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Publishing

EBRD takes 10% stake in Veolia Voda

The European Bank for Reconstruction and Development (EBRD), which provides financing for projects in countries from central Europe to central Asia, is to take a 10% stake in Veolia Voda, the holding company for Veolia Water's central and eastern European activities.

The Bank is investing up to €105 million, aiming to increase the role of the private sector in providing water and wastewater services, particularly in Russia and Ukraine where rapid water sector reform is taking place.

Veolia Voda will use the funds to continue expanding in the Bank's countries of operation, emphasising development in Russia and Ukraine. The company has already enjoyed some success in the markets of Hungary and the Czech and Slovak republics.

As well as supporting a hoped-for increase in the quality of the provision of water and

wastewater services, Veolia notes that it 'brings a commitment to transparency and good corporate governance'. The development of effective infrastructure is critical in transforming the economies of countries in the EBRD region, and infrastructure projects are increasingly playing an important role in EBRD investments.

Veolia Water CEO Antoine Frérot said: 'This partnership underlines Veolia Water's commitment to working in close co-operation with authorities in Central and Eastern Europe, and our development in this region will be further enhanced through EBRD's support.'

The EBRD director for municipal and environmental infrastructure, Thomas Maier said: 'Veolia's track record in this sector makes them the ideal partner in the drive to transform this sector in areas where international operators have yet to enter the market.' ●

MWH wins award for Iraq reconstruction project

Environmental engineering company MWH has won the APM Overseas Project of the Year award for a reconstruction project aimed at enabling water and waste planning solutions in Iraq.

The project focused on capacity building, providing the Iraqi engineers with the skills needed to undertake work themselves, and involved coordination and management across teams from eight of MWH's offices in three separate continents.

MWH was commissioned in 2006 by the US Air Force Centre for Environmental Excellence to undertake the project as part of the Iraq reconstruction programme. As part of this, the company had to build a template wastewater treatment works design for Baghdad that could

be further applied in other cities, as well as a landfill design with the same remit and a hydraulic computer model of Baghdad's raw water network. Information exchange and provision was a critical element of the work.

The overall aim was to provide easy to implement projects to give early benefits to the Iraqi people, and tools and training to enable Iraqi engineers to undertake further development and reconstruction throughout the country, without the use of outside help.

The total cost of the project was just over \$4 million. MWH in the UK was solely responsible for the raw water model and the solid waste master plan, and for the process, civil and mechanical design of the waste water treatment works. (See Analysis, p5) ●

UK: Lords report criticises Ofwat

A report on the UK's independent economic regulators from the House of Lords has singled out water regulator Ofwat for criticism of its handling of competition.

The report examined the work of regulators across many different sectors including finance, aviation and power, but found generally that they had played an important role in promoting competition, interpreting their remits 'both appropriately and effectively'.

However, Ofwat is seen as an exception to the picture. The report says: "There is a question mark over whether Ofwat has explored the full extent of its remit and whether it has implemented that remit effectively".

Ofwat was blamed by witnesses for the lack of competition in the water industry, with Jerry Bryan, who heads Albion Water – a potential new water supplier – being particularly critical. He noted in evidence that he had 'yet to be convinced that a reasonable interpretation of statute would in any way constrain [Ofwat]'.

The report notes observations that the method used to calculate network access charges is a 'major constraint on competition' and that lowering the eligibility threshold of 50 mega-litres/year, given that none of the potential 2,200 premises that could change suppliers have done so, might be premature.

The report concludes that 'we find it hard to accept that there is something specific about the nature of water itself which means that the sector can never develop effective competition'.

Ofwat has robustly defended its approach. Regina Finn, Ofwat's chief executive, said 'Ofwat has been working within a very restricted regime to try and promote the development of vigorous competition in the water sector. That regime only creates the potential for fewer than one water customer in ten thousand to choose their supplier. With such a restriction it is impossible for the water sector to be as competitive as energy or telecommunications.' (See Analysis, p6) ●

EDITORIAL

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Water Utility Management International focuses on the interests of utility executives, policy makers and advisors around the world engaged with the key management issues faced by water and wastewater utilities. As well as senior utility managers, the publication will be of interest to regulators, consultants, contractors, academics, and financial, technical and legal professionals.

Utility reform and achieving efficiency are central themes of the publication, encompassing topics such as benchmarking, investment planning, consolidation, public / private sector roles, leadership, IT, and human resources. Other regular themes include financing, regulation, charging policies, procurement, corporate governance and customer issues.

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World Bank issues framework for China's water progress

The World Bank has issued a major new report on improving the performance of China's urban water utilities, in tandem with the IBRD, which provides a strategic framework and set of recommendations for achieving a vision of safe, reliable drinking water, comprehensive stormwater drainage and collection of all municipal wastewater by 2020.

The report acknowledges the remarkable progress that China has made in expanding its urban water supply and wastewater infrastructure since 1990. Driven by a \$54 billion spend, the water supply by 2005 covered 88% of the urban population from 50% in 1990, and wastewater treatment capacity had trebled over the same timescale.

Municipal polluting discharges to the environment, while still high, are decreasing, the report says. However, it adds that addressing future challenges will require not only more investment but new approaches to enhance governance and regulation at all levels, boost utility operational and financial performance, increase user fees, ensure adequate fiscal support, and explicit recognition of the constraints facing lower-capacity cities and towns.

One of the major challenges is rapid urbanisation – the official urban population is expected to increase from some 550 million in 2005 to around 900 million in 2020. Providing water services will be a demanding task, the report notes.

China also has a wide spectrum of cities and towns, from rich supercities such as Beijing and Shanghai to thousands of smaller, poorer conurbations. Policies, standards and approaches to water services will have to be tailored to meet these realities, the report warns.

It also notes that meeting demand from urban growth and increasing aspirations for better-quality services, will require an accelerated capital works programme. Estimated investment needs for 2006 to 2010 alone are expected to equal the investment made over the past 15 years.

Water scarcity is also an issue in some areas, and over 40% of the country's river reaches were classed as severely polluted in 2003. The report predicts that seasonal shortages and polluted resources will continue to pose problems.

Utilities have a wide spectrum of performance, with many operating at levels similar to most middle-income countries, but below the average for advanced industrial countries, but others operating well below

their potential.

Most Chinese utilities are experiencing financial stress, the report says, with wastewater utilities' finances more precarious than those of water utilities. Although rates have increased, they are seen as insufficient to cover the full costs. Collecting wastewater fees is also a problem in many cities, particularly from industries. Many utilities still rely on municipal contributions.

The country is rapidly constructing wastewater treatment plants, but the average hydraulic utilization rate is just 65% due to problems such as inadequate wastewater collection, poor planning and a shortage of operating funds.

Analysis of the sector is complicated by a lack of information on utility performance, the report adds.

It recommends adopting specific policy measures to enhance equity between provision in urban and rural areas and between cities and even residents within cities, which will help alleviate some social tensions.

One fundamental finding is that the country's water utilities are confronting a range of factors that have not allowed them to achieve a sustainable balance. Service levels are set beyond the capacity of many of China's cities to attain, and many utilities cannot recover their costs. The focus for the future should be on utility performance to achieve China's goals, the report says, including environmental improvement, protection of public health and provision of a good quality service to all at a reasonable cost.

Among many recommendations, the study urges improved national policy coordination to avoid the multitude of opinions, notices and circulars that are now issued. A national-level status report of where the sector stands on providing water supplies would be of great help to policy makers, it suggests.

It also recommends that the State Council establish a National Water and Sanitation Committee under a deputy prime minister with one ministry serving as the secretariat. This could coordinate national policy formulation, integrate decision making and monitor sector performance and development.

Provincial governments should increase the budget and capacity of their provincial agencies and more vigorously oversee urban water services, the report suggests. Transitional wastewater standards should be used for low-capacity cities, it adds, and water quality should be managed from a watershed perspective. ●

US: Consultancy wins design-build awards

CH2M HILL has won two awards from the Design-Build Institute of America (DBIA) for outstanding project work using design-build delivery. The awards were presented at the Design-Build conference in Dallas, Texas. The company received awards for its work with the Southern Nevada Water Authority (SNWA) and the Ave Maria Water Treatment Plant and Water Reclamation Facility in southwest Florida.

UK: Water company report reveals hike in complaints

The Consumer Council for Water has issued a report for the water companies of England and Wales that shows a rise of 30% in written complaints. The research shows that companies dealt with 99.5% of complaints through their own processes, and nearly 90% were dealt with satisfactorily at the first stage. Trade body Water UK called the increase 'regrettable',

but noted that the information had been collected for the first time and was not entirely comparable between processes, and that the data collection process was rushed. 'Earlier year data are particularly unreliable,' it added.

CHINA: Bureau reveals rise in wastewater treatment

China's National Bureau of Statistics has revealed that the country's cities now treat 57% of the wastewater they discharge, up 17 percentage points from five years ago. In 2002, up to 60% of wastewater was discharged without treatment, but over 261,000km of wastewater pipelines have been built since then.

UK: Dwr Cymru pleads guilty over crypto contamination

The water and wastewater service provider for Wales, Dwr Cymru, has pleaded guilty to four counts of supplying water unfit for human consumption in a ➤

➔ prosecution brought by the Drinking Water Inspectorate. The charges followed an outbreak of cryptosporidiosis in Anglesey and Gwynedd nearly two years ago, when 70,000 homes were subject to a boil water notice due to contamination in Snowdonia's Llyn Cwellyn reservoir. However, the company's unique not-for-profit financial structure means the £60,000 fine (\$122,000) will have to be funded out of customer bills, CCW (Consumer Council for Water) Wales chair Diane McCrea pointed out.

UK: Southern fined for data problems

Southern Water has been fined £20.3 million (\$42 million) for misleading the regulator, Ofwat, over a seven-year period, when its customers were overcharged by an average of £10.50 (\$21) per household. Southern was accused of systematically manipulating information to conceal its true performance over an extended period of time.

AUSTRALIA: CSIRO water availability report published

The CSIRO report 'Water availability in the border rivers' has been released by Australia's Department of the Environment and Water Resources. The report is one of a series covering the entire Murray-Darling basin commissioned by the prime minister and Murray-Darling Basin state premiers at a November 2006 water summit.

IRAN: UNESCO-IHE to train Tehran professionals

The UNESCO-IHE Institute for Water Education, based in The Netherlands, has signed an agreement to train 2,100 Iranian water

professionals in 2008 and beginning of 2009. The training, to be carried out with the Power and Water University of Technology of Tehran, will develop and undertake 59 one-week training courses in Iran in the fields of water supply and wastewater technology, operation and maintenance, management and finance.

NORTHERN IRELAND: Charges to come in from 2009

Households in Northern Ireland will have to pay water charges from 2009, the Northern Ireland Executive has announced, phased in over two years from April that year. The regional development minister Conor Murphy said the Executive accepted the recommendation of a review panel, that from 2008/09 it should be recognised that domestic regional rates revenues contributed to the funding of water and sewerage services. In 2009, this will represent the households' contribution to water bills, but consumers will pay an increased contribution from then on to cover the real costs of water and sewerage services.

PERU: Government creates sanitation fund

The government of Peru has approved a bill that will create a sanitation investment fund called Inversan. This will administer, prioritise, assign and control funds for potable water development projects and programmes, and manage foreign donations, bank credit lines and other foreign cooperation, acting as an alternative funding mechanism for the country's water utilities. The fund will complement the government's 'water for all' programme, which can also fund utility programmes.

Business

GLOBAL: Growth of local private sector participants

National and regional players are increasingly accounting for the growth in private sector provision of water and wastewater services, according to the latest edition of the Pinsent Masons Water Yearbook. (See Analysis, p4)

UK: Earth Tech to install first UK MIEX facility

Earth Tech has been awarded a \$10.5 million contract by Yorkshire Water to upgrade its 14.5MGD Albert water treatment works in west Yorkshire, which supplies Halifax and the surrounding area of Calderdale. The joint venture will install the first magnetic ion exchange (MIEX) system in the UK – this will filter the water to remove manganese and reduce colour and organic compounds. The process has been successfully used in Australia, New Zealand and the US. The project is due for completion at the end of 2008

UK: SSE Water wins first water service inset

Ofwat has granted an inset appointment to SSE Water, an arm of power company Scottish and Southern Energy, to provide water and sewerage services for a housing estate near Salisbury, England. SSEW is the first new company to offer both services since privatisation in 1989. Ofwat has guaranteed customers will not pay more than if they were supplied by Wessex Water, the region's overall service provider. The chief executive of Scottish & Southern, Ian Marchant, said: 'This appointment will allow SSE to provide a more comprehensive multi-utility solution to customers,

through being able to ... supply water and sewerage services alongside SSE's existing gas and electricity services. It is an evolutionary step in the development of our business and also means competition in the water industry in England and Wales is continuing to make progress.'

US: CH2M HILL wins extended water and wastewater operations contract

Officials in Farmington, New Mexico, have voted to extend CH2M Hill's operating contract for the city's water and wastewater systems for a further eight years. The contract takes effect on 1 January next year. Since it won the contract in 2000 the consultancy has won a number of awards including the 2006 New Mexico Water and Wastewater Association Presidential Award. The extended contract will see CH2M Hill continuing to manage the city's two surface water filtration plants, pumping stations, 13 service reservoirs, and the city's wastewater plant.

AUSTRALIA: Siemens wins Gippsland MBR contract

Siemens Water Technologies has won an €2.6 million (\$3.6 million) contract from the Gippsland Water Factory Alliance in Australia to supply membranes and associated components for a membrane bioreactor (MBR) as part of a new project in the Gippsland region of Victoria. The MBR will treat up to 35MLD of domestic and industrial wastewater, and will provide the feed for the RO system to produce around 8MLD of Class A recycled water for use by local industry. The project is scheduled for completion in late 2008.

Loans and tenders

PERU: IADB approves loan for sanitation sector reform

The Inter-American Development Bank has approved a \$100 million loan for a sanitation sector reform programme in Peru to improve the efficiency, equity and sustainability of water and sanitation services. The operation supports actions to facilitate necessary structural, institutional and legal reforms within the institutional framework, financial policy, the tariff and subsidy regime, management of public utilities and private sector participation.

ARMENIA: ADB provides funds for water supply and sanitation projects

The ADB is extending a \$36 million loan to the Republic of Armenia's water supply and sanitation sector project, providing sustainable water supply and sanitation services in seven provinces. The project will cover 16 towns and 125 villages, and the Armenian government will provide the \$445 million balance of the cost. The work will improve public health and

the environment for some 576,000 people, about 25% of whom live below the poverty line. The first component of the project will rehabilitate, improve and extend existing water and sewerage networks. The second will address core issues and challenges faced by the independent Armenian Water and Sewerage Company.

VIETNAM: Joint push for infrastructure upgrades

France and the ADB are helping Vietnam to rehabilitate and upgrade vital infrastructure in one of its poorest regions. The integrated rural development sector project, estimated cost \$168.2 million, will receive a \$90 million loan from the ADB. Agence Française de Développement will extend a \$52 million loan and a \$1.3 million grant and the balance will be covered by the Vietnamese government. The project will target critical rural infrastructure including irrigation drainage and flood control systems, domestic water supply schemes, and special coastal works such as salinity intrusion prevention.

Prospects for private participation

A few key companies dominate the scene when it comes to private sector involvement in water and wastewater services around the world, but the market is much more complex than that, with a growing number of local players getting involved. **KEITH HAYWARD** looks at the current picture.

2007 has in some respects been a modest year for private sector activity in the water sector, according to the analyst Dr David Lloyd-Owen, who prepared the latest edition of the Pinsent Masons Water Yearbook. His analysis shows that contracts to serve a total of around 22 million people have been awarded. This was the state of play as of the end of September, in addition to which there can be a delay in information emerging on contracts, so this number is likely to increase. But the total is still some way short of what has been seen for most years over the last decade.

In other respects though the picture is getting brighter for those involved. With information on earlier awards emerging, particularly in China, and access to new data sources, Lloyd-Owen now puts the total number of private sector participation contracts awarded since 1987 at 818 – up from a total of 548 identified a year ago. Alongside this, he only identified four contracts that have ended this year, serving a total population of just under 2.3 million. This compares to around 18.6 million for contracts lost in 2006 and around 12.8 million the year before.

That all sounds promising for the private sector companies involved, but Lloyd-Owen describes water as ‘a contentious sector to operate in’. The 67 million served under contracts lost since 1997 represents 11% of the total population served under all contracts, and he cites World Bank data that says 31% of contracts in terms of total investment were either cancelled or in distress in 2006 – far more than in telecoms, electricity or transport.

Two of the contracts that ended this year did so as a result of unilateral action. ‘The rate of losses seems to have eased,’ Lloyd-Owen comments. He adds that, with respect to the financing of contracts, ‘the risk elements are starting, belatedly, to be understood.’

The other two that ended, for Gjakova in Kosovo and Cuemavaca in Mexico, reached their natural conclusion. ‘The sector is not getting any younger,’ Lloyd-Owen comments, meaning it is inevitable in the more mature market that now exists that contracts will increasingly expire or come up for renewal.

The number of companies operating in the sector also contin-

ues to increase. Lloyd-Owen now puts the figure at 146 companies operating in 28 countries. Ten companies entered the market this year, while four left the market.

But while the number of companies has remained fairly steady, Lloyd-Owen notes some significant shifts in who is doing what. Attention has in the past been focused on the activities of the ‘big five’. The top two, Suez and Veolia, retain their dominant positions, and Lloyd-Owen notes that they have been ‘increasing their size aggressively but selectively’. The presence of Saur, Agbar and RWE, however, has diminished somewhat. Add to this the fact that the global population served by private sector contracts has increased substantially and a change in the structure of the sector emerges. The activity of these five in terms of market share hit a peak in 2001, at 73%, whereas now they hold 45% of the market.

‘The process of the global players dominating has eased,’ Lloyd-Owen says, noting that there is a ‘completely different picture’ to a decade ago.

The emergence of other players in the sector, especially more local players, is particularly evident in China and South East Asia. ‘Originally this market was dominated by the international players,’ says Lloyd-Owen. Veolia, for example, secured major contract gains in China during 2007, but Lloyd-Owen’s analysis of activity in China, Taiwan, Hong Kong and Macao shows that national companies have been picking up water contracts to serve

almost as many people as have the international players in recent years, while for wastewater these national companies have been outstripping the international players by far (see table). Regional companies have accounted for fewer people served but they are increasing their share of the contracts awarded.

The numbers served under the Chinese contracts overshadow those awarded in the rest of South East Asia, but all awards in the region outside of China from 2005 onwards have been to national companies for both water and wastewater.

The region is also significant because of the growth in private sector activity that is anticipated there. Currently around 250 million people in the region are served by private water or sewage services contracts, accounting for over a third of the global total. Of these, around 180 million people are served under contracts in China, and Lloyd-Owen states that ‘it is difficult to overstate the impact of China as an emerging market globally’. Lloyd-Owen predicts that the population in the region served by under private contracts will grow by almost 70% by 2015. That is an increase of over 171 million people. The total global provision under private contracts is predicted to rise from the current 706 million to 1148 million. That means almost 40% of the increase is expected to come from China and South East Asia. ●

The Pinsent Masons Water Yearbook is available free online at: www.pinsentmasons.com/wateryearbook

Companies winning contracts in China, Taiwan, Hong Kong and Macao (million people served)

Water			
Years	International	Regional	National
To 1994	4.41	0.00	0.00
1995-99	25.54	0.00	7.34
2000-04	30.24	2.50	25.56
2005-	14.75	5.27	9.55
Sewage			
Years	International	Regional	National
To 1994	0.54	0.00	0.00
1995-99	0.15	0.00	0.00
2000-04	11.97	3.04	36.41
2005-	6.80	6.96	20.79

Source: Pinsent Masons Water Yearbook 2007-2008

Rebuilding Iraq's water infrastructure

Recent decades of isolation and war have left Iraq's infrastructure and engineering capabilities lagging behind other parts of the world. **LIS STEDMAN** reports on a collaborative rebuilding project that aims to help the country's water and wastewater capacity recover the lost ground.

The reconstruction of Iraq's water and wastewater infrastructure has always been a key issue in working towards stability and a return to normality in that country.

The fact that environmental engineering company MWH has just won the prestigious APM Overseas Project of the Year award for a reconstruction project looking at water and waste planning solutions in Iraq suggests that progress is now being made.

MWH Design and overall project lead technical manager Nigel Read and project manager Andy Bent-Marshall headed the project, working with colleagues from MWH's Warrington, Belfast and US offices.

Nigel Read says: 'We were initially selected as having the right skills as a company, and we split the work between the US and UK teams so that we had the best fit for the skills required.'

The project is about capacity building rather than aid – providing the Iraqis with the skills to help themselves, and from the start required coordination and management across teams in eight offices on three different continents.

The project began in November 2006 when MWH's Federal Group in the United States was commissioned by the US Air Force Centre for Environmental Excellence (AFCEE) to carry out a project for the reconstruction programme in Iraq.

The project consisted of a wastewater treatment works design, a solid waste landfill design, raw water hydraulic computer modelling for the Baghdad area to provide a computer model of water flows and capacities for irrigation, and a national solid waste master plan for rubbish disposal.

The total cost was just over \$4 million (around £2 million). MWH in the UK undertook the raw water model and the solid waste master plan, and the process, civil and mechanical design of the wastewater treatment works, which amounted to more than £800,000 of the total project budget.

The US team was responsible for the landfill design and the electrical and ICA design for the treatment works. The University of Baghdad was a sub-consultant on the work, undertaking work in Iraq itself, such

as data collection, topographical, hydrological and geotechnical surveys, and fieldwork related to the raw water modelling.

Mr Read says that after the initial decisions about which offices should take on which responsibilities, thoughts turned to knowledge dissemination: 'The next stage of the project was to update the Iraqi Ministry of Engineering with the latest thinking about technology and the way things are done in the rest of the world.'

The isolation imposed on Iraq during Saddam Hussein's regime had taken a toll in terms of understanding of current techniques. Iraqi engineers have been 'a bit behind', he explains. 'A lot of the engineers are really good, but for a number of years they have not been out of the country and so they are not in touch, a lot of their knowledge is based on very old technology.'

University of Baghdad.'

As part of the meetings, training in the various technologies that were to be used was provided. The solid waste master plan was developed over a series of workshops designed to ensure stakeholder buy-in to the ideas, as the Iraqis would be responsible for putting the plans into place. 'They needed to fully understand what was going on and why we were doing it,' Mr Read explains.

The same approach was taken with the wastewater treatment works element of the project. 'One of the things we had done on the previous project was not just detailed design but standard design documents so they could then use the designs in other cities. This was important, and we did this for the landfill and wastewater treatment works, and provided a manual – a procedural document explaining how to use the design

A lot of the Iraqi engineers are really good, but for a number of years they have not been out of the country and so they are not in touch. A lot of their knowledge is based on very old technology.

One key issue was persuading the engineers to change – they were worried that they would not be able to maintain or operate the newer systems, Mr Read explains. 'But we were able to persuade them that change was about making it easier for them.'

The project's complexity required the UK team, spread between offices in High Wycombe, Warrington and Belfast, to work as a 'virtual team' with colleagues in Cleveland and Chicago as well as the University of Baghdad. This utilised interesting software solutions such as Projectwise, Quickplace, Raindance and Sametime.

MWH client and stakeholder meetings were held in Amman, the capital of Jordan, and Istanbul, the capital of Turkey, to discuss progress, review work and carry out the necessary capacity building. Mr Read notes: 'Throughout the project we had project meetings – they were quite big affairs, with Ministry people and the office of the mayor of Baghdad, as well as the

and tailor it depending on the type of waste or final effluent. It was almost a textbook with worked examples.'

MWH also undertook a hydraulic model of the potable water network in Baghdad, but couldn't calibrate it properly for security reasons – one of the unusual risks of working in a war zone. This meant that the final report again was in the form of a textbook that gave all of the information on methods and procedures so that the Iraqis could do the work themselves based on their training. The engineers were taught how to use the field instrumentation needed for the modeling and were also provided with capacity building training so that they could develop the model themselves.

'We helped them to help themselves,' Mr Read concludes. 'We developed a lot of the scope of the project ourselves and developed the best way forward, so that they could gain from the learning and also have something on the shelf ready to build. ●'

Competition lacking in the UK, *but who is to blame?*

A report from the House of Lords has criticised Ofwat for the lack of competition in the UK water sector, claiming the regulator has failed to fulfil its remit. Ofwat has hit back, claiming that the legislation is to blame.

LIS STEDMAN reports on the debate.

The House of Lords report on the UK's economic regulators singled out Ofwat, the economic regulator for the water sector in England in Wales, for particular criticism over its handling of competition in the industry.

The report was commissioned to look at the economic regulatory work of the UK's main independent economic regulators such as the Financial Services Authority, which regulates financial service providers, Postcomm, which regulates postal service providers, airport regulator the CAA, power company regulator Ofgem and Ofwat, the regulator of the private and privatised water companies of England and Wales.

In general terms, the report makes clear that the regulators have played an important role in helping to promote competition. It notes early on that most of the economic regulators seem to be interpreting their remits both appropriately and effectively, but adds: 'As an exception to this general picture there is a question mark over whether Ofwat has explored the full extent of its remit and whether it has implemented that remit effectively.'

A series of witnesses to the committee appear to have pointed the finger firmly at Ofwat when placing blame. The report notes: 'witnesses who commented were unhappy with the way in which Ofwat interprets its remit. Albion Water placed the blame for the lack of competition in the water industry squarely on Ofwat and its interpretation of its remit: 'Why has Ofwat so signally failed to discharge its duty to promote competition? The problem lies not with the legislation, as Ofwat contends, but with its implementation.' Jerry Bryan, speaking on behalf of Albion, went on to say 'Ofwat has yet to explore the full extent of its

statutory powers ... I have yet to be convinced that a reasonable interpretation of statute would in any way constrain it.'

Other witnesses agreed with this view, including Jeanne Golay of Water UK who felt that 'the statutory remit as such could be used to much greater effect before it is decided that it needs changing', and Peter Hooker of the Major Energy Users' Council, who criticised Ofwat for concentrating 'too heavily on its duty to finance efficient companies' at the expense of customers.

The report goes on further to say

'Ofwat has yet to explore the full extent of its statutory powers ... I have yet to be convinced that a reasonable interpretation of statute would in any way constrain it.'

Jerry Bryan

that 'there was a consensus that competition had barely made an appearance at all in the water industry'. However, it acknowledges that there is 'substantial disagreement' about the causes and solutions, particularly in whether the problem lies with the legislation or Ofwat's interpretation of it.

The report notes that 'most parties, including the regulator, agree that the current method used to calculate network access charges (a retail minus approach), contained in the access code guidance, is a major constraint on competition because it produces margins that are too low to encourage new entrants. Moreover, it would leave incumbents' profit margins virtually intact if entry occurred, thus removing any competitive pressure from the undertaker.' Generally, witnesses pointed the finger of blame at Ofwat and its interpretation of the Costs

Principle rather than the legislation *per se*.

There is also disagreement about whether lowering the eligibility threshold of 50 megalitres/year would help – as Ian Pearson MP pointed out, potentially 2,200 premises are able to switch and none have done so, so it may be premature to conclude that changing the threshold would suddenly intensify competition.

Other barriers were outlined – water is heavy and costly to distribute, and having vertically-integrated regional monopolies in itself was seen as an issue.

claiming as it did that 'there is force in Albion's submission that this case involved a small company contending against the regulatory authority working in apparent close collaboration with an incumbent monopoly supplier'.

Among the CAT's numerous observations on this and a separate appeal against Thames, it found that the evidence showed there was 'little, if any, regulation of the prices of non-potable water supplied to large industrial users'. It also added that 'The Authority [Ofwat, now officially the Water Services Regulatory Authority] came across as opposed to water undertakers offering water efficiency services to major customers'.

Ofwat itself has firmly rebutted the suggestion that it has misinterpreted its remit. Ofwat chief executive Regina Finn said: 'Ofwat has been working within a very restricted regime to try and promote the development of vigorous competition in the water sector. That regime only creates the potential for fewer than one water customer in ten thousand to choose their supplier. With such a restriction it is impossible for the water sector to be as competitive as energy or telecommunications.'

Ofwat is currently carrying out a consultation on how to open the water market to competition and will publish its recommendations on improving the current regime in December. Suggestions for interpreting the access pricing code will form part of this and it will be interesting to see exactly which elements of the House of Lords report and CAT criticisms are answered in this publication.

The report concludes that there is a crucial need for greater parliamentary oversight over regulatory bodies and recommends that a joint committee of both Houses of Parliament be set up. ●

Austrian water supply benchmarking

Benchmarking is an increasingly common way for water utilities to achieve best practice. **ROMAN NEUNTEUFEL, REINHARD PERFLER, HEIMO THEURETZBACHER-FRITZ** and **JÖRG KÖLBL** explore the Austrian experience.

Austria's use of benchmarking in the water sector is founded on a project to develop a metric benchmarking system for the country's water utilities that was started in 2002. The system was developed by a consortium of university institutes, with the OVGW (Austrian Association for Gas and Water) taking the lead role on the project. The system was applied at various utilities in a pilot project (Stage A).

The performance indicator set is predominantly based on the IWA (International Water Association) performance indicator (PI) system (Alegre *et al.*, 2000 and 2006), but has been enhanced and adapted to the regional characteristics found in Austria. A follow-up large-scale metric

benchmarking project (Stage B), which had 72 participants, was completed in 2006 (Theuretzbacher-Fritz *et al.*, 2006). This represented about half of all the Austrian residents supplied with water.

Currently, a modular process benchmarking system comprising eight different processes is being developed and simultaneously applied across several water supply utilities. The number of participating water suppliers is about 10 to 15 for each process. Table 1 shows the milestones and the timetable of the OVGW benchmarking strategy.

The importance of assessing influencing factors

Determining the most important factors influencing performance results

is crucial to the goal of high quality benchmarking, making it possible to gain a better idea of whether the PIs used by a utility are good or poor.

By sub-grouping the participants according to a number of influencing factors, the differences between peer groups become very clear and best practices can be determined. This allows them to act as benchmarks for

No company found that the costs outweighed the benefits.

the others in the groups.

Taking mains failures and water losses as an example, the strongest influencing factor is the structural parameter of 'urbanisation'. This influence is consistent, because of factors such as ground subsidence, stress caused by dynamic loads (traffic) and static loads (buildings), and the increasing number of utilities laid side-by-side in the ground – a phenomenon of increasing urbanisation.

To define peer groups, the urbanisation parameter takes into account the network delivery rate ($\text{m}^3/\text{km}/\text{year}$), the service connection density (number/km) and the consumption per service connection ($\text{m}^3/\text{connection}/\text{year}$).

In addition to the degree of urbanisation, the age of the pipe network strongly influences mains failures and water losses. To provide a tool for grouping utilities according to their network age and an additional explanatory factor for mains failures and water losses, the Austrian project team developed the Average Network Age Index (NAX). Taking into account the varying service lives of

Table 1: OVGW benchmarking strategy

Pilot study	2002	PI comparison based on OVGW PI-System, 12 participating water supply utilities
Pilot project 'Stage A'	2003-2004	Development of metric benchmarking based on IWA PI-System, 23 participating utilities
Large scale Project 'Stage B'	2005-2006	Perfected metric benchmarking (broad effect: approx. 50% coverage), 72 participants of all size range
Cross-border comparisons	2006-2007	Pilot studies on cross border comparisons with partner projects
Process benchmarking	2007-2008	Development of process benchmarking, modular comparison of 8 processes; considering labour time, cost and quality of the process
Large-scale Project 'Stage C'	2008-2009	High quality metric benchmarking with the aim to sustain or expand the broad effect
Continuation...	every 3 years	Repetitive alternating metric and process benchmarking

different pipe materials, the NAX estimates how much of the expected service life has elapsed to date (Neunteufel *et al*, in press).

Results and benefits of OVGW benchmarking

After gathering, validating and auditing the data, each utility is provided with an individual report. The results for each utility – individual values for each performance indicator – are compared with aggregated and anonymous values within peer groups that take into consideration the individual influencing factors.

Based on the individual results, strength–weakness and cause analyses are undertaken and measures derived with the aim of increasing the utility's performance. The analyses are carried out either internally or in an organised way with other participants at information–sharing workshops.

In general, the results of the Austrian metric benchmarking to date indicate that the country enjoys high supply safety and quality at very reasonable costs within the international context. Some of the participants that had little need to increase their performance were nevertheless satisfied with their participation as they now have proof of their success to hand.

The major benefit of benchmarking is said to be the introduction of quasi–competition to monopolistic markets. This kind of 'virtual rivalry' should than be vital to engender improvements and learning. To find out more about the benefits of benchmarking from the perspective of the utilities themselves, a survey was carried out amongst the Austrian participants with the aim of answering the following questions:

- which companies are in a position to participate in benchmarking, and which find it most valuable?
- what does the cost–benefit ratio look like, and what are the benefits from the perspective of the participants?
- what are the major findings, optimisations and measures achieved by utilities through benchmarking?

The experiences from the Austrian project indicate that benchmarking can

be applied to all kinds of enterprises, even small ones. Corporations, municipal utilities and larger undertakings in particular clearly saw the benefit and potential of benchmarking, and have proved willing to continue. No company found that the costs outweighed the benefits.

The participants stated that in addition to efficiency optimisations,

The major benefit of benchmarking is said to be the introduction of quasi-competition to monopolistic markets.

some common improvements relate to non–monetary factors such as: supply safety; technical and economical sustainability; optimisation of a utility's internal organisation and last but not least, provides ideas for tackling water losses. In summary, benchmarking not only optimises economic efficiency but, more importantly, it also optimises the quality, reliability and sustainability of supply services.

Benchmarking is a moderately expensive process, but most participants have found that it more than pays for itself (Neunteufel *et al*, 2007).

Cross-border benchmarking

Of course sub–grouping sometimes divides the number of participants of a benchmarking exercise into peer groups that are too small. Because of this, the Austrian benchmarking data were merged with the data from a partner project in Germany (the EffWB benchmarking in Bavaria) to increase the size of the sample. The results have not been completely analysed and discussed yet, but it is anticipated that differences between the peer groups will become more transparent and significant.

In addition, a pilot cross–country comparison based on five benchmarking projects in Austria and various German federal states was undertaken to clarify regional differences in water supply. The cross–country comparison used selected PI median values from the participants in the five projects, differentiated into groups according to the most important influencing factors.

Some of the findings include the

observation that the average total unit costs for supply services differ (EUR/m³ and year). The reason for the higher total unit costs in one German federal state (Thuringia) was found to be its significantly lower per capita consumption. Despite this reduced consumption the mainly older and oversized mains, which are a legacy of the days before migration from the former East Germany, still have to be paid for. Because of this, total unit costs have to be higher than in other federal states. The higher average costs found in another German federal state (Hesse) were due to the higher running costs of enhanced drinking water treatment, and the costs of imported water.

Generally, the capital costs of the water supply service are more influenced by an economy of structure than by an economy of scale. This effect was found to be due mainly to decreasing capital costs, thanks to savings from investments in consolidated urban, and therefore advantageous, service areas (Neunteufel *et al*, 2007).

In terms of future development, there are plans to broaden the benchmarking initiative in cooperation with the IAWD (International Association of Waterworks in the Danube river catchment) towards the southern and eastern European regions and new EU countries. ●

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The online option for customer billing

OneVu is an online billing system that allows customers to view and pay their accounts from their PC, without the need for a paper bill. **LIS STEDMAN** speaks to OneVu's **MILES QUITMAN** about the advantages being reaped by UK water utilities signed up to the service.

One of the major issues facing the water industry is bill payment – every utility ideally needs all customers to pay diligently on time. This, of course, does not happen for a variety of complex reasons, but anything that can make bill payment easier is of interest.

There are an estimated 18 million UK adults with an online bank account today – around 46% of the adult population. According to the UK payments association APACs, this is expected to rise to in excess of 23 million by 2010.

One service set up at the end of last year allows people to track and pay their bills from the familiar, secure environment of their online bank. OneVu's commercial director Miles Quitman explains that several water companies are already signed up to the service, including Bristol Water, Northumbrian Water and sister company Essex and Suffolk Water, Sutton and East Surrey Water and Wessex Water.

Indeed Northumbrian has been working with the Consumer Council and OneVu on an enhancement that lets customers opt out of receiving paper bills, giving them the ability to view a detailed electronic image of the paper bill instead. All of the information they need is available through the secure environment of their online bank.

Mr Quitman explains that the service is currently available through the banks Lloyds, RBS, NatWest and soon HSBC, with Barclays hopefully in 2008 and others live soon.

The company was formed three and a half years ago and its parent is VOCA, which is the rebranded bank clearing service BACS, so its pedigree is undisputable. 'It's vital,' Mr Quitman says. 'A tinpot dotcom couldn't possibly do what we are doing, it clearly needs an online security capacity.' The bill payment capability runs on the same

incredibly secure system that provides BACS payments, which processes a 'huge chunk of the UK's financial infrastructure'.

Run through the banks' own online internet banking systems as it is, OneVu is a 'white label' service that has different names depending on which bank is involved – it is Bill Manager at Lloyds, for instance, so most customers will assume it's just another segment of the banks' internet banking system.

'I think one of the reasons the banks have complete faith in our service is that they own us, hence it is full circle,' says Mr Quitman. People can review all of their recurring bills, look at up-to-date statements and can pay anyone through their existing internet banking system, he acknowledges, but are either sent a paper bill still or, if they are e-billed, they usually have to remember a username and password to access the account and find out how much is owed.

OneVu undertook a survey, and 30% of respondents asked said that they had returned to sites only to find they had forgotten their username and password, and never returned. 'It is a big problem,' Mr Quitman stresses. 'A lot of billing organisations have recognised that not everyone wants to log in to a water company website.'

Other companies involved in the scheme include big energy companies, telephony and broadband providers and credit card companies. In all, around 30 brands have signed up, with the facility either live or in the pipeline. 'It is growing and evolving – it takes time to get some of the big billing organisations,' Mr Quitman explains.

All systems vary slightly but Lloyds' system, for instance, which has been live for about a year, offers it as an option after login, for which the user just has to enter an email address. This is used to alert the customer whenever a bill is ready. The next time the customer uses the online banking system, they simply have to click on

'current bills' and a list of available bills is brought up. Clicking on this list brings up a summary of the account, and a further button connects the customer to the helpdesk.

For utilities, it is possible to update meter readings via a bank website. Clicking for more details will bring up a pdf of the bill, which is 'more or less' a replica of the paper version. There is also a 'your bill explained' facility for further details. 'We are doing online exactly what companies are doing on paper,' Mr Quitman notes.

Most billing organisations ask before moving customers from paper to purely electronic billing but obviously there are some strong messages to put across – helping the environment, reducing wastage, cutting down on costs, increasing efficiency. Northumbrian's letter to customers introducing the scheme is a good example – it outlined the amount spent on billing, and the effect on the environment. Some companies also offer a discount for e-payment.

Mr Quitman says: 'Internet usage is growing exponentially. No one has any doubts it is here to stay. It is part of most people's everyday lives, and a big issue. The number of internet banking users is also growing exponentially – people not only set up internet banking accounts but use them a lot – 20% log in every day.'

'There are around 22 million registered internet banking users, and APACs forecasts that this will grow to at least 26 million. This is a vast proportion of the adult population, if you bear in mind that not many internet banks offer services to the under-18s. We honestly see ourselves in this part of the market as an online competitor to the postal service.'

There are obvious parallels of course – it consolidates billing in the same way that the postal service consolidates the process of posting, rather than every company having its own postal system. Will OneVu one day be as familiar a name as the Royal Mail? Undoubtedly not, because in effect it is invisible to the public. It is only the companies that use its e-payment service that will know who and what it is. But it will be there, low-key but probably as indispensable as the post. ●

Communicating your economic, environmental and social performance – a guide for utilities

Triple bottom line reporting – communicating the economic, environmental and social performance of a company to its stakeholders – is a challenge being taken up by an increasing number of water utilities.

LIS STEDMAN hears from **STEVE KENWAY** of Australian research body CSIRO about what this growing trend means for the sector.

A new guidebook, published jointly by AWWA, AwwaRF and IWA Publishing, provides guidance on triple bottom line (TBL) reporting of sustainable water utility performance (see box). This guidance, based on extensive experience and research collated by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) of Australia, provides the basis for US utilities to move forward in an area that is currently challenging many utilities around the world.

The work was jointly sponsored by AwwaRF and CSIRO. CSIRO's Steve Kenway, the lead author of the document, says the idea developed from a workshop by Carol Howe (one of the contributing authors) at the 2004 'Future and emerging challenges for the US water industry' workshop. This highlighted the fact that many proactive initiatives seemed to stem from Australia's west coast.

Mr Kenway says: 'Carol gave a presentation reporting on the work in Australia and kept talking about the triple bottom line. She was getting a lot of blank looks, people were asking "what is the triple bottom line?" When she described the concept, people would reply that they were doing similar things, but dealing with them differently. They were very interested in why it was being talked about so much in Australia.'

CSIRO's potential role in the new guidance can be seen from its remit. It was set up 70 years ago by an Act of Parliament, and reports to a federal government minister, with an 'almost arm's length' relationship to government. It is an independent national research organisation looking at issues relating to all forms of scientific endeavour. Its work ranges from fully-funded research for the federal government to co-funded work where CSIRO jointly invests with partners where there is sufficient interest and benefit.

CSIRO decided to co-invest with AwwaRF, which ran the workshop,

with the first step being to put a proposal together. Mr Kenway came to the project from a background of being the environment manager for Brisbane Water, which differs from most Australian water companies in being owned by its local rather than state government. Brisbane is, however, the biggest council in Australia – it has 1.5 million people and a budget bigger than Tasmania's.

Public accountability

As part of the governance requirement it had to be publicly accountable for its performance, but had not produced a public report before Mr Kenway joined in 2002. 'We made a real push to have a public voice, for sustainable reporting.'

***'I see TBL reports as the shop front of the organisation. It is often the first impressions that make a big difference.'* Steve Kenway**

We had presentations throughout the organisation, and six months later we obtained approval and produced the first sustainability report, and another the next year. That experience helped me to get a job at CSIRO. Carol could see the link between that work and the triple bottom line.'

Almost half of his time has been dedicated to pulling together the TBL guidebook – around the same time that he joined CSIRO the proposal was approved and Mr Kenway immediately found himself involved with AwwaRF on the new publication.

When creating the Brisbane Water reports, he had thought that the Global Reporting Initiative guidebook could be used as a framework but, he says: 'We realised it was incredibly generic – the level of detail that we needed was incredibly difficult for people to pull together. It was difficult to understand the nature of the information people were interested in – [Brisbane Water] was a huge organisation and everyone knew their own cog in the wheel but not the whole product, so a major educational activity was needed.'

Having looked at the GRI guidebook and finding it lacking, the team came across the Victorian water industry TBL guidebook by Tony Kelley of Yarra Valley Water. 'He was fantastic, this really provided utilities with practical interpretation of the GRI, and put it into an Australian context. Australia has been very proactive in reporting, the water sector particularly so because water is a scarce resource. It was something that integrated across the economic, social and environmental areas.'

He adds: 'I remember thinking this is wonderful, we just have to rebadge it.' But then came the workshop in the US for 15 utilities from the US, two Australian utilities, and representatives from the UK and Canada.

Linking actions with reporting

Mr Kenway explains: 'This went extremely well, but the major message was that reporting was all well and good, but what was the link between what utilities were doing on the ground and reporting. Is it just about producing a glossy document, or changing things on the ground? They were keen to understand what had to happen in the utility to produce change.'

One of the other messages that came out of the workshop was the dominant role of asset management in the US. One seminal moment at the workshop came when an expert noted that the public does not care about the asset management programme, Mr Kenway adds. 'They want to know will they get water, what the price is, has the environment been affected. It was a turning point for the largely inward-looking asset management world to open to the concept of performance. Asset management had to be made visual, the customer had to have some indication in the report of the meaning to them rather than the utility.'

Two messages came out of the workshop: that there was a need to document the internal measures necessary for the utility to have something that was publicly reportable, and that there was a need to look to external performance indices.

This also represented the biggest challenge of the project, Mr Kenway says. 'It proved incredibly difficult to write Chapter three. Chapter five, how to produce a TBL report, is a development of the Victorian guidebook.' There is a hope that the guidebook

will represent the next step beyond the Victoria TBL document, as a lot of smaller water utilities in Australia are felt to be struggling to understand and report against that. He adds: 'This is good as it shows there is a need for guidance on each step – how you get to the stage where you report.'

There are a number of apparently conflicting indicators in any water utility's business – profits and customer satisfaction, to take just two. Chapter three in particular is the "tip of the iceberg". It needs a lot more thought and action, on a lot of fronts. What I am pleased about is that the guidebook gives a bit of insight.'

Further insight into good practice was provided when Steve Kenway met Chuck Clark, MD of Seattle Public Utilities. He notes: 'It is a fantastic utility, it is incredibly proactive on the environment, so I asked why it had not produced a public report yet. He said he wanted to see a longer track record in the organisation, tracking and being consistent about the tradeoffs that happen, and being consistent in reporting the TBL. I hear they are now moving that way, but had to have its internal house in order.'

He adds: 'Another strong message from Seattle is just to get started. There is a need to move forward, planning internal performance tracking, reporting, management systems, training – there are so many points that intermesh in a utility. It is all interlinked.'

Another major message from an IWA/AwwaRF/WEF conference, where the project was presented, was that so-called emerging challenges were already having a direct impact – problems such as retaining staff, and the widening gap between the infrastructure investment requirements and federal government willingness to provide funding. The ten major challenges are listed in the report (page 10). Mr Kenway notes: 'Just how many have started hitting home, and are not emerging struck me, and also how many of the aspects and principles embodied in TBL can help.'

Attracting new staff

In the US (in common with Europe) there has been particular difficulty attracting and retaining staff, particularly the young. Mr Kenway says: 'Most of their employees are 50-plus, and will retire in five years, with more retiring in ten years. Big recruitment drives bring in hardly any engineers – they have all gone off to higher-value industries, or perhaps people do not understand the range of challenges and interests in the water sector.'

But who actually reads TBL reports? Can they help with this key issue? He explains: 'The Corporate Register

keeps track of who reads them, and the biggest three groups are corporate professionals looking to understand how their industry is going, as they signal where it is going well and where it is not; the second group is support services, and the third is students or academics, either doing research or looking for jobs. Whenever you see a job going, the first thing you do is jump on the web and get the highest level of information you can find.'

He adds: 'I guess if you can see a utility that is demonstrating that it is trying to look after its staff and has a good environmental record, [potential job applicants] get a strong sense of connectivity. If all you find is something about how you go about paying bills or compliance reporting, you get a very different perspective of the challenge. I see TBL reports as the shop front of the organisation. It is often the first impressions that make a big difference.'

Energy savings

Another example of the usefulness of TBL reporting comes in the area of energy. One of the biggest costs of any utility is energy – many in Australia are heavily dependent on fossil fuels, in the US nuclear energy plays a larger part. Either way, with energy prices rising, the more efficient a utility can be, the greater the cost savings. 'The analysis techniques of TBL tracking are embodied in energy. It gives a toolset to understand how you can go about managing energy or more complex greenhouse gas savings.'

The message of TBL is that many utilities embrace many of the principles – they have a long-term strategy of being transparent and accountable. The next step is to have methodologies defining how to achieve these goals – an index of good guidance that will stand the test of time. That is what the guidebook will provide.

The work, while aimed at US utilities, obviously has applications elsewhere and Mr Kenway explains that CSIRO would not have co-funded the project were there not benefits for

Australian utilities as well. The aim was to produce something of 'global benefit', he notes. The view is that the guidance will hopefully stretch the top percentile of utilities that are already undertaking the sorts of TBL processes outlined in the guide, but will be invaluable to the next segment, those striving to attain this level, who will probably, if they begin this sort of work, bring the next tranche of utilities below them along as well.

'The target is the next tranche of utilities, who have produced a report or two but have never had open financial performance reporting or begun to integrate management systems behind them. We wanted to stretch the leading utilities where we could, and created the challenge from day one of how to do that, to stretch the leaders but have enough information for the next group of utilities,' Mr Kenway says.

Australia already has a very creditable record in non-financial public reporting, and is second in the country only to the mining sector. In Europe, there are less non-financial public reports and in the US, hardly any. He notes that it is a 'very enmeshed' sector, that lines of responsibility are not very clear, and that water legislation is very complex. From state to state in the US, from drought to flood, mountains to wetlands, conditions are wildly divergent, which drives different approaches.

He says he will judge the project a success if in 2010 to 2015 the US industry has produced 100 non-financial reports rather than three – the latest figure. He says: 'If we are more open about the risks of climate change and rainfall shift in areas that are heavily dependent [on water], by having a consistent and shared set of information that is publicly available, we will be far more able to deal with these challenges.'

He sees that as the main message: that there is a considerable benefit in having a much wider group of people with an understanding of the magnitude of the challenge. Through the guidance on TBL reporting, hopefully this gain will be made. ●

Triple bottom line reporting of sustainable water utility performance

Authors: Steve Kenway, Carol Howe, Shiroma Maheepala

Published by AwwaRF, AWWA, IWA Publishing (see www.iwapublishing.com)

The guidebook includes case studies of Yarra Valley Water and Sydney Water in Australia and Seattle Public Utilities in the US. These inform the report and demonstrate how management and reporting of TBL performance can help water utilities address future challenges. The report identifies global reporting and water-sector reporting trends and future challenges, and includes self-assessment checklists to enable utilities to gauge their current management and reporting position.

The guidebook also outlines a matrix of sustainability assessment tools to guide the use of potentially appropriate planning tools, and identifies the internal functions within utilities that help to manage and deliver high levels of TBL performance. It additionally provides step-by-step guidance for the preparation of a TBL report, and shortlists reporting indicators based on analysis of indicators reported and recommended in the global water industry.

Water in the public's eye: awareness-raising in Austria

The Austrian water industry places a high importance on maintaining water's profile in the public consciousness. **SUSANNE BRANDSTETTER** and **THOMAS SCHLATTE** describe the key initiatives, including a unique youth education programme, 'Generation Blue'.

Water influences our quality of life, and Austria is in the lucky position of having abundant water resources. This means on one hand that it is possible to supply the population with excellent drinking water, and strengthen the country as a tourist destination, but to generate sustainable energy on the other hand means taking on a major responsibility.

In order to ensure the profile of water remains high in the media, education and daily life, and to ensure that it is perceived as something specific, it is necessary to ensure that the general public is made more profoundly aware of water issues. The objective is to teach them to be more careful with water as a natural resource.

In addition, the EU Water Framework Directive aims at improving the amount of information available and levels of public participation, clarifying the new direction of water management and being present at national, local and regional levels. One of the main focuses is increasing understanding so that the measures and decisions taken get broad support from the general public.

Austria already has a long tradition of awareness-raising. Significant projects include the Neptune Water Prize (www.wasserpreis.info), Danube Day (www.danubeday.org/austria) and the Danube Challenge. The target groups for awareness-raising projects in Austria are journalists, artists, scientists, opinion formers, consumers and, particularly, young people.

Generation Blue – a unique water platform for young people

Water, the world's number one resource, requires responsible protection and sustainable handling. This demands a clear understanding, increased awareness and deep knowledge within the generation that will affect and form the future of water – the generation of our young people.

Generation Blue is a programme to make the youth of today aware of the

importance of water, and to inspire them on water-related issues. Conceived by the Austrian Ministry for Agriculture, Forestry, Environment and Water Management, Generation Blue aims to sensitise the younger generation, confront them with their future responsibility for water management, and raise awareness. This



platform invites young people to obtain information, participate and understand the variety of water. Generation Blue is the biggest water project for youth in Austria.

The key targets for Generation Blue are building awareness and transferring knowledge within the field of water. Its vision is to develop and create the format for a new water-focused generation. Through sustained efforts over a long period of time, Generation Blue will create a 'pull effect' and generate involvement and identification. Young people aged between 13 and 19 are addressed with target group-related content (in terms of wording and appearance) and specific identification tools – buttons, free cards, and so on.

In addition, Generation Blue is supporting involvement in attractive

projects and competitions as well as local activities such as events and conferences.

Specific communication

Generation Blue is acting as an umbrella for different activities and projects in order to ensure there is water-related content in regional, national and trans-national activities and programmes, in the tone and appearance of the common youth culture, such as:

- a dedicated corporate identity
- cooperation in selecting target group-relevant media, workshops and projects with schools and teachers
- creation and distribution of information and identification tools (buttons; tattoo transfers; CD-ROMs; online games and so on)

The core medium is the internet platform www.generationblue.at. This provides easy-to-read water-related content, online games, a newsletter, an information corner for teachers and much more. In addition, innovative school activities (workshops, projects, competitions and suchlike), specific materials (an information folder and poster), on-the-spot activities and a media presence complete the programme.

Achievements

The work has set up a unique platform that is very useful for undertaking different projects and materials under one umbrella. There has been a very good response from young people, the political and educational sectors and companies. In all we have been able to contact 6,600 schools, reaching over 400,000 pupils.

We are sure that this project has a positive and important impact on the future development of water resources of Austria, and believe it is possible to use this knowledge also in other countries in Europe or elsewhere. ●

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Implementing risk management: a study of utility practice

The value of risk management is recognised in the water sector, but utilities need to ensure the approach is implemented. **BRIAN MacGILLIVRAY** and **SIMON POLLARD** describe the application of a model to benchmark risk management capability within an international water and wastewater utility. The findings provide insight into what utility risk management means in practice and how it may be effectively implemented.

Formalised risk management is becoming a central feature within the strategic governance of water and wastewater services because it provides opportunities to identify and mitigate latent and active errors in system design before they cause a failure (Awwa et al. 2001; The Expert Panel on Water and Wastewater Strategy 2005). Its application now extends beyond the preserves of occupational health and safety and public health protection to embrace corporate level decision making, asset management, watershed protection and network reliability analysis (MacGillivray et al. 2006). Risk management is of little value, however, without implementation (Mosse 2006). Recognising this, the Awwa Research Foundation (AwwaRF) funded the development of a capability maturity model for benchmarking the processes of utility risk management (MacGillivray et al. 2007). Here, we discuss its application within a water and wastewater utility.

Methods

Our risk management capability maturity model (RM-CMM; Figure 1) presents eleven risk management processes at five maturity levels characterised with reference to defined attributes. These levels reflect the extent to which each process is institutionalised (Table 1). The premise is that once each process is enshrined in procedures, with staff trained in their application, roles and responsibilities assigned, the necessary resources secured, and mechanisms in place to prevent deviations from requirements and to learn from the feedback obtained, implementation of risk management should be of consistent high quality. In this way, the demonstrable maturity of risk management becomes the benchmark of an organisation's capability to

manage risk, rather than the presence or absence of risk policies and techniques in isolation, the latter frequently being mistaken for the former.

The utility investigated here manages and operates water and wastewater networks. Our analysis was informed by questionnaire, interviews and document analysis. The questionnaire, completed by the risk manager, comprised a series of statements characterising the implementation of each risk management process at each maturity level. These were responded to on a four point Likert-type scale (fully agree, generally agree, partially agree, disagree). Process maturity was determined according to the 'highest degree of fit', a measure of the level of agreement with the statements at each maturity level for each process. Semi-structured interviews with the risk manager and nine senior managers

responsible for risk management within separate business units or functions (e.g. asset management, finance, human resources, organisational restructuring) were transcribed and evaluated. Additionally, relevant company documentation (e.g. policies, procedures, methodologies, process flow diagrams) was critically reviewed. We preserved the utility's anonymity, so removing potential conflicts (e.g. the desire for positive findings). This use of multiple data sources allowed triangulation, wherein the documents, questionnaire responses and interview transcripts were cross-checked for inconsistencies. Finally, two members of the utility's risk management group reviewed and approved our conclusions.

Results and discussion

Our study was concerned with two aspects: utility risk management practices *and* their embedding within a corporate organisational structure. Table 2 summarises our observations of the former. These are of particular value given the paucity of descriptive risk research within the water and related utility sectors. That said, we assert that it is not the characteristics of the specific risk management practices

Table 1: Generalised description of the five maturity levels

Maturity level	Process characteristics
Optimising (L5)	The process is a continual, explicit component of organisational activities, forming part of the 'culture'. Feedback is actively used to improve both the philosophy and execution of the process, and the adaptation of organisational structures and practices to optimise its ability to undertake the process (double loop learning). Management continually establishes measurable targets for process improvement, with systems in place to verify their achievement and to validate the means through which they are pursued. Active innovation, development and piloting of new ideas and technologies to optimise the process.
Controlled (L4)	Verification mechanisms extend to provide quality assurance, and are supplemented by the capacity for process validation. Feedback is actively used to improve process execution, albeit within the constraints of existing process strategies (single loop learning). Broadly spread competencies enable the process to reside within affected disciplines, although stakeholders work together to achieve an integrated approach, capitalising on synergies and collective knowledge. Sufficient resources are available, with limited internal R&D.
Defined (L3)	Process scope exceeds regulatory requirements, extending across core business areas. Documentation details procedures, criteria, methods and guidelines for process undertaking, whilst basic audit mechanisms verify compliance. Feedback limitations restrict process evolution to learning from 'events' (open loop learning). Processes reside within the responsible unit, with limited cross-functional or external consultation. Adequate resources in place.
Repeatable (L2)	Basic process in place, focused on meeting regulatory requirements and addressing 'mission-critical' risks. Initiated reactively, often in response to an event or situation. Limited capacity to evolve based on experience.
Initial (L1)	No formal process; ad-hoc approach. Reliance on individual heroics. Limited awareness of regulatory requirements or relevant standards.

	Processes
Core	Strategic risk planning (SRP)
	Establishing risk acceptance criteria (ERAC)
	Risk analysis (RA)
	Risk based decision making and review (RBDM)
	Risk response (RR)
	Risk monitoring (RM)
	Integrating risk management (IRM)
Supporting	Supply chain risk management (SCRM)
	Change risk management (CRM)
Long-term	Education and training in risk management (E&T)
	Risk knowledge management (RKM)

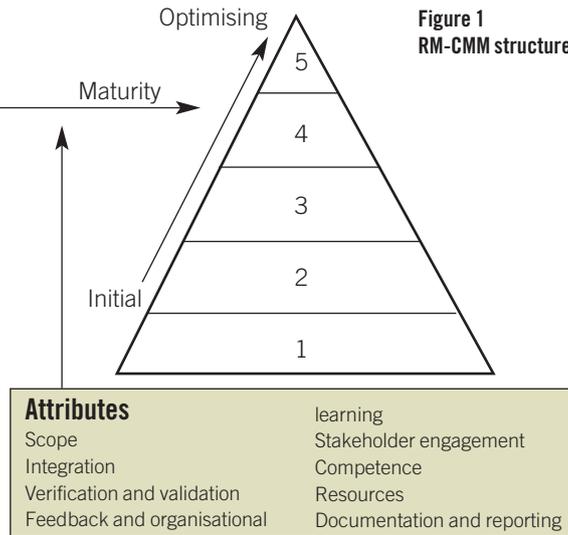


Figure 1 RM-CMM structure

the design stage (e.g. during the production of detailed design data). This is important as the absence of clear criteria may drain resources as staff initiate analyses without first considering whether adherence to good practice would serve as a sufficient proxy for risk management, or at the other extreme, analysis may be applied reactively, perhaps even to provide ex post justifications of investment decisions.

To complete our positive observations, whilst the operational risk analysis techniques were the remit of technical specialists, one positive characteristic of the utility's strategic risk analysis workshops was their incorporation of a multi-functional spectrum of skills, experience and perspectives (L4), thus minimising bias and creating knowledge synergies.

However, even at L3, process execution is variable because of limitations in verification, validation and feedback. For example, whilst the utility had basic mechanisms in place to verify compliance with risk analysis procedures, it lacked formal, systematic mechanisms to ensure the quality of completed analyses (e.g. technical peer reviews, challenge procedures). As one manager noted: *'as to whether [the techniques] have been applied accurately and competently, [there's] probably not that many controls, it's not like a set of engineering calculations where calculations are checked and countersigned.'* Nor was a systematic approach to validating the design of the risk analysis process evident (e.g. are the risk analysis techniques fit-for-purpose, do the procedures maintain an appropriate balance between standardisation and flexibility?). This said, progression to L4, where these limitations are resolved, is difficult, in part because the measures required are resource intensive, technically challenging, and may be viewed as introducing unnecessary internal bureaucracy. Our research suggests that surmounting these barriers is a key challenge for the sector.

Conclusions

Implementing risk management is not straightforward. It requires moving beyond a disjointed focus on risk analysis techniques at one level and corporate policies at another, to an integrated approach which institutionalises risk management practice within decision making processes and utility cultures. We therefore anticipate our empirical observations will be of interest to utility risk managers, asset managers and operational water utility staff, as well as regulators considering how improved water utility governance can be made real. ●

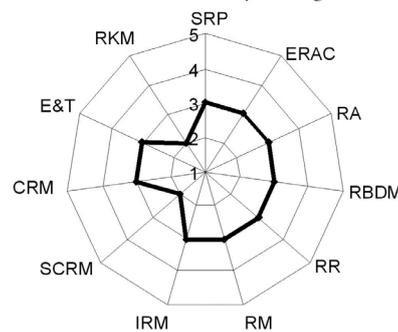
or techniques adopted that serve to ensure system reliability; rather their maturity of implementation, on which we now focus. Figure 2 displays the utility's maturity profile. With the exception of supply chain risk management and risk knowledge management (L2), each process was self-assessed as defined (L3). Recall that process maturity was assessed according to the 'highest degree of fit'; thus, there is scope for discrepancies between, for example, a process evaluated at L3 and one that may be considered fully defined. Our subsequent discussion focuses on the institutionalisation of: (i) change risk management and (ii) risk analysis. The reader may refer to Table 2 to place it in context.

First consider change risk management, a significant process given the range of factors (e.g. globalisation, regulatory and market restructuring, novel technologies; Means *et al.* 2005) fundamentally altering the context in which the sector operates. Although evaluated at L3, the utility's process is not fully defined, being without procedures to guide its execution. As one manager offered: *'we don't have a rulebook on organisational change that we pull off the shelf... [the process] was [shaped] by a culmination of things... experience, the nature of the team, the leadership, the style of the new managing director... we did run a workshop on lessons learnt before we disbanded the [restructuring] team, but I'm unsure how that finds its way into the corporate rulebook.'*

Whilst bureaucracy has increasingly negative connotations, procedures do not exist for their own sake, but as a means of capturing organisational experience, guiding staff in process execution, and as a means of due diligence. The underlying principle is that as staff accumulate experiences and become more expert at, in this case, managing restructuring programmes, they find better or the best ways of doing so. However, if this hidden knowledge is not captured and documented, it remains individual

rather than corporate, a particular problem in industries, such as the water sector, characterised by high levels of staff turnover. This observation is significant as substantial evidence exists to mark organisational re-engineering a high-risk endeavour, in that whilst often effective, such programmes produce highly variable outcomes (e.g. Dean *et al.* 1999).

The recurrent nature of observations such as those above suggest that a pressing question for utility managers is: what steps are required to secure fully defined processes? To discuss this, we turn to risk analysis. The mere existence of procedures guiding risk analysis (L3) is not in itself enough to ensure that staff actions will be consistent with them, as errors of omission or commission will inevitably arise. Thus, there is a need for verification of procedural compliance, achieved within the utility through



Acknowledgements

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Figure 2 The utility's self-assessed risk management maturity profile

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Table 2: Description of RM-CMM processes and the correspondent observed practices

Process	Description	Observed practices
SRP	The process by which the Board, the executive and senior management set out their overarching framework for corporate risk management.	Risk management policy and framework derived in part from external standards, informed by consultations between the risk management group, senior and executive management and the Board.
ERAC	The process by which the utility establishes criteria for evaluating the significance and acceptability of risk.	Risk ranking technique in place, derived from external standards, which set out criteria for evaluating the consequence, likelihood, strength of existing controls and, combined, the overall significance of strategic risks. However, evaluations as to their acceptability were judgement-based. The acceptable level of operational risk was implicit in asset design and operating standards, at times these were derived with respect to clear criteria (e.g. ALARP ['As Low As Reasonably Practicable'] in dam safety, Health & Safety regulations), although more often were based on experience, judgement and historic practice.
RA	The identification and assessment of risk.	Two distinct categories of risk analysis: a generic strategic technique applied in business planning and project management; and a series of discrete methods applied operationally. In the former, experience, judgement and the outputs of SWOT (Strengths, Weaknesses, Opportunities and Threats) and STEEP (Social, Technological, Economic, Environment and Political) analyses informed the identification to risks to achieving business plan objectives, which were then assessed via a range of impact categories normalised within a risk ranking technique. A similar approach was adopted in project management. Operationally, a portfolio of industry standard and best practice risk analysis techniques were applied (e.g. hazard and operability studies; hazards in construction studies; failure mode, effect and criticality analyses; <i>cryptosporidium</i> risk analysis techniques, Monte Carlo simulation; and am portfolio analysis).
RBDM	The identification and evaluation of options to manage risks.	No inference possible.
RR	Implementing the selected risk management option(s).	Tasks, responsibilities and accountabilities for implementing risk reduction options were assigned and logged within the corporate risk register. The nature of the implementation process varied according to the nature of the option (e.g. operational vs. capital).
RM	Reviewing and updating risk analyses.	Strategic risks (business planning and project management) were informally monitored on an ongoing basis by those assigned responsibility, and formally re-evaluated at periodic intervals.
IRM	The integration of risk management process interfaces; the cross-functional integration of risk management; integration of risk management with broader business operations.	No inference possible
SCRM	Two aspects: (i) product supply risk management: addressing the way utilities obtain the raw components required to develop a product; (ii) service supply risk management: managing services provided by other organisations throughout the supply chain – e.g. outsourcing agreements.	Broad range of pre-qualification standards / criteria were applied as appropriate (e.g. all high risk suppliers were evaluated in terms including previous work carried out for the utility; satrategic potential; technical competence and experience; financial capacity and stability; health and safety record; quality system; environmental policy). Long term supplier partnerships were established, where appropriate, to optimise value for money <i>and</i> ensure quality and reliability of supply.
CRM	Managing the risk implications of business (e.g. re-engineering) and technical (e.g. changes in design or technology) change.	The planning of a recent organisational restructuring was informed by process mapping and scenario planning, which operationalised the broad guidelines for restructuring set at the executive level (e.g. guidance against processes, organisational structures, commercial approach). As one manager noted, 'we got experienced people from within the business to map out [their] processes, and it was in doing that that we tested the scenarios...the organisational design followed...that was important as there was a great temptation just to jump into [the] re-organisation...but we resisted that, and what it allowed us to do was not only do the scenarios, but also when you come up with the [final plan], it's not as contestable or emotionally charged.' This supports Clemons' (1995) argument that scenario planning, a tool that acknowledges the key sources of uncertainty and incorporates them into a range of future strategic responses for exploration, reduces the risk of making inadequate changes to organisational structures or processes and, through ensuring the need for change is internally addressed and accepted, reduces the risk that implementation will fail.
E&T	Development of the skills and knowledge that enable staff to perform their risk management roles.	Comprised of a combination of <i>ad hoc</i> attendance of external courses and conferences for key risk management staff; internally delivered training modules wherein the discipline received primary or secondary focus (e.g. in project management); and 'on the job' training, where knowledge transfer occurred through direct participation in the risk management processes (e.g. risk analysis workshops).
RKM	The collection, storage and access of input <i>and</i> output risk data.	The use of a risk register (IT database) for the collection, storage and access of risk analysis outputs. Pre-defined strategies for collecting the data required to inform risk management appeared restricted to select risks whose management was underpinned by analytical methodologies (e.g. in reliability modelling, dam safety management).

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Latin America lured by the benefits of benchmarking

Countries across Latin America have been drawn to the benchmarking project of the Association of Water and Sanitation Regulators of the Americas. **ALEJO MOLINARI** describes the progress.

Benchmarking is becoming a widely-adopted practice in the water sector, to the benefit of every stakeholder. The end beneficiary of this practice is clearly the consumer, because they will receive better services and more value for their money, but service provision undertakers also benefit because benchmarking is an invaluable tool for identifying strengths and weaknesses, and thus for improving their effectiveness and efficiency.

Not only consumers and undertakers, but also political authorities, lenders and many other stakeholders benefit when regulators use benchmarking. When a benchmarking system is used by regulators, they have a greater in-depth knowledge of the service conditions and economic issues, so they can set reasonable targets, introduce more efficient incentives and be more consistent in their regulatory decisions.

Regulators that use benchmarking themselves will also be able to better illustrate both to the political authorities and the consumers the truth about the services the regulated undertakers are providing, improving transparency across the entire system. When the undertaker is a public company or municipality, or any other public institution, transparency is a basic condition of institutional quality, and of the sustainability of the services provided.

The Association of Water and Sanitation Regulators of the Americas (ADERASA – www.aderasa.org)

started a benchmarking programme in 2003, grounded on these principles of good practice and funded by PPIAF (Private Participation Advisory Facility) and the World Bank.

Water regulators use metric benchmarking as a regulatory tool, to compare how undertakers are doing and to set out an environment of virtual competition in a market where direct competition is impossible. So the first step was to agree a common set of performance indicators (PIs) and data definitions.

At that time the IWA benchmarking task force's work was advanced, and some ADERASA representatives were cooperating, so a decision was made to take advantage of the IWA's work and use their definitions as the main source for the PIs, also thinking for the future of possible comparisons with other services around the world.

With this in mind, IBNET (Infrastructure Benchmarking Net) and several other regional definitions that were already in place (such as SNIS in Brazil, SUNASS in Peru, and SISAB in Bolivia) were taken into consideration, not with the aim of innovating, but of using systems that already existed as far as possible. In this way the first version of the ADERASA benchmarking manual was created and disseminated among its partners for their comments.

At the same time, and to explore the existing information, a request was made to the largest undertaker in each country to fill in a preliminary data set. A preliminary comparison of eight major undertakers from eight different countries emerged.

During the second ADERASA general meeting in Santiago de Chile, in September 2003, the ADERASA benchmarking programme was officially submitted to the board of ADERASA and approved, and the ADERASA benchmarking working group (GRTB) was created, led by Argentina and comprising one representative from each member country.

The first GRTB meeting was held in Buenos Aires in May 2004. A group of selected international experts, from the IWA, the World Bank, the WRC (Water Research Centre) and the Scandinavian six city group, as well as representatives from the academic world, PURC (Public Utilities Research Centre) and CEER (Centro de Estudios Económicos de la Regulación, Argentina), were invited to discuss benchmarking fundamentals. The PIs and data definition from the proposed manual were discussed and agreed and a first set of PIs from 38 undertakers in 11 countries was analysed.

In November 2004 two sub-regional meetings were held, in Costa Rica and in Peru, funded by IBNET, to discuss the final outcome of this first exercise within smaller groups. Then the first edition of the ADERASA benchmarking annual report was published (<http://www.aderasa.org/es/documentos3.htm?x=639>).

The GRTB-ADERASA work relays the development of benchmarking systems in the various countries, and it was soon realised that some member countries needed some support in setting out their own system. So a programme of country assistance was put in place with Costa Rica becoming the first to be given assistance in 2005.

Subsequently other countries have benefited from this programme, namely Mexico and Colombia. The GRTB leaders also attended specialist meetings in Brazil and Bolivia, to coordinate their efforts with local programmes.

Another key question is about data quality. Only a few countries in the region have a tradition of collecting data, and those have not been collecting data over a long period of time. ADERASA has adopted the IWA accuracy and reliability data qualification system, to help country managers to set out and improve the quality of data they are processing.

Using the same data-gathering mechanism, distributing a rough comparison and then discussing the preliminary version at an annual meeting, the programme has grown fast, with 54 undertakers from 11 countries contributing to the 2005 yearly report (<http://www.aderasa.org>).

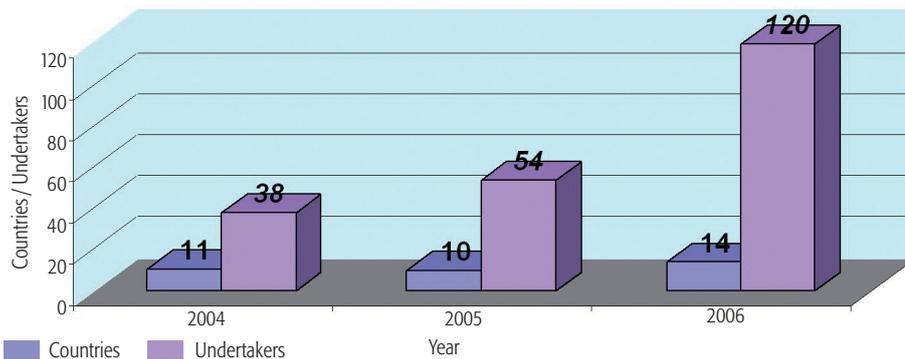


Figure 1
The annual evolution of data collection.

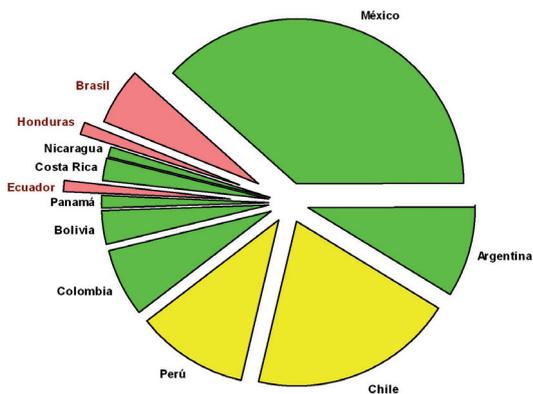


Figure 2
The undertakers' distribution by country.

adepasa.org/es/documentos3.htm?x=673) and 120 undertakers from 14 countries to the 2006 yearly report (www.adepasa.org/es/documentos3.htm?x=753).

The countries participating in the ADERASA benchmarking programmes are Mexico, Honduras (Porto Cortes), Nicaragua, Costa Rica, Panama, Colombia, Ecuador (Guayaquil), Peru, Bolivia, Brazil, Paraguay, Uruguay, Chile and Argentina.

The annual evolution of data collection is shown in Figure 1.

The distribution of undertakers by country is shown in Figure 2.

Every PI focuses on a particular aspect of the service, and the outcome is what could be called a partial efficiency comparison between undertakers. Some of them can be related in an intuitive way: for instance, indicators such as potable water daily production, water consumption and water losses, are clearly related: high consumption and a high level of water losses demands a high level of water production (Figure 3).

This can be called partial or focused efficiency analysis. Of course we cannot arrive at conclusions about the efficiency of an undertaker by looking simply at a few PIs, because there are external factors that might not be captured. So we must be cautious in interpreting the results. But in any case, it is much better to have these comparisons, even though they are partial, than not to have anything at all.

There is another way in which PIs and the data gathered can be used to help us gauge the efficiency of an undertaker, when compared with their peers, and that is through efficiency frontier analysis.

The GRTB has started a step-by-

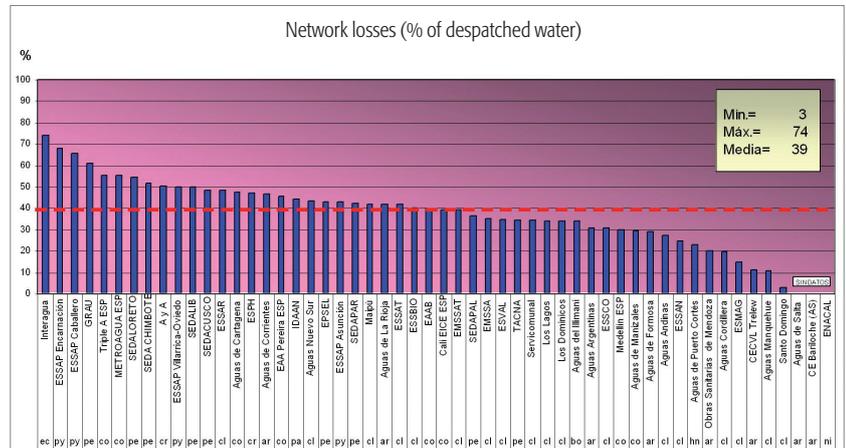
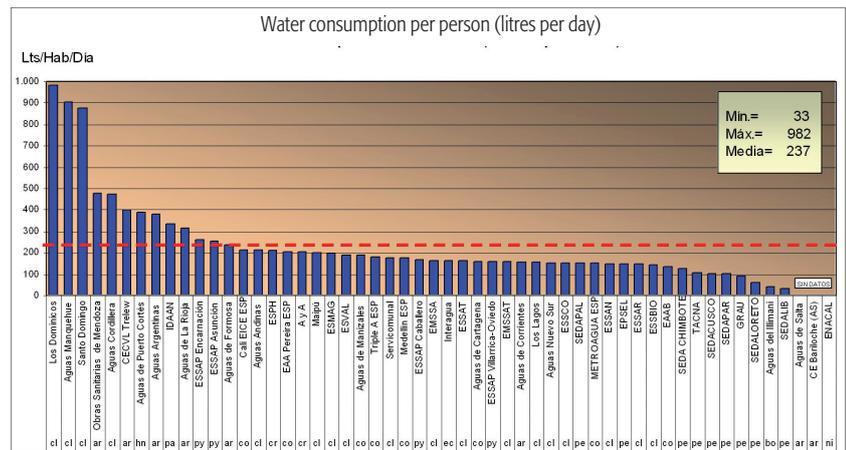
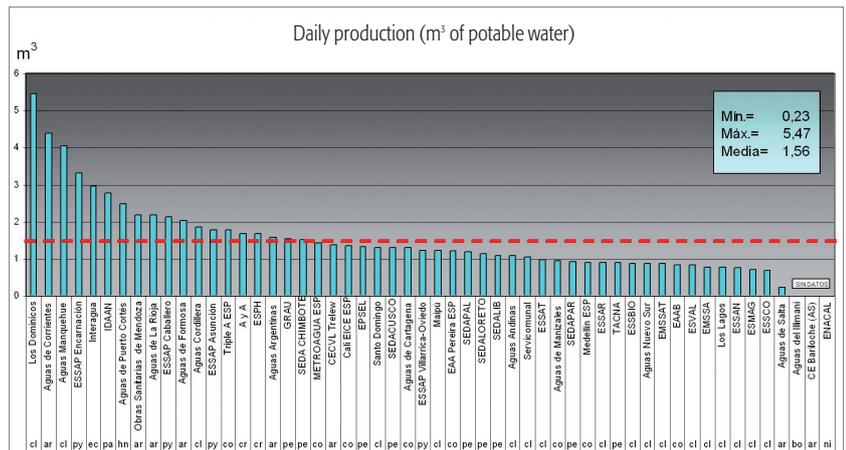


Figure 3
Performance indicators used to make partial efficiency comparisons between undertakers.

step path towards efficiency frontier analysis. The first priority has been to establish data availability and model consistency. The first stage of the exercise, developed during 2005, involved finding the data needed to achieve the most consistent models. Econometric and DEA models were explored.

During the second year of the project, the first regional efficiency frontier analysis was undertaken, involving the 50 major undertakers in the database. The study found good consistency among the models chosen, even if convergence still needs to be improved. It is expected that, as the dataset grows larger, the reliability of this first ranking will improve. A

summary of this work, in Spanish, can be downloaded from: www.adepasa.org/es/documentos3.htm?x=669.

Given the present state of the art, benchmarking is far from perfect, but it has already proved to be a very useful tool for improving service quality in the most advanced regulated systems in the world. In the case of the Latin American environment in which ADERASA is developing its benchmarking programme, it is worth making the effort, since there is still a great deal to be done in achieving efficiency and effectiveness. In this way, ADERASA is contributing to achieving the Millennium Development Goals in most of its member countries. ●

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Regulatory collaboration in the Americas: ADERASA

MARIA LUISA CORTON and ALEJO MOLINARI outline the objectives of ADERASA, a coalition of regulators from ten Latin American countries which aims to encourage regional collaboration on water regulation.

During the last decade, most countries in the Latin American region introduced regulatory frameworks for the water and sewerage sector and created regulatory entities to oversee and enforce them. As a result, it is estimated that by the year 2000, about 40% of urban water consumers in Latin America enjoyed some form of regulatory protection. For a variety of reasons, the water sector has proven relatively difficult to regulate effectively in comparison with other infrastructure sectors.

There are a number of reasons why the sector presents a particular challenge:

- it is the sector with least scope for competition, so needs a more intensive form of natural regulation
- water and sewerage services present a complex array of quality issues that complicate regulation
- in many countries water services are decentralised and there is comparatively little private sector participation
- because of the direct effect on health and the environment, water services are extremely sensitive, both socially and politically
- the sector is inherently capital intensive

As a result, regulators often find themselves trying to apply modern regulatory techniques to a highly fragmented and politicised sector of old-style municipal utilities.

ADERASA: origins and objectives

In October 2001, representatives of 10 Latin American regulatory entities (from Argentina, Bolivia, Chile, Colombia, Costa Rica, Nicaragua, Panama, and Peru, plus observers from

the Dominican Republic and Venezuela) convened in Cartagena, Colombia to form a regional association of water regulators: ADERASA (Asociación de Entes Reguladores de Agua y Saneamiento de las Américas, or Association of Water and Sanitation Regulatory Entities of the Americas).

The objectives are to promote cooperation and coordination of efforts in the development of the Latin American water sector by facilitating the exchange of experiences and collaboration on common initiatives in the field of regulation.

ADERASA is potentially an excellent opportunity to strengthen and sustain water regulators in the region. It brings together countries at varying stages of their development of a regulatory framework, and many of the regulatory tools that need to be developed to improve the practice of regulation, such as financial models, regulatory accounting guidelines, and benchmarking performance indicators, are generic so they can more cost-effectively be developed at a regional level.

Because of this, ADERASA has begun a multi-year regional initiative to establish itself as an active and supportive forum for the discussion of regulatory challenges, and the development of regulatory solutions. It has established three regional working groups and one regional network, and identified country leaders for each.

For example, the working group on benchmarking, with Argentina as its leader, has proposed about 80 Performance Indicators for adoption, with their definitions reflecting those used in the World Bank benchmarking start-up kit, which became IBNET, and the IWA PIs, paving the way for future global comparisons.

By 2002, the Argentine Regulators Association had prepared a Performance Indicators manual, which described methodology, data need, and indicators. The draft manual was distributed to members in April 2003.

A task force for benchmarking activities held its first meeting in August 2003, at which the proposed manual was discussed with the assistance of the World Bank and IWA. That resulted in a significant reduction in the number of proposed PIs, as well as some changes in definitions.

The benchmarking system is based on each country's data collection capabilities. To recognise country differences and facilitate the process, an assistance scheme and consulting programme was developed under the Public-Private Infrastructure Advisory Facility (PPIAF) agreement.

The benchmarking group requested data from each country every year, starting in 2003, from at least the main service companies. Reported data is accompanied by a data quality indicator according to the IWA grading system.

In addition to the set of PIs, to recognise the interrelationship of production factors the benchmarking group has contracted an external consultant to analyse the data set and propose adjustments and necessary processes to perform Efficiency Frontier Analysis.

One lesson for utility managers and firms supplying inputs to utilities is that the regulatory system has a significant impact on the financial sustainability of a country's water sector. ADERASA illustrates one form of inter-governmental networking designed to share information and improve the development and implementation of water policy. Without such collaborations, lessons are diffused in a slow and erratic fashion. ●

This article is based on a longer feature which will appear in the February 2008 edition of IWA's *Water21* magazine.

Water utility regulation in Mexico: lessons shared at a recent meeting

A recent seminar on water services regulation, held in Mexico City, raised the idea of a centralised regulatory authority to help improve service provision in the country. JULIE PADOWSKI reports.

While many Mexican water utilities rank among the best in Latin America, Mexico nevertheless faces major problems with water service quality, efficiency,

and coverage, particularly in rural areas. Although 97% of Mexico's total population has access to a safe water supply, only 87% of the nation's rural population has such

access. Similar trends are evident in sanitation.

A seminar on water and wastewater services regulation held in Mexico City in July 2007 brought together water utility managers, consultants, academics, and regulators from Mexico and other countries to share ideas and discuss problems associated with water supply operations.

Major themes included the need for change in management, regulation and politics to improve overall utility performance. Discussions focused on issues of self-regulation, commercial efficiency, governance structures and benchmarking. In particular, a broader implementation of benchmarking was identified as a potentially useful method for identifying weaknesses in utility performance and inefficiency in operational practice.

Opinions of seminar attendees varied as to the degree to which federal agencies should become involved in water supply and sanitation regulation. However, many water utility managers agreed that a system for identifying and sharing successful solutions to common problems would benefit utilities by saving time and money.

In addition, the creation of a centralised regulatory agency would help to relieve individual municipalities of the sole responsibility for implementing and enforcing regulations. The issue of self-regulation was a recurring theme throughout the seminar, highlighting a need for increased transparency and accountability within municipalities and greater involvement

at higher governmental levels.

The idea of placing partial responsibility for regulatory processes in the hands of state or federal agencies was viewed by some as a way to address some of Mexico's current regulatory problems.

Several water utility problems of a primarily political origin were identified. The most frequently-discussed concerned pricing schemes and commercial efficiency. Mexico's 'culture of non-payment' is often given as the explanation for below-par revenues in large utilities. Seminar attendees cited inefficient billing departments and faulty or missing water meters as contributing to these losses. Partial responsibility was also attributed to political factors such as federal subsidies and government-mandated term limits for utility managers.

Water system directors within each municipality are restricted to three-year terms. Many attendees expressed concern that this effectively restricts directors' ability to design and achieve long-term goals.

Implementation of a benchmarking approach for Mexican water utilities

was discussed as a means for evaluating and ranking the overall performance of utilities nationwide, and providing a framework for improving utility coverage, service quality and efficiency.

Several important ideas about management, politics and regulation emerged from the seminar:

- politics plays a significant role in the reform process. Successful changes must be made with the full commitment of policymakers
- separate and well-identified functions and responsibilities are important elements of institutional design. Issues of accountability need to be addressed
- reforms must be both internal and external to promote successful outcomes. Cooperation between politicians, utility managers and customers is crucial for improved performance
- benchmarking is a potentially useful tool for improving water utility performance ●

This article is based on a longer feature which will appear in the February 2008 edition of IWA's *Water21* magazine.

Benchmarking water utilities: Central America

SANFORD BERG and **MARIA LUISA CORTON** report on the work of PURC, a project to gather data on benchmarking in Central American countries.

Expecting infrastructure investment to grow in Central America, the Inter-American Development Bank (IADB) funded PURC (the Public Utility Research Center, University of Florida) to prepare a study on benchmarking water utilities in the region.

The project had three purposes:

- to assemble verifiable benchmarking data for the Central American nations
- to prepare studies that identify the relative performance of utilities in the region;
- design and deliver a workshop to promote sustainable data collection procedures, making information available to key stakeholders

The first objective required the cooperation of government agencies in the region, as well as water utilities. Until recently, data specification, collection, and collation have been the focus of benchmarking programmes. Data is critical: once several years of data are available, the issue becomes one of analysis.

An October 2007 regional workshop was designed for four groups of

participants: utility managers, policy-makers, regulators and academics. These groups have tended to operate in relative isolation when preparing benchmarking studies. The objective, besides providing a forum for obtaining feedback on the study, was to promote sustainable institutional mechanisms for maintaining data collection, and to develop strategies for future regional collaboration.

The workshop proved to be a catalyst for improving procedures for evaluating sector performance. The study (available at www.purc.ufl.edu) includes data obtained and/or reviewed by water service providers from each of the six countries as well as participation of the respective country regulatory agency. This differed from ADERASA's approach, which mainly considered data from regulatory agencies. This study also includes Guatemala and El Salvador, which were not members of ADERASA.

Several factors affect data availability in the region: the ongoing sector restructuring, a low level of infrastructure in place, and low development of the sector's information technology. The number of local, independent

water providers complicates the data collection and correction process.

The study examined performance patterns across countries, focusing on a number of PIs relating to operational performance, cost and quality. Some are comparable to those presented by ADERASA.

The methodology provides a more comprehensive performance assessment than more traditional core PIs. Identifying the best performers is not an easy process as a firm that performs well on one indicator may do poorly on another. Thus, the focus of the project moves beyond simple PIs to more comprehensive performance metrics using data envelopment analysis frontier calculations and estimation of key production parameters using stochastic frontier analysis.

The PURC benchmarking study provides insights into the relative performance of water utilities in the region using a set of methodologies. This project establishes a strong case for more comprehensive studies in the future – helping to set the stage for creating strong incentives for improved performance.

This article is based on a longer feature which will appear in the February 2008 edition of IWA's *Water21* magazine.

Private investment in the water sector: banking on a bright future

There are huge investment needs to be met in the water sector but there is a challenge in attracting private financing, **JOHANNES SCHMIDT** of Siemens Financial Services tells **LIS STEDMAN**.

As Managing Director of Siemens Financial Services, whose equity investment division invests in many infrastructure projects worldwide, Johannes Schmidt has a good view of the water industry's financing conundrums.

Mr Schmidt's background is in financing, and for many years he has been involved in the financing aspects of various Siemens projects. But he notes that, 'when I look back at 20 years of such work, rarely has a water project been privately financed on a standalone basis. Our research shows that private initiatives and private finance can achieve much.'

Although there is a fair amount of privatisation around, it tends to be restricted to well-developed countries. Research in Asia, for example, shows that investment there is only a fraction of the defined need. Siemens decided two and a half years ago to dedicate technical research into this issue, which was why Mr Schmidt attended the World Water Week in Stockholm earlier this year.

One interesting thing is that other sector projects see queues of financiers waiting to provide funds. He notes of financiers: 'Typically they want their money back and a return and a guarantee, or reasonable comfort that this will be achieved.'

So why are the financiers not investing? The next issue they look at is the contractual structure, Mr Schmidt says. 'For investors and others the question is whether the return is better for the input – what is the risk, for instance, of going broke?' But the contractual structure is enticing to investors. The sector is good for investments, has good solutions but by and large governments and regulators have not spent any time standardising, making the systems easy to use, and have not taken account of the needs of participating contractors.

In electricity and transport PFIs, he says, there is a well developed contract structure that takes account of the needs of participants.

The last point that typically worries financiers, he concludes, is that the terms of the contract are going to be

changed, or that regulation, the law, taxes or political influence will have an undue effect.

'Here a very interesting question cropped up – is water a civil right or a commodity?' he notes. 'The question becomes very tricky when the financier is the messenger not just of one of the players, but is simply offering judgments on whether someone might want to invest in the sector.'

There are two obvious questions, he adds. Taking the high moral ground and treating water as a right might make an investor feel morally good, that they are not doing something wrong, but this is not driving investment.

On the other hand, if water is treated as a good, and is dealt with for a profit, there is a moral difficulty but the employees get paid for doing their jobs, the investment is obtained, the job gets done. 'It is not for me to judge if this is what people want. If water is treated as a commodity, you get more done in terms of investment but not for justice,' he notes.

An example can be found in the far east. 'In Singapore it's amazing what they have done, but Singapore is a fairly commercialised place. The pricing of water in Singapore really works – they are able to raise funds, they have come to the conclusion that they have to pay for it, and something gets done,' Mr Schmidt explains.

Does this mean that privatisation is the way forward? Mr Schmidt is reluctant to make that difficult decision. 'I have an opinion as an individual and from a financing perspective. But privatisation only works if there is a benefit created. The investors only come if there is a return, and this has to be paid for somehow – namely, by increases in efficiency.'

'The typical answer for a private investor is to improve efficiency, reduce waste, to create a benefit large enough for water to be distributed to the user and cover the return to the investor. You are looking at a situation that works.'

But there are cases where public utilities are more effective – 'it is not a paradigm that private utilities are better



than public,' he notes. There are examples from the electricity and transport sectors, where a great deal of private money was input in the 1990s and then, finding the returns were not large enough, the private sector moved on. 'This applies to water as with everything else,' Mr Schmidt warns.

He felt the lack of interest in the sector was summarised by the lack of bankers at the World Water Week. If they attend, it is a sign that things are on the right track. In some sectors, bankers will pay to attend such summits. Accounting for the moral side is part of the government's role as regulator, he argues, not something that bankers can factor in. 'The government has to establish a framework in the way the majority of the population want it. This is where good or bad is decided – how much commercialisation is good. The industry cannot do this. It responds to governments and also to its shareholders.'

Free water, he argues, means waste. Paying for water through a limited commercial involvement instills a sense of ownership and accountability. He says that privatisation in the UK, as an example, has 'brought tremendous improvements'. And the financing industry has moved on in recent years, and is no longer scared of long-term lending provided they can see a return on their investment.

If there is a profit margin of 20%, one in five of a financier's investments can go under without causing an undue problem, he explains. With a 2% margin, the ratio has to be much higher – so willingness to invest is directly related to the return foreseen. 'It is not that I think I am a hero and they are fearful,' he avers. 'They have to be, by definition. I think there are courageous bankers as well. And I think the water world will change.' ●