

MARCH 2011
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water utility management

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The need for a new model of water pricing

First EBRD support for Turkish water sector

The European Bank for Reconstruction and Development has provided two loans totalling €16 million (\$22.5 million) to a Turkish private sector operator, the Task Group, in what represents the bank's first financial support for the water sector in the country since it began operations there in 2009. The bank's board of directors is now set to consider a further water sector loan, to the municipality of Bodrum.

The loans to the Task Group are very much consistent with the early priority identified in the Bank's strategy for Turkey for 2009-2012 of providing support to micro, small and medium sized enterprises.

The prospect of support for Bodrum marks progress with a medium term operational priority identified in the strategy, of supporting vital utility services on a non-sovereign basis. As well as physical works, this project would include institutional aspects such as completing a transition to corporatisation of the municipality's water and wastewater services and supporting tariff reforms.

Task is a joint venture between Turkey's Afken Holdings and Dutch group Karden NV, which is active in the infrastructure sector through its Tahal Group. Task was set up in mid-2005 to undertake concession

contracts in Turkey. According to EBRD, the loans have been signed with two regional branches of the group, Task Güllük and Task Dilovasi, and will finance the Task's planned investments in the country's water and wastewater infrastructure.

The project with Task Group effectively ticks many of the boxes of what we are trying to achieve in Turkey at the moment,' commented Jean-Patrick Marquet, EBRD's Director for Municipal and Environmental Infrastructure, speaking to WUMI.

Task won a drinking water and wastewater concession in August 2006 for the municipality of Güllük, on Turkey's Aegean coast in the southwest of the country, 30km northeast of Bodrum. The 35-year contract was assigned to Task Güllük.

Task Dilovasi was founded in 2007 and in the same year won a 29-year Build Operate Transfer contract for the construction and operation of a wastewater treatment plant for the Dilovasi Organized Industrial Zone, about 70km southeast of Istanbul. The treatment plant entered operation early in 2010.

In a statement issued by the bank, Ahmet Tuna Ozaner, Task Group's CEO, commented that the funding will go towards refinancing and extending existing projects.

Subsequent to the successful provision of the Task loans at the end of last year, a further EBRD project for Turkey, to support improvements for the municipality of Bodrum, has passed its initial concept review. EBRD's Board of Directors is to consider the project further in early May.

According to the Bodrum project summary document released by the bank, EBRD would provide a senior loan of up to €7.5 million (\$10.5 million), with local contributions and technical cooperation taking the total project cost to up to €8.7 million (\$12.2 million). The proposed project would cover water loss reduction, expansion of network connections and improvements to wastewater treatment. Key institutional improvements are also planned. These include completing a move to corporatisation of the water and wastewater services, supporting tariff reform, and introducing a public service contract between the municipality and the new corporatised water service.

According to EBRD, an estimated €60-70 billion (\$84-98 billion) will be required over the next 15 years to order to bring Turkey's water and wastewater infrastructure up to EU standards. ● KH
See *Analysis*, p7

New operator for Adelaide

The government of the state of South Australia has awarded a contract to a Suez Environnement joint venture to supply water and wastewater services to 1.1 million customers of state-owned utility SA Water in the city of Adelaide and the surrounding area.

The news came just ahead of the announcement that SA Water had been awarded nearly AUD\$14 million (\$14.1 million) for overpricing by United Water, the previous incumbent.

The new joint venture for Australia's fifth-largest city, AllWater, comprises Suez Environnement and its subsidiary, Degrémont, in partnership with Transfield Services.

Suez has said that the contract will generate a global revenue of €840 million (\$1.158 billion). The contract will operate as a public-private partnership bringing together SA Water and the joint venture.

Suez and Degrémont will hold 50% of the contract and Transfield Services 50%. The contract represents a total revenue of

€420 million (\$579 million) for Suez.

The joint venture will oversee the entire water cycle, which includes operating and maintaining six water treatment plants, six wastewater treatment plants, the 16,000km water network, as well as recycled water schemes and minor capital works. The ten year contract starts in July and has an optional six-year extension.

Suez Environnement CEO Jean-Louis Chaussade said: 'This first contract to operate and maintain water services in Australia represents a milestone for Suez Environnement... this new contract strengthens our position in the Australian water market and is in line with our long-term partnership strategy with the country's authorities.'

The previous consortium, Veolia subsidiary United Water, agreed with SA Water that independent experts should assess the utility's claim for overpricing during the period between 2001 and 2006. SA Water now expects an examination of the period between 2006 and 2011. ●

Abu Dhabi regulator sets out priorities

Abu Dhabi's regulator for the water and electricity sectors, the Regulation & Supervision Bureau, has set out its 2011 annual work plan and the five-year sector perspective for 2011-2015.

RSB sets out its strategic priorities in the document, including that one of its goals is to encourage more efficient water use and to increase the amount of water recaptured after use.

Total desalination capacity is set to grow from 916MGD this year to 934MGD in 2014. This could rise to 1103 MGD in 2015 if further expansion of the Fujairah and Taweelah plants takes place.

Key activities for 2011 will include reviewing the audited information now available for 2009 on the actual spending carried out by network companies. RSB price controls for 2006-2009 involved provisional allowances for capital expenditure. The review allows RSB to adjust the network companies' asset values if spending was not as anticipated. ●

Bulgaria pushed on rate of sector reforms

The European Commission has asked Bulgaria to urgently submit an action plan for reform of its water supply infrastructure following concerns about its delivery on promises to push improvements forward.

In a letter to the country's regional development minister and environment minister, EC director on regional policy Dirk Ahner warned that the country is lagging behind the sector's restructuring, which was a condition for payment of €1.5 billion (\$2.1 billion) in EU funding for water supply projects to 2013.

To gain the funding, Bulgaria passed a law in 2009 to establish regional water associations, which will take control of water supply and wastewater infrastructure for use by local water supply organisations. The reorganisation consolidates the ownership of the water and wastewater infrastructure, which was divided between the state, local municipalities and private firms.

Bulgaria is reported to have drafted a plan to develop the sector as well as a sector strategy, and was due to establish the water associations by the beginning of January. The water associations already exist as legal entities, but had not been enacted on the ground. ●

Northern Ireland customers critical of utility's winter performance

The Consumer Council for Northern Ireland has issued a report that condemns Northern Ireland's response to the widespread pipe bursts experienced over the Christmas and New Year period that at times left up to 40,000 people without mains water.

The consumer-focused report notes that 'NI Water's inability to respond reflects failure on a monumental scale and the impact on citizens across Northern Ireland was devastating'.

The report draws on consumer experiences and is not part of the Northern Ireland Executive's independent review of the crisis, though the consumer body pledges that it 'will work hard to ensure that any decisions made take account of the recommendations which consumers have provided in this report'.

The Consumer Council suggests a widespread dissatisfaction with NI Water, saying: 'Consumers are frustrated because in their view much of the distress caused by the recent water crisis was avoidable. The Consumer Council shares that view. It is of no comfort to consumers that the Consumer Council has asked for a copy of NI Water's Major Incident Plan since March 2007 but have never been provided with it, despite our statutory role.'

As well as individual consumer feedback, the report also focuses on the experiences of the port of Kilkeel in County Fermanagh, which has experienced ongoing supply problems for 15 years.

The report notes: 'Their story and the experiences of water consumers in Kilkeel on 3 February 2011 are a reflection of a water company which does not deliver a quality service to its customers.'

'The recent crisis simply amplified the problems which water consumers experience on an ongoing basis. There is an urgent need for NIW – and all those with a responsibility for the performance of NI Water – to step up and play a stronger role in giving consumers confidence in a service worth investing in.'

First Minister Peter Robinson called NI Water's response 'shambolic' and 'ineffective'. ● **LS** See Analysis, p9

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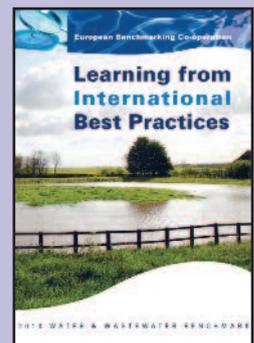
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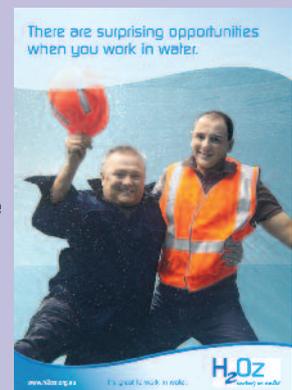


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Marubeni progresses towards 'top ten' target

Japan's Marubeni Corporation has made progress towards its stated goal of becoming a global 'top ten' water sector company within the next three years thanks to a joint purchase of Aguas Nuevas, the third largest water and wastewater utility in Chile. Alongside this, the company has acquired a 40% stake in Australian membrane specialist engineering company Osmoflo Holdings.

Marubeni announced its joint purchase of Aguas Nuevas with the Innovation Network of Japan late last year. Purchased from Capital Riesgo Global Co., a subsidiary of Santander Bank, Aguas Nuevas includes three water and wastewater subsidiaries, Aguas del Altiplano, Aguas Araucania and Aguas Magallanes, in north, central and south Chile respectively. These have concession contracts that run until 2034. Together they serve a total population of 1.2 million, with around 370,000 customers for potable water.

Marubeni has been active in Chile's water sector since 2006, through its ownership of the Chilean water service company Aguas Decima, a permanent concession serving approximately 140,000 inhabitants.

Keisuke Sakuraba is Deputy General Manager of Marubeni's Environment Infrastructure Department, the department in charge of the corporation's water-related business. 'Since then we have been looking for another opportunity to make an investment,' he told WUMI. He says market conditions and the activity of, for example, Canada's Ontario Teachers Pension Plan, meant it was unable to do this until now. 'Last year the Aguas Nuevas opportunity came up and because of the monopoly restriction in Chile, OTPP cannot participate in this tender,' comments Sakuraba. 'We thought we could have a good chance to win this game, and finally we won.'

The Osmoflo share acquisition was announced mid-February. According

to Marubeni, Osmoflo's focus is on desalination and industrial water. It currently operates around 200 water treatment plants, and has the largest market share of the industrial water treatment market in Australia.

In China the company Marubeni has invested in the Anhui Guozhen Environment Protection Science and Technology Joint Stock Co, acquiring a 30% stake last year, while in Peru the company obtained a stake in 2009 in Consorzio Agua Azul, a build-transfer-operate water treatment project in Lima.

Marubeni's ambitions in the water sector form part of the corporation's SG-12 mid-term management plan. This identifies four priority fields – natural resources, infrastructure, environment, and essential living commodities – and includes an investment plan of Y750 billion (US\$9 billion). ● KH
See *Analysis*, p10

Selangor offers share take-over to drive consolidation

The Malaysian state of Selangor has made a fresh offer to take over all of the shares of its four water concessionaires, the government has announced.

The concessionaires are Puncak Niaga (M) Sdn Bhd (PNSB), Syarikat Bekalan Air Selangor Sdn Bhd (Syabas), Konsortium Abass Sdn Bhd (Abass) and Syarikat Pengeluar Air Selangor Sdn Bhd (Splash).

The state government is offering a price of RM64.62 (\$21) for each PNSB share, RM20.78 (\$6.78) for Syabas, RM5.95

(\$1.94) for Splash and RM9.39 (\$3) for Abass.

The total offer is worth over RM9 billion (\$2.93 billion) and would include all bonds, assets and liabilities.

One key element of the offer is a stipulation that if the companies are unhappy with it they can take up the issue with an international court of arbitration.

The approach adheres to the country's water policy, which aims to consolidate the currently-fragmented industry.

Market analysts appeared less keen,

partly because the sum offered is less than the RM10.75 billion (\$3.5 billion) previously offered by Splash to consolidate the state's water assets.

OSK Research raised the issue of future earnings of the four concessionaires, and also noted that there was no mention of the status of compensation payable by Selangor to Syabas arising from a delay in implementing a 2009 water tariff hike.

The federal government also holds a 'golden share' in Syabas that means its approval is required. ●

**water
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Utility reform and achieving efficiency are central themes of the publication, encompassing topics such as benchmarking, investment

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UK study on sewage role in organic waste market

The UK's Office of Fair Trading has announced a study, supported by economic regulator Ofwat, of the market for treatment of organic waste. This will examine whether the market is working effectively to deliver the best outcomes for customers.

The OFT notes that there are three main sources of organic waste – sewage, food scraps discarded in domestic waste, and waste products from the food and farming industries.

Technologies such as anaerobic digestion enable 'clean energy' to be produced from such waste, the OFT adds, and the study will look at whether there are appropriate incentives in place for efficient use of such technologies.

The study was launched following a proposal and request from Ofwat. The OFT will lead on the study, utilizing its experience in conducting market studies and of the municipal, commercial and industrial organic waste sectors, closely supported by a team from Ofwat, who will provide expert input on the sewerage sector.

There will be a number of themes to the study, one being whether price regulation of sewage sludge treatment, recycling and

disposal services remains appropriate, what scope there is to encourage greater competition, and the implications of this for economic regulation.

The study will also look at whether there are any barriers specifically to investment in and use of co-treatment, in which waste from several sources is treated at a single facility, as well as what might be done to encourage efficient investment in advanced treatment techniques more widely across the economy.

OFT senior director Heather Clayton said: 'Advanced organic waste treatment techniques like anaerobic digestion offer tremendous opportunities to produce clean energy and reduce unnecessary waste. We need to make sure that the conditions are right to maximise the potential for these technologies to benefit the UK.'

The OFT expects to conclude the study in July, in time for any recommendations to feed into Ofwat's wider review of economic regulation in the water/sewerage sector. ●

Canadian citizens raise alarm over European trade agreement

A report by 'citizens organisation' the Council of Canadians and the Canadian Union of Public Employees warns that the Canada-European Union Comprehensive Economic and Trade Agreement currently being negotiated 'presents a serious threat to Canada's public water systems'.

The report claims that 'at the request of Europe's large private water companies, the provinces and territories are considering including drinking water and wastewater services in their CETA commitments'.

It adds that EU negotiators are also

asking that Canada's municipalities and their water utilities be included in a chapter on public procurement. Initial provincial-territorial offers in services, procurement and investment were to be sent to the EC early in January 2011.

The report notes: 'If CETA is negotiated on these terms, it would be the first time that Canada has allowed our drinking water to be fully covered under a trade treaty and the first instance that a trade agreement has covered municipal procurement of water services.' ●

Build-operate-transfer contract for Bahrain

Bahrain's Ministry of Works and Ministry of Finance have awarded a Samsung Engineering Company-led consortium the contract to construct and operate the Muharraq wastewater treatment plant. The consortium also brings together Abu Dhabi financier Invest AD and United Utilities International in a build-operate-transfer (BOT) contract. The project will be the kingdom's first BOT, and is being heralded as being an integral part of its wastewater infrastructure.

Oman win for Veolia

Veolia Water has announced that it has won a five-year contract to co-manage services to Oman's water sector on behalf of the country's Public Authority Electricity and Water (PAEW). The contract has an optional two-year extension and involves a strategic alliance partnership through Azaliya Water (a joint venture

between Veolia Water and Mubadala Development Company) to operate, maintain and manage water utilities in the port of Sohar.

Progress on Sao Paulo wastewater contract

Six groups have prequalified for a R200 million (\$120 million) build-operate-transfer tender launched by Sabesp, Sao Paulo's state water utility for construction and operation of a wastewater treatment system for Sao Jose dos Campos. The work includes construction of a wastewater treatment plant, trunk sewers, pump stations, domestic sewer connections and pipelines. The construction phase will take 30 months and will be followed by a 20-year operational period.

Ireland eyes national water authority option

The Republic of Ireland's environment minister John Gormley has told the country's parliament, the Dail, that he will begin assessing

the possibility of transferring responsibility for providing water services from local councils to a national water authority. Speaking in relation to a motion by the Fine Gael party to establish a single publicly-owned water authority, he said the assessment will be completed by the end of the year, and that the government had committed €320 million (\$450 million) to finding and eliminating leaks.

World Bank issue integrity action against Italian firm

The World Bank has announced that it has barred Italian engineering company C Lotti and Associati Societa di Ingegneria S.p.A. from contracts that it finances. According to the bank, the move follows the company's 'acknowledged misconduct' in a World Bank investigation relating to a bank-financed public works project in the Indonesian water sector. Under the negotiated resolution agreement, Lotti has

agreed to pay an estimated \$350,000 in restitution to Indonesia. This is the first time the World Bank has included restitution payment in resolving an investigation into fraud in a Bank-financed project.

EIB agrees support for north-western Syria

The European Investment Bank and Syria have signed an €55 million (\$75.87 million) finance agreement for the development of modern water supply, wastewater collection and treatment infrastructure in north-western Syria. The project is part of the EU Horizon 2020 initiative, one of the priorities of the Union for the Mediterranean (UfM), which aims to tackle major sources of Mediterranean pollution by 2020. The operation will improve water and wastewater services for over 370,000 people in 200 villages and will improve environmental sustainability by reducing wastewater discharges into the Mediterranean sea.

US EPA announces drinking water changes

The US EPA has announced it will move forward with plans to develop a national standard for perchlorate in drinking water, a move dubbed 'perplexing' by the American Water Works Association. The regulator has also issued a series of other decisions to investigate or legislate on a wide range of chemicals found in water.

The decision to create the first national standard for perchlorate reverses a decision made by the previous administration, and follows an order to EPA scientists from administrator Lisa P Jackson to 'thoroughly review the emerging science of perchlorate'.

The EPA noted in a statement that scientific research suggests perchlorate may disrupt the thyroid's ability to produce hormones crucial to fetuses and children. Monitoring data shows that over 4% of public water systems in the US have detected perchlorate in source water.

Testifying before the US Senate Committee on Environment and Public Works, Ms Jackson explained: 'This decision, which has been years in the making, is about two things. First and foremost, it is about protecting the health of between five and 17 million Americans that are exposed to perchlorate in the water that they drink.

'Second, this decision is about following

the science. Perchlorate has been studied and reviewed for years. The science that has led to this decision has been peer reviewed by independent scientists, public health experts and many others.'

She added: 'We must evaluate the feasibility and affordability of treatment technologies, and the costs and benefits of potential standards. And, of course, we must always make sure our approach is based on up-to-date, sound science.'

In a separate move, the US EPA announced it is to establish a drinking water standard to address up to 16 toxic chemicals that may pose risks to human health.

As part of its drinking water strategy, set out in 2010, the EPA committed to addressing contaminants as a group rather than singly so that improving drinking water protection could be achieved cost effectively.

The EPA has also issued guidance to all water utilities on how to assess the presence of chromium-6 (hexavalent chromium) in their water supplies.

The guidance addresses how public water systems can enhance monitoring and sampling programmes specifically to deal with hexavalent chromium, rather than total chromium as at present.

In yet another move, the US Department of Health and Human Services (HHS) and

the EPA have announced steps to reset standards and guidelines on fluoride in drinking water so that the recommended level of fluoride in drinking water is set at the lowest end of the current optimal range for preventing tooth decay.

The EPA is also initiating a review of the maximum amount of fluoride allowed in drinking water. This is to take full advantage of the health benefits of water fluoridation, the regulator says, while reducing the possibility of children receiving too much fluoride, which can cause a condition called dental fluorosis in which teeth become mottled or transparent.

Late last year, legislation was also passed to reduce the allowable lead content in potable water pipes, pipe fittings and plumbing fixtures. The country's Safe Drinking Water Act previously allowed up to 8% lead content for plumbing fixtures. Under the new law, 'lead free' would require a lead content of not more than 0.2% in solder and flux, and not more than an average of 0.25% for the wetted surfaces of pipes, fittings and fixtures.

There will be a 36-month implementation period after which manufacturers both in the US and exporters to the US will be required to comply with the new standard. ● LS

Leakage promise for Jakarta

The president of Jakarta's city-owned utility PAM Jaya, Mauritz Napitupulu, announced recently that the two private operators had promised to reduce leakage, illegal connections and other water-loss issues. PAM Lyonnaise Jaya (Palyja), which serves the western part of Jakarta, has a target NRW figure of 40% this year, down from 42.9% last year. Aetra Air Jakarta, which serves the eastern and northern parts of the capital, has a target NRW reduction from 49% in 2010 to 44% this year.

Fund manager divests in UK

Invesco Perpetual fund manager Neil Woodford has divested his £250 million (\$404 million) stake in Northumbrian Water, warning that the over-regulation of the sector could hit returns. In total he has sold £700 million (\$1130 million) of shares in the sector, including

stakes in Severn Trent and United Utilities, though he has kept his stake in Pennon, South West Water's parent, which also owns waste operations.

Sewerage extension for Brno

Pöyry's Water and Environment business group has won a service contract to reconstruct and extend the sewerage system in Brno, in the Czech Republic, to comply with EU Water Framework Directive goals. The value of the contract is about €1.8 million (\$2.4 million). Most of Pöyry's work will be undertaken in 2011 – the company's services cover preparing a tender and project documentation, including the supervision of the works from 2012 to 2013.

EBRD financing for Montenegro

The European Bank for Reconstruction and Development (EBRD) is providing support for

modernising water infrastructure in the municipality of Danilovgrad through an €5 million (\$7 million) loan to Montenegro that will finance the construction of a wastewater network, a treatment plant and a water supply upgrade.

World Bank support for Cameroon

The World Bank has agreed additional funding for Cameroon to finance the country's urban water development support project. The project will increase access to infrastructure and services, strengthen the capacity of local governments to plan, implement and maintain delivery of infrastructure and services, and strengthen the country's sustainability and capacity to manage and develop water supply services.

Contract award for Kabul

Tetra Tech has announced that it

has been awarded a contract to manage the USAID Afghanistan Kabul city initiative, which will help the Kabul municipal government to improve its delivery of critical public services. The \$119 million effort has one base year and two option years, and one of its focus sectors will be sanitation.

Saudi Arabia's wastewater intentions

Saudi Arabia's state-owned National Water Company is reported as intending to provide wastewater investment opportunities, in partnership with the private sector, worth over SR10 billion (\$2.67 billion). The company's chief executive Loay Al Mussalam told local press that the project would involve existing treatment works and construction of new ones under build-own-operate contracts, as well as distribution network projects.

EBRD's first turns of the funding tap for water in Turkey

The European Bank for Reconstruction and Development's first financial support for water sector activities in Turkey comes less than two years after it began operating in the country. **KEITH HAYWARD** spoke with **JEAN-PATRICK MARQUET**, the bank's Director for Municipal and Environmental Infrastructure, about EBRD's approach to involvement in the water sector in Turkey.

'I am actually quite upbeat,' comments Jean-Patrick Marquet, the European Bank for Reconstruction and Development's Director for Municipal and Environmental Infrastructure, speaking at the end of February about his view of prospects for Turkey immediately after his latest trip to the country.

Progress in the water sector contributes to that outlook: EBRD provided its first loans in the Turkish water sector at the end of last year, to the private sector operator Task, and progress is being made on a loan to the municipality of Bodrum, which is due to be considered by the bank's board of directors later this year.

Marquet explains why the opportunity with Task was attractive: 'First of all, it is a private sector operator. That is the fundamental mandate of the bank, to encourage private sector development, especially for municipal infrastructure where the private sector has been underdeveloped to date. Therefore finding successful operators in that particular sector is really, really attractive.'

The location of Task's activities is also important, which as well as Güllük and Dilovasi includes a more recent tender, or Kars, in the east of the country. 'The second element why we liked the Task project is that the concessions are outside the major cities, so it really is some sort of regional project which fits very well with our current mandate in Turkey,' says Marquet. 'From that regional angle it was really a very attractive fit.'

The wastewater focus of the Dilovasi project is also significant. 'Given the environmental issues, given the rapid development of industry, and given the particular situation of the country as a major tourist destination, that wastewater component was really attractive from our perspective,' adds Marquet.

Though attractive, the bank of course assessed the risk of the project beforehand, which included considering, for example, the involvement of Task's shareholders. 'We believe it is a very nice mix of



shareholders,' comments Marquet. He describes Akfen as 'kind of the PPP powerhouse in Turkey', adding: 'They are pretty much omnipresent on the Turkish market, so they have that huge expertise of how to operate private sector concessions in the country. Alongside that, he says that the other shareholder, Kardan Tahal, is an operator experienced in the type of water-scarce conditions found in Turkey. 'From that kind of sponsor mix and operating experience, we were quite pleased about the environment,' says Marquet.

The other key area of risk Marquet identifies is the legal framework in Turkey as far as concessions are concerned. A new concessions law remains in development. In the meantime, Marquet describes the framework in Turkey as 'very heterogenous', with a different law for each sector. 'Unfortunately I would say the municipal utility sector, especially environment – so water, wastewater – is the weaker link,' he comments.

He continues: 'Clearly we put a lot of thought and due diligence into how the concessions are structured and how they were awarded... and we looked in detail of course at the contracts, which, if I were to give an assessment, they are not perfect. So they are not compliant, I would say, with international best practice, but given the environment they are probably as good as you can get. So it is then a commercial decision – if you want to engage with the private sector in Turkey in the current legal framework, well that's the best you can probably obtain. There are risks and there are uncertainties, but that's the decision we made.'

This links in with concerns around corruption in Turkey. The bank's Turkey country strategy document notes that 'corruption is a particular challenge in Turkey', and refers to 'this worsening situation with regard to corruption'. Marquet says the bank is 'extremely cautious' with respect to both public and private sector projects. The approach for projects such as the Task Group involves analysing the tendering process. 'The bank has a specific policy in terms of how concessions can be awarded,' he says. 'There are some standards of transparency, competition, process being followed that we insist on upholding, and that is the way we mitigate the risk of any corruption being present.'

The loans to the Task Group reflect EBRD's initial focus in Turkey on micro, small and medium sized enterprises

(MSMEs). Indeed, as of January the bank had committed nearly €650 million (\$915 million) in total in the country since 2009 across 27 projects with a total value of almost €2 billion (\$2.8 billion), all in the private sector. Now though it is starting to look at providing support to municipalities, as indicated by the proposed loan to the municipality of Bodrum that is due for board consideration later this year.

Such support was identified in the bank's strategy for Turkey as a medium term operational priority, although the bank had to consider how it's activity fitted with the other potential sources of funding that exist. 'We were a newcomer,' says Marquet. 'The objective was not to compete with everyone else already on the market, but rather to look at where there are gaps.' This meant focusing on what he describes as the tier 2

'We actually see few cities that have the capacity to take on more borrowing... That is clearly a limitation to what I would say anyone can do in the sector.'

and tier 3 cities, rather than the largest ones such as Istanbul, Izmir and Ankara that already have other international financing institutions or commercial banks willing to provide funding.

Having said that, Marquet notes that the financial crisis has affected the banking and capital markets. 'Therefore we see potentially some needs even in Istanbul, Izmir and Ankara where we could potentially play a role,' adds Marquet. 'We are not yet there, meaning our strategy has not been reconsidered, yet, but definitely this is something we are thinking about. It is possible that our shareholders will revisit that aspect in the coming months.'

Progress in the municipal sector will however be moderated by creditworthiness. 'Budget devolution is relatively limited in the country at this point', says Marquet, adding: 'Many municipalities have a lot of debt, which is mostly government debt.' He explains that infrastructure financing has traditionally been carried out by Iller Bank, which lends government money to municipalities for them to undertake infrastructure projects. 'The result being that many municipalities have a lot of debt,' he says. 'It is not commercial debt, it is state debt, but still they are supposed to repay that debt.'

All of this has consequences in terms of

likely support. 'Therefore we actually see few cities that have the capacity to take on more borrowing,' says Marquet. 'That is clearly a limitation to what I would say anyone can do in the sector.'

The proposed project for Bodrum is therefore somewhat exceptional. 'Bodrum is one of those cities that has some creditworthiness, especially because it has little debt. It is quite unusual,' says Marquet. 'It is one of the cities that we have identified as a potential target for an EBRD loan. We are currently finalising our discussions with them. It will remain subject to the various government approvals of course, but we hope to sign this project in the course of this year.'

As to whether this progress represents success in the time that EBRD has been working in Turkey, Marquet says this depends on whether a quantitative or a qualitative perspective is taken. 'From a quantitative perspective, arguably two projects signed, with Task Group, and one in the pipeline about to be signed is not that much. But if you take a qualitative perspective, given our ambition not to do what everyone else is doing, we are quite proud of our achievements,' he says. The typical sovereign lending with government guarantees and providing large lines of credit to Iller Bank means 'you can do big numbers quite quickly,' says Marquet. 'We took the hard way, deciding to be focused on more on the ground type of operations directly with municipalities, directly with the private sector. We are pretty much the only one doing so. Therefore given the challenge that it represents, I am quite pleased about where we are at the moment, and I hope that things will continue to develop over the coming months.'

Marquet agrees that it is 'absolutely correct' that debt will limit how fast the bank can make progress in the water sector – 'So long as we focus on the sub-sovereign type of business, because then indeed we are subject to the creditworthiness limitations.' A change of policy by the bank's stakeholders to include sovereign lending would be a 'kind of game-changer', he says, but he points out that 'we are not there yet'. Even so, Marquet returned from his February trip optimistic about making progress in Turkey: 'I met with Task and their shareholders and we are discussing new things, so that is one element, but I also met with other private sector investors and a number of people have big plans or actually big ambitions in Turkey, so this is definitely something that we will try to accompany and support.' ●

When customers feel left out in the cold: pipe bursts in Northern Ireland

Communication with customers is vital during the times in which a utility has to negotiate when things go wrong. **LIS STEDMAN** looks at Northern Ireland Water's performance during the freezing conditions experienced over the winter.

Northern Ireland's pipe burst problems over the Christmas and New Year period following a prolonged freeze and sudden thaw are by no means unique to the province, as a number of mainland water utilities were also reported as experiencing significant issues.

However, the problems in Northern Ireland brought to a head some turbulent years for NI Water, including the sacking last March of four board members following an investigation into how the company awarded contracts.

The four included the company chairman Chris Mellor, who after the Christmas cut-offs became a vocal critic of the new management, saying the crisis was a 'disaster waiting to happen'.

That criticism is reflected somewhat in the content of the Consumer Council for Northern Ireland report on the utility's performance this winter. The report says that the evidence suggests 'the failings were clearly evident prior to the Christmas 2010 crisis' and suggests more generic issues at the utility.

The report outlines a number of serious issues including: feedback that the website was confusing and difficult to use; a lack of communication between site workers and head office; and the utility's belated realization that its Mutual Aid contract with trade body Water UK could provide vital help, including the use of other utilities' call centres to handle calls.

The report also found that NI Water had not, despite pressure from the Consumer Council for Northern Ireland, put sufficient effort or resources into identifying vulnerable customers.

Severe call centre problems saw less than 1% of calls answered at the peak of the crisis (before the company realized Water UK could provide help), and consumers reported that call centre staff, when reached, were unhelpful and unfriendly.

The report also notes that 'had the website been used effectively by NI Water it could have significantly reduced call

volume to the customer relations centre'. At one point, the website crashed.

In addition, no information on interruptions was put up on the website until 29 December, some three days after the thaw and the problems began, and information on the times when water would be restored was sometimes inaccurate.

The report notes: 'In addition, much of this information was displayed late or was inaccurate about the times when supply was going to be switched off and back on again'.

NI Water, apparently recognizing the website issues, encouraged customers to email them – but as CCNI notes in the report, 'this does not recognise that 30% of homes in Northern Ireland do not have access to the Internet'. When customers did email, customers reported that the tailored responses were not sent until much later, often after their supplies had been restored.

Consumers were also annoyed by what CCNI terms the 'arrogance and blame culture' displayed by NI statements to the press that placed most of the blame on bursts to private pipes.

CCNI also flatly denies a claim made by NI Water during the crisis that the utility was working closely with them. 'The Consumer Council offered assistance and help but this offer was not acted upon,' the consumer body says in the report.

An 'industry representative body' is quoted as saying NI Water could have put information on its website – CCNI notes that 'these groups and their members also had significant difficulties in making direct contact with NI Water'.

While some consumers praised the staff and contractors working on the ground, others report engineers saying they would return and failing to do so, engineers failing to turn up despite several requests, or placing the blame on consumers' own pipes without fully investigating.

The report says: 'In general there is admiration for those working on the ground, but also a feeling that those co-ordinating

and leading the response were not communicating very well with either their customers or their staff and contractors. This made it impossible for ground staff to carry out their jobs effectively.'

CCNI has made a number of recommendations, including that there must be a 'new and improved, tried and tested' incident management plan that identifies lines of accountability and decision-making; identifies information and communication requirements; identifies resources; coordinates with other agencies; and defines the priorities.

It also advises that NI Water should deliver an education programme in partnership with others, so consumers can learn how to plan and prepare for and cope with emergency situations.

The consumer body also says a 'comprehensive communication strategy must be developed and implemented to disseminate information which is consumer focused, timely and accurate, both in terms of preparing for a problem situation and during it'.

The Customer Care Register and accompanying policies must be fully developed and widely promoted to ensure all those eligible have access to them, CCNI notes, and it also calls for a coordinated approach joined up with other agencies and an Incident Plan that can 'cope with the worst possible scenario'.

The CCNI also wants a coordinated government-wide and multi-agency group to ensure effective planning for severe weather and responses are in place before next winter, and the development of a clear strategy to rebuild consumer confidence.

From a wider perspective, the freeze-thaw of the Christmas and New Year period caused the water companies of England and Wales a great deal of work but little disruption to customers according to Northumbrian Water Network Manager Dennis Dellow. He notes: 'It was a big issue this winter and the previous winter for the whole of the UK. You always get an increase in bursts and leakage in the winter, and

when you get a period when it gets very cold, it gets a lot worse.'

He explains that on the mains, this relates to the way that the pipe interacts with the soil when the water in the soil freezes, and particularly affects old cast iron mains. With a sudden thaw on top, pipes that had been cracked or displaced by the freezing began to leak.

The issues this year were largely on the customer side, Mr Dellow says, and were exacerbated by the fact that many businesses were closed for the holiday period and people were away from home, so leaks went unnoticed and unrepaired. 'I have spoken to a lot of the companies, and

I think a lot of the leakage was either in businesses or homes that were unoccupied.'

He adds: 'We have no way of knowing how much leakage is on our pipes and what is on customer pipes because we can't measure it directly. But after the New Year, leakage went down by a lot more than we could explain by the actions we were taking.'

Water companies struggled to find keyholders, and in some instances the police had to break into premises to deal with leaks. In other cases, where premises were clearly unoccupied, they were cut off, Mr Dellow says. 'There was no choice – this happened across the industry.'

With the coldest December in 100 years

following the worst winter in 25 years, Mr Dellow says 'we are going to have to redefine extreme'. But a great deal of hard work and long hours on the company-side assets meant very few customers were without water. 'We all had people working long hours and weekends. Some companies brought in extra resources, which is hard to do at short notice.'

Because the situation did not become critical for customers, there was no need for companies to communicate, and this aspect was not an issue, he explains. 'It is not really unless you are in the situation Northern Ireland got into, then it is a huge issue.' ●

Marubeni's water market moves

The latest acquisitions by Japan's Marubeni Corporation suggest it is on its way to achieving its aim of becoming a global 'top ten' water sector company within the next three years. **KEITH HAYWARD** spoke with **KEISUKE SAKURABA**, Deputy General Manager of Marubeni's Environment Infrastructure Department, about the company's plans.

The water sector is clearly important to Japan's Marubeni Corporation. Its 2010 annual report sets out the corporation's SG-12 three year medium term management plan that identifies four areas for priority action: infrastructure, natural resources, essential living commodities, and environment. The first business it examines in detail is the water sector, and this contains a clear message: 'By encouraging growth in business scale, our goal is to become one of the top ten entities in the world for supplying water to populations within three years.'

Keisuke Sakuraba is Deputy General Manager of Marubeni's Environment Infrastructure Department – the department in charge of the corporation's water-related business, and so tasked with meeting this goal. He puts the total current population served by Marubeni at five million, and states that the hope is to reach ten million within three years. 'This is quite a big challenge for us,' comments Sakuraba. 'But the market itself is growing and many municipal or governmental bodies are looking for some privatisations or some build-own-operate-based asset renovation or [similar], so we think we have a good chance to make it happen.'

These water sector ambitions reflect the corporation's wider ambitions too. In the 2010 annual report Marubeni's President and CEO, Teruo Asada, talks of adopting an 'aggressive stance' with its Y750 billion (US\$9 billion) investment over three years.

'Our strategy is also in accordance with

the company's strategy as well,' says Sakuraba. 'The company has declared it will make an investment of \$9 billion (€6.4 billion). On that basis our department, the water sector, can be aggressive as well.'

Having said this, Sakuraba explains that the attraction of the water sector – generally, and specifically with reference to the recent acquisition of Aguas Nuevas in Chile – is that it offers the prospect of a stable cash flow over the long term. 'We are looking for stable businesses for the long term, and we expect a certain level of return of course. Those are our main aims to make an investment in water,' says Sakuraba, adding that the returns are not expected to be either lucrative or rapid.

Sakuraba makes a further point regarding Aguas Nuevas: 'In addition to the direct return from this asset, we consider this company to be a platform to expand our business into the Latin America.'

Similarly, the corporation's presence in China through the stake it took last year in Anhui Guozhen Environment Protection Science and Technology Joint Stock Co positions it for growth there. 'Normally we use this company for expanding the business in China,' says Sakuraba, 'but for bigger projects which need more money then we may participate directly... [Anhui Guozhen] can [for example] be our O&M partner or contractor.'

The 40% stake in Australian desalination and industrial water engineering company Osmoflo announced in February is expect-



ed to open up further opportunities too.

Given this, Sakuraba explains that the focus is on China, Latin America, the Middle East, Australia, and South East Asia. 'The combination of those companies can make us to grow rather rapidly,' says Sakuraba. 'That is our expectation and that is the area we have to tackle.'

The question then is over how much of the rapid growth will come from the letting of new contracts and how much will come from taking over existing private sector activity. 'Actually we haven't split by those categories. We may have a chance to acquire some concession-type[contracts, but] we are expecting many BOT projects, water treatment plant BOT or BOO, and wastewater as well. So from those projects we believe that we can add another five million.' ●

Social tools: the key to shaping customer attitudes and behaviour

The attitudes of customers have an important bearing on water utilities: if customers use less water, the utility can delay or avoid the need to make significant additional investment in infrastructure; if they pay their bills on time, investment can be planned with greater confidence; and if they are aware of the need to protect the aquatic environment, then it is easier for the utility to justify spending on wastewater treatment. **KEITH HAYWARD** looks at some of the innovative social tools used by utilities to influence the attitudes and behaviour of their customers.

From South Africa to Colombia to Cambodia, water utilities around the world use a whole range of approaches to engage their customers and so influence the way these customers think and behave. The local circumstances may vary, but the motivations tend to be similar: a mixture of aiming to ensure the utility can work effectively and of ensuring customers play their part in protecting the environment and water resources.

In South Africa, for example, bulk water supplier Rand Water runs its WaterWise initiative to engage with the public. 'WaterWise is a conservation drive to really push the message of the environment, conservation, and to sensitise

people about the importance of respecting the environment,' comments Andries Motsele, brand management specialist in Rand Water's corporate communications department.

Motsele explains that WaterWise is built on six central messages or 'pillars', such as the importance of paying for water services, or the importance of taking action on environmental issues. A whole range of ways are used to get this message across to customers. That means, for example, publishing articles, having a presence at events, running educational activities for schoolchildren, or using a website to reach the initiative's target audience. Indeed, the company is soon to launch a new interactive website that will take viewers through the process of how

to become WaterWise.

A particular priority for Rand Water is to work with indigent communities – those who are poverty-stricken and are unable to pay for their water supplies. 'We design a programme in partnership with their municipality to address the issue and highlight the importance of saving water to the indigent,' explains Motsele.

This door-to-door approach involves working with the local municipality, running workshops on how to fix leaks and how to carry out water quantity and water quality audits. These people are then able to take the messages out to households. 'When they get to a household, they invite the people there and explain to them in their own language how to fix your own toilet leaks, your own taps.' This then helps address wastage in a population who cannot pay for their services, and gets across the message that a basic level of water use is available without any cost.

Rand Water has also combined its messages around water with the wider needs of poor households, encouraging people to make a vegetable garden in which they can grow produce to sell. 'We have designed a green business brochure that talks to people on how to benefit from developing their own greening project,' says Motsele. 'The book is really about when to mulch, how to mulch, and also the element of harvesting rain for your garden.' The booklet has been translated into native languages to reach the different groups in Rand Water's service area. 'You'll end up having a WaterWise garden without using metered water,' adds Motsele.

Another challenge is that these



EPM's television programme Camino al Barrio, which helps raise awareness of different neighbourhoods in Colombia's second city, Medellín. (Credit: EPM)



EPM's El Parque del Domingo initiative, in which families spend a day with the utility having fun with environment- and water-related activities. (Credit: EPM)

messages also need to be conveyed to customers with a low level of literacy, and with this in mind Rand Water has prepared a 'talking book', also translated into native languages. 'The rationale behind this book is that, as you can imagine, people who are semi-illiterate lose interest in reading quite a number of words,' says Motsele. 'You really have to come to their level, so that they are able to really understand what we are talking about.' So instead, they can click on themes and listen to the content. 'The lifespan of this book is four to five years,' says Motsele, adding: 'It acts as a coffee table book where visitors can also utilise the book.'

Rand Water has also targeted children with its activities, including the WaterWise Arena, a programme about the environment that features a large ball designed to look like the Earth, some fun, and an attention-grabbing start. 'Before we start the programme, we allow them to kick the ball around – kick it, kick it, kick it, kick it, until they are done. And then we come back to them and say, guys, you know what you have done? You have just destroyed the World. So by you not saving, conserving, not taking action in terms of our environment, you are destroying the World.'

And also on the football theme, Motsele explains that a 'Kick off with WaterWise' campaign was held in the run-up to the South Africa 2010 World Cup. This focused on hotels and the airports. 'The rationale behind this was to

really alleviate fear against their drinking of tap water that Rand Water supplies,' says Motsele. 'We wanted to say to people that, even though you are in South Africa, rest assured, relax, indulge, and drink water from the tap.'

Colombia

Equally innovative efforts are carried out by Empresas Públicas de Medellín (EPM), the utility company owned by Colombia's second city, Medellín, and which serves more than 20 municipalities around the country, including Medellín itself.

EPM is an energy and a communications company, as well as providing water

'We wanted to say to people that, even though you are in South Africa, rest assured, relax, indulge, and drink water from the tap.'

Andries Motsele, Rand Water

services, and the communications activity provides a ready-made channel through which to reach customers. Anna Cristina Navarro Posada is head of the communications unit at EPM, and she explains that the company as a whole has a publicity message of 'We are there'. '[This] means we are there to improve your quality of life and to improve the quality of our services, but especially the quality of life for the people,' she says.

'In communications we put our main efforts into teaching people how to make a rational use of resources, especially

water,' continues Navarro, and she provides some recent examples that highlight this.

One activity is the El Parque del Domingo, or Sunday Parche, which was originally aimed at families who had problems paying their bills. This, says Navarro, is difficult to translate, but it carries the idea of a patch of land or a space. 'Parche is a place where people can meet with others. Parche is a place where you can relax, a place to have fun.' Every Sunday EPM takes 50 families to a green location in the city that they have probably never had a chance to visit and puts on a day of activities that are both fun but also carry an environmental message too, such as imagining how to create the neighbourhood of their dreams or understanding how much energy is used by equipment and appliances around the home. 'We take the whole family – children, grandmother, parents – and they spend the whole day playing and learning,' says Navarro.

Another of EPM's activities has been an awareness-raising television campaign with a 30-second advertisement that was run for a month in the Medellín metropolitan area and ten other municipalities with the aim of reducing unaccounted-for water. 'We need people to call more to tell us when they realise there are leaks in the street or anywhere,' says Navarro. 'Normally people only call us when the water is near them or the water could damage their properties.'

The slogan for the campaign was 'Every drop of potable water that is lost hurts us'. Navarro says the advertisement was 'very beautiful', adding: 'We were able to decrease the unaccounted water indicator, and we get a very high level of recall of the campaign.'

The power of television is also harnessed by EPM in a weekly programme run for the last ten years that visits different neighbourhoods and shows the good practices and cultural activities that are going on. Navarro explains that Medellín's history of drug-related violence means that it was a badly divided city, and that the programme plays a part in moving forward from that. 'The programme is very, very popular among the poorest people – they all want to have their neighbourhood in that programme,' says Navarro. 'And also with the programme, we teach them how to value their public services.'

Similarly, EPM engages the public through a daily radio programme, Aló

EPM, in which ordinary people carry out interviews with their neighbours or make reports on topics such as climate change and the rational use of resources. 'They feel very, very proud of being part of this programme,' says Navarro. 'We have done this for six years now and the audience is increasing all the time.'

Cambodia

Both of the examples above include a need to reach the poorest sections of society, and this has been a feature too in the Cambodian capital, Phnom Penh, home to one of the acknowledged success stories in the sector, Phnom Penh Water Supply Authority.

Long Naro is Deputy General Director at PPWSA. He contrasts the position today with that of the 1990s. In 1993 the authority had 25,000 customers. Today it has around 200,000 connections. The rate of water loss has changed too. Naro recalls a session at the 1997 World Water Forum in which Cambodia's water loss was flagged up. 'At that time I was very ashamed. I went out from the room. Why? Because our water loss at that time was 72%.' The rate today, he says, is 6%. And the collection ratio for bills was only 48% at that time. Now it is 99.9% he says.

'If you don't have communication and awareness campaigns, I think we cannot achieve it,' says Naro. 'Communication and awareness campaigns are very, very important for the public sector like us, because you have to convince the people to accept the water tariff, to accept your water quality, to accept your service.'

That latter comment is more complex than is at first apparent.

Naro explains that the utility really began its drive to extend services to the poor in 1999. 'We tried to go community by community to the poor and we tried to explain to them about the difficult life they have in [relation to] water,' he says, referring, for example, to the health burden of poor quality water. But even with these benefits made clear, the connection fee of \$100 would be prohibitive to many, so the utility provided the option for instalments to be paid over a period as long as 20 months.

PPWSA itself received funding in order to help subsidise connections, but this presented its own challenge as the support had to be allocated to those most in need. 'We had to work with the community, to establish a team, to evaluate customers house to house in order to explain why



The daily radio programme Aló EPM, in which ordinary people carry out interviews. (Credit: EPM)

we are subsidising you 70%, why we subsidise another man in a house near you 50%,' says Naro, adding: 'If the communication did not make [this] transparent, jealousy [and] complaints will come to your office straight away.' He explains that a lot of communication was carried out using radio and television, but that more direct communication was also needed. Each of Phnom Penh's eight districts has 8–10 communes. Teams able to explain both technical issues and the water fee had to go commune to commune. 'It took around three to four years including campaigning,' says Naro.

But even after such a comprehensive communications effort, PPWSA is still left

with a challenge of getting its message across. 'The next step for us is about water quality,' says Naro. Last September PPWSA completed a survey that revealed that of its 200,000 customers, 160,000 do not drink water directly from the tap. 'They still boil the water,' says Naro.

What PPWSA has to do now, he says, is to use the media and go directly to households, especially those of the poor, to get across the message that the water is safe to drink, and that drinking tap water saves money. 'One cubic metre is equivalent to one bottle of 330ml,' he says. 'So our next step is to explain to them how to drink the water from the tap.' ●

Rand Water's WaterWise initiative includes raising awareness of how to grow produce without using mains water. (Credit: Rand Water)



Built on billing: how IT provides a platform for successful customer interaction

Billing is a crucial activity for water utilities, representing the main interaction with customers. **LIS STEDMAN** looks at some of the latest generation of billing systems that are being put in place around the world.

In water company IT terms, contracts do not come much more sensitive than billing the President of the US. IT company Vertex undertakes exactly this delicate function on behalf of utility DC Water, which serves the capital, Washington DC, and who renewed Vertex's contract in October of last year.

Charles Kiely, DC Water's Assistant General Manager of Consumer Services, adds that the company's capex and opex budgets are, uniquely, approved by Congress. The authority was created in 1996, and he notes that 'a lot of the functions a typical district agency would have didn't exist'.

For DC Water, this meant outsourcing its billing and customer information system (CIS) functions to Vertex. 'We really didn't have a CIS, so we were looking out into the world to see what we could do.' The company was relying on an old legacy system and a paper-based work orders system in which orders were often lost or forgotten.

'A CIS is one of the largest and most complicated assets an authority can own, so we went looking for a partner because CIS and billing are not our core competency,' Mr Kiely explains.

For the CIS system, Vertex provided its E-CIS platform, an Orcom system that Vertex gained when it purchased the Alliance Data utilities business in 2008.

Vertex national account manager Roger Garwood explains: 'The E-CIS system is a billing system with collections functionality – it is able to run post-due notices and has a system of phone calling for incapacitated customers to help them collect their bill, and service order management, all collated and printed and managed out of the E-CIS system.'

The system runs on hardware located in Dallas, though Vertex works very closely with the client's customer service and billing staff. Mr Garwood notes that DC Water had two different legacy systems – a

large commercial accounts system and a residential accounts system. 'This was causing them a lot of heartache. We put them all together and converted them into our E-CIS system. It has saved them millions of dollars.'

The utility has also saved money because the labour costs in Scottsbluff, Nebraska (where the company runs its operations) are considerably less than those in Washington, DC. 'This trickles down to the end consumer,' Mr Garwood explains. 'Washington DC has one of the lowest water rates of the metro areas in the US.'

One of the key aspects of the contract the company is most proud of is that they were able to implement the system within 12 months 'on time and budget', Mr Garwood adds. 'Big projects can be millions of dollars over budget and take two to three years to get in. We were able to avoid both scenarios.'

The generation of CIS they are on gives them a contract management system so any call, any touch point to the water company is recorded within the system so it can be managed more easily and efficiently – knowing what type of calls the customers are making, where there are and aren't issues and what the touch point is.'

DC Water is also in the process of looking towards the next generation of E-CIS. 'They are one of the clients that are looking to move to a web-based product,' Mr Garwood says. 'Hopefully this will happen within the next two to three years – they are excited about it.'

If customers are using the internet to communicate to a single screen, 'the efficiency from a call centre point of view goes up dramatically,' he adds, noting that in the past regulated businesses have not needed to focus on customer satisfaction, but that this situation is rapidly changing.

DC Water has chosen to give its customers a spread of options including automated meter reading (AMR) throughout the city. All 130,000

customers on the system have their meters read automatically up to three times a day rather than the old, cumbersome and infrequent manual process. 'From a payment standpoint DC Water is on the leading edge,' Mr Garwood observes. Payment options include web-based online customer care (OCC) bank debits, electronic funds transfer, credit/debit cards and so on. 'Any option the payment processing people have, DC Water has on its availability list.'

He adds: 'It is a cliché, but we truly do have a unique partnership with DC Water – they count on us for a lot of things. Part is IT support to automate processes and customize the system, but we have anywhere from six to 15 projects all the time just to provide them with different items they are wanting to move forward.' For instance, the company has just set up a major impervious surface water charging system, and has also undertaken many customer assistance programmes.

Mr Kiely concurs: 'We have an excellent relationship with Vertex – they have been a key strategic partner for ten years, though over the decade with respect to CIS our needs have changed greatly.'

The company's systems are also helping with managing much-needed repairs to the underground assets, which in Washington, DC is a particular issue. As Mr Garwood notes: 'If you tear up the middle of Pennsylvania Avenue to replace a water pipe it does not go down well with the media.'

Mr Kiely points out: 'You have to have a strategic relationship with key providers – having them in the fold from the beginning means, if we are thinking of doing something tomorrow and it impacts on the CIS, we need Vertex in on the ground floor to tell us what we can or can't do, likely costs and whether it makes sense.'

He explains the perceived reluctance of utilities to change to new systems, noting that 'in the utility business you have three or four strategic applications – CIS, work management, financial and supply chain –



US President Barack Obama walks out to the Rose Garden of the White House in Washington. Billing of the President on behalf of utility DC Water is carried out by IT company Vertex. (Credit: REUTERS/Larry Downing)

and you have to have a lot of stomach to take on new ones unless there is a strategic need to.' He has seen numerous unsuccessful attempts to introduce new systems in the gas and electricity sectors, adding: 'I can list more disasters than successes.'

For DC Water, the outsourcing option has worked well and its intention is to keep this approach. He observes: 'We identified the CIS as not our core competency and reached out, and I think if others come to that conclusion, they will reach out.'

Accenture to deliver for Riyadh and Jeddah

The National Water Company of Saudi Arabia awarded Accenture a contract in December to design and deploy a comprehensive IT solution for its water and wastewater services in the cities of Riyadh and Jeddah.

The National Water Company has assumed responsibility for delivering water and wastewater services across the Kingdom of Saudi Arabia and aims to modernise the infrastructure and introduce international standards of customer service. The cities of Riyadh and Jeddah will be the first to benefit from the programme.

Under the agreement, Accenture will develop and implement a range of Oracle-based solutions covering customer care and billing, a customer portal, enterprise asset management and middleware.

Accenture will provide maintenance and support of the new infrastructure for one year and will also be responsible for a change management programme to help the company's leadership and staff introduce new business processes.

Gentrack's Tasmanian contract

Gentrack, a water billing and CRM solutions provider in Australia, announced last year a contract to deploy its software to Onstream, the new common services corporation formed by restructuring the Tasmanian water industry.

Onstream will deploy its Gentrack Velocity billing and CRM platform to support corporate and professional services including IT, billing and customer services for the three stakeholder water corporations in Tasmania.

These were established because of water industry reforms in the region, taking responsibility for providing water and sewerage services to over 500,000 water users throughout the state, replacing a traditional council-based water services model.

Improved efficiency, reduced cost of service and improved customer service have been key objectives of the market reform and were critical factors in Onstream's decision to implement Gentrack's specialist billing and customer management platform.

Gentrack's partnership with water monitoring company Outpost Central has also led to plans to trial its latest GPRS water monitoring technologies in the region, in conjunction with Onstream and its stakeholder water organisations.

Solutions for Saudi Arabia

Accenture is also working in a very interesting environment in Saudi Arabia, where the company announced a contract in December to provide a range of Oracle-based solutions around customer care and billing as well as a customer portal, enterprise asset management and middleware.

Giampietro Sanna, Accenture's Director for Utilities in the Middle East region, explains that the National Water Company (NWC) was formed two and a half years ago as a private company, government-owned, as it is an emanation of the Ministry of Electricity and Water that previously provided the service.

The initial service scope is for the key cities of Riyadh and Jeddah, with the next 15 major cities in the Kingdom scheduled to be added to the plan within the next years – starting with Makkah-Taif, which has just been acquired this year. Mr Sanna notes that NWC 'has a mandate and a will to radically transform the water industry in the Kingdom with the aim of providing exceptional, state-of-the-art services for the population'.

He adds that NWC 'is very well aligned and positioned to achieve excellence and eventually to be a global class player – the leading one in the Gulf in the first instance'. Mr Sanna notes that NWC's agenda 'is very ambitious – their management is very forward-looking and moving at a very fast pace'.

With many initiatives underway, IT is a major enabler. 'To achieve their vision they have to have world-class IT,' Mr Sanna argues. The CRM (Customer Relationship Management) and billing systems have to be able to interact with customers efficiently, but also to manage end-to-end processes across the enterprise in an integrated way, he observes.

The Enterprise Asset Management (EAM) will manage the linear and

non-linear assets such as pipelines, reservoirs and treatment plants, managing their life cycles and providing proactive and reactive maintenance, 'ensuring the functionality of the assets is maintained to the best possible state', Mr Sanna observes.

The customer portal, which is also being developed as part of the ongoing project, and the interactive voice response (IVR), will provide customers with relevant information on their account.

Another key element is defining new, centralised and unified processes and procedures, which is seen as a key part of the project. 'NWC will base its operations on leading industry practices, unified and standardised processes and procedures in all areas,' he adds.

Having the same state-of-the-art processes and procedures across all of the cities will generate efficiencies, he explains. 'This is what Accenture brings to the table. NWC chose us not only because of our ability to design and deliver quality systems on time but also because our global utility industry expertise enables NWC to perform new procedures to leading industry standards.'

As the project progresses, Accenture will also act as programme management for other initiatives that will be integrated into the system. 'There is little point in having a good billing system if, for instance, it is not integrated with the financial system and the Work Management system, or if the financial system and accounts are not up to date and well managed; and there is little point in implementing an EAM if it is not integrated with the GIS, or SCADA (supervisory, control and data acquisition) system,' Mr Sanna says.

The programme also integrates other technical and process elements such as GIS, the Primavera workforce system, and the SCADA. Integrating the EAM with the GIS enables the head office and field

staff to locate the assets requiring maintenance and optimize the scheduling of work orders. SCADA will provide the ability to monitor and control the status of assets remotely, and provide timely detection of the need for maintenance interventions.

'The aim is to integrate all of these systems seamlessly so that end-to-end processes are enabled and automated to ensure the processes we designed are adopted to the primary outcomes,' Mr Sanna explains.

'As a consequence, and as another aim, there will be a centralised, unified corporate IT function that will improve the effectiveness of business operations as well as their efficiency.'

The key to this project is the seamless integration of billing, CRM and other customer care-related IT, among them and with the rest of the enterprise, so that each element is able to add value to the others. There are expected benefits in productivity, efficiency and effectiveness, and elimination of unnecessary work, he explains.

Mr Sanna says the strategy is 'to make sure customer needs are dealt with through the most appropriate channel, with availability of all data at point of need, making sure the first call resolution rate is increased. If one operator only has one part of the information on the system, often they have to divert the call. If there is an integrated system that puts all the information required in one place, issues can be resolved on the first call. And there will be fewer exceptions because the processes are standardised.'

With accurate information readily available, the need to revisit cases will be reduced, and hence the amount of effort required. And of course, the success rate and customer satisfaction will also increase, he explains. 'Manual processing will be reduced, quality will be increased, and the time to process will be reduced. There will be a better service for customers.'

The integrated system will also allow for interesting possibilities such as informing customers by SMS when the call they initiated has been resolved. The asset management (EAM) aspect will also be integrated into the ERP (Enterprise Resource Planning) system, which will allow financial considerations such as depreciation, and the positive impacts on this of maintenance, to be more seamlessly taken into account.

In terms of overall strategy, he notes that

the contract is 'consistent with what we have been witnessing in Saudi Arabia, and in most of the GCC (Gulf Cooperation Council) countries – there are many major infrastructure improvements, significant investment in the sector and a great deal of modernizing and improvements in services'.

Saudi Arabia's pattern of IT spend 'reveals by its investment the intention of being at the top of the ladder', he adds. The product choices made for this endeavour are also consistent with IT trends in the Gulf region, to modernise systems using top-class, packaged applications which have demonstrated a long story of successful implementations in the industry, he concludes.

Competition to deliver solutions

On the other side of the world, New Zealand water billing and CRM solutions provider Gentrack recently won a contract to provide its solutions to Tasmania's recently-reformed common services corporation, which provides these services for three water corporations.

Gentrack's business development director in the UK, Dave Burgess, says that although the company's main customer base in the past 25 years has been in Australia and New Zealand and primarily focused on energy, it has systems installed in five significant water companies and is eyeing markets further afield.

He notes that the company's latest solution is web-based with improved functionality, adding 'because we have gone back to companies, we have got momentum within Australia; we are starting to grab hold of the market.'

He says that as water, until recently, has been a relatively rare commodity in Australia, a solution that can resolve customer and billing aspects, coupled to the Outpost water monitoring technologies (see box), is valuable.

Gentrack customers include Allconnex Water, a Brisbane water utility, and Melbourne's City West Water, as well as Victoria's North East Water. The company is now actively looking to move into the UK market, which is an acknowledged tough one to break into.

Mr Burgess notes: 'Water companies in the drier parts of the UK are facing the same things as in Australia. They have got existing billing systems and are trying to get smart metering and AMR.' He sees leakage as a major issue in the UK, which could mean that the Outpost systems may

have more impact here. The information from the Outpost dataloggers are recorded, and interval readings can be fired back into Gentrack, which then acts as a database.

He notes that with the system it is possible to, for instance, plot general trends down streets and flag up where water may be escaping. 'We have a very good track record for delivery and a good, mature product that people know how to deploy and that can be put in over any period.' The system can be built and configured to any customer requirement, he adds.

The UK is a major challenge because it has a very competitive market, he notes. 'There are all sorts of companies in billing. We think if we can get a bedrock of four to six customers that will make a significant difference.' The company already has a contract in Ireland for a district heating scheme and another for a UK energy company, and there is a definite ambition to move into water.

This may be quite a challenge, if the recent research by Echo Managed Services is correct – the company found that half of the systems that manage the billing and customer care needs of the UK's water companies will not be ready to meet the requirements of the next five years but that despite this, only a handful can contemplate changing – and the reasons for this are largely out of their hands.

The report cites uncertainty from Ofwat and government as determining factors, combined with a challenging asset planning phase, to make companies reluctant to invest in new technology.

Echo believes companies will therefore have to move to options such as 'cloud computing' and 'software as a service'. With new customer satisfaction reporting requirements, clearly there is a need in the UK – and more generally elsewhere – to ensure this vital aspect of company business is capable of the demands thrust upon it. ●

Award for Seville water utility's billing based on number of inhabitants per household

EMASESA, the water utility of the Spanish city of Seville, has had its water and wastewater billing model recognised by a Spanish award for corporate social responsibility and sustainability.

According to EMASESA, its model offers a new and innovative means of billing water supply and wastewater management based on water consumption which takes into account the number of inhabitants in each household. The company says this makes the billing fairer and more sustainable, and that more than one million people have benefited from the initiative since it was introduced at the start of last year.

The company says that water is billed based on the number of people using the service, penalising those who waste water. EMASESA describes the model as being new 'not only for the company, but for the water industry in general'. It explains that, in terms of social responsibility, billing based on the numbers of inhabitants benefits responsible consumers, minimises the environmental impact of the company's activity by encouraging water saving, promotes sustainable development, and improves business management.

The billing model was recognised at the first awards of Spain's Corresponsables Foundation, held in December. EMASESA won the public authorities / undertakings section with its entry entitled 'Innovation applied to the tariff system: billing by inhabitant'.

EMASESA says the project involved the active participation of various interest groups, including shareholders, consumer representatives, residents' associations, employees and suppliers. It adds that a further important dimension was wide involvement of different functions of its own



organisation covering design through to evaluation, including: the Administrative Board, the Management Committee, and the commercial, finance, legal, marketing, customer relations, ICT, human resources, communications, accounting, meter reading / billing, and call centre functions.

The need for a new model of water pricing: *lessons from the financial crisis*

The recent financial crisis has put pressure on water utilities because of changes in customer behaviour, such as reduced industrial demand and increased late payment of bills, but does this simply reflect longer term pressures on the sector – pressures that mean a new approach to water pricing is needed to ensure the viability of utilities? **KEITH HAYWARD** reports on the arguments for a change of approach.

In looking for lessons for the water sector from the recent financial crisis, Dominique Demessence, Business Development Director of water utility group Agbar, begins by attempting to summarise the whole episode.

He starts with the bursting of the housing bubble in the US and the problems in the banking system there – the causes of which, he says, were probably similar in other countries: easy credit, the conditions of lending, the

incorrect pricing of risk, and a very innovative financial sector which, he adds, was probably ‘too innovative for some people’. This led to a downturn in the stockmarket, a decline in bank solvency, and credit difficulties. ‘We were on the verge of a complete breakdown of the financial system,’ he notes. There was, he explains, a sudden halt to the housing market in some countries and some key businesses failed, with a decline as a consequence in consumer wealth and economic activity from which there has

not yet been complete recovery.

Demessence was speaking at a workshop on the impacts of the 2008–2009 financial crisis on water supply and sanitation services held during at the IWA World Water Congress in Montreal, in September last year. What this introduction highlights, as the section during which he was speaking was intended to explore, is that there have clearly been impacts on the customer base upon which water utilities depend for their revenues. ‘The behaviour of the customer has an



The Agbar control centre in Barcelona.
(Credit: Antonio Navarro Wijkmark/Agbar)

impact on the capacity of financing of the utilities,' Demessence points out.

Demessence has looked at the situation in various countries. Looking at the impact on the housing market, he says there was a clear halt in the sales of new homes in Spain and the USA, for example, but that impact was almost unnoticeable in Chile. There was at the same time a slowdown in terms of Gross Domestic Product, with a relatively rapid global recovery forecast. 'But if we look at the US situation or the eurozone situation, we see that the impact has been much stronger and that the recovery is not there,' he says. There have also been differences in changes in unemployment rates: Demessence cites an increase from 8% to almost 20% in two years in Spain, and a doubling in the US from 5% to 10%, but with a low, but nonetheless increased, figure of 5% in the UK. 'Yes, it was a global crisis, but it doesn't mean it was the same crisis everywhere,' says Demessence.

On top of this, the differences in conditions that can exist between developed and developing countries have to be kept in mind: broadly speaking, flat or declining domestic demand for water in developed countries, but increasing demand in developing countries, and with the cost of water services representing a relatively low proportion of household income in developed countries, but a relatively high proportion in developing ones. 'So if we look at the impact on customer behaviour, I am not trying to make a global overview for all countries,' Demessence points out.

Industrial impacts

The question then is how this background of issues related to the economy has translated into concerns for water utilities. Here Demessence splits the concerns broadly into those relating to industrial water users and those relating to domestic consumers.

'If we look at industrial, I think we have two very different effects,' notes Demessence. There is a general picture of the slowdown in economic activity. 'This should see an upturn when the crisis is over,' he says. But there are permanent losses also. For example, companies have been prompted or taken the opportunity to relocate to places where production costs are lower. 'In terms of water, it means of course that there is a clear loss of income for the utilities.' Industries have also altered their production processes.

Agbar Tower and the Barcelona skyline.
(Credit: Óscar García/Agbar)



'[Companies] have been taking into account their consumption of water, something that probably years ago they wouldn't have been doing because of the small portion of the cost that water

different picture, because water is an essential service, so we can't say really that we are seeing an impact on the consumption pattern due to the crisis,' he says. 'Probably the problem is more to be seen at the level of affordability.'

Demessence highlights two main aspects of the issue of affordability: more problems around payment of bills, and an increase in flows that are not accounted for as a result of, for example, illegal connections and meter tampering. The latter clearly results in a loss of revenue, whereas problems around payment of bills might involve a loss of revenue, where bills are unpaid, or hit cash flows, where customers delay paying their bills. Here he gives the example of UK water supply company Bristol Water, which saw its bad debt as a percentage of turnover increase from 2.7% in 2007/08 to 3.8% in 2009/2010. This is an example of a case where the company cannot interrupt supplies to customers. He contrasts this with United Water in the US, where he says the company can interrupt supplies. 'The rate of collection is the same, even during the crisis, but the aging of the debt is different. So we see the clear effect of the delay of the payments, which reflects in less cash flow available for the companies.'

Alongside these concerns around affordability, there has also been an impact because of the way the economic crisis has affected new customers. 'We have seen that a fundamental cause of the crisis was a housing or real estate bubble,' comments Demessence, adding that the end to this bubble and a lack of available credit has consequently led to a decline in



*'It was a global crisis,
but it doesn't mean it was
the same crisis everywhere.'*

Dominique Demessence, Agbar

represents, but now they are looking at every cost,' he says, adding that such reductions will be permanent. 'If you are making investment for optimising your process, you are not going to go back.'

Affordability issues

Demessence sees things differently regarding domestic consumers. 'In terms of domestic clients, I would say it's a

the number of new customers. 'Here we have two impacts, when we are looking from the point of view of the utility. One is directly on the revenue, because you are not getting the connection charge... and you have another effect, depending on the way the financing of new infrastructure is done, which is a bigger time lag between the availability of the infrastructure and the incomes coming from the users of the infrastructure. You have to lay a lot of pipes, you have houses that have been built, you have no occupancy, so [there is] no consumption, so no income coming from this infrastructure.'

All of this indicates that the financial crisis has been significant for water utilities but, as far as the domestic market is concerned, it is reasonable to assume that the problems described above will reduce in significance as the economic situation improves.

Declining demand

The impacts described above would suggest that utilities might expect to have seen a drop in demand during the financial crisis. This is indeed the case for the Aguas de Barcelona, the Agbar company serving the Spanish city of Barcelona. But the picture of the customer behaviour behind this is more complex, as Carme Albiol Omella, the company's Head of Commercial Planning, explains.

The longer term picture for the city, she says, is that there has been a decrease in water use of the last ten years of more than 13%, or 25Mm³, at a time when the population has grown by 8%. The key point here is to consider the role of the regulator. Options open to regulators include demand management measures not based around water pricing, such as water efficiency regulations, requirements to use recycled water, and communications campaigns. Water pricing can also be used, although Albiol points out that in the domestic context this may be a less effective approach as consumers cannot switch to using an alternative resource. And related to pricing, tariff structures can be used to help limit demand.

As far as Barcelona is concerned, Albiol highlights the drought experienced in 2008. Domestic users make up 88% of customers, although only 69% of consumption, and showering and toilet flushing represents almost 60% of indoor use. So water efficiency measures have been increasingly put in place. Alongside this a tariff system based on a fixed charge

and three blocks of consumption has been put in place, with the upper tier, of use above 12m³/month, priced to discourage over-consumption.

'In my opinion the decrease in domestic use is not caused by the economic crisis,' comments Albiol. 'We can see the fall in domestic consumption started some years before the crisis, in the good economic period.' She adds that in the last ten years per capita consumption has decreased by 17%, to 108 litres / person / day, making Barcelona one of the cities with the lowest per capita consumption in developed countries.



'Customers can't save money, because if all the customers consume less, the water price will need to increase in order to balance cost.'

**Carme Albiol Omella,
Aguas de Barcelona**

The picture for industrial use, and that for use by municipalities, is slightly different. Industry can implement process changes or change location, and municipalities have been able to make greater use of recycled water, particularly for irrigation. So, as with the domestic scenario, the result is again an ongoing decline in demand for water from the utility.

A new model of water pricing

Alongside these considerations about the customer, water utilities also have financing to contend with – both in terms of what activities need to be financed and how these activities are to be financed. While this was covered in more detail by other presentations at the Montreal workshop, Demessence sums up the concerns: 'We are seeing a real problem here because we have growing needs for

investment, maintaining the quality of service, taking account of the growth of the population or the effects of climate change, and you have infrastructure to be built, [and] aging assets.' At the same time he points to a decreased availability of financing during the economic crisis, such as the public budget cuts being seen in Spain, and competition with other sectors for investment. 'It is more difficult to get the financing, and of course the costs of this financing are getting higher,' says Demessence.

Demessence acknowledges the social and political pressure to keep water tariffs low, but he raises concerns about the need for water utilities to make greater investment but at the same time to use a pricing structure that provides an incentive to reduce consumption. 'I think that here we really have to think of a new model for the pricing of the water,' he says. 'It is a model that is, let us say, unbalanced and we have to think of innovative solutions to find a convenient way of pricing the water.'

Albiol agrees: 'As a consequence of this evolution, costs increase and the revenues decline, [so] the profit margin in developed countries declines more and more, putting in danger the necessary balance between cost and revenues.'

Albiol also argues that the decline in demand in developed countries represents a double burden for utilities – not only does lower use bring lower revenues, but the lower use impacts first at the higher tariff bands. She adds that stimulating water saving presents two paradoxes. The first is what she describes as the danger of destabilising the economic financial balance of water services provision: 'As the behaviour of the users change, revenues tend to decrease. If the level of service is maintained or increased, it will be necessary to create mechanisms to compensate.' The second paradox is 'the danger of disappointing citizens'. Customers think they will pay less if they save water, but water utilities have a high proportion of fixed costs. 'So customers can't save money,' says Albiol, 'because if all the customers consume less, the water price will need to increase in order to balance cost.'

Albiol concludes: 'The question is not really the economic crisis, because it is temporary. It will be overcome, perhaps soon, I hope. The question is, what about the traditional water model? In fact, we are facing a crisis of the traditional water model, which is deeper and structural.' ●

Are you ready for benchmarking?

How to successfully prepare and join a benchmarking activity

In the December 2010 edition of *Water Utility Management International*, the authors of the upcoming book 'Benchmarking water services' provided an overview of water utility benchmarking. Here, **PETER DANE**, a co-author of the book, continues the theme with a look at how to successfully prepare and join a benchmarking activity.

Joining a benchmarking activity without adequate preparation implies the risk of facing disappointments. Despite the fact that experience shows that all participants can get some sort of benefit out of their first benchmarking experience, the amount of resources and efforts that are needed may not be compensated with enough performance improvement. Therefore, thorough preparation by both participating utilities and the organiser of the benchmarking activity is essential.

Utility preparations

Benchmarking aims to achieve continuous improvement in performance by learning from peers and adapting best practices. When utilities join a benchmarking activity only because they are curious about their position or because individuals feel the need to do so, there is a risk of getting few or no benefits. For this reason, the benchmarking activity should be aligned with the strategic objectives of participating utilities.

Furthermore, commitment of senior management is required to ensure that adequate resources are assigned and serious action plans are made to close the identified performance gaps. The com-

mitment should preferably go beyond a single exercise, because performance improvement is a continuous process.

Performance assessment is the basis for any benchmarking activity. So, a prerequisite for successful benchmarking is the willingness of participating utilities to provide good quality data according to the timescales of the process. This is not just in the interest of the utility itself (to obtain reliable information about its own performance), but also for the other participants (to ensure reliable performance comparisons). Also, participants need to be willing to share knowledge and experiences on leading practices, and the utility staff involved must have an open mind when discussing results and ways for improvement.

Benchmarking activities may vary a lot in terms of scope and level of detail. Starting at an advanced level that is too detailed might lead to disappointments. A utility needs to choose carefully the level of detail that best fits with its experience, availability of data, resources and ambition.

From this perspective, the European Benchmarking Co-operation (EBC) for instance offers a three-level benchmarking programme (basic, standard, advanced) to accommodate

small utilities that are just starting the process, as well as larger, experienced ones.

Last but not least, benchmarking only makes sense when an organisation is relatively stable and ready for further development and improvement. Being in the middle of a restructuring or a merger is usually not the best time to assess performance and develop and implement improvement plans. However, the activity can be used for a before and after comparison and evaluation of the outcomes of a change.

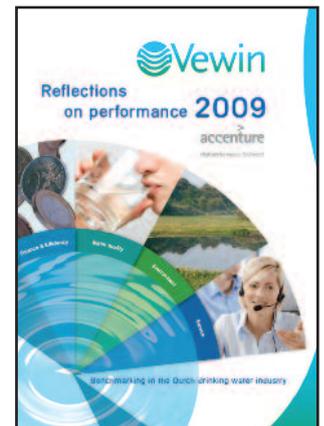
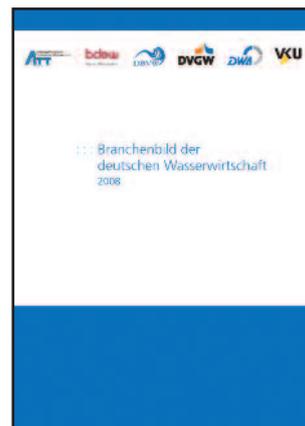
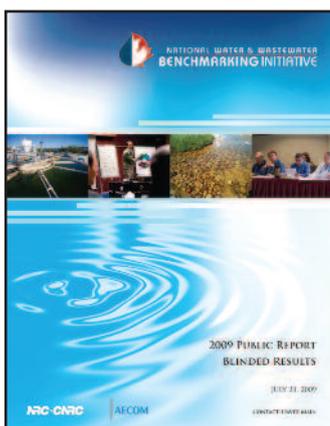
The organiser

Of course, the organiser of a benchmarking activity needs to be well prepared too. Organising a benchmarking activity first of all requires a good understanding of the sector, the policy objectives and priorities, and the demands of individual participants.

The practical organisation of a benchmarking exercise asks for experienced staff who are able to manage a project professionally and facilitate participating utilities in identifying performance gaps, leading practices and improvement actions.

Furthermore, it is important that the organiser is able to create a network of utilities that compare well, to make the benchmarking activity interesting to all.

Examples of benchmarking public reports





Utility assets – at the heart of the benchmarking of management and operations (picture taken during site visit to Yorkshire Water's Esholt wastewater treatment plant (UK) during the European Benchmarking Co-operation 2009 benchmarking exercise).

In practice, each utility is unique, and for some utilities this is an argument not to engage in benchmarking efforts. Although proper comparison is the foundation of a benchmarking activity, benchmarking is not about producing perfect comparisons or ranking lists. The use of performance measures in benchmarking is aimed at identifying performance gaps, best practices and improvement opportunities. Experience has shown that these objectives can be achieved even without the 'perfect' comparison.

Where and how to start?

As explained in the new IWA manual of best practice (see box), the benchmarking process consists of two consecutive steps: performance assessment and performance improvement. After implementing improvement measures, results should be evaluated and new actions considered (the 'plan-do-check-act' cycle).

Usually, a benchmarking activity is organised as a project (exercise) with a clear start and finish, whereas multiple

exercises in a row is named a benchmarking programme.

Each benchmarking activity starts with a preparation stage ('project planning') to define the project in terms of objectives, activities, organisation and financing.

In close consultation with the participants, the organiser defines the objectives of the activity: what is the general objective, what are the areas of interest to be studied, what are individual utility objectives, what would be the benchmarking methodology?

Scope and deliverables

The scope of the activity can be limited to a single product (for instance drinking water) or process (such as customer relations), type of activities (i.e. operations), geographical area, etc. The target group for the activity can for instance be members of an association, utilities in a certain region, a type or size of utility, etc.

Also, at this stage deliverables have to be defined in advance to manage the expectations. Deliverables of a benchmarking activity can be training of staff, an IT solution, utility visits for data validation, individual utility reports, a public report, workshops, site visits or individual utility support.

Governance

As with any other project or programme, a benchmarking activity needs to be governed in a clear way. The roles and responsibilities of the different actors have to be well described and agreed before starting the project, especially during the establishment of a new benchmarking activity.

In the first instance, one can identify a body responsible for the project (owner, organiser, initiator). In many cases this is a national water association, as with the current benchmarking programmes in Australia (WSAA), Austria (ÖVGW), Brazil (ABES), Denmark (DANVA), the Netherlands (Vewin) or the United States (AWWA). Sometimes however a benchmarking activity is initiated by a utility group (such as the Scandinavian 6-Cities Group), a consultant (such as aquabench (Germany) or AECOM (Canada)), or a regulator (such as Ofwat (United Kingdom) or ERSAR (Portugal)).

Usually, the benchmarking activity is supervised by a steering committee and managed by a project team, whether or not supported by a consultant. The steering committee is responsible for defining and concluding the strategy, the objectives, the desired deliverables and the budget. The project team prepares, executes and controls the benchmarking activity. It details and schedules the necessary activities, prepares the tools, organises meetings, produces reports and takes care of the communication with the participants.

Responsibilities of the participating utilities are: providing qualified staff; taking care of the data collection; providing input for the benchmarking workshop, and preparing their own performance improvement plans.

In some (larger) programmes, utility staff can also play an active role in the project planning as member of an expert group.

Project schedule

The project activities need to be detailed and scheduled in time, from the preparation through to the evaluation and closure of the activity. After the preparation stage, the most time consuming part is usually the collection and validation of data. Without good data quality, performance comparison is meaningless so the project should pay good attention to this and reserve enough time for it.

Preferably, a benchmarking activity should finish not later than a year after a financial year has ended, otherwise the data may look dated and management may already be focused on the results of the next financial year.

Financial planning

Financial planning is vital to obtain the necessary economic resources for the activity and avoid budget problems. In the

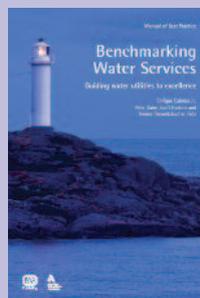
New from IWA Publishing

Benchmarking Water Services – Guiding Water Utilities to Excellence

Authors: Enrique Cabrera Jr., Peter Dane, Scott Haskins, Heimo Theuretzbacher-Fritz

The objective of this Manual of Best Practice is to define a new framework in which the traditional benchmarking concepts can be clearly distinguished, guaranteeing more fluent and efficient communication.

The manual intends to be a hands-on document, with a practice oriented approach, both from the perspective of those organising a project, as well as the needs of potential participants and even beginners in the topic. This practical how-to information originates in the experiences gathered in some of the most relevant benchmarking projects in the water industry to date.



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preparation stage, costs of the activity need to be determined as well as the way of financing them. Costs of a benchmarking activity include, but are not limited to:

- Staff (project management, data collection etc.)
- Travel and accommodation
- Manuals (such as the International Water Association's Performance Indicator system)
- IT solutions (database, website, etc.)
- Third party hiring (consultant, printing services)
- Event costs (meeting rooms, audio / visual equipment, catering, etc.)

These costs relate to the organisation of the activity as well as to the individual participants. They may be covered via participation fees and /or external funding.

Code of conduct

The rules of the game need to be clear to all staff involved. For instance, how should the confidentiality of individual performance data be dealt with? Obviously, the organiser needs to promise to handle data confidentially, but what is to be included in the reporting of the data? And the exchange of data in a benchmarking workshop? And sharing leading practices? For this type of question, concluding a code of conduct between the organisers and the participants can be of help. A good example of such a code of conduct is the one from the European Foundation for Quality Management (EFQM).

Recruitment of participants

There can be no benchmarking without participants. The organiser can use different communication channels to approach potential participants, depending on the target group. Utilities in the organiser's network can be contacted by direct mail. Other communication channels are emailing, announcements via websites, journals, conferences and intermediates. Personal visits to interested utilities by the organiser may be very effective, but are however very time-consuming. Once a benchmarking activity is well recognised, recruitment efforts may be achieved by word-of-mouth advertising.

Communications plan

An internal and external communications strategy should be clear at the start. How to communicate within the project?

Via letters, telephone, email? Is there a help-desk during the project? And what about the external communication? Does the project for instance provide an external report for stakeholder communication? Who is the target audience for such a report, and what type of information will be in it? This type of questions can be elaborated in a communications plan that includes:

- Communication strategy
- Communication structure
- Communication actions.

Orientation and training

In order to achieve a smooth start-up to a benchmarking activity, an orientation and training event should be considered. Such an event first of all aims to explain the project to potential participants, to enable them to make a deliberate decision about participation. Additionally, the event aims to train utility staff involved to make them familiar with the benchmarking process, the applied methodology, IT solutions, data requirements, etc.

The format of the event may vary from a meeting, a workshop, to even a webcast.

Project control

As with every other project, it is essential to control the benchmarking activity in such a way that the promised products are delivered in time, are of good quality and are within the budget.

Project control needs to cover all stages of the benchmarking process:

- Project planning
- Orientation, training
- Data collection and validation
- Data analysis and assessment reporting
- Improvement actions
- Review of improvement actions

Project control starts with the preparation of a project plan. In this plan the objectives, scope, activities, methodology choices, organisation, deliverables, conditions, time schedule, costs and funding of the project are elaborated. After approval by the project steering committee, the plan should be communicated with the participants.

During the activity, the organiser needs to ensure that all activities are executed in accordance with the project plan, in terms of planning, costs, quality and communication.

To conclude

Successful benchmarking requires thorough preparation, by the organiser as well



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The European Benchmarking Co-operation is a not-for-profit benchmarking initiative, established in 2004 by Dutch and Scandinavian national water associations DANVA, FIWA, Norks Vann, Vewin and Svenskt Vatten. The mission of the co-operation is to facilitate water utilities in their continuous efforts to improve performance and raise transparency, by:

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as the participating utilities. Investing in project planning, training of staff and project control pays off. It leads to better results and, most essentially, satisfied participants that are eager to continue their benchmarking efforts. ●

Note

This article is based on a session on benchmarking at the IWA World Water Congress in Montreal, 19-24 September 2010.

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Asset management – the board game: *supporting implementation of asset management in the Dutch water sector*

A management board game has been developed in the Netherlands to support implementation of asset management in water utilities. **MARTINE VAN DEN BOOMEN, JAN PORTENGEN, RALPH BEUKEN** and **MONIQUE BEKKENUTTE** describe the game, how it has been developed and used at the water company Waternet, and its wider introduction to the Dutch water sector.

Infrastucture asset management is a major topic in the Dutch Water Sector. Full asset management implementation is a strategic business objective of all infrastructure organizations. In the past ten years, reliability-based techniques for maintenance and operations have been introduced. At a tactical level, business cases, performance management and risk management presently support the systematic development of long-term asset system plans and the capital and operational expenditures strategies.

The implementation of asset management in the Dutch Water Sector in general follows the BSI PAS 55 guidelines. The main challenges for the Dutch Water Sector for the coming years are geared towards the consolidation and enhancement of the present achievements, the strengthening of the interfaces between the strategic, tactical and operational levels and the further implementation and use of information and communication technology. At present, the physical component of asset management implementation is fairly crystallized. Companies have a clear view of asset management objectives and what to achieve. Probably the most important factor for future success is the human factor. Full asset management implementation requires systematic and structural cooperation, with an organization-wide focus on added value for stakeholders and cultural change.

The board game, 'Asset Management – the Management Game' – has been developed to support the change process towards full asset management implementation. It brings employees together and helps them to understand different asset

management roles and responsibilities. It is not a theoretical exercise in a theoretical organization. The game addresses employees directly about their work and experiences in their own organization. It highlights the specific asset management development issues of the organization and encourages employees to find solutions that work. The game combines the roles and disciplines and contains issues and occurrences which are relevant for the Dutch Water Sector. These can easily be adjusted in order to meet the specific needs of other organizations or sectors that have their own developmental stages and issues.

The asset management game

'Asset Management – the Management Game' was developed to support Dutch drinking water companies, water boards and municipalities with the implementation of asset management. Five players represent a management team that consists of:

- An Organization Manager (CEO)
- A Customer Service Manager
- An Asset Manager
- A Maintenance Manager
- An Operations Manager

The Organization Manager and Customer Service Manager both play the strategic asset management role. The tactical asset management role is played by the Asset Manager, and the operational asset management role is played by the Maintenance Manager and Operations Manager.

The starting position

The game board consists of five axes, one for each player, and a sixth axis for the total result, which is defined as the

stakeholders' satisfaction. The purpose of the game is organizational asset management growth. Ten growth steps are defined for each role, which start with project-based reactive measures and end with a full balanced asset management approach throughout the entire organization.

The growth steps incorporate the BSI PAS 55 guidelines for the implementation of asset management.

At the beginning of the game, the players discuss the current asset management position of their organization for the different roles with the help of a maturity model that contains all the growth steps. For water utilities in the Netherlands, a typical start position would read:

- Organization Manager, position 3: The organization's Board has developed a vision on asset management and employees are actively involved by the development of asset management roles.
- Customer Service Manager, position 5: Health, safety and environmental risk are being controlled. Calamity plans and security are up to date. Focused research programmes to improve the primary processes take place.
- Asset Manager, position 3: Total system management takes place based on proactive risk management, however, not yet systematically in all fields. Policy development for maintenance and operations needs further improvement.
- Maintenance Manager, position 3: Reliability-centred maintenance takes place, however not yet systematically in all fields and is limited within their own department.
- Operations Manager, position 3: Risk-based management of processes takes



'Asset Management – the Management Game' brings together five roles: an Organization Manager (CEO), a Customer Service Manager, an Asset Manager, a Maintenance Manager, and an Operations Manager. (Credit: Albert Jan Perier)

place, however not yet systematically on all processes and is limited within their own department.

Balanced growth

In each game round, the Organization Manager shares a limited amount of Euros amongst the players and himself. Players need the money to buy the growth cards which allow them to grow. The Organization Manager aims for a balanced organizational asset management growth. A player is disqualified if his position at the end of the playing time fails to meet the stakeholders' satisfaction by more than two steps. A disqualified player therefore endangers the result of the entire team.

Buying a growth card simulates the investment in development programmes such as ICT-Development, Training and Communication, Risk Management, and Performance Management. Investing in a growth card, however, does not necessarily mean that growth is achieved. Players also have to throw the dice for success. Each growth step achieved is discussed in a plenary session to ensure

that the whole team understands the organizational inter-dependencies of asset management. Stakeholders' satisfaction grows as players grow.

Board meetings and asset management challenges

A second way of gaining money for growth is found at Board meetings, where all kinds of typical asset management challenges arise. During the game, players are confronted with asset management challenges that belong to their roles. These challenges are to be answered in such a way that a player convinces as many of his fellow management team members as possible. It is not only a question of what to answer but also of who to involve. This challenges players to empathize with the position of the other players. The more team members who are in favour of a player's solution, the higher the chances of gaining the additional money which is necessary for growth.

Challenge cards handle issues such as:

- Management of asset systems
- Management of assets
- Risk management
- Performance measurement

- CAPEX and OPEX decision strategies
- Authorities and responsibilities
- Training and competencies
- Value-added result
- Involvement of employees

Game evaluation

At the end of the game, the results as a whole are evaluated. Often the game is played by several teams at the same time. The winning team is the team which has achieved the largest growth in the allotted playing time. It is also possible to look at the efficiency of a team. This is measured by dividing total growth by the number of game rounds. Some teams take more time for discussions. Other teams like to win and keep discussions short (time is money). The Organization Manager plays a distinctive role in the group process.

In the evaluation, differences in the starting positions of teams, which indicate differences in perceptions or knowledge on asset management, are discussed in a plenary session. The growth steps are a rough roadmap for the further development of asset management. The participants discuss where the organization stands today, where it aspires to stand in a

couple of years, and what the necessary enablers and critical success factors are. Participants express their ideas on the different asset management roles. In the actual organization, the responsibilities are often not as strictly divided as in the game. Some people are quite happy with that; other people see a more strict division of responsibilities as a critical success factor for the implementation of asset management. The game does not give a good or incorrect answer to these kinds of questions. The value of the game lies in making thoughts explicit and a subject of discussion.

Experience at Waternet

Waternet is the first water cycle company in The Netherlands and was actively involved in the development of the game. About two years ago, Waternet introduced asset management as a long-term strategic business objective. A promising initiative, but it goes without saying that it needed a fair amount of support to successfully implement it organization-wide. The crucial question was how to anchor asset management in a solid way, with craftsmanship and passion as starting points? First of all: how to make sure that employees speak the same language? How to reach a point where they understand each other's positions and recognize all different interests? And last but not least: what is needed to join forces effectively, to find each other on all levels? A challenge for an organization with over 1000 employees with various profiles, divided into three quite different internal sections (drinking water, wastewater, water system).

Tailor-made board game

A unique tool was found in the 'old-fashioned' board game, offering surprisingly many interactive possibilities. The connective, structural approach of asset management plays a key role. Insight is offered into the possible optimisation strategies for an organization. The game brings the Waternet employees together, literally and figuratively. Its elements represent the entire organization: from the Drinking Water section to the Wastewater section, from Risk Management to Database Management. The issues covered are inspired by the employees' own organization, such as risk analysis or maintenance data of certain assets. A special experience is often the 'change of role'. What happens if an Asset Manager plays a completely different role – of, for instance,

Time is money: when played by several teams, some teams like to keep discussions short and so complete a greater number of rounds to achieve maximum growth.
(Credit: Albert Jan Perier)



Maintenance Manager? What knowledge or experience do you need, and from which colleagues, and how is it possible to join forces to reach the most effective solutions?

With the experience of the past six months, it may be said that the Asset Management Game turned out to be surprisingly effective. Quite a number of targets have been realized in terms of attitude and behaviour. Employees play an increasingly (inter)active, enthusiastic role.

Within Waternet, the asset management game has been well received. It contributes to a solid implementation of asset management. A clear awareness of the power of cooperation has been realized. Knowledge and experience are shared in many places. However, the game is far from played out within the Waternet organization. It remains a functional way to find the right cooperation and help employees speak the same language, now, and in the future.

Final feedback

'Asset Management – the Management Game' has been developed and realized on a not-for-profit basis by three organizations¹, supported by the Community of Practice for Asset Management in the Dutch Water Sector and the Royal Netherlands Water Association. The Community of Practice was established in 2009 as a spontaneous joint effort of a number of asset management experts from different organizations which found a solid and welcome ground at the Royal Netherlands Water Association. The Community of Practice aims at an easy accessible transfer of knowledge and

experiences on asset management throughout the Dutch Water Sector. The Community of Practice provided valuable feedback on the game concepts.

The final concept of the game was presented to the Dutch Water Sector at a well-attended asset management congress of the Netherlands Water Association in April 2010. In a trial run the game was played simultaneously on ten tables. This provided the last feedback needed, after which the asset management game was made definitive and officially launched. Since then, the game has been played by several water utilities, water boards, service providers and municipalities and used as a training and communication instrument. The game also proved to be useful for client-focused events. It enhances the exchange of expectations on asset management themes between clients and service providers in a free and easy atmosphere. ●

References

¹ © 'Asset Management – the Management Game' – 2010, Martine van den Boomen (Colibri Advies), Jan Portengen (Waternet), Ralph Beuken (KWR Water Cycle Research Institute).

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An international perspective on workforce development

Workforce development is of concern to all water utilities. Here, **CHERYL DAVIS** reviews insights from around the world, based on presentations made at a special workshop during the International Water Association's World Water Congress in Montreal last year.

The screenshot shows the H2Oz website interface. At the top, there is a navigation bar with links: Home, Beneath the Surface, Jobs, Job Advertising, Take The Plunge, and Immerse Yourself. The main header features the H2Oz logo with the tagline 'careers in water'. Below the logo is a large image of a woman in a red shirt underwater, smiling and pointing. To the right of the image, the text reads 'It's great to work in water' followed by a quote from Tom Mollenkopf, CEO of the Australian Water Association: '...You can have an exciting and rewarding career and contribute to solutions to the water challenges facing all Australians'. Below this is a map of Australia with a green callout box indicating '39 Jobs found'. A list of H2Oz subscribers is provided, including the Department of Environment and Resource Management, International Water Centre, McArthur, South East Queensland Water Grid Manager, SunWater Limited, and Unity Water. A 'find jobs' button is visible. At the bottom, there is a 'Latest news' section with a link to 'read more news', a 'Register for job alerts and get headhunted!' button, and a login/register section with fields for username and password, and a 'login' button.

Website and, on the next page, advertisement of the branding campaign for H2Oz, which was established through Australia's Water Industry Capacity Development (WICD) network with industry and National Water Commission funding. Other activities in Australia include the Water Industry Skills Taskforce, which is led by the Australian Water Association and was established to promote and oversee a nationally-coordinated effort to address the skills shortage in the water sector. (Images supplied by: Australian Water Association).

Saywell, IWA's Development Director, discussed staff skills needed in order for Millennium Development Goals to be met in Asia and Africa. Skill gaps were identified in many categories, including technicians, engineers with water and sanitation expertise, and skilled trades workers. He reported that people weren't getting the education and skills they needed to enter the water sector, that it was difficult to recruit trained people to work in the sector, and that the industry provided insufficient incentives to retain trained staff. Particular problems were noted in specific geographical areas (e.g., where living conditions were harsh or expensive) and in relation to employment of women. Recommendations included (1) improved monitoring of workforce capacity; (2) development of a comprehensive human resource strategy; (3) upgrade of basic educational systems (primary, secondary, and tertiary); (4) programmes to train larger numbers of people (e.g., vocational and on-the-job training); and (5) incentives to work in the water sector (e.g., improved working conditions).

International perspectives

Presenters from Australia, the US, Spain, and South Africa also reported gaps between projected staffing needs and the number and /or preparedness of candidates available.

Tom Mollenkopf, CEO of the Australian Water Association (AWA), reported that the number of people

A great benefit of IWA's conferences and workshops is that they allow international water issues to be viewed in a kaleidoscopic way. Just as one set of beads, pebbles, or bits of glass in a kaleidoscope form varying patterns as the kaleidoscope is rotated, the basic components of water issues are often the same, but manifest themselves differently in different locales. Presentations and participant discussions in the World Water Congress workshop on workforce development in Montreal last September reflected both the underlying similarity of the challenges encountered worldwide and the variety of innovative approaches that are being implemented. Four basic issues were addressed:

- Developing, attracting, and retaining

qualified staff for mission-critical positions (e.g., water treatment operators and engineers).

- Providing staff with the skills and information they need to do quality work (e.g., through documentation of processes and procedures, staff training, mentoring, and knowledge management systems).
- Modifying work (e.g., through increased use of information technology or redesign of job classifications) to optimize use of the staffing available.
- Maximizing the cost-effectiveness of workforce development efforts through collaboration (e.g., among water utilities, and with other stakeholders such as educational institutions, NGOs and governmental entities).

The challenge of developing, attracting, and retaining qualified staff was discussed from a variety of perspectives. Dr. Darren

retiring was expected to result in skills shortages in science and engineering areas, management, technical positions, and skilled trades. In response, the Australian water industry has launched a national Water Industry Capacity Development initiative that has included a CEO-level Skills Forum to confirm the need for collaboration between industry, government, and educational/training sectors. It has also established a national Water Industry Skills Taskforce to advise the national government, and has developed a National Water Skills Business Plan. Their multi-pronged approach has generated AWA's H2Oz Careers in Water Campaign, mentoring, and industry secondments. The strategy also supports a Young Water Professionals Network, free student subscriptions, participation in the Australian Stockholm Junior Water Prize, and a National Water Week to raise awareness in schools and the community.

Linda Reekie from the US Water Research Foundation reported that candidate development and outreach are also a major concern in the US. Many Baby Boomers (born 1946–1964) are expected to retire in the next 10–15 years, creating a need for competent replacements. Retirees, workers displaced by layoffs, and military veterans have been identified as potential candidate pools for treatment plant operators and engineers. A study co-sponsored by the Water Research Foundation and the American Water Works Association has recommended improved marketing of the water sector's image; better definition of water sector career pathways; and implementation of a national workforce resource clearinghouse. Websites that have been established in the US to encourage potential candidates to pursue careers in water include WorkForWater.org, getintowaterco.org, H2Oopportunity.net, and Workinwater.org.

Francisco Cubillo from Canal de Isabel II in Spain reported that the organization has been active in multiple programmes to prepare students for work in the water sector. In its STAR Programme, university students combine work experience at Canal de Isabel II with their studies (working up to 20 hours per week). In the Scholarship Programme for Vocational Training, vocational students get credit for work experience in the industry. The professional development of new graduates working for the organization is also encouraged by providing new employees with the opportunity to

work with a mentor.

Dr Hamanth Kasan described an extensive programme that has been implemented by Rand Water in South Africa to recruit science graduates into the water industry. A process which began with receipt of 1400 mailed applications in 2008 and included numerous screening processes resulted in selection of ten highly qualified science graduates in early 2009. Tools such as learning potential and behaviour assessments helped Rand Water select the most promising graduates. Rand Water then provided a Graduate Development Programme, an extensive training curriculum that covered topics ranging from basic sanitation to advanced water purification, as well as administrative and management skills. Participants also had the opportunity to perform valuable research (e.g., on chlorine decay rates in the distribution system) that benefited Rand Water as well as the graduates' own professional development.

One recommendation was that utilities think in terms of blended training in order to match training media to different training needs, and allow for the fact that different individuals have different training styles.

Rand Water intends to expand the programme (e.g., expanding recruitment to PhD levels), adjust the curriculum to reflect lessons learned, and modify the recruitment process to include psychometric assessment of emotional and spiritual intelligence.

What Young Water Professionals want

A presentation by Dr Rita Henderson on 'What Young Water Professionals Want from the Water Industry', discussed more fully in an accompanying article, was of particular interest, providing information on the interests and preferences of the highly-qualified candidates the industry wishes to attract and retain. Key findings from surveys completed by 237 Young Water Professionals from 55 countries were the following:

- Most intended to stay in the water industry, but less than half intended to stay with their current employers.
- Factors cited most often as changes employers could make to increase their loyalty were: (1) assign a higher level of

responsibility; (2) provide more learning opportunities; and (3) provide exciting projects. The desire for better remuneration was also cited, but appeared to be less significant factor in motivating employment change or their level of loyalty to their current employer.

- Around 60% of the respondents were satisfied with the learning opportunities (e.g., training and mentoring) currently available to them.
- 90% of the Young Professionals placed high importance on personal career development; 40% worked for an employer that provided a personal career development plan. Less than half (30%) rated their organization's management and human resource staff as helpful with career development.
- Less than 40% thought the water sector provided competitive remuneration and working opportunities relative to their industries.
- About 80% thought: (1) that the water sector provided an opportunity to work on innovative topics as their area of expertise; and (2) that the water sector provided a rewarding career in a field where they were proud to work.

Workshop participants who participated in a roundtable discussion of candidate development, outreach, and retention issues provided the following suggestions:

- Develop a uniform message about the water sector to attract interest.
- Educate young professionals and students (high school and younger) about opportunities in the water industry.
- Collaborate with educational institutions in candidate development.
- Consider employee retention, and the fact that other industries provide more rapid career advances.
- Work to improve the retention of female employees.
- To the extent possible, promote work-life balance in terms of childcare, medical care, flexible working hours, maternity / paternity / study leave, and personal development.
- Recognize that all desirable employees may not wish to be available to the organization on a 24-hour-a-day, 7-day-a-week basis.
- Keep up-to-date on the preferences and requirements of candidates in different job categories (e.g., operators, engineers, and chemists); they may have some shared interests, but also differences.

- Recognize that the support services and facilities a utility provides (e.g., information / resources, facilities for basic human functioning, communications equipment, and training and reference materials) may be as important to an employee as pay level.
- Recruit staff with appropriate qualifications. Recruits under-qualified for the work are likely to leave if they cannot meet job requirements. If you recruit staff who are over-qualified, then provide an opportunity for advancement.
- Take into account that industry 'poaching' from academia may 'kill the goose that lays the golden eggs'.
- Cater to the motivations that drive people to join the water industry: a desire to be of value to society and contribute to environmental protection, economic development, and social sustainability.

Wider discussions

Both workshop presenters and participants in roundtable discussions discussed the importance of making sure water industry staff have the skills and information they need to do quality work. Darren Saywell's report highlighted the impact of insufficiently trained workers on the capabilities of water and sanitation providers and Asia and Africa. In Timor Leste, for example, a study co-sponsored by IWA and the UK's Department for International Development showed that the lack of trained workers resulted in reliance on foreign expertise, the private sector, and NGOs. In general, the study showed that a mix of 'fast track' training programmes and longer-term tactics was needed, given that capacity cannot be upgraded overnight. He also stressed the fact that worker training alone would not be enough to address the problem – that a long-term solution to capacity problems would require stronger service provider organizations.

Glenn Wilson from Yarra Valley Water in Australia addressed the broader issue of corporate capacity-building. Yarra Valley's process has been to (1) establish organizational goals in terms of their customers, their environment, their culture, and efficiency, (2) define desired objectives in each, (3) identify the corporate culture needed to achieve those objectives; and (4) measure, over time, their progress toward achieving the corporate culture they desire. Emphasis has been placed on

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providing leadership consistent with the desired style because of the strong impact of leaders' behaviour on corporate culture. They also pushed for change at multiple organizational levels. At the individual level, for example, managers took Myers Briggs personality tests and received feedback on results. They also participated in a Leadership Styles Inventory, and received coaching based on the results. A Service Leadership Programme with training in management basics was provided to all managers, and leaders were given greater responsibility for the decisions that affected them. Based on qualitative measures, these efforts resulted in significant progress in achieving constructive (as opposed to aggressive /defensive or passive /defensive) manage-

ment styles.

Francisco Cubillo reported that Canal de Isabel II has also been very proactive in staff development. In 2006, the company launched its Competency Management Model, which defined both corporate competencies (e.g., teamwork, customer orientation, communication, and results orientation) and management skills (e.g., analysis, decision-making, leadership, and continuous improvement). The utility's training programme includes general training for all employees; training for specific work groups; and training to upgrade the skills and professional development of employees. In 2009, almost 7000 employees received approximately 98,000 hours of training through this programme. The company also delivered

almost 40,000 hours of training through e-learning (most of which occurred outside normal working hours). Specific development programmes which target different working groups (e.g., heads of departments or foremen) are also available. These are voluntary, implemented outside work time, and customized to meet the needs of each workgroup.

In addition, Canal de Isabel II provides financial aid to support self-development of its employees. A Skill Assessment Guide helps employees assess their competency levels and set personal goals. A Skills Development Guide helps direct their efforts. Canal de Isabel II's Study Aid Programme provides 100% reimbursement for basic studies, 80% reimbursement for university studies, and 50% reimbursement for other studies (e.g., a Master's degree or a language).

In the United States, utilities have been concerned not only with how much employees know, but (given impending retirements), how they are documenting and passing on their knowledge. One Water Research Foundation report, co-published in 2008 with the US Environmental Protection Agency, was 'Strategies to Help Drinking Water Utilities Ensure Effective Retention of Knowledge'. The report identifies drivers, barriers, and critical success factors, and knowledge retention tools.

Roundtable participants who discussed the issue of staff preparedness identified the following as general training challenges:

- Dissemination of knowledge held by different individuals and groups in the organization.
- The need to provide continuous training throughout an employee's career.
- The need to create continuing development plans for employees.

They also identified the need to create flexible, less generic training for more senior staff (e.g., on supervision, finance, or project management, or refresher courses for technical staff). E-learning was identified as an option for basic skills (e.g., forms completion), whereas personal interaction was identified as a necessary component for training on more complex issues. One recommendation was that utilities think in terms of blended training (e.g., a combination of classroom, web-based, and field training) in order to match training media to different training needs, and allow for

the fact that different individuals have different training styles.

Both informal and formal mentoring, with a programme for assigning appropriate mentors to mentees, were recommended. Design considerations for mentoring programmes included the following:

- The mentee needs to know his or her goals in order to get most benefit from a mentor as a role model.
- The process will be most effective if the personalities and communication styles of the mentor and mentee are compatible.
- Both the mentor and mentee must be prepared to invest time.
- For a mentoring programme to be successful, both parties must benefit.

The workshop also included discussion of opportunities to optimize use of the staffing available by re-evaluating how the work itself is performed. In the roundtable discussion, it was suggested that operational turnover associated with the exodus of Baby Boomers provided a window of opportunity to look for new ways to perform work more efficiently. Possible approaches would include the following:

- Increased use of automation (e.g., mobile computers for field staff, automated water meter reading systems, and use of hand-helds for data collection);
- Modification of job classifications (e.g., combining water and wastewater treatment operators into a single classification); and
- New administrative agreements (e.g., sharing tasks among agencies).

Several workshop presentations reflected the cost-effectiveness of collaborative workforce development efforts. Many Water Research Foundation publications described by Linda Reekie had been created in collaboration with other professional organizations. Research on capacity-building in Asia and Africa was conducted through a partnership between IWA and the Department for International Development. Tom Mollenkopf's report on Australia's response to workforce development challenges reflected the collaborative efforts of Australia's water industry, educational institutions, and national government.

Even so, roundtable discussion reflected the reality that competitiveness between

geographical regions and cultural groups within a country can get in the way of cooperation. It was noted that in Canada, where authority was dispersed but no group had sufficient resources to achieve goals on their own, parochialism and rivalry sometimes impeded joint problem-solving. BAYWORK, an organization of water and wastewater agencies in the San Francisco Bay Area which has been established to address regional workforce development challenges, was cited as an example of voluntary cooperation among utilities. However, it was suggested that in some cases a top-down mandate from the national level might be required. Legislation, financial incentives, and cultural upgrades were cited as possible drivers for improved collaboration. Alternatively, it was suggested that we might need to be satisfied with incremental progress.

Throughout the workshop (both presentations and roundtable discussions), there was sufficient commonality for all participants to recognize challenges similar to their own. However, each participant brought a different perspective and new ideas. The success of the workshop indicated that workforce development is a promising area for increased international collaboration, and that IWA provides a useful venue for that collaboration. ●

Acknowledgement

The session summarised in this article was co-chaired by the author and Dr Tobias Barnard, Acting Head of the Water and Health Research Unit at the University of Johannesburg and past Chair of the South Africa Chapter of IWA's Young Water Professionals.

About the author:

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What Young Water Professionals expect from the water sector

There is a need to attract and retain younger professionals in the water sector to meet future skills requirements, but how good is the sector at doing this? **RITA HENDERSON, CHARLES DELFIEUX, ADRIAN PUIGARNAU, AKIHIKO TERADA** and **TOBIAS BARNARD** summarise the responses to an international survey of Young Water Professionals, and offer conclusions about what the water sector is doing right and how the water sector could do more to improve what it does to build capability and capacity in its workforce.

Building capacity and capability in the water sector is crucial in the drive to achieve a sustainable water future¹. Continuous development of a workforce that is adequate in size, capable in skills and strong in leadership is required. Key to achieving this is the nurturing of the Young Water Professional (YWP), that is, a student or professional under the age of 35 working in the water sector.

In 2010, a major survey of Young Water Professionals was undertaken internationally in order to ascertain what YWPs are expecting from the water sector and whether or not the water sector is meeting these needs. In recognition of the importance of this survey, the results were presented at the Workforce Development Workshop at the IWA World Water Congress in Montreal in September 2010 that looked at innovative measures to develop the workforce across the world with focus on initiatives in Australia, US, Spain and South Africa.

The YWP survey was coordinated by members of the 2008–2010 IWA YWP Committee and sent to all YWPs registered from across the globe – approximately 900. YWPs were requested to answer questions covering qualifications, employment change, loyalty, mobility, learning opportunities, personal career development, and work conditions.

A 26% response rate saw YWPs from 55 countries out of a possible 88 countries represented, the majority of which were between the ages of 19–26 years of age (82%). 51.5% female to 48.5% male responded, indicating a balanced response rate with respect to gender. Interestingly, approximately only one third of responses originated from high income countries. However, this result was skewed by an unusually high response rate from South Africa of one third – a testament to the significant amount of activity currently on-going among South African YWPs. With this exception, responses were evenly spread. Attention was therefore

paid to the influence of high versus low income country on survey responses.

Overall, it was observed that the YWP workforce is highly skilled, with 47% of those responding to the survey qualified to Masters level. The dominant discipline was still engineering at 49%, with science running a close second at 31%. However, management and social sciences are represented (4% and 5% respectively), perhaps a reflection of the increasing global awareness of the importance of the social aspects and appropriate management of this valuable resource, as was highlighted during the YWP World Café held at YWPC 2010. Furthermore, 6% indicated that they had undertaken specifically-designed ‘water courses’ to train them in working for the water industry, demonstrating a move to build capability in the industry.

Having received training, YWPs could be found either working in a research role (at university or research institute – 37%), in a technical role in industry, for example at a utility or equipment manufacturer (27%), for a consultancy (23%) or for government and regulation (15%) (Figure 1). Almost two thirds of YWPs have always worked in the water sector, but others have moved to the water sector having worked in a range of other industries including construction, health, agriculture, education and chemistry among others. Of those responding, 80% had between 1–10 years work experience, with 34% between 1–3 years and 28% between 4–6 years.

Employment change

On questioning the respondents regarding employment change, unsurprisingly it was observed that as the number of years of work experience increased, the number of employment changes during that time also increased. For example, those with between 3–6 years experience were likely to have changed employment twice, which increased to three times for those with greater than ten years of work experience. This observation was industry dependent and motivated by the desire of YWPs to learn additional skills or acquire additional responsibilities.

When questioned regarding their intention to remain within the water sector for the next five years, 90% responded in the positive, with 82% indicating their desire to remain within the water sector for their whole career – good news for the water industry! However, when asked the same of their current employer, only approximately 40% responded that they intended to remain for the next five years, which reduced to 30% when extended to their whole career. Again, irrespective of number of years of experience, by far the dominant motivators for employment change were to learn new skills, followed by to gain an increased level of responsibility. For those with 4–6 years experience, improved remuneration increased in importance.

Loyalty

For employers interested in how to

Table 1: How to increase employer loyalty within the water sector?

Experience	% respondents			
	1-3	4-6	7-9	>10 years experience
Higher level of responsibility	18	12	32	3
More learning opportunities	16	37	5	12
Exciting projects	27	21	21	45
Better remuneration	14	9	26	7
Better location	0	0	0	0
HR involvement	2	12	5	3
Flexible working hours	2	0	0	0

improve employee loyalty, Table 1 indicates the responses received when asking the YWPs this question. The level of experience dictated the responses to an extent, with more learning opportunities being important to those with 4-6 years experience and exciting projects being key to those with only 1-3 years experience, or greater than ten years. Better remuneration was of greater importance to those with 7-9 years experience. Of note was that better location and flexible working hours did not play a part in determining loyalty. It appears that many employers are already doing a good job here as 70% of respondents felt loyal to their respective employers.

Mobility

Mobility was important to YWPs with 40% of respondents having worked in another country and for the first time we also saw income coming into play. For example, 57% of respondents from high income countries versus only 32% from low income countries had worked in another country. In fact, 60% of YWPs would like to work abroad within the next five years irrespective of whether their country of origin is classified as low or high income. Again, a key motivating factor was more learning opportunities (approximately 45%) – very few (approximately 10%) were opting to do this to live in an exciting location.

Learning opportunities and personal career development

It is apparent that learning opportunities are hugely important to all members of the YWP community. When questioned regarding existing learning opportunities within the work place, defined as training, mentoring and knowledge management, 60% overall indicated that they felt that these opportunities were either ‘good’ or ‘very good’ – suggesting that the water industry does reasonably well in this aspect. This decreased only marginally to 50% for those YWPs from low income countries and further again to 40% for those with greater than ten years’ experience.

Mentoring was the clear winner as an approach for learning while formal training was least preferred. Development programmes also scored highly as a way of learning and also suggested was increasing financial support for conference or workshop attendance, increased access to internet learning or management coaching.

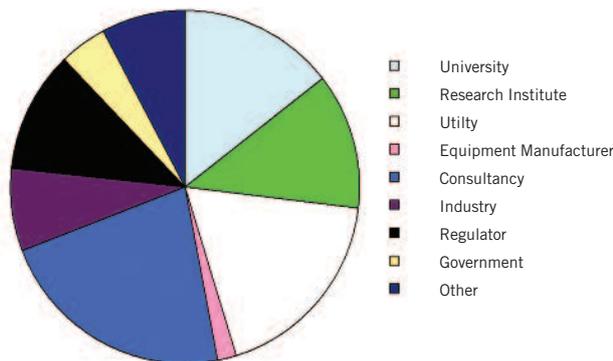


Figure 1: YWP roles within the water sector according to YWP Workforce Development Survey 2010.

Linked to learning opportunities is the availability of a personal career development plan which only 40% of YWP respondents have access to through their employer. This is in contrast to the 90% of respondents who give this considerable importance. Comments on how to improve this were simple things including better communication through a line manager or Human Resources (HR), a more approachable HR department, having regular meetings with their manager and generally more structure.

Working conditions

Working conditions were also considered in the survey, including remuneration, responsibility, flexibility and work / life balance. Overall, remuneration scored poorly whilst flexibility scored particularly high and this reflected both high and low income countries alike. Interestingly, years of work experience had a big impact on responses to these criteria. Remuneration and responsibilities were scored best by those with 7-9 years experience while flexibility and work / life balance were scored best by those with 1-3 years work experience. Such an outcome presumably reflects the stage of life of the respondent. For example, those with 7-9 years experience are more likely to be at the stage of having a family and work / life balance and flexibility in the work place will factor more highly.

Similarly, these respondents having worked a number of years will have gained significant responsibility and most likely been rewarded with increased remuneration. This was reflected in the response when asked how work conditions could be improved. 70-100% of all respondents indicated that it was important to improve organisational aspects where in the early years there was a focus on responsibility and trust, whilst in the later years a focus on improving workload. Interestingly, perhaps this illustrates that those of increased years experience should learn to trust their

less experienced counterparts with more responsibility and in doing so relieve some of their own workload. For example, this could be achieved with the right mentoring approach as part of a personal career development plan, offering those new to the industry with more learning opportunities.

Overall comments were as follows:

- 40% respondents believe the water sector offers competitive remuneration and working opportunities
- 80% respondents believe working in the water sector provides an opportunity to work on innovative topics in their area of expertise
- 80% of YWPs think the water sector provides a rewarding career and they are proud to be a part of it.

In conclusion, it is clear from this survey that YWPs want to learn, work on exciting projects and take on responsibilities. They are a valuable resource and, indeed, the future of the water sector. ●

Reference

¹ Barrett, K. (2008) *An assessment of the skills shortage in the urban water industry.* WSAA Occasional Paper No. 21., Water Services Association of Australia Ltd. 2008.

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Serving the urban poor: *lessons from the financial crisis*

Millions of people in developing countries around the world lack the benefit of a water utility service, but how can existing networks be expanded if the customers currently served are unwilling to see prices rise, especially when they may themselves get a poor service? **KEITH HAYWARD** heard views on lessons provided by the recent financial crisis.

The water sector in developing countries has faced a double pressure around the recent financial crisis. For a start, there is a heavy reliance on taxes and on official development assistance. 'The problem is that these revenues are really falling in this crisis,' comments José Tomás Frade, who is Deputy Director of the Projects Directorate of the European Investment Bank (EIB) and Head of its Water and Environment Protection Division. 'Maybe the effect will take a few years to be seen, but that is the fact.'

Frade points to other problems too. There is increasing competition with other sectors for the finance that is available. Lower willingness on the part of customers to pay presents a financing problem: 'We must be aware that with tariffs you don't finance the treatment plant. You don't finance pipes. You need to bridge [that investment] through finance. What the tariffs do is generate the cash flow that gives comfort to the financiers to finance.' He points to problems in the bond and equity markets too.

All of this comes at a time when the need for finance in the water sector is increasing: the need for water and environmental quality improvements, population growth, climate change, and the renewal of aging infrastructure, all alongside meeting unmet basic needs. 'And the problem is, this sector is highly capital intensive. We can't really get rid of the problem of the money,' comments Frade.

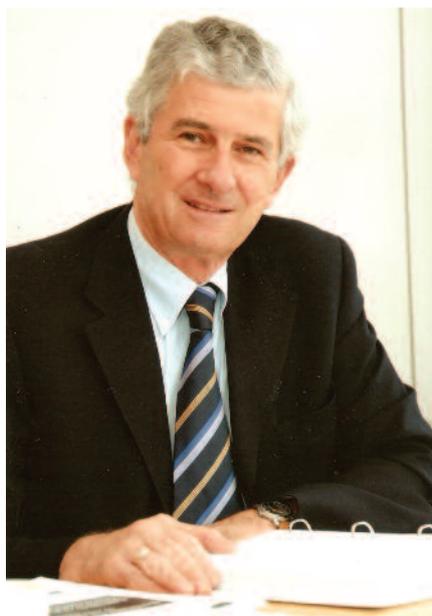
So what should happen? Should investment be postponed? 'Is that really what is going to happen?' asks Frade. 'That is the problem – those who are not served will continue to not be served.'

Frade was speaking at a workshop on the impacts of the financial crisis on the

water sector, held during the IWA World Water Congress in Montreal in September, and was looking at the lessons from the crisis in terms of the needs of the poor in developing countries. 'I think that the sector has some fundamental problems that go beyond the financial crisis. The financial crisis, or economic crisis, has just aggravated these,' he says.

An opportunity for change

What the financial crisis does it to present an opportunity to change mindsets and to innovate in the sector – not just in terms of technology, but in a broader sense too. 'I think really there is a big change to be made in the sector's way of thinking,'



'Once we solve the problem of the risk of the sector and affordability, then I think that there will be enough finance for the sector.'
José Thomas Frade

he says.

Frade points in particular to the idea of water efficiency. The case for efficiency in the energy sector has succeeded in attracting huge amounts of investment, he says, and the same could apply in the water sector. 'Should we talk now more about resource efficiency?' he asks. As part of that, water efficiency will become something that politicians will accept and agree to fund, he argues. And this should be efficiency in the widest sense: 'It is about the efficiency of the operation, efficiency of the systems, efficient allocation of resources – should water go to irrigation, domestic, to municipal – efficiency is a much broader concept that has to be developed, and I think one has to really sell that.'

A number of hurdles need to be overcome. 'The water sector has not been a high performer – there is a large scope for improvement,' says Frade. For example, this means better dealing with the mismatch between the relatively short loan maturity available in the banking sector and the needs of the water sector which, because of the long life of assets, suggest long term financing and lower tariffs to pay off the debt. And key concerns in developing countries are the high risk in the sector and low affordability. 'Once we solve the problem of the risk of the sector and affordability, then I think that there will be enough finance for the sector,' says Frade. 'Success attracts money. [With] every single project that could be a success, there is never a problem of funding, never a problem with funding.' This means ensuring the project is well defined, well designed and well conceived, although he comments: 'Governance might be a problem.'

Giving the poor access to a service can mean dealing with issues somewhat out of the hands of the water utility, such as the problems of lack of land rights and household ownership associated with informal settlements. But at the level of the utility, Frade highlights the problem of ensuring financial viability and that low tariffs will not provide a cash flow adequate for investment to be made. 'If somebody asks me where we should start, I would start here. This has to be solved,' says Frade.

A need for efficiency

This is where his theme of efficiency comes in. 'If a service is not efficient, you can't charge the customer for the



Water Kiosk constructed under the EU/EIB Project. Picture shows some of the beneficiaries from one of the water kiosks constructed under the Project. All Kiosks are bearing the logos of the EU, EIB and the Malawi Government to make sure that issues of visibility are well adhered to. (Picture courtesy EIB)

inefficiency of the service. But those that provide a service say “My system is not efficient because I don’t have the revenue to be efficient.””

With insufficient income, the utility cannot invest, or cannot get a loan. ‘You can’t get out of this,’ says Frade. ‘So what happens is the utility will reduce investment, and the un-served poor remain un-served.’ At the same time, those receiving a service say they do not want prices to increase, and those who are un-served face what is often a more expensive option of paying water vendors. ‘That is the problem of lack of solidarity in the sector,’ adds Frade.

They key then is for utilities to invest more in efficiency to lower the cost of the water services, so that the price being charged is the lowest that it can be. This, says, Frade, is ‘the only way to convince politicians and customers that prices have to be increased’.

This then links with the need to ensure that water bills are affordable and that there is a willingness and capacity to pay. Projects seeking finance need to be appraised to ensure the benefits are assessed, in contrast to the situation when projects are put forward ‘with little clue really about what people want and can pay’, says Frade. Such assessments are now a requirement because costs differ, for example, between standpipes and house taps or between onsite sanitation and sewerage. ‘We have to assess that and know what they want and are able to pay. Without building in the demand forecast [of the beneficiaries’ expectations and affordability], really the project is not

properly designed and properly justified.’

Other issues to take account of are that connection fees may not be affordable, or that certain types of service provision may require a community-based approach and so need the involvement of civil society or non-governmental organisations. ‘These are often ignored and this leads to failure, and the poor remain un-served,’ says Frade.

With such approaches in mind, development finance institutions can help in various ways, says Frade. This might include the direct contribution of providing funding at subsidised interest rates, but such institutions also have ‘high leverage’ with governments to help ensure the issues above are addressed, they can bring various partners together, and they can help assimilate and replicate success stories. ‘I think the replication effect of bringing experience from one country, one region to another one can be helpful,’ says Frade.

Theory into practice

With this in mind, he outlines two examples which he is reluctant to call success stories – ‘They will only be successful once they finish and they are not yet finished.’ – but which he believes offer promise.

In one project, less than 40% of the population of the area in question is served, of which 80% are in the urban area with a partial service and the other 20% are in the peri-urban area. There is a high level of unaccounted-for water, a high number of illegal connections, and investment needs of more than €100M.

Alongside this, Frade explains that there is very little capacity to pay more for the cost of service because those served are very poor, and there is a lack of sewage and basic sanitation.

The initial aim of the project is to increase the availability of water to a 24-hour service for those served and reduce unaccounted-for water. This will provide a platform when the project is finished in 1–2 years’ time for €100M in funding from grants and a 30% contribution from the EIB to support longer term improvements that remain affordable. ‘It will be possible to go from less than 40% to 85% service, reducing the potential for unaccounted-for water, [and] keeping tariffs at an acceptable level. That is really the goal,’ says Frade.

A second, smaller example comes from a very poor country where there is a very inefficient water supply system, a large un-served population, and very low affordability. ‘The main goal was, first, more water to the un-served at minimum cost,’ says Frade. ‘The concept was based on two components: one, invest in works just for efficient gains [to limit costs to a minimum] to keep it affordable. And then extend the network to the poor areas and transfer some of the drinking water saved to the un-served population.’ The latter aspect, adds Frade, allows the project to contribute to the water-related Millennium Development Goals.

The project is being carried out with a private partner helping the public utility achieve efficiency gains, and with an NGO partnering to help support work in the peri-urban areas. Too high a level of investment would not be affordable, explains Frade, yet through a 50% soft loan and a 50% grant, a large part of the population is going to be served, including the provision of basic sanitation.

‘These are two real cases, ongoing, in very, very poor countries, and we expect to succeed,’ says Frade. ‘So, to be optimistic, we hope that there is a solution that is inspired by the financial crisis.’

And as far as lessons from the financial crisis are concerned? ‘It implies that we have to think differently,’ concludes Frade. ‘We have to innovate, not just in technology, [but] on the concept, on everything, and if we do that, money will be available.’ ●

Note

Mr Frade was speaking in a personal capacity, and his views expressed here do not represent those of the European Investment Bank.

Oracle software to help manage San Francisco improvements

Software company Oracle has announced that the San Francisco Public Utilities Commission has selected the company's Primavera Contract Management system as the core of the construction management information system (CMIS) for its \$4.6 billion Water System Improvement Program.

According to Oracle, SFPUC's programme comprises more than 86 projects across seven counties through which the utility will repair, replace and seismically upgrade water supply assets. The CMIS is a system of standardised

business processes tailored to the WSIP and covers a whole range of contract management functions, such as submittals, meeting minutes, drawing control, and non-compliance notices.

Primavera Contract Management is a document management, job cost and field controls system. According to Oracle, it gives SFPUC 'increased visibility into the status and processing of documents at the project level' for centrally-located regional and programme management. ●

www.oracle.com

Update for utility asset management modelling toolset

Innovyze, the newly-renamed MWH Soft, a global designer and supplier of wet infrastructure modelling and simulation software and technologies, has announced the release of Generation 11.5 of InfoNet, its asset management modelling solution. The latest release, says the company, adds significant functionality to improve the management and operation of networks.

For the first time, says Innovyze, version 11.5 allows users to create management dashboards to track level of service metrics and other key operational data, as well as giving users the ability to track inventory usage for all field work. Utilities can now store a list of all available parts and materials and track what has been utilized

for each assigned task.

InfoNet gives engineers the ability to analyze all aspects of the network life cycle, says the company, and users can use the query engine to filter, sort, and make selections based on virtually any criteria related to their underground assets. It also has the ability to query against field surveys (CCTV, manhole inspections, smoke testing, valve inspections, etc.) and other events related to network assets.

Innovyze says that the InfoNet geospatial environment also lets the user create thematic maps, and its built-in report generator comes with dozens of standard reports, allowing users to build custom reports and graphs against any piece of data stored in the system. ●

www.innovyze.com

Bentley releases latest versions of utility infrastructure software

Bentley Systems has released V8i (SELECTseries 2) versions of Bentley Water and Bentley Expert Designer Water software. These products, says Bentley, simplify workflows and provide utility engineers and owner-operators with a comprehensive suite of network design and management applications for the construction and refurbishment of utility infrastructure.

The Bentley Water software, says the

company, provides an integrated Geographic Information System and design environment, coupled with a customizable network model, to allow municipalities and utilities to address all operations of a typical water supply network. Bentley Expert Designer software merges network design and work management to improve the efficiency and throughput of distribution system design. ●

www.bentley.com/utilities

Autodesk releases storm and sanitary analysis extension

UK-based software designer Autodesk's Storm and Sanitary Analysis Extension is now available free for subscription customers of AutoCAD Civil 3D 2011 and AutoCAD Map 3D 2011 engineering software. Autodesk says that the extension enables drainage engineers to carry out analysis without transferring data between different IT programmes

The Autodesk Storm and Sanitary Extension, says the company, is a hydrology and hydraulic analysis application for planning and designing urban drainage systems, storm and sanitary sewers. It features bi-directional exchange of data with AutoCAD Civil 3D 2011 and AutoCAD Map 3D 2011, which means that storm and wastewater analyses can be integrated with the main planning and design. Users can migrate drainage schemes including Geographic Information System data into the new application and carry out hydrology analysis methods. ●

www.autodesk.co.uk

A new tool for urban design

Australian water modelling and management software provider eWater CRC has released Urban Developer, a new tool to support Integrated Urban Water Management (IUWM).

eWater says that this software has been designed to allow urban water managers to compare options for integrated water management ranging in scale from the allotment to the suburb. It is now available in a free beta version.

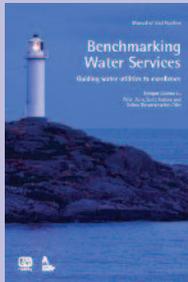
Urban Developer incorporates potable, waste and stormwater within a single framework, says the company, and can simulate demand and supply interactions at sub-daily time scales, as well as deal with catchment rainfall-runoff responses at a range of scales. ●

www.ewatercrc.com.au

Benchmarking Water Services – Guiding Water Utilities to Excellence

Authors: Enrique Cabrera Jr., Peter Dane, Scott Haskins, Heimo Theuretzbacher-Fritz

The objective of this Manual of Best Practice is to define a new framework in which the traditional benchmarking concepts can be clearly distinguished, guaranteeing more fluent and efficient communication. The



manual intends to be a hands-on document, with a practice oriented approach, both from the perspective of those organising a project, as well as the needs of potential participants and even beginners in the topic. This practical how-to information originates in the experiences gathered in some of the most relevant benchmarking projects in the water industry to date.

IWA Publishing, March 2011. 180pp. Hardback.
ISBN: 9781843391982

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Utility Benchmarking and Regulation in Developing Countries

Practical Application of Performance Monitoring and Incentives

Author: Silver Mugisha

Utility performance, especially in developing countries is still working toward the standard necessary to deliver best practice. This book examines performance monitoring and regulation as a prominent efficiency enhancement tool and clarifies many of the unknowns regarding the design and approach surrounding the area of utility management. Principles and practices are linked in a way that is informative and accessible, highlighting the challenges facing those who are trying to improve performance in the water sector.

Operational settings are complex and unpredictable in developing countries due to inadequate infrastructure planning and this book makes clear which systems work best in these situations.

A case study on the National Water and Sewerage Corporation, Uganda, is included in the book, detailing the difficulties in discerning performance progress based on partial performance indicators. It underlines disparities in basing performance conclusions on partial performance indicators on one hand and aggregate analysis using modern benchmarking toolkits on the other.

This is an excellent handbook for utility monitors or regulators whose primary duty is to

oversee performance management. It is a valuable resource for decision-makers, analysts, and policy-makers and can be used in capacity-building programmes (both in-house and in universities) around the world.

IWA Publishing April 2011

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Strategic Asset Management and Communication: Gaining Public Support - Experience with Citizen Advisory Committees

WERF Report SAM1R06f

Author: Linda Blankenship

Public understanding leading to support for investment in aging water infrastructure is absolutely essential in order to close the 'gap' between projected and current funding levels. In response to the need identified by its utility members, the Water Environment Research Foundation has funded a research programme on Strategic Asset Management (SAM) Implementation and Communication for wastewater and water utilities.

One objective of the research programme included understanding the experience of utilities with citizen advisory committees to gain support for issues related to infrastructure sustainability and asset management. A variety of experiences are documented in this report. Lessons learned that can guide a utility that desires to establish a citizen advisory committee are identified in the areas of formation, logistics, goals and expected results.

IWA Publishing December 2010

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WERF Report SAM3R06

Author: Sunil K Sinha

IWA Publishing January 2011

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San Sebastian, Spain

W: www.watermatex2011.org

Global Water Leakage Summit 2011

28-29 June 2011, London, UK

W: www.london-business-conferences.co.uk

Singapore International Water Week

4-8 July 2011, Singapore

W: www.siww.com.sg

PURC Advanced International Practices Program: Benchmarking Infrastructure Operations

7-10 August 2011, University of Florida, Gainesville, Florida, USA

W: <http://warrington.ufl.edu/purc/develop/details.aspx?courseId=204&courseMeetId=117>

European Utility Management Conference

21-23 September 2011, Vienna, Austria

E: adrian.puigarnau@iwahq.org

Leading-Edge Conference on Strategic Asset Management

27-30 September 2011, Muelheim an der Ruhr, Germany

W: www.lesam2011.org

Water Loss 2012

22-25 January 2012, Manila, Philippines

W: www.iwa-waterloss.org/2012

IWA World Water Congress and Exhibition

16-21 September 2012, Busan, South Korea

E: 2012busan@iwahq.org

W: www.iwa2012busan.org

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