. This promoted the fulfilment of the performance contract objectives. This arms-length approach helped depoliticize pricing and employment issues.

Further aspects

Specific memoranda of understanding between the government and NWSC catered for the enforcement of Government obligations. For example, in 2003, NWSC signed a Memorandum of Understanding with Government in regard to the payment of its bills. Clearly, renegeing of this obligation would imply an equal and opposite reaction with NWSC failing to meet its contractual obligations, which is the last thing the Government wished to have happen at that time.

Problems related to information asymmetry were in part addressed by the inclusion of a detailed Financial Forecast accompanying the performance contract. The financial forecast detailed the operational, financial, assets, debtor and investment schedules into one package. The detailed forecast overcame the information asymmetry alluded to in the different empirical studies, because it clearly showed the baseline information of the Corporation over the last three years and the forecasted performance of the Corporation based on the efficiency gains envisaged.

The problem of use of outdated data was overcome with the establishment and operation of an efficient management information system within NWSC. The NWSC information and reporting system is efficient with all levels of reports produced in a timely manner. These include the quarterly, bi-annual and annual reports. This is framework is supported by the timely audit of the financial statements of accounts, thus forestalling the problems of inappropriate baseline data.

The donor agencies also played a critical role with their advisory role to Government. At that time, the Government was operating with one of the key policy frameworks being the

Poverty Reduction Support Credit (PRSC) supported by the World Bank. The PRSC has a matrix of indicators aimed at measuring the performance of various strategic interventions in the different sectors. One of the key policy objectives was support to the urban water utilities. In this regard, one of the PRSC targets was the payment of Government bills, a perpetual eyesore in many Government departments, and the resolution of NWSC Government debt. Failure to achieve any of these would result in a shortfall of the support to the Government budget. This was perceived as enforcement mechanism for the attainment of the performance contract goals.

Conclusion

In the case of NWSC, an overarching performance contract has proved an effective means of promoting internal re-engineering of strategies and of promoting focused operations. The performance contract has promoted good documentation and streamlined reporting processes. The discipline set out within the contract has been a key driver in the large improvements achieved by NWSC since 1998/99. The Corporation can safely claim to be on the path to sustainable growth with the old blocks and resistances to steady growth finally overcome.

However, for effective performance contract implementation, there is need for an internal tracking/monitoring system to ensure that remedial action taken in case of any failure. There is also need for local capacity to handle the formulation and development of contracts.

Finally, an empirical study aimed at isolating the effect of the performance contract with Government on performance would improve and strengthen the analysis of this article. ●

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Performance benchmarking in water and sewerage services regulation: principles and experiences

Performance benchmarking of various types is an integral part of regulation of the water and sewerage services in many countries. **RUI CUNHA MARQUES** looks at the principles and activities involved, as well as benefits and limitations.

Performance measurement of water and sewerage services usually highlights poor productivity and efficiency levels. This happens naturally, because these services are not subject to market forces but are subject to various market failures. Above all, they are natural monopolies that operate in a non-transparent way. Their institutional environment favours a quiet life and inefficiency, counter to the belief that monopolies maximise their incomes.

Because of this, using benchmarking can be a very important tool in enabling transparency and encouraging enhancements of service performance. By acknowledging its benefits, governments can promote the use of benchmarking as a regulatory tool, both for sector-specific and self-regulation.

The specialist literature refers to this new regulatory paradigm as yardstick competition (YC). YC's primary concept is based on performance assessment of the results of a given organisation compared to others from the same sector. Benchmarking is increasingly being adopted, particularly in regulatory systems that use price or revenue-cap regulation formulas, mostly of the kind CPI-X (i.e. changes in price or revenues of goods or services are limited to the increase in a general price index, such as the consumers price index (CPI), minus a factor (X) to reflect anticipated efficiency gains or productivity growth). Its application strengthens the fundamental principle inherent in incentive regulation, which is that it stimulates improvements in productivity. This article discusses performance benchmarking in water and sewerage service regulation, its benefits and limitations, and highlights some regulatory issues through case studies.

The role of benchmarking in regulation

Classification of benchmarking

Benchmarking can be defined, simply, as the process of seeking excellence through systematic comparison of performance measures to reference standards. In the water and sewerage

service sector it is usually divided into metric and process benchmarking (Kingdom et al, 1996). Metric benchmarking enables water and sewerage services to deal with internal performance over time and compare it with the sector's peers, whilst process benchmarking involves, first, identifying specific work procedures to be improved through a step-by-step process mapping and, then, searching for the industry best practices that lead to superior performance.

When benchmarking is used in a wider way, for example as part of regulatory activities, it can also be divided into top-down or bottom-up benchmarking (Marques, 2005). The first consists of analytical processes based on modelling group results at a very high level, whereas bottom-up benchmarking analyses individual practices and activities. Usually, top-down benchmarking determines global measures of efficiency and productivity and, in general, it is used by regulators to obtain information about the utilities' performance and its determinants, and to set more challenging objectives. The second group is mainly used by the sector to identify areas or activities that need to be improved, usually through a first stage where performance indicators (PIs) are used to make a diagnosis, followed by a second stage based on a decision-making process.

Means of determining efficiency

The best way of promoting customers' interests and providing value for money is, without doubt, to foster operator efficiency and productivity. Efficiency is defined as the comparison between the observed and optimal values of inputs and outputs, whereas productivity corresponds to the ratio between the outputs produced and the inputs consumed.

There are many benchmarking methods used to achieve this, divided into parametric and non-parametric techniques (Coelli et al, 1998). Parametric methods enable error measurement but can make it difficult to link a particular description to an activity. These methods can also be

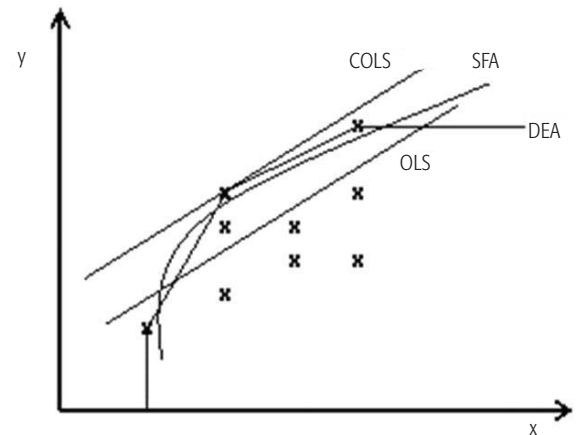


Figure 1: Efficiency computation techniques.

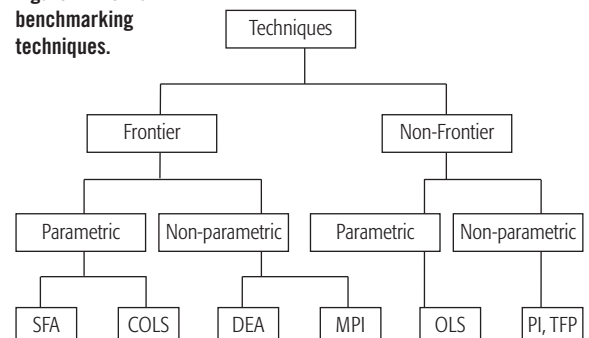
sorted into non-frontier or frontier types, i.e. benchmarks based respectively on average values or on best practice within the samples.

Figure 1 shows their main differences for a single input (x) and output (y) case. Figure 2 illustrates those classifications. Data envelopment analysis (DEA) uses mathematical programming and, like total factor productivity (TFP), is a non-parametric method or, in other words, it is empirically based. The others, such as ordinary and corrected least squares (OLS and COLS) and stochastic frontier analysis (SFA), demand the specification of cost production functions. DEA, SFA and COLS are frontier methods based on best performance units. OLS and TFP are non-frontier methods which identify a central tendency.

The majority of electricity regulators in Europe have adopted the non-parametric frontier technique of DEA (for example, Denmark, Finland, Norway, the UK, Sweden, Austria, The Netherlands and Portugal). Somewhat fewer have used the parametric frontier technique of SFA, regression methods (OLS or COLS) and TFP.

These techniques have also already been applied in the water sector, namely in the UK, Italy, Denmark,

Figure 2: The main benchmarking techniques.



Box 1 - Water service self-regulation in The Netherlands

In The Netherlands, water services are provided by 14 government-owned public limited companies (PLCs). One of the key aspects to highlight in the Dutch water services model is the use of self-regulation. VEWIN (Vereniging van Waterbedrijven in Nederland), created in 1952, is an association that represents the water companies whose major aim is to 'promote a healthy development of the public water supply in The Netherlands' (Swami, 2004).

The positive and proactive role of this association postponed not only sector-specific economic regulation, at least until 2006, but also its own privatisation since it has been able to keep the PLCs at the top of the performance league at a global level, meaning the potential efficiency earnings (from privatisation) are very limited.

These positive results are mainly due to the benchmarking system

implemented. The voluntary scheme adopted covers four aspects, namely water quality, economic efficiency, environmental performance and quality of service.

VEWIN is also responsible for various activities, inter alia, research, specialisation and production of a number of publications about the water services' areas, the achievement of their master plans in the medium term (10 years) and in defence of the rights and interests of its associates before governments, stakeholders and international entities.

The Netherlands' sewerage services are performed by its municipalities, of which there are some 535 players.

Sewage treatment is undertaken by water boards. Both the municipalities and the water boards have also adopted voluntary benchmarking schemes.

Australia and Colombia, among others. Nevertheless, the most popular benchmarking technique is the use of PIs. Their simplicity and easy interpretation encourage their use, but they are specially designed to assess quality of service and to measure productivity of individual activities that do not involve multiple inputs and outputs. This means they can only have a limited role in the economic regulation of water and sewerage utilities. Thus, despite their importance in the quality of service regulation, PIs do not enable the regulator to set prices and tariffs and for that reason they should be complemented with other techniques.

Appropriateness of benchmarking

The use of benchmarking in regulation is chiefly aimed at utilities where information is not freely available, where competition is not possible and the main actors have little incentive to reduce costs. Its success requires four conditions, namely the presence of market failures, the existence of private information, comparability between utilities and the possibility of checking information and processes (Canoy et al, 2000).

Benefits of benchmarking

The benefits of regulatory benchmarking depend on the features and institutional framework of the regulated sector. The bigger the market failures are, the greater will be the benefits that may come from using this methodology - at least, compared to other regulatory processes. Among its main advantages are strong incentives to be efficient and innovative, which mitigate the operational and capital costs, promotion of efficiency in capital expenditure, a 'fair' recovery of costs and a 'fair' rate of return on investments, as well as enhancement of information sharing and transparency, minimising the problem of the

Box 2 - The efficient Chilean model

Water and sewerage service regulation in Chile, which is coordinated by the Superintendencia de Servicios Sanitarios (SISS), is based on a variety of YC in which a model company is set for each operator. In this instance, there is no comparison with the other operators but with a hypothetical operator which will assume its present and future responsibilities and which is devised to work efficiently and effectively.

Its main advantages are the control over the operators' activities, especially for the investment level and the efficiency incentive, because the operators can retain all the efficiency savings and the heterogeneity problem is minimised as this system does not demand comparison with other operators in a particular operational environment.

SISS uses the efficient operator concept to determine the costs that are the basis for the setting of tariffs and which can further include expected productivity earnings (factor X). In Chile the maximum prices are defined for five years. The operators estimate their spending for the next 15 years and the possible spending required to accomplish their objectives. If new investments are foreseen the additional costs are estimated, otherwise the costs will be founded on the long-run marginal cost, which uses the efficient company principle. This principle focuses on economic efficiency, financial viability, equity and intelligibility, which enable the operator to provide services to the population more efficiently, taking into account the legislative and technological and geographical restrictions on its operation. For example, the maximum values allowed for water losses, as well as infrastructure rehabilitation requirements, are defined by the model. Figure 3 displays the setting of tariffs in the Chilean model.

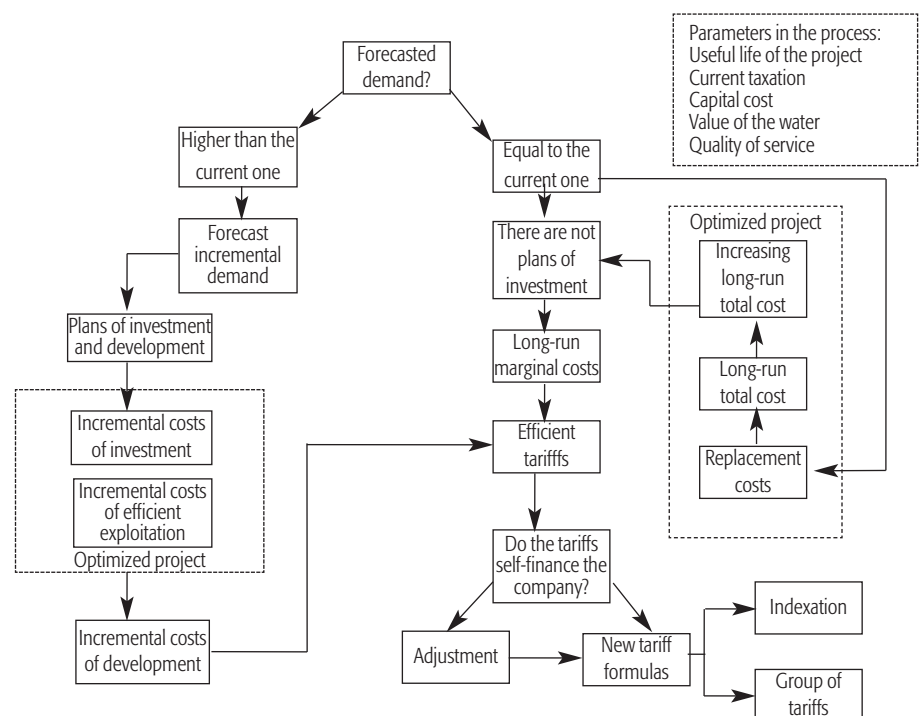


Figure 3: Setting of tariffs in the Chilean WSS (Chavez and Quiroga, 2002).

asymmetric availability of information between the various stakeholders.

Problems with benchmarking

The main problems in the use of regulatory benchmarking relate to fulfilling the principles involved, the methodology used (information quality and quantity, partiality and heterogeneity), the collusion hypothesis and manipulation of behaviour, and the regulator's commitment to the utilities. Regulated utilities have often argued that the techniques available are subjective and partial, allowing regulatory inconsistency and opportunism, which weakens incentives and increases the cost of capital. They have also argued that it is impossible to completely eliminate the diversity that exists in network services, which contributes to the partial nature of the regulatory process (they are effectively comparing apples with oranges).

They also say, in their defence, that not all kinds of costs are known or can be appropriately estimated and used in analysis (for instance, the quality issue is problematic), and that the differences between costs incurred by peer utilities can either be imputed to inefficiency or to errors inherent to the technique's application. Besides, they claim that the X parameter determination (in the CPI-X formula), which is only based on differences in efficiency between utilities, might not be appropriate. These arguments can be minimised if more than one technique is used and if consistency between their scores is tested and ensured (Bauer et al, 1998).

The yardstick competition model

The regulatory model

The YC model was developed by Andrei Shleifer, who presented a system of economic regulation for monopolies inspired by cost comparisons between different companies (Shleifer, 1985). It is based on performance evaluation of results from companies within the same sector (that is, benchmarking) and on possible consequences, whether financial or otherwise.

The key idea of this model is to tailor the incentive to efficiency improvements for a given operator through information obtained from the other operators in the sector. If, unlike its peers, an operator reduces its costs it will make profits, but if the opposite occurs it will suffer losses. YC can be voluntary or compulsory, or can even be imposed by self-regulation as in The Netherlands by VEWIN (see Box 1). There are different YC approaches, ranging from the simple publicising of performance to stricter forms such as

Box 3 - Water and sewerage regulation in England and Wales

The Office of Water Services (Ofwat) has used regression and also DEA models to determine the efficient costs that serve as basis for the X factors calculation (in the price cap formula) specific to each operator. Like Shleifer, Ofwat determines the efficient costs of each operator based on the other operators' performance, although it does not use any formula explicitly.

The efficient costs are transformed into X factors, which become the goals each operator has to reach in the next regulatory period. The computed X factors have two parts, one related to technological progress (the efficient frontier shift) and another related to movement towards the efficient frontier (the catch-up factor) of the operator under analysis.

It is mainly this second part that has as its basis the other operators' performance, in particular the most efficient ones. Ofwat determines the efficiency matrices that relate opex to the maintenance capex by considering qualitative and quantitative efficiency bands. Table 1 displays an efficiency matrix in England and Wales.

In the first two tariff revisions Ofwat seems to have favoured the catch-up factor. After closing the gap and in the last revision (2005-2010) the focus was on dynamic efficiency. To a lesser degree, Ofwat has also adopted the sunshine regulation, particularly by publishing operators' levels of service. In addition, also with the aim of improving the quality of service, Ofwat openly took into account the level of service performance in the price revision, rewarding the best operators and penalising the worst ones (carrot regulation).

Table 1 - Water services relative efficiency matrix (Ofwat, 1999).

A	Northumbrian		Southern, Thames, Yorkshire, Dee Valley, Portsmouth	Cambridge, North Surrey	
B	Anglian, Bournemouth & West Hampshire	Severn Trent, Wessex, Sutton & East Surrey	North West, Essex & Suffolk		York
C		South Staffordshire	Bristol, Tendring Hundred	Three Valleys	South West
D			Dwr Cymru, Folkestone & Dover, Mid Kent		
E			South East		
	E	D	C	B	A

CAPEX (only maintenance)

A - Well above average, B - Above average, C - Average, D - Below average, E - Well below average

the one suggested by Shleifer, upon which the utilities budgets are directly established.

Yardstick competition approaches

The YC principles, based to a greater or lesser extent on Shleifer's model, are present in a number of regulatory systems around the world. Despite its increasing popularity, the scope for using YC in the regulation of the water and sewerage sector is still small. In

most situations it is associated with the X factor determination in the price or revenue cap formulas (see Box 2).

However, there are other forms of YC, such as so-called sunshine regulation, the efficient company model, prospective payment budgeting, relative performance budgeting and carrot regulation.

The sunshine regulation approach can be implemented alone or together with other regulatory techniques and it

Box 4 - Water and sewerage service regulation in Italy

Since the publication in 1994 of the Galli Law (Legge Galli) the water industry in Italy has been under restructuring. Its main goals are the inclusion of the operators at an economic scale (by creating the ATO – Ambiti Territoriali Ottimali), cost recovery and incentives to corporatisation. The Galli Law created a sector-specific and independent regulator, the Comitato per la Vigilanza sull'uso delle Risorse Idriche (CVRI, whose functions include approving the Italian operators' tariffs, adopting a price YC approach).

It implemented, in 1996 (Law 1/8), a new procedure for setting tariffs based on the following equation. Here, the running cost is limited to a maximum ceiling of 30% (except if CRVI authorises it) beyond the theoretical value obtained by the formula:

$$T_n = (C + A + R)_{n-1} \times (1 + \pi + k)$$

where:

- T is the tariff for the next year;
- C corresponds to the running cost of the previous year;
- A represents the depreciation costs;
- R regards the return on capital employed;
- π is the CPI foreseen for the next year;
- k is the price cap.

The parameter computation is defined in the law. The running cost set here is obtained by statistical regression and constitutes the YC element of the methodology adopted. That is, for a particular operator, the running cost value depends on its peers in the Italian water sector. If it outperforms, it will make profits. If not, it will suffer losses.

is founded on the public display of the operator's performance results and on comparing them with the other operators in the same sector. The popularity of sunshine regulation in the water sector is proved by its many applications (in Portugal, Argentina, the UK, Australia, and so on).

In the efficient company model the regulator defines standard (efficient) behaviour for each operator. Here, there is no comparison with other operators but with a theoretical operator, taking into account current and future responsibilities, which is designed to show exemplary performance. This model, originally from Chile, has been extended to other countries (see Box 3).

Prospective payment budgeting is based on the concession of payments to the regulated operator, taking into account the inputs (costs) of providing a given service, common to all the operators, which is supported by the previous year's average costs. If the operator is able to spend less than forecast it will make profits, otherwise it will suffer losses. Relative performance budgeting is based on an individual evaluation of operators'

Box 5 - Utility regulation in the US

The US began to apply price cap regulation in 1989, to the AT&T company through the Federal Communications Commission (FCC). After this price cap regulation was extended to other sectors such as electricity, gas and water. The YC principles are very lightly applied here. In the US, the X factor is always explicitly determined based on TFP.

The computational formula used has not always been the same, but it has always been coherently rooted in index numbers. In general, two approaches have been taken. The first looks at the input prices specifically for the regulated sector, and it does not include any measure of outputs, using the following formula:

$$\text{Price}_{\text{industry}} \text{ change} = \text{Inputs}_{\text{ind.}} \text{ price change} - \text{TFP}_{\text{ind.}}$$

The second approach consists of a CPI generalised for the whole economy, that is:

$$\text{Price}_{\text{industry}} \text{ change} = \text{CPI} - X$$

where the CPI is equivalent to:

$$\text{CPI} = \text{Inputs}_{\text{econ.}} \text{ price change} - \text{TFP}_{\text{econ.}}$$

and the X factor to:

$$X = (\text{TFP}_{\text{ind.}} - \text{TFP}_{\text{econ.}}) - (\text{Inputs}_{\text{ind.}} \text{ price change} - \text{Inputs}_{\text{econ.}} \text{ price change})$$

This regulatory model has been accused of benevolence, as it does not sufficiently promote productivity, mainly because of the mild version of benchmarking used. This has led to some recent arguments about the possibility of replacing index numbers by MPI in the TFP computation. This more demanding approach is still being debated and is likely to be approved.

outcomes. This method involves a kind of game where the highest budgets come up as a reward for the best performances. Carrot regulation is rooted in the awarding of prizes, either monetary or not, to the operators with the best performances.

YC in water and sewerage services

In water and sewerage service regulation there are usually two YC approaches (Marques, 2005). The first, generally stricter, approach relies on

benchmarking to set operators' prices and tariffs (this is called price YC). The types of benchmarking used (DEA, TFP, OLS and SFA) depend on the bodies and the characteristics of the countries involved (see Boxes 3 and 4). These methods are mainly used to estimate productivity gains anticipated from each water and sewerage operator during the regulatory period.

These targets have two elements. One refers to static efficiency 'catch-up' targets to bring companies

Box 6 - Water and sewerage services regulation in Portugal

In Portugal, one of the main objectives the sector regulator (IRAR - Institute for the Regulation of Water and Waste) is trying to achieve, at least in the first phase, is quality of service regulation by using the sunshine approach.

IRAR developed a set of PIs for the regulated activities of the water, wastewater and solid waste sectors. It is intended to publish them annually and those operators that have poorer performance are expected to be embarrassed and, as a result, correct the under-performance highlighted. It should be noticed that sunshine regulation does not fix tariffs and its coercive power is, almost always, limited. However, the publication and public discussion of the operator's behaviour produces very positive effects as it introduces competitiveness and leads to a gradual performance increase for the whole sector.

Sunshine regulation is particularly aimed at controlling quality of service, mainly when the operators' rights and obligations are defined in a contract. It also occurs as a transitional phase when the intention is to move towards a stricter and more interventionist regulatory process or when the sector is very fragmented (Marques, 2005).

These three reasons justify the use of sunshine regulation in Portugal. The year 2005 corresponds to the first year of the regulatory model being implemented and the first results seem very satisfactory. Table 2 shows the water supply PIs specified by IRAR for the bulk water supply and direct water distribution systems, both managed individually and together.

Table 2 - PIs for water supply proposed by IRAR (Alegre et al, 2004).

PIs	Bulk supply	Direct distribution	Both
Protection of use interests			
<i>Use service accessibility</i>			
Service coverage (%)	✓	✓	✓
Average water charges (€/m ³)	✓	✓	✓
<i>Quality of service supplied to users</i>			
Service interruptions (no/1000 SC/year)	✓	✓	✓
Water tests performed (%)	✓	✓	✓
Quality of supplied water (%)	✓	✓	✓
Answers to written complaints (%)	✓	✓	✓
Sustainability of the operator			
<i>Economical and financial sustainability</i>			
Operating cost coverage ratio (-)	✓	✓	✓
Unit running costs (€/m ³)	✓	✓	✓
Solvency ratio (-)	✓	✓	✓
Non-revenue water (%)	✓	✓	✓
<i>Infrastructure sustainability</i>			
Fulfilment of the water intake licensing (%)	✓	-	✓
Treatment utilisation (%)	✓	-	✓
Transmission and distribution storage capacity (days)	✓	✓	✓
Mains rehabilitation (%/year)	✓	✓	✓
Service connection (SC) rehabilitation (%/year)	-	✓	✓
<i>Operational sustainability</i>			
Mains failures (no/100km/year)	✓	✓	✓
<i>Human resource sustainability</i>			
Employees (no/100km/year) or (no/1000 SC)	✓	✓	✓
Environmental sustainability			
Use efficiency of water resources (%)	✓	✓	✓
Use efficiency of energy (kWh/m ³ /100m)	✓	✓	✓
Final destination of sludge (%)	✓	-	✓

SC = service connections

closer to the efficient frontier (best practices) – for that, DEA, SFA or OLS techniques are generally used. The other corresponds to industry-wide dynamic efficiency targets (innovation) relative to improvements in the efficient frontier (changes in production technology) during the regulatory period. Most of the time, TFP is used for this purpose. TFP is a measure that takes into account all inputs and outputs, being a generalisation of partial productivity measurements (PIs). There are several ways of estimating TFP, such as index numbers (for instance Laspeyres, Fisher or Törnqvist) and Malmquist productivity indexes (MPI) (see Box 5). As water and sewerage service regulation in England and Wales proved, generally, in the first stage, the focus is on closing the efficiency gap with the efficient frontier, so techniques such as OLS, SFA and DEA are preferred. In the second stage, when the inefficiency level is lower, innovation is a favoured indicator and so TFP is used.

The second use of YC application relates to sunshine regulation, which, as explained, consists of comparing and publicly discussing operators' performance (see Box 6). Operators become aware of their performance through the pressure put upon them by their stakeholders (customers, media, politicians, NGOs and so on). The operator that performs poorly gets embarrassed and, as a result, tends to correct the failings uncovered.

This light-handed type of YC is often less severe, but this does not mean that its results are worse. Sunshine regulation is being used in a number of countries. The water sector is highly fragmented, not yet subject to much regulation (by a sector-specific regulator), and usually is the responsibility of municipalities. These characteristics, together with the added value it provides to franchise contracts for quality of service regulation, justify the success of sunshine regulation within the sector. Besides, this approach can sometimes work as a first stage ahead of the implementation of a second stage in which a more demanding and tighter regulatory process takes place (see Box 7).

Conclusions

The use of benchmarking in regulation has a number of advantages. It fosters efficiency and productivity earnings and supplies information about efficient costs (opex and capex) requirements, and reduces the regulated operator's information deficits. Despite the care that has to be taken, for example, in selecting appropriate models, the accuracy of

the resulting efficiency scores, the 'idiosyncratic shocks' and quality issues, the adoption of (YC) benchmarking should be encouraged.

The benefits of using this regulatory model are easy to see in the case studies illustrated in this feature, as is proved by the cost reductions and performance improvements achieved. Benchmarking is not a panacea but it is, undoubtedly, one of the best ways of introducing best practice and of providing value for money in the water sector. ●

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Box 7 - Melbourne water and sewerage services regulation

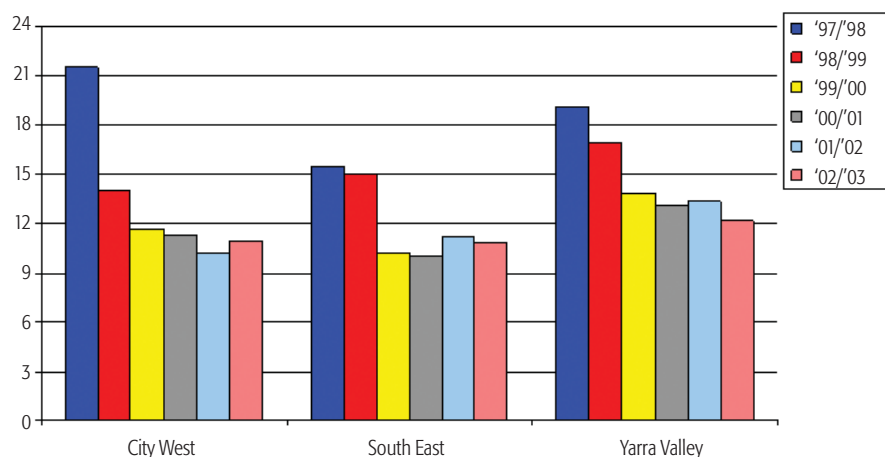
The Melbourne water and sewerage services operator, in the Australian state of Victoria, has been regulated based on the YC sunshine approach. As a result of the Melbourne Water restructuring, in 1994, the Office of the Regulator General (ORG) was endowed with regulatory functions, inter alia, of publicising performance as well as comparing performance between operators.

Until 2003 the regulator was responsible, above all, for the quality of service, including aspects such as the quality of the supply (for instance, water quality and quality test compliance), service reliability (for instance interruptions, non-revenue water and blockages), the availability of services (such as prices, special customer facilities and non-payment options) and customer service (for instance call centres, claims and customer satisfaction levels).

The performance reports show a clear improvement in the operators' levels of service. The good outcomes from this light-handed type of YC are well tested and proven in this instance. Figure 4 highlights the evolution of the non-revenue water indicator. However, even if from the point of view of quality of service sunshine regulation has undeniably had positive consequences, the efficiency and productivity gains can be (or continue to be) far from those desired.

Because of this, ORG was replaced by the Essential Services Commission (ESC). Its role was broadened from quality of service regulation to include economic regulation from 2004 onwards. Although the final blueprint for regulation is not yet well defined, it is known that the role both of benchmarking and YC will be extended to setting prices and tariffs.

Figure 4: Evolution of non-revenue water in Melbourne WSS, Australia (ESC, 2003).



The role of ratings in water sector financing

One option that may be open to water utilities to finance their activities, or which governments may be considering as an option for them, is to take on debt. **KEITH HAYWARD** looks at the role of credit rating agencies in this approach and at how the factors they look for, such as predictable tariff regimes, reflect what should be the foundations for general reforms.

One of the biggest challenges facing any water utility is how to finance its activities. 'Essentially, the best and most efficient way to finance them is by taking on debt, whether it is through bank loans, or going to the capital markets and raising bond finance, or by getting money from multilateral agencies,' says Michael Wilkins, a managing director with ratings agency Standard & Poor's.

'Water utilities are by and large stable businesses with stable cash flows, based on the fact that they provide an essential service, they have quasi-monopolistic status, they usually have some level of government [or] municipal backing, and they have the benefit of having the stability of some kind of regulatory or tariff regime,' says Wilkins. It is this, combined with the fact that they are capital intensive, that makes debt financing so suitable.

This is where the handful of credit rating agencies can come in. 'We provide opinions on the creditworthiness of a company or its debt obligations. Essentially, we give a letter rating which signifies what the probability of getting paid on time and in full is for a particular company or its debt issue,' says Wilkins. 'From the point of view of a water utility... ratings can provide assistance by giving an independent benchmark and indicator of what [the] credit quality is and that ultimately determines not only the amount of debt finance they can achieve but also at what price it can be achieved.'

It is not essential to obtain ratings, but Wilkins is sure it is beneficial: 'If you get a credit rating, it opens up

doors to a much wider investor base. You can then go into the international capital markets, issue bonds which have a much higher amount of debt [and] with much longer maturity, so ultimately there will be greater liquidity in your debt instrument, which means it will be cheaper.'

An interesting aspect of this is that ratings can basically be viewed as informed opinion rather than, say, regulated information as might be found in audited accounts. 'It is not an audit. It is more of a benchmark tool to help investors make their decisions,' comments Wilkins.

This means that the agencies can potentially form different opinions about any given set of circumstances. 'There will always be different nuances,' comments John Hatton, a managing director at Fitch. 'The main thing is the rating agency makes very clear on what basis it did its rating analysis and its assumptions. If that is clear, bond holders can choose whether they like those assumptions being made or whether they don't.'

Given this potential for a difference of opinion, companies may wish to be rated by more than one of the agencies. 'The reason for that is because we don't always come out the same, so it is like a cross-check, making sure there is a second opinion, maybe even a third opinion,' says Wilkins. 'It's important to investors to make sure that there is a second view,' although he adds that it is not absolutely necessary.

But having acknowledged this potential for differences of opinion, it is important for each agency that the ratings it gives provide a meaningful basis for comparison. 'We always say that a BBB assigned to a water

Rating the water sector around the world

Below is a selection of water-related organisations which are or have been rated, as shown by the websites of the main ratings agencies.

Australia

Melbourne Water Corporation
Sydney Water Corporation

Brazil

Companhia de Saneamento Basico do Estado de Sao Paulo

Canada

Greater Vancouver Water District

France

Suez S.A.
Veolia Environnement

Germany

Gelsenwasser
Wasser und Gas Westfalen GmbH

Italy

Acea SpA
Acquedotto Pugliese SpA

Korea

Korea Water Resources Corporation

Mexico

Aguas del Municipio de Durango
Comision de Agua Potable y Alcantarillado del Estado de Quintana Roo
Comision Estatal de Aguas, Queretaro
Junta Municipal de Agua Potable y Alcantarillado de Mazatlan

Organismo de Agua Potable, Alcantarillado y Saneamiento de Tlalnepantla (OPDM) Servicios de Agua y Drenaje de Monterrey (SADM)
Sistema de Agua Potable y Alcantarillado de Leon (SAPAL), Guanajuato
Sistema Municipal de Aguas y Saneamiento Torreón, Coahuila
Sistema Intermunicipal para los Servicios de Agua Potable y Alcantarillado

Poland

Miejskie Wodociagi i Kanalizacja Sp. z o.o. in Bydgoszcz ('MWiK')

South Africa

Rand Water
TCTA-Berg Water Project
Umgeni Water

Spain

Sociedad General de Aguas de Barcelona S.A.

United Arab Emirates

Ajman Sewerage (Private) Co. Ltd.

United Kingdom

Privatisation in 1989 meant each of the main water and wastewater operators became a water services company under the ownership of a parent company. Examples from the UK show the diversity of approaches taken there, especially as approaches to financing have evolved since privatisation.

Anglian Water Services Financing plc
Artesian Water Finance plc
Artesian Finance II plc

Catchment Tay Ltd
Glas Cymru
Dwr Cymru (Welsh Water)
Kelda Group plc
Yorkshire Water Services Ltd
Northumbrian Services Limited
Northumbrian Water Limited
Thames Water Limited
Severn Trent plc
Severn Trent Water Ltd
South East Water Ltd
Southern Water Services (Finance) Ltd
Stirling Water Seafeld Finance plc
Sutton & East Surrey Water plc
Three Valleys Water plc
United Utilities plc
United Utilities Water plc
Wessex Water Ltd
Wessex Water Services Ltd

USA

The US is by far the biggest user of water sector credit ratings, with hundreds of water and wastewater service providers having ratings. This reflects the way the sector is set up, with public sector financing carried out through bond issues. Some of those having ratings are however rated as corporate entities, with other variations including asset-backed securities (Los Angeles Department of Water & Power and New York City Municipal Water Finance Authority) and project financing options (Tampa Bay Water).

Sources:

www.fitchratings.com
www.moodys.com
www.standardandpoors.com

company should mean the same as a BBB to an airline [or] to a supermarket chain,' says Wilkins, 'It has got to mean the same thing – [that] the probability of default is the same – because otherwise ratings don't have any real comparable meaning for investors. So ensuring that consistency is the most important thing for us.'

John Hatton agrees, pointing out that comparisons need to work internationally too: 'We have to be consistent... Within the UK we also have to be consistent [so that] a single A in the UK is the same as a single A in the US.'

Diverse options for the water sector

Just what a challenge this is in the water sector alone becomes apparent once the diversity of the entities that can be rated is considered.

'The main one that we would do is a straightforward bond, a senior unsecured bond, for a corporate,' explains Hatton, pointing to typical examples such as a water company in the UK which owns the assets, a French operating company, or, as with

Agbar in Barcelona, a company which is an operating company and has assets. He points to revenue bonds in the US, which are financings for specific assets but backed by the water company. He also cites an example from Poland. 'We have done a revenue bond there, which is basically a very provincial town that has a tariff setting, where they own the

'When we look at the business risk of any water utility, one of the key components in our assessment is the regulatory risk or regulatory regime.'

Michael Wilkins, Standard & Poor's

assets and also operate.'

Such bonds are typically 15–20 years or maybe longer and on a senior unsecured basis. Most entities are public, but they can be ratings of private companies, such as Wessex Water in the UK. Or they can be state-owned. 'The Polish one we do is state-owned,' says Hatton. 'In theory in the UK we could rate Scottish Water. It

can be both. In Italy and in Germany you will find a lot of the water companies are municipality-owned and we can do that as well.'

On top of this there are other types of entities that can be rated. These include situations where structured financing is used, as is the case in the UK with Anglian, Southern and Welsh Water. 'They are basically similar to the normal corporate except that they would have many more financial covenants or operational covenants as to what the company can and cannot do. Those covenants are also required because there is tranching of debt, which means you have senior debt and junior debt and [covenants] that protect the senior debt from junior debt action... Often the underlying business is very much the same. It is just that securitisation provides many more parameters for each creditor to limit the risks assumed. Therefore you can start segregating the tiers of debt according to the different risk profiles.'

Another example is asset-backed securities, which Hatton refers to as 'quasi-revenue bonds'. Examples of

where this approach has been taken include Los Angeles and New York in the US. 'Often it is a specific piece of infrastructure that the water company will remunerate. In other words, it may have built a particular treatment centre and that is then pledged to those bond holders and the water company says that it will remunerate that asset over 15, 20 years, whatever it is, and that is what the revenue bond is pledged on. It is not pledged on all of the company's assets; it is primarily on one particular piece of infrastructure.'

Ratings are also provided on project finance-based activities, which tends to be based around the construction of new assets. 'For the revenue bond, normally the asset is up and running, it doesn't always take construction risk up front, whereas project finance is very much perhaps a new pipeline, a new dam, a new piece of infrastructure, often done in a highly levered way, over a 30 year concession, that sort of thing, with minimum equity underneath,' says Hatton.

Given the diversity of the types of entities that can be rated, the ratings will be carried out by different teams of specialists. 'Where the water company is owned by the municipality and the rating is primarily reflective of the company being very heavily supported by the municipality, i.e. the municipality would not allow it to go into default, then it is done by the public finance team,' says Hatton. 'Where there is commercial risk, either through regulation or they take the risk of tariffs going up or down, or there is the project finance type risk, where it is not backed by an explicit or implicit government guarantee then it is done by corporates or project finance.'

Ratings and regulation

One consequence of opening up these options, certainly in the UK, is that this has led to a diversity which must be accommodated by the regulatory framework. 'It is amazing that [the economic regulator] Ofwat has managed to play a level playing field,' says Hatton. 'You've got very under-leveraged entities like Yorkshire and you've got highly leveraged entities like Anglian and Welsh. You have Welsh which is not a public company, it is a company limited by guarantee... Northumbrian has now gone public... It's quite a diversity and each of them has chosen a different capital structure as well.'

What is more, there is direct two-way interaction between the ratings process and regulation of the water sector. On the one hand, as pointed out by Mike Wilkins above, ratings affect the amount and price of

Justifying the ratings

Ratings summarise in just a few letters the opinions of the agencies about the prospects of the entities they rate, but alongside this the agencies issue documentation to support their decisions and to establish confidence in their understanding of the sector in question.

Moody's, for example, set out a revised rating methodology for the UK water sector in mid-2002 at a time when debate was underway about restructuring in the industry. This looked at the rating implications of alternative funding models for the water and sewerage companies, its approach to analysing the financial strength of a structured financing in water, and at how the assurances relating to such structured financing compared to regulatory requirements for company finances to be ring-fenced.

Moody's followed that report with another earlier this year. This discussed the main financial ratios used to compare water company financial profiles in the UK, how it assesses the debt as stated by the water companies, and gave definitions of other metrics used in analysing the credit quality of UK water utilities.

Sources:

The UK water sector: financial parameters and structural enhancements for leveraged financings – Rating methodology, July 2002
UK water sector: key ratios used by Moody's in assessing companies' credit strength – Special comment, March 2006

debt that can be obtained and so must be factored in as part of the regulatory framework. On the other hand, regulation, particularly in relation to tariffs, has a real impact on ratings.

'When we look at the business risk of any water utility, one of the key components in our assessment is the regulatory risk or regulatory regime,' says Wilkins. 'Essentially we believe that it is fundamentally important for the

revenues of any company.

'One of the reasons why we are very comfortable with the UK is that there is a transparent, open, predictable regulatory regime for water utilities, where we can tell how the tariffs will be set, what drives the cost of capital, what kind of efficiency targets will be set... If you go into a country where none of that exists, it is all down to the vagaries of a government department, with annual budget setting priorities... then we start to lose confidence in the regulatory regime. Ultimately the credit is affected and that means the ratings will be affected.'

These views are echoed by John Hatton. 'The key thing is the volatility of those tariffs... If the companies cannot forecast that they can increase the tariffs, that means they will cut down on the capex, which means that water quality or discharge of sewage suffers... Clearly the best answer will be for regulatory systems in these areas to allow companies to set returns for the infrastructure which they have to do for the common good.'

'If companies want to raise debt, they have to get a rating, which will inevitably expose the rate setting or the tariff setting mechanism... If a rating

'The key thing is the volatility of those tariffs... If the companies cannot forecast that they can increase the tariffs, that means they will cut down on the capex, which means that water quality or discharge of sewage suffers.'

John Hatton, Fitch

credit of a water company to have an operating environment where there is transparency in the way that it is governed and the way that it is regulated. By that we mean there needs to be an established framework for regulation especially related to tariffs, because that essentially drives the

Providing a perspective on projects

Ratings also come into play in the water sector in the context of project-based financing, as illustrated by South Africa's Berg Water Project, which is delivering a new dam near Cape Town.

The project is the responsibility of TCTA, a state-owned body responsible to the Department of Water Affairs and Forestry. TCTA is the funder of the project, with the City of Cape Town being the end user. The project is being implemented through an agreement between TCTA and DWAF. Under this, DWAF is responsible for payment of a tariff set at a level to repay debt over 20 years and has undertaken to continue paying TCTA if the raw water supply agreement with the City is terminated.

Positive factors relating to the rating are that the project is self-funding over 20 years, has a strong level of government support, and it involves experienced constructors and project managers. Negative factors are possible project delays, the threat of material cost overrun, and the fact that a prolonged drought could affect development of the project.

Source:

TCTA-Berg Water Project credit analysis. Fitch Ratings, March 2006.

agency goes in and says “What is your guarantee that over the next 25 years you are going to get the correct amount of profitability to service, to operate and to repay your capital back over time?”, if they cannot show a robust methodology being adopted or a transparent mechanism, then there are going to be a lot of questions raised. If they are municipality owned, we will simply have to ask the council, “Are you going to back your water company?”, to which they will turn round and say, “Well, we are one political colour at the moment, but there will be a new political colour in two years’ time.” That is not the way to run a water company that should have a transparent, economical, viable and sustainable objective-setting tariff mechanism.’

Given this, ratings must be considered during regulatory reform. ‘We are often asked by government departments who are reforming their water utility sector or power sector, what kind of things would we like to see for us to be comfortable at having investment grade for utilities going forward,’ says Mike Wilkins. ‘I was recently in Russia and I was doing a speech just on that topic for the power sector, not in water, but it is a similar thing – what kind of system will you need to put in place for you to be comfortable that there is a level of stability and predictability in the regulatory regime which can support investment grade ratings.’

Ongoing obligations

While tariffs and the wider regulatory regime might be somewhat out of the hands of a utility, this is not the case for other factors that may impact on ratings. ‘Once we assign a rating, we actually provide surveillance on the rating, which means that we keep the rating alive or fresh,’ says Wilkins. This means looking at matters such as the replacement of assets and operational issues. ‘So, if we think the asset replacement policy has gone down or the management is going off on the wrong track, or whatever, we will change the outlook to negative, and that is an indicator to lenders and bond holders that over a two year timeframe the trend for credit is downwards.’

Utilities will also need to be alive to any potential impact on their rating as a result of other business decisions. ‘If they are thinking of, say, making an acquisition or maybe increasing their debt and paying out to shareholders for a share buy-back, which has happened on some occasions, they will more often than not be quite concerned about the impact it will have on their rating,’ says Wilkins. While companies may use other advisors to assess any

Meeting municipal needs, the French way

A further way that municipal activities can be structured so as to allow access to capital markets to meet funding requirements including those of the water sector is illustrated by France’s ‘Communautes Urbaines’ (CUs). Here the funding goes towards the whole range of municipal responsibilities, with water / sewerage representing around 20% of overall expenditures.

Together France’s 14 CUs represent a total of over 350 municipalities and 10% of the French population. The first CUs were established in the late 1960s, and the list now comprises Alençon, Arras, Bordeaux, Brest, Cherbourg, Le Creusot, Dunkirk, Lille, Lyon, Le Mans, Marseille, Nancy, Nantes and Strasbourg. Each has been designated an EPCI (Etablissement Public de Cooperation Intercommunale). This allowed 11 of the 14 to launch a joint bond issue totalling €106 million at the end of 2004. This was followed by a €103 million launch by all 14 in October 2005. Both were rated by Moody’s using its methodology for structured finance transactions.

According to Moody’s, the CU’s status as EPCIs indicates ‘that they were specifically established with the aim of sharing municipal resources so as to generate economies of scale in the management of numerous clearly defined local responsibilities. In contrast to the inter-municipal bodies that have been developed in Germany or Spain... many EPCIs, such as the CUs, have genuine financial and administrative autonomy to manage a number of competencies for which they are fully responsible.’

Source:

Communautes Urbaines de France (French Urban Communities): A creditworthiness reflecting average good financial position, but growing constraints in the future. Moody’s Investors Service, May 2006

potential impact, this is another way in which the rating agencies can provide an input. ‘Ultimately the best way to find out is to come to a rating agency directly,’ he comments.

While there is potential for ratings to change, the intention is that they should not need to do so. ‘When we assign a rating for the first time, we do that on the understanding that we expect that rating to be stay there at least for a good five years or more,’ says Wilkins. ‘We are aiming for stability. If there is a change in the rating, either upwards or downwards, it is because something unexpected has happened

outside what we thought would happen, and that can be quite a shock.’

This highlights the potential significance of ratings agencies in the lives of water utilities. ‘If we do upgrade or downgrade a rating it is a big concern, and it will affect the pricing,’ says Wilkins. ‘It is not done on an arbitrary basis, it is done because we genuinely think there is going to be a change in the credit quality, that there is going to be a change in default probability... Ultimately if it is a downgrade that means the company will find it much more expensive to raise new loans or bonds.’ ●

‘We are often asked by government departments who are reforming their water utility sector or power sector, what kind of things would we like to see for us to be comfortable at having investment grade for utilities going forward.’

Michael Wilkins, Standard & Poor’s

When ratings are downgraded

An example of how a water utility’s credit rating can be affected is provided by the UK’s Sutton and East Surrey Water. The company is one of the 13 regulated water only companies in England and Wales, which exist alongside the main water and wastewater companies. Fitch downgraded its ratings at the end of May, while Standard & Poor’s downgraded its ratings at the start of June.

Fitch downgraded the company’s long term default rating from ‘A minus’ to ‘BBB+’, but affirmed the rating outlook as stable. In its announcement of the downgrade, Fitch drew attention to Sutton and East Surrey Water’s intention to undertake a £12M special dividend payment which, it said, would increase the company’s leverage (debt / regulated asset value ratio) to close to a trigger value of 80%. Fitch noted, however, that it did not believe the company’s new owner intended to exceed this trigger value.

In a similar move, Standard & Poor’s also downgraded its long-term corporate credit rating from ‘A minus’ to ‘BBB+’, but adjusted its outlook from negative to stable. Standard & Poor’s stated that the negative outlook had been due to news that Sutton and East Surrey Water’s owner, East Surrey Holdings, was to be acquired by Kellen Acquisition. This sale went ahead, with a subsequent sale on to Aqueduct Capital (UK). Standard & Poor’s analyst Ana Nogales commented: ‘The downgrade reflects our expectation that SESW’s financial profile and capital structure will weaken as a result of Aqueduct Capital’s more aggressive financial policy.’