

ANALYSIS

- 4 **Prospects for European clarity on procurement in public private partnerships**
By Peter Reina
- 5 **The cultural challenge of Northern Ireland's new customer service contract**
By Lis Stedman
- 6 **Funding shift to support European cohesion**
By Peter Reina

FEATURES

- 7 **CASE STUDY**
Emulating success in Cambodia: lessons from Phnom Penh
By Eric van Zant
- 8 **ENVIRONMENT**
Are utility attitudes to the environment shaped by corporate governance? Assessing the evidence from Australian utility reports
By Adam Gray and Jennifer McKay
- 11 **PERFORMANCE MEASUREMENT**
What gets measured gets done: applying a seven-step methodology in Columbus, Georgia
By Terrance Brueck and Billie G Turner
- 15 **CUSTOMER DEBT**
Delivering on the debt dilemma
By Lis Stedman
- 17 **BRIEFING**
A perspective on private participation
By Keith Hayward
- 20 **VIEWPOINT**
Lessons from Latin America: the potential of local private operators
By Alejo Molinari
- 23 **INTERVIEW**
Agua de Portugal's push towards direct service provision
By Paul Garrett

European Commission to clarify rules on public-private partnerships

Following an extensive consultation exercise, the European Commission is to launch measures this year to clarify legal requirements in creating certain public-private partnership arrangements, including water and wastewater concessions.

New legislation is likely for concessions, whereby a private firm recovers investment costs by charging for its services. A cost benefit analysis of such legislation will be made before a decision is made, according to European

Commissioner for Internal Market and Services Charlie McGreevy.

For service companies jointly owned by the public and private sectors, institutional PPPs, the Commission proposes issuing simpler guidance documents. The Commission's clarification policy follows a 2004 discussion Green Paper which drew 195 responses from various sectors, particularly in Germany, France, UK, Austria and Italy. (See Analysis, p4) ● Peter Reina

US benchmarking survey underway

The American Water Works Association and the Water Environment Federation have launched the data collection period for their latest Benchmarking Performance Indicator Survey for water and wastewater utilities.

The data collection period runs from 1 March to 31 May 2006. The survey is requesting historical and analytical data from each utility's previous fiscal year. Data collected from individual utilities will remain confidential but will provide aggregate information for benchmarking. Each participating utility will then receive its own statistical summary to compare to the aggregate data, allowing them to measure their performance and efficiency in 22 key benchmarks.

Benchmarking is the process of identifying a utility's strengths and areas for improvement by looking at key operation and management areas,

and comparing them to established standards of performance in those areas. The Benchmarking Program is a joint effort of the two organisations. The 22 benchmarks are in five areas: organisational development, business management, customer relations, water operations and wastewater operations. More than 200 utilities participated in the 2004/2005 survey.

A comprehensive data analysis report that more fully interprets each benchmark indicator is available from AWWA (www.awwa.org/bookstore). The full report, 'Benchmarking Performance Indicators Survey and Analyses', will be produced every three to four years and presents summary analyses and interpretive text for each performance indicator. ●

For more information visit www.awwa.org/science/benchmarking.

Decision expected on European support for infrastructure

The European parliament is due to vote soon on budget proposals for the European Union covering the seven years from next January. The budget will divert large grants financing for water and other infrastructure to the EU's 10 newest member states within the Cohesion Fund, which will also be reformed.

Launched in 1994, the Cohesion Fund supports, mainly, environmental and transport infrastructure investments in the Union's poorest countries. Initially covering just three states, the fund will rise to over €60 billion for the period 2007-2013.

As part of a broad revision of regional grants to the neediest regions of the EU, the Cohesion Fund will in future be programme based. That will relieve governments from seeking project by project approval from the European Commission.

One of the biggest Cohesion Fund awards made last year went in December to a water and

wastewater project in Warsaw, Poland. The Commission agreed to contribute €248 million to the €405 million project which is mainly aimed at cleaning up effluent emissions into the River Vistula.

The project is the third phase of the long term plan to improve Warsaw water supply and waste water treatment. The project will improve the quality of drinking water, while in parallel reducing the costs of surface water treatment and allowing a positive impact on the Baltic fishery industry. The project will allow the treatment of wastewater from the central and northern left bank part of the city, meaning the wastewater effluent discharged from the Czajka wastewater treatment plant will reach good quality standards and achieve the standards and norms specified in European Union Directives. In addition it will provide a long-term method of wastewater sludge management. (See Analysis p6) ● Peter Reina

EDITORIAL

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

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

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US EPA under fire for lead rule data gap

The US Government Accountability Office (GAO) has criticised the Environmental Protection Agency for not having in its database information from over 30% of large and medium-sized community water systems on the amount of lead in their supplies.

The EPA also does not have data on the status of the efforts to implement the lead rule for 70% of systems, apparently because states have failed to meet reporting requirements.

The report from the GAO notes that 'implementation experiences to date have revealed weaknesses in the regulatory framework for the lead rule. For example, most states do not require their water systems to notify homeowners that volunteer for periodic lead monitoring of the test results.'

It adds that in addition, corrosion control can be impaired by changes to other treatment processes and controls that might help avoid such problems may not be adequate. The report also warns that because testing indicates that some so-called 'lead-free' prod-

ucts actually leach high levels of lead into drinking water, existing standards for plumbing materials may not be sufficiently protective.

From the data available it appears few schools and child care facilities have tested their water for lead. The report also notes that 'no focal point exists at either the national or state level to collect and analyse test results. Thus the pervasiveness of lead contamination in the drinking water at schools and child care facilities – and the need for more concerted action – is unclear.'

The GAO is recommending that it improve its data on key aspects of lead rule implementation, strengthen some regulatory requirements and oversight, and assess the problem of lead in the drinking water at schools and child care facilities.

The EPA's spokesman noted that the agency has issued comprehensive new guidance for protecting against lead in schools and is in the final stages of issuing proposed changes to the federal rule. ● **Lis Stedman**

Loans and tenders

NAMIBIA: EIB signs finance deal for infrastructure

The European Investment Bank has signed a €4M (\$4.9M) financing facility to go towards infrastructure in Namibia, including water and sanitation projects. The rationale is to mobilise local and international resources to provide debt funding primarily for municipal and other infrastructure projects.

INDIA: Italy agrees soft loan

The Italian government is set to grant an €26M (\$31.7M) soft loan for water supply and waste management projects in 14 districts of West Bengal. Details for the project are not yet finalised. The process of selecting companies to be involved in the project is underway, according to Agostino Pinna, Italy's consul general in Kolkata.

COSTA RICA: JBIC agrees loan for sewerage

Japan Bank for International Cooperation (JBIC) has agreed to lend \$127M for a sewerage project to benefit Costa Rica's capital, San José, according to the country's foreign affairs ministry. The first tranche of funding is due to be handed out within a year, with works scheduled to begin in 2008. The first phase, due for completion in 2015, is set to cost \$230M. A \$220M second phase is scheduled for completion in 2025.

JORDAN: Government gives go-ahead to transfer project

Jordan's government has given the green light to the country's Water Conveyance project, and is inviting investors and companies to bid for the BOT contract. On completion, the conveyor will supply the capital, Amman, and the southern governorates with over 100Mm³ of water per year from the southern Disi aquifer. A main pumping station, three storage wells and a 320km conveyance pipeline will be constructed during the project. The conveyance project is one of six planned to counter the country's water deficit.

GLOBAL: ADB announces increased water spend

The Asian Development Bank used the Fourth World

Water Forum as the opportunity to announce increased investment in water. It introduced its Water Financing Program, which seeks to make water a core investment area for the bank. Under the programme, ADB proposed to increase its water investments to well over \$2 billion annually for the period 2006-2010.

AZERBAIJAN: ADB announces boost

The Asian Development Bank has announced that it plans to increase its operations in Azerbaijan's road and water supply and sanitation sectors. An ADB country strategy programme sets aside some \$179M in loans for the country in 2006, a considerable increase in the forecast 2006 spend of \$39M.

UKRAINE: EBRD funding for wastewater treatment

The European Bank for Reconstruction and Development is to provide a loan to the city of Harkiv, Ukraine, to finance priority capital investments for its municipal wastewater utility. The project will contribute to decreasing polluting discharges into the Siverski Donets River and the Azov Sea basin. The work will also include improvements to service standards and strengthening of operational performance.

INDONESIA: ADB prepares sanitation project

The ADB is preparing a project to improve sanitation and public health and reduce pollution in Indonesia's urban areas through a \$1.2M technical assistance grant from its Japan Special Fund. The grant will be used to prepare a project due for 2007 to set out sanitation strategies for five major cities and provide appraisals and investment plans for three of these.

ROMANIA: EBRD lends for wastewater upgrade

The European Bank for Reconstruction and Development (EBRD) has made a €10M (\$12M) ISPA loan to Romania to enable it to complete the upgrade and construction of the wastewater treatment works at Glina. Construction of the plant will begin this autumn, and it is scheduled to become operational in 2010. Total costs for the project are estimated at €253.3M (\$302M), in two stages over four years.

UK water firm fined over bills

Economic regulator Ofwat has published its interim report into allegations about false reporting of information by UK water utility Severn Trent Water.

The report sets out the regulator's interim findings into certain allegations made by an employee of Severn Trent Water, and the actions Ofwat will require the company to take. Ofwat's concerns about the reliability of leakage data are not covered in the report because this issue is currently being investigated by the Serious Fraud Office (SFO).

Ofwat's investigation found that Severn Trent Water had provided regulatory data that was either deliberately miscalculated or poorly supported. This led to price limits being set for the water company that were higher than necessary, which would have resulted in customers paying £42 million more by 2009-10. This is equivalent to between £2 and £3 each year on an average household customer's bill.

Severn Trent Water has agreed to reduce its price limits to return the

£42 million to customers. The company is returning £7 million of this in bills currently being sent to customers. The remainder will be returned to customers over the next three years of the current price review period.

Ofwat regards the findings of its investigation as sufficiently serious to warrant a further reduction in the company's price limits as a penalty. This can only be determined after the SFO investigation.

The Consumer Council for Water Midlands welcomed the announcement. Sir James Perowne, chairman of the Consumer Council for Water Midlands, commented: 'While we are disappointed that Severn Trent Water has been found deliberately miscalculating and misreporting data to the regulator, our primary concern is that consumers be re-imposed for any overcharging. We are encouraged that this will now happen. However, we are still seeking reassurance on behalf of consumers about the reliability of water company data supplied to the regulator.' ●

In brief

NORTHERN IRELAND: Alliance wins first privatised water sector contract

The Xansa-led Crystal Alliance has won a seven-year, £70M (\$122M) contract to run the Northern Ireland Water Service's customer billing system. The organisation will be responsible for billing some 760,000 domestic customers when the privatisation takes place. Under the contract, the Crystal Alliance will establish a customer relations centre to handle customer complaints and enquiries, which will be managed by sub-contractor Echo Managed Services. (See Analysis, p5)

US: AWWA and other water organisations announce mutual aid network

The American Water Works Association (AWWA), together with other US water agencies including WEF, NACWA and NAWC, has announced a joint policy statement on mutual aid and assistance networks. The statement says that the 'utilities helping utilities' agreement will provide aid for 'water or wastewater utilities that have sustained damages from natural or manmade events could obtain emergency assistance in the form of personnel, equipment, materials, and other associated services as necessary, from other water/wastewater utilities. The objective is to provide rapid, short-term deployment of emergency services to restore the critical operations of the affected water/wastewater utility.'

SCOTLAND: Alexander resigns over delivery plan disagreement

Professor Alan Alexander has resigned as chairman of Scottish Water after a disagreement with ministers in the Scottish Parliament over the organisation's delivery plan for the next four years. Ministers and the utility's economic regulator had said the delivery plan fell short of their requirements 'in a number of material respects'. Professor Alexander believed the plan was fully compliant, the Executive noted, and in view of that had resigned.

Business

SPAIN: Acciona buys RWE water provider

Acciona SA has released a statement saying it has bought RWE Thames Water's Spanish water treatment provider, Pridesa, for €150M (\$182M). The Spanish company said the deal strengthened its position in the desalination sector, placing it in a good position for internationally-strategic water markets such as the US, the UK, Italy, Portugal, Turkey, Egypt and China. The deal is subject to anti-trust approval.

DUBAI: Authority invites bids for desal plant

The Dubai Electricity and Water Authority (DEWA) is inviting bids for a new power generation and water desalination plant worth an estimated \$1.5 billion. The M Station will be DEWA's largest and is to be commissioned by 2010, according to local news sources. When complete, M Station will increase the country's power supply by 2000MW and its desalination capacity by 105MGD.

UK: Thames signs asset database deal with Oracle

Thames Water has signed an agreement with Oracle to consolidate 23 asset databases into a single system. Engineers and managers will be able to access information about all assets across Thames Water's supply area when the system goes live in spring 2007. Geographical information systems from ESRI will also allow Thames to analyse its water network and provide engineers with details about each asset prior to repairs.

US: Macquarie Bank to buy Aquarion

Yorkshire water and sewerage provider Kelda has announced that it has reached a deal with Australian investment bank Macquarie to buy its US water arm, Aquarion. Kelda said it does not expect any profit or loss on the sale, which is expected to be worth around £375M (\$651M). UK-based Kelda bought New England-based Aquarion in 1999 to gain a foothold in a market that was supposed to be ripe for consolidation, but this move has never materialised.

THAILAND: Mitsui buys stake in Thai tap water

Japanese trading house Mitsui has announced that it has reached

agreement to buy a 35% stake in the Thai Tap Water Supply company, for ¥11 billion (\$93.27M). The company has a 30-year agreement with Thailand's Provincial Waterworks Authority to supply drinking water to two provinces west of Bangkok.

COLOMBIA: Water share sale blocked

Colombian water company Aguas de Manizales has confirmed it will not take over operation of Cartagena utility Acucar from current operator Aguas de Barcelona (Agbar). Agbar's purchase of its 45.9% stake in the contract contained a suspension clause that stipulated any deal had to be approved by the town's mayor, who ruled out Aguas de Manizales.

CHINA: Suez outlines expansion plans

Suez has told a press briefing that it intends to double its business in greater China to nearly one billion euros (\$1.2 billion) over the next two years as it expands its sewage and water treatment networks. Company executive vice-president Yves-Thibault de Silguy said that the country's need for modern water distribution and waste facilities in major municipalities would be likely to mean a doubling of revenues by 2008 from around €450M (\$536M) at present.

PORTUGAL: Aqualia wins water supply tender

Aqualia, a Spanish water services management company and FCC subsidiary, has won a €1500M (\$1790M) tender to manage the water supply in Leziria del Tajo, Portugal, for the next 40 years. The area is a community of nine cities near the capital, Lisbon, with 200,000 inhabitants. The contract calls for €200M (\$238M) in investment, with €53M (\$63M) of the total being provided from public funds. The tender was won in consortium with Portuguese company Lena.

NORTHERN IRELAND: Glen Water wins Omega contract

Department for Regional Development (DRD) Minister Shaun Woodward has announced that Glen Water is the successful winner of the Omega public-private partnership project in Northern Ireland. This design-build-finance-operate contract will involve capital investment of around £122M (\$212M) for upgrades to six existing wastewater treatment works, including a second incinerator for Belfast's giant Duncrue Street works.

Prospects for European clarity on procurement in public private partnerships

With the European Commission due to launch measures on public private partnerships this year, a recent ruling by the European Court of Justice on an Austrian waste disposal company revealed the perils of mixing public and private interests in the procurement of municipal or government services, reports **PETER REINA**.

Austria's European Court defeat over a municipal contract following erudite legal wrangling revealed the scale of uncertainty over the European Union's growing market for public private partnerships. Fearing lack of clarity may impede private financing of infrastructure, the European Commission is planning new legislation in the wake of an investigation lasting nearly two years.

The Austrian case, whilst involving a waste company, nevertheless shared characteristics with potential municipal joint venture for water services. It centred on the creation of company owned by the municipality of Mödling and a private firm to serve the community. The venture fell foul of laws that its architects believed did not apply.

Four months after setting up a fully-owned waste disposal company, Mödling municipality sold 49% of its interest to private operator. The city and private partner agreed that each would appoint a managing director to run the waste company.

The transaction was completed in October 1999 and the company started operations that December. In March 2001, after a new waste transfer centre went into operation, the company started serving other municipalities as well.

In late 2003, the Commission challenged the waste management contract at the European Court, claiming it should have been openly bid. The Austrian government countered that the waste operator was an 'in-house' operation under its control so fell outside European public procurement law. But the Commission successfully argued that such an exclusion should apply only when the contracting authority had unlimited control over the in-house operation. Even a minority holding by a private investor would require a contract award to comply with EU law, it asserted.

The Commission calls the Mödling type of arrangement an institutional public private

partnership (IPPP). Such contracts, along with more familiar concessions, are among the procurement approaches that appear to be causing much confusion throughout the EU. And that worries European Commissioner for Internal Market and Services Charlie McGreevy. 'Improved public procurement practices and procedures and more effective and timely enforcement of existing rules are... going to have a major role to play... in terms of contributing to the resolution of public sector financing problems that will inevitably become more acute,' hopes McGreevy.

While broad principles of equity and transparency enshrined in the EU Treaty apply to the procurement of concessions and similar arrangements, no detailed laws of the sort covering more conventional contracts apply.

'Improved public procurement practices and procedures and more effective and timely enforcement of existing rules are going to have a major role to play.'

Charlie McGreevy, European Commissioner for Internal Market and Services

'Under Community law,' notes the Commission, 'there is no specific legal system governing the many different possible forms of PPPs.' It adds: 'In certain cases, they can be subject to the detailed provisions of the Directives on public procurement. However, other cases and in particular certain 'concessions' are not covered.'

As a result, aggrieved bidders appear to face 'major difficulties... when disputing the legality of allegedly discriminatory award decisions before national courts on the basis of general EC Treaty principles,' notes McGreevy.

'In the absence of Community rules, some (states) have launched national legislative procedures,' adds McGreevy. 'The fact that this has simply added to the existing patchwork quilt of applicable rules is not particularly helpful in

terms of developing a coherent framework in the context of an integrated internal market in this area.'

Most respondents to a discussion Green Paper launched by the Commission in May 2004 to test the desire for more clarity in this area urged more legal certainty on rules governing the award of concessions. But they were divided on whether new legislation or simpler interpretative guidance would be best. Companies, in particular, believed that only EU-wide action could create legal certainty while avoiding diverse national laws, especially in central and eastern Europe.

The UK government's response to the Green Paper agreed that uncertainty impeded the growth of PPP. But it warned against rushing to further legislation.

'The Commission will need to consider whether the impact of

document would be quick but ineffective, it believes. 'In many cases, a lack of precision in the law can hardly be overcome by means of interpretation.'

On the advice against legislating, the Commission retorts: 'It is difficult to see why spelling out the rules applicable to the award of concessions would per se unduly limit the flexibility of contracting authorities when awarding service concessions.' Legislation would need to recognise the complicated nature of concessions and the need for negotiations, it adds.

Legislation would represent a 'qualitative leap in the protection of bidders in most of the member states, as concessions... would fall within the scope of the Community Directives... which provide for more effective and adequate remedies than the basic principles of jurisdictional protection developed by the European Court of Justice,' notes the Commission.

Future legislation would cover both works and service, clearly distinguishing between concessions and public procurement contracts. It would require prospective contracts to be advertised and would set objective, impartial selection rules. Problems stemming from the long duration of concessions and issues relating to projects for cross-border infrastructure might also be covered.

McGreevy says he will propose new legislation 'only when I am absolutely certain that this will be the best way to achieve our policy objectives. We will thus look more closely into the costs and benefits of such binding initiatives as well as alternative measures to address the problems at state'.

The other source of procurement puzzlement, institutionalised PPPs, will get lighter treatment.

At present 'it is too cosy an arrangement,' believes McGreevy. Green Paper respondents 'have signalled... that public authorities are reluctant to enter into innovative PPPs involving the establishment of mixed capital companies,

The cultural challenge of Northern Ireland's new customer service contract

Award of the new customer service contract for Northern Ireland coincides with a change in the way customers are charged. **LIS STEDMAN** looks at the challenge this represents.

One of the most interesting and challenging customer service contracts around has just been let – the Water Service in Northern Ireland has signed a contract with the Crystal Alliance, a consortium led by Xansa and which also includes Echo Managed Services and AMT-Sybex.

The task of the consortium is to provide a billing and contact handling service for the organisation, which is an executive agency of the Department for Regional Development in the province.

The seven-year, £70 million (\$122 million) contract will also eventually see the Alliance providing technical services to support the Water Service's field force as it manages and maintains the water and wastewater infrastructure.

The billing centre, when it is implemented in April 2007, will create 180 jobs locally. Protecting the customers is a set of performance targets designed to ensure that industry-leading standards of service are achieved.

The Water Service took legal advice via a joint team from legal services organisation DLA Piper Rudnick Gray Cary and local Belfast law firm Carson McDowell. The deal was brokered by Stewart James, a partner from DLA Piper's Technology, Media and Communications group.

This move, radical for the Water Service, has been taken because of the decision to separate water charges out from the Northern Ireland equivalent of Council Tax. Mr James notes: 'One of the concerns is that it could look like an additional tax. The whole water reform programme is quite complicated and includes

developing secondary legislation to establish the Water Service as a separate company.'

As a government company, similar, for example, to Ordnance Survey, the Water Service will still be a public body but, with the loosening of government reins, will have a greater incentive to promote efficiency and to establish optimum ways to fulfil its

'Northern Ireland has more customers at or near the poverty threshold than the rest of the UK. Because of this there are safeguards built into the system.'

Stewart James, DLA Piper

programmes. The new customer services contract fits nicely with the new approach.

In the end there may be a number of different methods of contact, Mr James explains. 'If someone has a question they will have a number to call, email, possibly a walk-in centre, and we are setting up a direct debit payment system and a way of paying online. One of the innovations being brought in is the introduction of new methods by which the Agency can interact with its customer base.'

Technical services company Xansa is the lead partner of the Alliance, providing front-end services and, as the primary contractor, it has the direct relationship with the Water Service. Echo will provide the billing, contact handling and debt collection side and AMT-Sybex, a utility-focused consultancy and systems integrator, will provide the mobile workforce solution.

The later workforce element of the contract will enable field workers to act much more effectively by reducing the

amount of time they spend in depots collecting worksheets – their daily tasks will be sent to them via PDAs (personal digital assistants), laptops or mobiles over a secure communications network.

The contract sounds interesting, and will undoubtedly also be challenging; there have been similar doubts, voiced in the press, about water privatisation as there

have been in Scotland. The distrust runs deep, and it remains to be seen how the public view this new, private arm of their public service and indeed the notion of separating out their water bills as an identifiable item. There is also the added pressure of living next door to the Republic of Ireland, whose water is ostensibly free (albeit paid for within the rates), so the reaction is uncertain.

Mr James says: 'One of the

interesting factors is the creation effectively of a new industry within the province. What will the reaction be? There is an element of risk that had to be built into the contract. One of the steps was to identify the risk profile and provide a workable solution to that.' The detail of this is, predictably, confidential.

The initial £70 million (\$122 million) value of the contract will probably increase over its duration, Mr James adds, as some of the additional requirements kick in. The contract is now in a development and implementation phase. Although separate rates will appear on 1 April 2007, he says that there is a recognition that as a new service 'you can't just hit people, so they will come in on a sliding scale over three years.'

Mr James notes: 'Another factor that had to be built in was the need to recognise that some sectors of the customer base have financial issues. Northern Ireland has more customers at or near the poverty threshold than the rest of the UK. Because of this there are safeguards built into the system.' ●

Northern Ireland's Water Service

The Water Service provides water and sewerage services to over 730,000 domestic, agricultural, commercial and business customers throughout Northern Ireland, with an annual budget before capital charges of £302 million (\$524 million) and fixed assets of £4.9 billion (\$8.5 billion). Each day it supplies 710 million litres of drinking water to customers.

Around 83% of households are served by the public sewerage system. The Water Service collects, treats and disposes of around 134Mm³ of wastewater each year. In addition, it provides a desludging service for over 59,000 private septic tanks. The Water Service employs around 1900 staff in total.

To protect public health, meet European standards on water quality and respond to increasing demand sustained investment in water and sewerage infrastructure it is estimated that a £3 billion (\$5.2 billion) spend will be required over the next 20 years. Over the next three years Water Service plans to spend £590 million (\$1024 million) on the first tranche of this expenditure.

in order to avoid the risk of (being) non-compliant with EC law later on,' he adds.

According to the Commission's consultation, public sector respondents, including governments, would prefer a wider definition of 'in-house' to avoid

problems of the sort faced by Mödling municipality.

But the Commission believes there is no 'compelling evidence at present to suggest that the quality of public services could be improved or prices be reduced, if private undertakings – via IPPPs –

obtain public service missions without a preceding competitive award procedure'.

While IPPPs are still new to most EU countries, according to the Commission, interpretative guidance, rather than new laws, would provide necessary clarity

'without stifling innovation'. In addition, it says, 'quick response to perceived uncertainties appears to be particularly important as regards IPPPs.'

Commission decisions on both concessions and IPPPs are expected this year. ●

Funding shift to support European cohesion

Water and wastewater developments will be major beneficiaries of huge transfers of cash to the European Union's poorest countries as a new regime of regional funding takes root, reports **PETER REINA**.

In December's ill-tempered negotiations on the European Union's next budget, controversially large farming subsidies emerged as the prime source of dissent and public interest. More arcane discussions on regional funding involving similarly vast sums went largely unreported, though their potential for European environmental infrastructure will be profound.

The regional funds represent major transfers of money from richer to poorer nations aiming, eventually, to equalise economics and social conditions throughout the Union. By adding ten relatively poor states to the 15 more affluent incumbents, the 2004 Union enlargement skewed the funding from the Mediterranean and Atlantic fringes further east.

Economic and social development, in the context of intensifying global competition, underlies the purpose of the regional funds. But environmental infrastructure, particularly relating to water and wastewater, is seen as an essential prerequisite of the 12-year old Cohesion Fund. That grant fund allows governments to make heavy infrastructure investments, while containing budget deficits in line with EU monetary policy.

EU infrastructure funding for central and eastern European countries has been 'incredibly significant', says Richard Moul, a director for water sector business in the region at the UK-based consultancy Mott MacDonald. His firm's growing business in eastern Europe is underpinned largely by EU grants to its client organisations, along with loans from the World Bank, the European Investment Bank and others, he adds.

Underlining the growing significance of the Cohesion Fund, the European Commission this December made its largest award for 2005, and to the water sector. Worth €248 million, it will help fund a €405 million water and wastewater project in the Polish capital, Warsaw. EU grants amounting to nearly €3 billion have been approved for 100 Polish infrastructure investments in

2004-2006, with nearly half the funding going on 71 environmental, mostly water-related projects. Cohesion Fund money is also partially financing a €250 million Hungarian wastewater plant at Csepel, due for completion in 2010.

Started in 1994, the Cohesion Fund finances up to 85% of major environmental and transport infrastructure project costs. Investments are generally divided roughly equally between the two sectors, supporting projects costing at least €10 million.

Countries with per capita gross national products of up to 90% of the EU average qualify for the Fund. Initially, only Greece, Portugal and Spain qualified for the Fund, along with Ireland until it became, in 2004, too affluent to qualify. That was also the year when the Fund exploded in

of the 2004 allocation was carried over to last year.

While Poland and the other new members anticipate substantial new infrastructure, the EU's older states stand to lose out. Spain, for example, had warned that the inclusion of the new members would reduce the funding eligibility level, excluding six of its 12 regions, notes José Ignacio Torreblanca, a senior analyst at the Elcano Royal Institute, Madrid. There were also fears that Spain would no longer qualify for Cohesion Funding. In the end, the government secured access to until 2013, anticipating receipts of €3.25 billion plus other support, he adds.

For the period 2000-2006, the Fund amounts to some €28 billion (2004 prices). Over €19.7 billion was allocated to Greece, Portugal and Spain, and to Ireland

covers 124 million people, or 27.3% of the EU's population, in 86 regions.

This convergence objective supports those regions, not nations, with per capita gross domestic product (GDP) under 75% of the average for the enlarged EU. While the European Regional Development Fund (ERDF) has a broader remit than the Cohesion Fund, it too supports basic infrastructure. However, because ERDF requires projects to be completed within two years, its scope for infrastructure is limited.

The Commission adopted the proposed new approach in early 2004, proposing just over €336 billion for all regional funding in 2007-2013. The European Parliament and nine of the then 15 member governments broadly approved the plan. But at the bruising summit last December, under the UK presidency, the EU total budget was trimmed with regional funding falling to €307.6 billion, or 0.37% of EU gross national income for the period.

Now, around €252 billion is proposed for the Convergence Objective. Nearly 60% is aimed at the poorest regions through the ERDF. The Cohesion Fund is allocated just over €60 billion. And around €12 billion will be transition support for those countries no longer qualifying for full convergence funding, who would have done so if not for EU enlargement.

That the European Parliament rejected the December European Council budget settlement was 'entirely expected', according to the UK government. 'It was always extremely unlikely that the Parliament would accept the (Council of Ministers) budget settlement without any alteration.'

Final agreement by governments, the European Parliament and the Commission is expected this April or May, forecasts Ana-Paula Laissy, the Commission's regional policy spokeswoman. After that the various regulations covering the new fund must be agreed possibly this June or July, allowing for all final arrangements to be made before the year's end, when the current regime expires. ●

Whether the governments will be able to spend newly available funding efficiently remains to be seen.

significance as ten relatively poor, mainly former Communist nations, joined the EU. Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia all have gaping infrastructure needs.

New EU members had received grants for the Commission though the pre-accession ISPA facility. But the Cohesion Fund roughly trebles money available to them, making a proportionally larger impact than on the original four recipients. While the fund accounted for under a fifth of Ireland's receipts from the EU in 1994-1999, for example, the share for new members is over a third.

Whether the governments will be able to spend newly available funding efficiently remains to be seen. Initially, grant recipients were unable to absorb available funds, so that by the end of 2000 a sum equivalent to 120% of the previous year's total allocation remained unused. With measures including limits on the freedom to make plan modifications, the Commission cut the corresponding under-spend by two thirds by the end of 2003. Only a fraction

up to 2004. The remaining €8.5 billion was earmarked for the ten new members, with Poland getting nearly half. Fund resources available in 2004 to Portugal, Spain and Greece amounted to €2.7 billion (1999 prices) and €2.9 billion for the ten new states.

For the next budget period, the EU will modify the structure of regional funding, change the main objectives and spread money more widely. The Cohesion Fund's eligibility criteria will remain, but the new regime will move away from piecemeal funding to programme-based support. However, environmental projects costing over €25 million will still need Commission approval.

Amid reforms planned to take effect this year is a redefinition of regional funding aims. The three current priority objectives are support for regions lagging behind in development, for those undergoing economic and social conversion, and for training and employment promotion. Of the new objectives, the one with greatest bearing on the water sector is convergence, covering investments to help poorer regions catch up. Convergence

Emulating success in Cambodia: lessons from Phnom Penh

The transformation that has taken place in the Cambodian capital Phnom Penh provides an example of how a public developing country utility can reform itself.

ERIC VAN ZANT spoke with its general director **EK SONN CHAN**, who is credited for this success, about how the utility could help raise standards throughout the country.

After a stunning, 12-year transformation of a leaky post-colonial water supply system, the Phnom Penh Water Supply Authority (PPWSA) is fast approaching its goal to supply all urban and suburban areas in the million-strong city. It is now looking toward new challenges, including the improvement of sanitation and how to spread its expertise to areas of Cambodia even less well endowed with resources than the capital was in the early 1990s.

Fortune favored the PPWSA as it set out to restore and expand the city's war-torn and neglected services with little more than a will for change. The inefficient and corruption-ridden body faced a system little changed since 1895, supplying just 20% of the city's residents and leaking cash as revenues from inadequate tariffs, sapped further by illegal connections, fell far short of costs. Yet by 2005, it had plugged the holes: the system delivered affordable and clean drinking water to 100% of Phnom Penh's inner city and was working through suburban areas at about 120km of piping a year, funded by a sound balance sheet and backed by a solid tariff structure.

'Our supply network now extends 1300km from just 280km in 1994. We cover 100% of the inner city area and about 60% of Phnom Penh suburban areas and some districts of other provinces bordering the city,' says Ek Sonn Chan, general director of the authority since 1993.

Practical steps are now being taken, he says, to apply hard-won experience to other areas of the country, including talk of bringing other utilities temporarily under PPWSA authority. The PPWSA also recently provided an advisory service to nearby Siem Reap.

Observers credit several factors for Phnom Penh's success, some of which may be difficult to repeat. 'Number one was the agreement with the government to make the PPWSA an autonomous body. It was one of our loan covenants,' says Xiaoyan Ye,

principal project specialist with the Asian Development Bank's Mekong Department.

In 1996, ADB loaned Cambodia \$20 million, part of a project totalling just under \$36 million, to help the capital restore water supply and drainage in Phnom Penh City.

Without this autonomy the effort would have had to go through the ministries and it could have taken another five to ten years to push through the necessary changes to improve the city's water supply.

A second important factor was the decision to move quickly on a tariff increase, closing a financing-gap for the cash-starved water utility and allowing it to provide the city's poor with more reliable, cleaner and ultimately less expensive water than the many water vendors or resellers supplying the slum areas.

'The tariff was a big issue in the early years of our development,' agrees Mr Ek Sonn Chan. Indeed, he says it remains an issue, although the authority has kept tariffs stable by concentrating on reducing non-revenue water.

Mr Ye echoes a common sentiment crediting Ek Sonn Chan's uncommon leadership for the PPWSA's success. 'It just so happened that he was there at the right time.'

According to ADB, when Mr Ek Sonn Chan joined as director in 1993 only 20% of Phnom Penh residents had access to PPWSA water. Only 0.7 billion riels income was generated, well short of operating costs at 1.4 billion riels. Staff were under-qualified, underpaid and unmotivated. Illegal connections in that year alone were about 300, most installed by PPWSA staff at \$1000 each.

Ek Sonn Chan recruited a young and motivated staff (a big early challenge) and set up an open environment encouraging them to question management and to report errors and problems, going against the grain of a Cambodian culture that shies away from open criticism under a hierarchical structure.

He gained public involvement

through reporting of leaks within the system. And when it came time to raise tariffs and legalise connections, he and staff negotiated closely with representatives in poor communities. Planners had scheduled three increases,



Phnom Penh's water supply

'PPWSA, under inspired and disciplined leadership, is one of the better run utilities in the Asian region. Attention needs to be given to expanding the service area and service coverage density without sacrificing the quality of service (24-hour supply) or unnecessarily increasing the price of water. This example shows that poor people can and will pay for good water service.'

Author comment, 'Asian water supplies – reaching the urban poor', Arthur C McIntosh.

Production and distribution

Population*:	981,805 (2001)
Annual production	37,763,647 m ³
Groundwater	Nil
Surface Water	100%
Annual consumption	
Domestic	16,988,665 m ³
Non-domestic	10,867,034 m ³
Total	27,855,699 m ³

Service connections

Domestic**	64,035
Nondomestic	10,910
Total	74,945

Service indicators

Service coverage	84%
24-hour water availability	100%
Per capita consumption	104 l/c/d
Average tariff	US\$0.244/m ³

Efficiency indicators

Nonrevenue water	26%
Unit production cost	US\$0.082/m ³
Working ratio	0.46
Staff/1000 connections	5.4
Revenue collection efficiency	99.6%

* The population in the service area is 532,130.

** The average number of persons per connection in 2001 was 7. The increase in total connections in 2001 was 7,929.

Source: Asian water supplies – reaching the urban poor. Arthur C McIntosh. 2003. ISBN: 971 561 380 2. Available at: www.adb.org/Documents/Books/Asian_Water_Supplies/default.asp

but after the second in 2001, PPWSA found that its revenue already covered supply costs because of a higher collection ratio, the drop in illegal connections, and reduction of unaccounted-for water, according to ADB. Illegal connections are down to less than 20%.

The way forward

Throughout the Cambodian provinces, urban water utilities are starved of the experience PPWSA now represents. Discussions are underway to determine how to best proceed under what can only be described now as a political environment more complicated than the one in the early 1990s.

Many observers say the best way forward would be to temporarily bring other utilities under the PPWSA's authority, with clear plans for future autonomy, such that its culture and systems can be passed on. However, this faces resistance, not least from the big development agencies, where the agenda still favors privatisation as the best solution for the region.

Ek Sonn Chan has his own preferences: 'To my own thought, I prefer to directly 100% control those water works – one by one for a certain time, probably three to five years – then release them to be autonomous.' Doing so, he argued, would 'actualise' PPWSA experience without working in the long-term against the government's decentralisation policy. 'I am quite sure this idea is realistic.'

Aside from advisory services to the Siem Reap Water Supply Authority, which was just renovated under grant aid of Japan, the PPWSA also shared its experience in a recent first meeting that gathered water supply authorities from around the country. But he adds: 'I don't think that's going to help much.'

There are also discussions now, he says, about creating a Cambodian Water Work Association with PPWSA as its core, providing advisory services as well as contract services on specific issues, and contract management with PPWSA.

One way to proceed would be to pick one or two provinces and do an experiment – do the same thing as was done in Phnom Penh, says Mr Ye. Another would be to have provincial staff come in to Phnom Penh for training, which at least could give them the skills and dedication to take back to their provinces. Similarly, PPWSA staff could be seconded to the provinces temporarily.

The next big challenge is in sanitation. It was difficult to get people to pay for what they use, says Ek Sonn Chan. It is altogether another thing to get people to pay for their waste. ●

Are utility attitudes to the environment shaped by corporate governance? Assessing the evidence from Australian utility reports

Like much of the rest of the world, Australia is currently adapting its policies, legislation and resource management practices to achieve more environmentally-sustainable water usage. But does the extent to which water utilities implement appropriate measures depend upon their corporate governance? **ADAM GRAY** and **JENNIFER McKAY** describe ongoing research of utility reports to assess this.

Australia's Centre for Comparative Water Policies and Laws (CCWP&L) is currently undertaking research on behalf of the Cooperative Research Centre for Irrigation Futures (CRC-IF) on whether a water supply business' environmentally-sustainable development (ESD) agenda is impacted by the specific types of governance that they are formed under. In other words, is the business structure of a water utility likely to help or hinder a utility's pursuit of environmentally sustainable water management practices?

This feature looks at the current state of the Australian water industry and the governance structures or types in current use, and then illustrates the ESD priorities through analysis of the content of top management reports from nearly two thirds of the water supply businesses (WSBs) in the country.

The Australian context

The usual challenges faced in water resource management are somewhat exacerbated in Australia by three factors. Firstly, as is commonly noted, Australia is the driest populated continent in the world. Most of the country is arid or semi-arid. There

simply is not a lot of water available.

Secondly, Australia's economy is currently – and has traditionally been – heavily geared towards primary industry. A significant percentage of Australia's annual export is in water-consuming agricultural products such as beef, wool, wheat, and so on.

Thirdly, when Australia federated in 1901, Section 100 of the constitution vested all water resource management powers within the individual states and territories. This has led to each state and territory pursuing its own parochial agenda in terms of water legislation and policies. This in turn has resulted in a highly-fragmented water industry.

In the early 1990s, with much of the country enduring severe drought conditions, the federal government used the Council of Australian Governments (CoAG – a framework for regular meetings between the federal government and each state and territorial government to examine and coordinate on issues of national significance) to begin fostering a national approach to water resource management. Ultimately this led to the adoption of the National Water Initiative (NWI) in 2004 (McKay, 2005; for more information see www.pmc.gov.au/nwi/index.cfm).

In August 2003, Australia's deputy prime minister stated in the introduction to the NWI that 'Australians use 250,000 litres per year, which is about 30% higher than the OECD average' (Anderson MP 29 August 2004). He went on to say that when it is finished: '...the NWI will affect every single Australian household... Our lives depend on a staggering amount of water, so it is crucially important to each Australian who eats steak that costs 50,000 litres per kilo or drinks fruit juice that costs 780 litres per litre of juice.'

As mentioned above, many of the issues faced by Australia's water industry today are a legacy of federation and Section 100 of the Australian constitution. Section 100 states that 'the Commonwealth shall not, by any law or regulation of trade or commerce, abridge the right of a state or of the residents therein to the reasonable use of the waters of rivers for conservation or irrigation.'

Section 100 was inserted because New South Wales, Victoria and South Australia feared that Commonwealth laws under another section, 51, might affect their common interest in water for irrigation. (Crawford 1991). Section 100 arose out of the two-fold importance of rivers for navigation and reservoirs for irrigation storage. The object of this section was to limit the supremacy of navigation insofar as this would limit the reasonable use of water by the states.

However, by enshrining state autonomy in water resource management, the clause has brought about little national coordination or standardisation within the industry. This has led to very different policies and practices across the country.

The states' parochialism and autonomy in water legislation lasted until 1994, when the CoAG created national-level policies and funded the states to implement them by incentive payments defined under section 96 of the federal constitution. In addition, the national government has increased its powers to directly intervene, with new powers under the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC) which gives the Commonwealth power over environmental matters of national significance.

The Commonwealth also increased the power to regulate Corporations Law companies and state-owned enterprises under the Corporation power enshrined in section 52. (Moeller and McKay, 2000). Finally, the Act's external affairs powers can be used to implement treaties with environmental outcomes.

The CoAG reforms required institu-

tional separation of the old public sector providers into water service providers, pricing regulators and environmental managers. The reforms also required full cost recovery from all water sectors – that is, both rural and urban – with separation of water property rights from land titles, and a comprehensive system of entitlements reflecting volume, security and quality.

One overriding obligation of the reforms was to achieve sustainable management processes. Some commentators observed that the CoAG water resources policy imposed two competing objectives: resource security for end users and public interest goals of environmental management.

The CoAG reforms were funded by financial incentives to the states of Aus\$16 billion (\$12 billion) (McKay, 2002). The CoAG requirements outlined in the policy statements were predicated on the view that separate bodies would promote more transparency, reduce conflicts of interest and promote accountability. However, some commentators have speculated that the separation has increased institutional barriers, reduced communication and increased costs (Productivity Commission, 2003). The micro-economic reform agenda commits all governments to:

- universal application of pro-competition laws
- the creation of independent regulators to regulate the pricing of services from state monopolies
- structural reform of government to facilitate competition and the review of any legislation that restricts competition.

Evaluating Australia's fragmented industry

When the CoAG reforms were adopted, the water sector in Australia was highly fragmented with over 800 suppliers (Broughton 1999). It is still regarded as highly-fragmented (Productivity Commission 2003) and diverse, with in excess of 300 businesses.

Research carried out by the Centre for Comparative Water Policies and Laws has identified approximately 333 authorities or agencies that sell and distribute water as of December 2005. (see Table 1)

When evaluating a WSBs governance type, the objective is to identify what its legal structure is. For example, while a single individual might own a corner store, it might also be owned by a family trust, a corporation, or any one of a number of possible scenarios. A similar variation in governance structure can be found within Australian water supply businesses.

Once types have been confirmed,

patterns can be identified and trends that are associated with being formed under a specific governance type can be illustrated. The first task has been to identify the WSBs in each state and territory. This has meant identifying and merging lists obtained from various sources, including the local governments of each state, numerous state and federal departments, irrigators' councils and authorities, various water associations, and several dozen state-owned and private bulk water supply service providers. The next stage was to identify which Governance Typologies existed within Australia. This involved an examination of Annual Reports, State and Federal Legislation, and a review of available benchmarking literature from Australia, Europe, and the United Nations. Through this process, 20 corporate governance types were identified within the Australian water industry (see box).

Each of these types is formed under a different legislative framework. They have different requirements in a number of areas, including public reporting, obligations to shareholders, owners and stake holders, and so on. This process illustrated another key factor in the shaping of ESD priority, and that is whether the WSB has multiple missions or is largely a single-mission business.

Three main categories of mission breadth have been determined. They are:

- Multi mission: indicates that the WSB has multiple areas of activity, such as water and roads and rubbish removal, etc. Generally these WSBs are local government authorities of one kind or another.

Corporate governance types identified within the Australian water industry

- local government authorities
- shire councils
- town councils
- city councils
- island councils
- aboriginal councils
- joint local government organisations
- local government-owned corporations
- water boards
- rural water boards,
- rural drainage boards
- government departments
- government-owned corporations
- statutory bodies
- private entities
- Corporations Law companies
- revised corporations
- irrigation trusts
- customer councils
- self-managed trusts

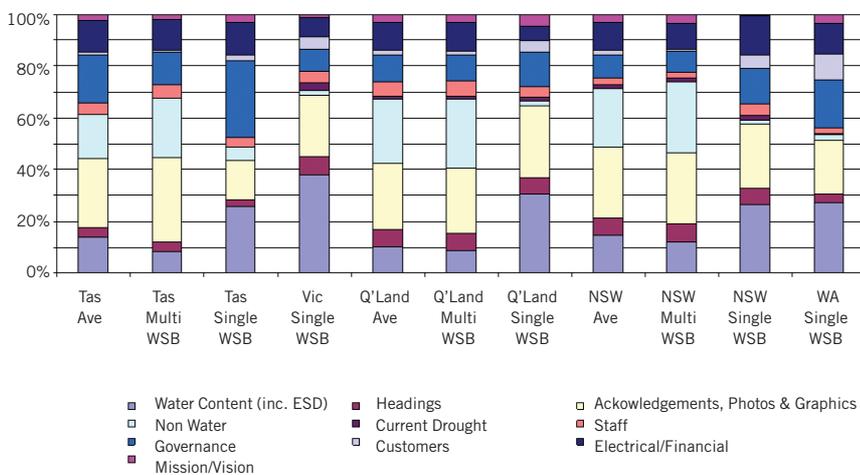
Table 1 - Australian water supply businesses and governance types.

State	Population	Area	WSBs	Governance types	Mission breadth
Australian Capital Territory	314,171	2,358	1	1	Dual mission
New South Wales	6,532,459	800,628	145	16	Multiple mission
Northern Territory	197,590	1,335,742	1	1	Dual mission
Queensland	3,627,816	1,723,936	133	16	Multiple mission
South Australia	1,502,397	978,810	7	5	Single mission
Tasmania	470,272	64,519	14	5	Multiple & Single
Victoria	4,828,968	227,010	24	4	Single mission
Western Australia	1,909,751	2,526,786	8	6	Single mission
Australia	19,383,424	7,659,861	333	20	

- staff
- governance
- customers
- elections/profits
- mission/vision

To carry out content analysis on the selected WSBs, annual reports were obtained and the introductions, highlights, mayoral report, CEO’s report and managing director’s reports from within the annual reports were examined. The TMRs were printed on A4 paper which measures 21.0cm by 29.7cm. This means that each page has

National Summary of Content Analysis



- Key (top to bottom)**
- Mission / Vision
 - Electrical / Financial
 - Customers
 - Governance
 - Staff
 - Current drought
 - Non-water
 - Acknowledgements / photos / graphics
 - Headings
 - Water content (including ESD)

- Dual mission: indicates that the WSB has two areas of activity. In most instances within the Australian water sector, this mission breadth occurs within utilities that provide water and power services.
- Single mission: indicates that the WSB has just one area of activity. For example, a local government in Queensland has a number of responsibilities and objectives ranging from the old cliché of ‘roads, rates, and rubbish’ to provision of childcare, supplementary health services, and so on. By contrast, a rural water authority in Victoria has really only one business – water.

Assessing the content of management reports

The next stage of the research was to submit the top management reports of identified WSBs to content analysis to identify agenda priorities. Content analysis is a well known technique and has been applied to the annual reports of arts organisations in Australia (Rentschler and Guersen, 1999). Content analysis is a way of determining management emphasis, priorities, or changes in corporate objectives.

The underlying assumption is that

senior management will express what they perceive to be positive, compelling and laudable in the reports that are written for their businesses’ stakeholders and shareholders. As such, it is possible to determine what their priorities are in their management of their company. Content analysis is carried out manually by measuring (in centimetres) the amount of space dedicated to specified subjects. After using content analysis, the researchers are able to present an assessment of the document in terms of the percentage of document pertaining to a specified topic. For example: ‘1.3% of this document concerned non-water related infrastructure maintenance’.

A total of 62 distinct subjects were defined, with these falling into 10 main categories. These categories are used within the research to provide ‘generalised’ snapshots of a WSBs attitudes and focus. The 10 categories used are:

- water content (including ESD)
- headings
- acknowledgements and photos of CEO
- non-water
- current drought
- ESD

a total area of 623.7cm². All graphics and text were measured to find the area of their ‘footprint’. Measurement was carried out by hand with a transparent grid overlay with each square being 0.5cm by 0.5cm.

A tally of the total space for each of the 62 subjects was then kept as the document was assessed. After the assessment was completed, the total for each category was determined. The data was entered into an Excel spreadsheet and percentages of TMR were calculated.

Results

As the research is still in progress, it would be too soon to draw conclusions at this time. Nevertheless, the preliminary results are intriguing (see graphic).

As one would expect, it does appear that WSBs with a single mission or dual missions are more likely to address ESD and water than multi-mission WSBs. There may also be a correlation between the level of fragmentation of the water industry within a given state and the likelihood of ESD attention and adherence to the NWI.

The research is progressing well. It is anticipated that with the data gathered the CCWP&L will be able to examine whether issues of business size, customer base, customer type (rural, urban, irrigator, residential, and so on), staffing levels, region, type of ownership and even water source have any impact on a WSB’s tendency to adhere to ESD and the NWI. ●

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What gets measured gets done: applying a seven-step methodology in Columbus, Georgia

The Columbus Water Works is using a new seven-step performance measurement methodology to set and achieve strategic goals. **TERRANCE BRUECK** and **BILLIE G TURNER** look at the approach and how it has been applied.

'It is not enough to do your best; you must know what to do and then do your best.'

W Edwards Deming

What gets measured gets done, especially when we know what to do. When human beings are involved, measuring performance is a proven method of improving outcomes. Most forward-thinking utility managers recognise the value of implementing a sound performance measurement programme. The difficult part is determining what exactly to measure.

To provide some answers, a joint Water Environment Research Foundation/AWWA Research Foundation (WERF/AwwaRF) research project, 'Developing and implementing a performance measurement system', was conducted and published in 2005. Utilities across North America participated in the research, sharing their own experi-

ences with performance measurement systems, and developing new frameworks that would serve as the standard for water and wastewater utilities.

Primary participants included the City of Phoenix Water Services (Arizona), Union Sanitary District (California), Seattle Public Utilities (Washington) and Central Contra Costa Sanitary District (California).

The purpose of this research was to provide methods and tools that would enable a water or wastewater utility to develop and implement a proven performance measurement system approach. The project included core research, demonstration pilots, and application of the pilot results and lessons learned to the final published process.

The end result is a seven-step methodology, based on a Balanced Scorecard (BSC) approach, to design and implement performance measures at both the enterprise (utility-wide) level and the team level. The means to align and coordinate measures throughout the organisation were defined for both levels, and recommendations were made for involvement, education, communication and commitment of utility participants for successful performance measurement.

This feature explores how utilities can develop an effective performance measurement system. It also examines the case of a mid-sized US utility that has implemented performance measurement as an integral part of its strategic planning. These lessons learned, in both research and practical use, can be applied anywhere in the world where utilities desire to improve performance.

Columbus Water Works

Columbus Water Works (CWW), 170km south west of Atlanta, Georgia,



Fig 1 The strategic framework

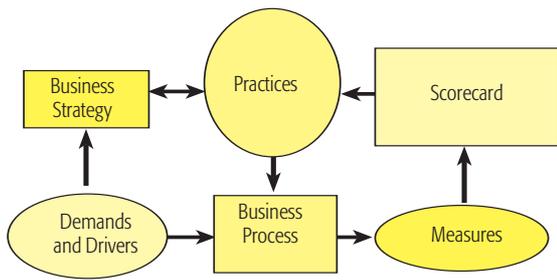


Fig 2 A successful performance

provides services to nearly 250,000 people. This public utility has a history of effectively planning for its future needs and the needs of its customers.

CWW has recently completed a comprehensive update of its strategic plan and facility master plans. This encompasses a number of areas including information technology, asset management, biosolids and security improvements. CWW has pursued the ongoing challenge of communications, tracking, linking and aligning business strategies and goals with operational budgets and daily activities.

Most utilities recognise the importance of strategic planning, but less undertake it in a comprehensive fashion. Of course, it is possible to make incremental improvements without a strategic plan. In Columbus, however, utility leaders were determined to take full advantage of opportunities for significant change. They embarked on a strategic journey, conducting a comprehensive, one-year strategic planning process that was complemented by in-depth planning in several focused areas. The process involved a cross-section of utility personnel as well as outside expertise.

Columbus used the 'scan, plan, do' approach to strategic planning that was developed in an AwwaRF project, 'Strategic planning and organisational development for water utilities,' in which CWW participated. The strategic framework for this approach (Figure 1) includes the process for strategy development and addresses organisational needs such as developing new skills, leadership, dealing with difficult issues, adapting to uncertainty, handling emerging goals, and managing communications.

Successful Performance Measurement

Much like the strategic planning process, it takes concentrated effort and organisational leadership to design and implement an effective performance measurement system. Do it well and the process will enable the utility to achieve new levels of performance in terms of efficiency, quality, and

effectiveness.

The desire for change is driven by multiple forces that impact upon the organisation. External demands – competition, regulatory requirements, or customer expectations, for example – can be the primary motivator. Or the need for change can be driven internally by the utility leadership's desire to improve performance. Either way, performance improvement requires performance measurement.

A successful performance measurement system combines a holistic approach that is built around improved business practices and effective human/organisational strategies, in addition to performance measures for operational decision-making. It enables an organisation to establish a baseline for current practices, set targets for change and drive improvement.

The concept of a continuous improvement cycle emerged from the work of W Edwards Deming and was first applied in Japan in the 1950s. Deming demonstrated that an understanding of the relationship between measurement and process is fundamental to improvement.

The term 'system' is often used to denote the information technology that automates data collection, data manipulation, and the recording and presenting of measurement results. For performance measurement to be successful, the system must also include processes, procedures, communication, education, and supporting tools. All of the steps, from defining a utility's strategic plan to day-to-day use of performance measures, are part of the system.

As illustrated in Figure 2, the components of a performance measurement system are centred on the business process and associated work practices that deliver the product or service to customers.

To make performance measurement more clearly understood, a framework was developed around a modified form of the Balanced Scorecard (BSC). The BSC framework is based on the understanding that an organisation's continu-

ing success relies on more than just financial factors. Its balanced view also considers the customer, internal business processes, and learning and growth.

With the framework in place, it is fundamentally important to select the right type of performance measures. Some measures record input on what was done (cost, effort, number of work orders, or other activity), while other measures indicate results (amount of wastewater treated per dollar spent, percent of treated wastewater meeting effluent quality standards). A good measure should be easy to understand but difficult to falsify. A scorecard should be balanced on measures of efficiency, quality, and effectiveness at both the enterprise level and the process or initiative level.

Columbus asks its customers

In Columbus, one of the most important performance measures is customer satisfaction with utility performance. CWW uses a customer satisfaction index to measure changes in customer perception. A baseline score was established via an initial survey of randomly-selected customers. The strategy team then used the baseline scores to identify benchmark numbers with data collected via monthly customer satisfaction surveys.

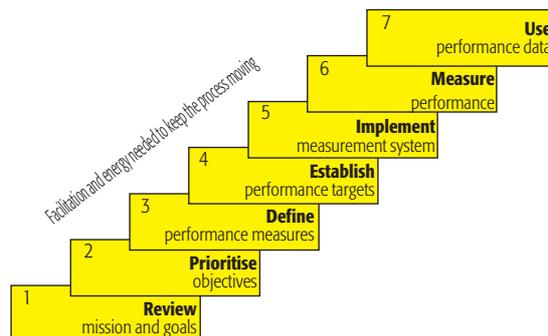
The utility has consistently enjoyed customer satisfaction scores nearing 90%, but surveys alone do not reveal where improvements can be made. The most effective way to learn what customers really think is to ask them.

Customer focus groups and stakeholder interviews were held to gather individual perspectives and opinions. The utility also acquired information on customers' perceived value of products and services from residential, business, and regulatory perspectives. Each focus group meeting brought together similar customers and was designed and facilitated to encourage input and discussion. One-on-one stakeholder interviews were conducted with various individuals recognised as having important community or business influence or impact on the utility's strategic direction.

Interviews were scheduled at the stakeholder's convenience and were designed to promote candid input. Between the two approaches, the utility was able to obtain valid stakeholder perceptions and identify several specific strategic opportunities that the stakeholders regarded as important.

The value of both customer surveys and focus groups cannot be overstated. Each represents an excellent opportunity to learn about changing customer perceptions and build stronger external relationships.

Fig 3 The seven-step process



Seven steps to success

The AwwaRF/WERF research project established a seven-step process (Figure 3) to serve as a guide to developing and implementing a performance measurement system. These seven steps are set out below.

Step 1: Review strategic plan

The first step in the process is to begin with the utility's vision and mission – assuming these exist. If not, the organisation should at least create a working version of the vision and mission before proceeding. This ensures that performance measures support accomplishment of the utility's strategic direction.

As illustrated in Figure 4, the business strategies that support the overall strategic direction can be tracked using an enterprise scorecard of performance measures. In addition, each of a utility's operational initiatives (these carry out the business strategies) can be measured by team-based scorecards. Process-based scorecards are linked to a business process framework that defines typical water/wastewater utility functions. Initiative-based scorecards are linked to an organisation's key or strategic initiatives or programmes, typically through the strategic planning process.

A utility needs to select the best approach (that is, initiative-based, process-based, or a hybrid approach) to rolling out the scorecards organisation-wide. Individuals or organisation units should identify and have responsibility for a set of measures that may come from multiple scorecards. This handful of individual or organisation unit measures must be clearly relevant to their work, and be aligned with the achievement of goals and objectives.

Step 2: Prioritise improvement needs

Step 2 involves prioritising areas for improvement and potential benefits (such as cost savings, improved quality and better service) if the performance measurement system is to serve a valid purpose. These priorities are typically defined using a competitiveness assessment, benchmarking process, or review programme such as the AWWA/WEF QualServe programme. This need for improvement provides the motivation to manage performance.

QualServe is a voluntary quality improvement programme that is focused on continuous improvement and customer satisfaction. It is specific to water and wastewater utilities and is jointly sponsored by AWWA and WEF. QualServe provides tools to improve performance for the purpose of assessment and benchmarking.

Benchmarking allows the organisation to compare itself with

others for the purpose of effecting change. The application of 'best' or 'leading' water and wastewater utility practices will improve performance. Using QualServe, utilities are able to identify areas for improvement and access the resources to implement changes best suited to the specific needs as dictated by their unique circumstances. High-level indicators provide a 'global' view, helping utilities compare themselves to other utilities in more than 20 areas of performance.

Quantifying the need for improvement is essential if the utility is going to select good measures and establish sound targets. This step may also change the goals and objectives defined in the previous step. It may even challenge the vision and mission.

Step 3: Define performance measures

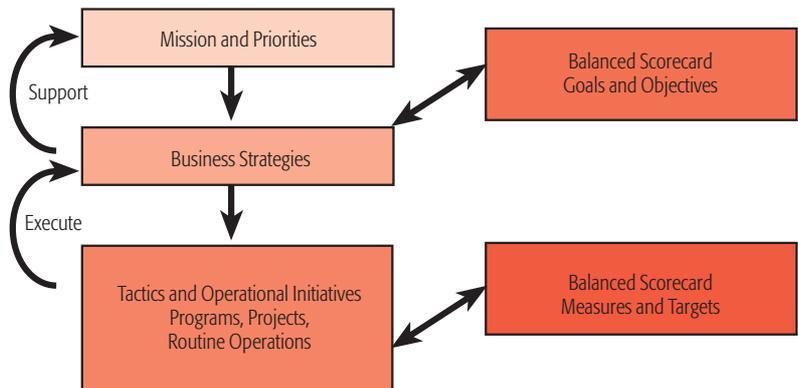
Performance measures, linked directly

- use data that is impossible to collect or more trouble than it's worth
- are measured only because they are easy to measure
- are poorly defined and inconsistent
- are 'out of my control' or not actionable

One of the most common mistakes made in the selection of measures is choosing too many. Just because you can measure something doesn't mean you should. If a process or outcome isn't based on the organisation's improvement priorities, then it should not be measured for the scorecard (even if it is being measured for other reasons, such as regulations).

Some measures may seem 'forced' or lack relevance. Others measure the individual more than the process. Some measures do not aggregate or roll up well. Others are impractical and take

Fig 4 Scorecards can measure and relate performance at the enterprise level as well as at a team-based level.



to priorities already established, also need to be defined. A list of business processes that contribute to the operational initiatives should be developed. Aligning business processes with initiatives will reveal performance targets and measures that deserve consideration. Specific measures should be identified for each priority goal and objective. The method and frequency of taking measurements also needs to be established and a responsible person or group assigned to gather and track measurements.

A good measure:

- drives performance improvements (desired behaviours)
- is actionable and relevant to work activities
- can be updated with regular frequency (data collection is possible)
- is clearly defined with targets (units, how measured, baseline or history)
- ties directly to goals and objectives
- is strategy and initiative-based or process-based (organisation or individual ownership follows)

Poor measures:

- have little impact on work activities
- are too complex to understand

too long to measure. Start with a few key 'good measures'.

Step 4: Establish improvement targets

Targets for improvement should be established based on the performance measures defined in step three. Target setting is sometimes obvious, particularly when goals and objectives have clearly desired outcomes. Targets need to be realistic and they need to fit with organisational goals. The performance assessment (completed in step two) will likely report the gap between current performance and an established standard or leading practice. Targets to close this gap should be specific, achievable, and have a set time frame.

Without an existing baseline of data – either utility-specific or general industry data – setting targets can be like shooting in the dark. Using QualServe performance indicators gives utilities valid statistical analysis of performance (by size, region, type of utility and so on), which sets the context for utility-specific targets. This is the approach taken in Columbus, where QualServe was considered a familiar, practical alternative.

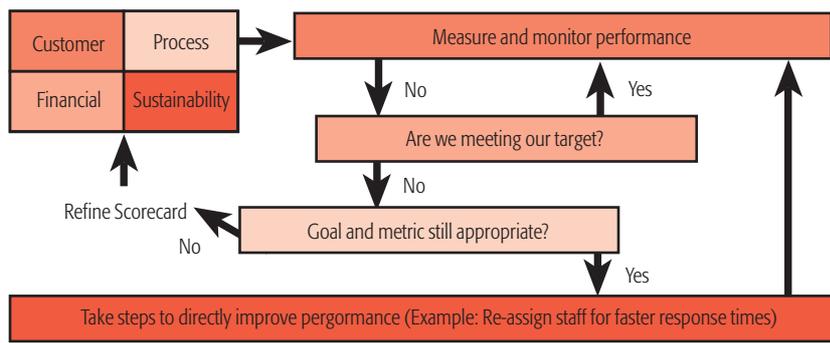


Fig 5 Scorecards need to be reviewed on a regular basis to take action and ensure the measures still make sense.

Step 5: Implement performance measurement

Implementing the performance measurement system means establishing data collection, recording, manipulation of data, and presentation of measurement results via periodic reporting or an online dashboard. New operating procedures or additional training might be required. Team members need to be selected and reporting methods/schedules established. Not all targets will be met, so processes for corrective action need to be set up. Team-based measures are the best approach for actions to affect results.

Automated performance measurement is preferred because it places less of a burden on employee time. The data that results must provide the information needed to adjust processes. Ideally, the system should consolidate and integrate data from a number of sources – work management system (WMS), SCADA, financial information system (FIS), customer information system (CIS), and so on.

Step 6: Measure and adjust

Once the performance measurement system is in place, adjustments will be required. It's inevitable. Are the measures the right measures? Are they well-defined for accuracy and future repetition? Are the targets realistic? Are processes in place to consistently gather the information? User feedback

can provide the answers.

It may be necessary to go back to steps three and four and refine the initial set of measures or targets. During the first measurement period, it will take more time and effort to gather the data than in subsequent periods. Group training and analysis can be helpful here to ensure employees understand the system, the need for accurate data, and the ultimate goal of performance improvement.

Step 7: Use performance measurement

Step seven puts the performance measurement system to work. Continuous improvement is an ongoing process that requires a long-term commitment. It is important to review, refine, and/or revise measures and targets at least once a year (Figure 5) to ensure they remain relevant.

Simply giving the data to employees is not enough. The next step is to provide training that will help them make the necessary process improvements. An ongoing education and communication programme is required throughout the organisation whenever a performance measurement system is in use.

A word of caution: Do not skip any of the seven steps. Completion of all seven is essential if the system is going to yield true performance improvement. The seven-step process for developing and implementing performance measurement systems was refined based on real-world experiences, using team-based implementations with several scorecard rollout options. It is now a proven system that works.

From planning to practice

Once its six major strategies had been identified, Columbus Water Works formed six employee teams to implement one strategy apiece. The utility management structure was also reorganized to provide support for and to facilitate implementation. By linking performance indicators to on-the-ground implementation tactics, each strategy team now has 'ownership' of several key measures.

Implementation of each business

strategy is now underway. Strategy goals and objectives are directly linked to performance measures. The utility reports monthly on 27 measures that show company-wide performance, enabling every employee to see the results of their own performance. Success is measurable and progress is tracked regularly. As the utility environment changes, teams will adjust their tactics and the scan process will be revisited annually to make changes in overall strategic direction.

In taking this path to plan for the future, the utility has charted a sound course. The key was using a flexible, dynamic, ongoing process. By including outside stakeholders in the planning process, the utility gleaned valuable perspective that ultimately made a significant impact on the organisation's future direction.

In identifying strategic measures and targets to measure progress, CWW staff seized the opportunity to measure the utility's performance against industry-wide data. Now CWW is utilising survey results for several performance indicators to modify measurement processes and help implement the strategic plan. Key steps include:

- setting the strategic direction
- looking for appropriate indicators to measure results
- using the indicators to measure progress and take appropriate action
- improving performance

Of course, making the shift to a measurement-based culture doesn't happen overnight. It takes time, enthusiasm, and commitment from the top. Leadership needs to be visible and employees have to be involved. Measures and results need to be reviewed frequently. Equally vital, is communication at multiple levels employing multiple methods. In the end, Columbus Water Works – or any other utility employing performance measurement – will know exactly how far it has come and how far it still has to go. ●

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Delivering on the debt dilemma

Without the ability to impose punitive measures on customers who don't pay their bills, water companies in England and Wales have been forced to take a fresh look at their debt recovery strategies. **LIS STEDMAN** reports.

Debt is an important issue for the water industry of England and Wales. The Water Act of 1999 made it illegal for water companies to disconnect their customers and the result has been soaring debt levels. By 2003, the industry was facing an annual non-recoverable debt of £164 million (\$288 million) – equivalent to 700,000 households not paying their bills out of the total of some 22 million.

The problem is that disconnection was a powerful tool, although it has to be pointed out that the industry fully supports the right to a continuous supply of water. Unfortunately other options such as pre-pay meters and flow reduction were also rejected by government and the courts so, as debt specialist TDX's CEO Mark Onyett points out: 'Advisors are saying to people that payment of their water bills should be their lowest priority, because the industry can't disconnect.' This is a truth the industry also acknowledges.

It does, however, recognise that the growing level of debt is related to affordability – the government's definition of water poverty is when charges account for more than 3% of total household income. Charges have risen considerably since privatisation to help the industry meet the demands of a number of stringent European directives. Whereas in some countries water charges are merged in with the overall rates or subsidised from other taxes, in England and Wales they directly reflect costs, both capital and operational.

One of the main problems is that household debt in Britain is the highest in Europe. According to the Church Poverty Action Group, one in four people sometimes struggle to make repayments on their debts. Recent figures show that outstanding charges have increased by around 17% since 1998/99, so debt represents a growing challenge.

The industry acknowledged the scale of the problem by staging a think-tank in May 2004, bringing together

'The industry as a whole has spent a lot of time developing new collection techniques – it has been a very hard road to go down.'

Julian Tranter, Thames Water

the companies, regulators, government and consumer groups to explore the issues and circumstances surrounding non-payment and identify possible workable solutions.

Applicants to Anglian Water's Trust Fund (see box) illustrate the scale of the problem: 8% have incomes of under £70 a week; 12% have less than £160 (\$280) a week and one or more children; average debt is £3000 (\$5270) to £4000 (\$7020); average water debt is £650 (\$1140). Figures from Severn Trent's Trust Fund bear these observations out as well as revealing that two thirds of applicants are totally dependent on benefits, many are single households and over half have some form of mental illness.

Solutions, therefore, are not easy to find. The water industry points out that there are 'clear tensions between the need to place a proper value on water to ensure it is not wasted and the need to ensure it is affordable to all'. There is much discussion within the industry about whether metering can provide a solution to the question of how to achieve effective demand management while enabling affordable and equitable access to water. This may be possible, the industry feels, if it is teamed with intelligent tariff arrangements that ensure disadvantaged customers have sufficient water for their needs at an affordable price.

Other issues such as communication were raised at the 2004 think-tank – economic regulator Ofwat pointed out that improving communication with those in debt was crucial as they were often very difficult customers to reach. This, the think tank noted, relates to a complex psychological aspect of non-payment – the stigma of debt and the social isolation of the very poor. Customers in debt often view it as their own fault and are reluctant to seek help, so they need sensitive, high-quality and probably face-to-face advice.

Research carried out by CreditScorer in 2003 suggested that the methods of debt recovery in the water industry were comparable with efforts made by other industries and measure very favourably against the energy sector. It segmented non-paying customers into three categories: 'why should I pay' customers, who are defiant or calculating debtors; poor money managers, who divide into unaware and denying debtors; and strugglers – distressed debtors and vulnerable people. The companies recognise their responsibilities for the latter two groups. It is the first group for which it has long looked to government to provide concrete action to help prevent, manage and recover debt.

In the meantime, companies are having to feel their own ways forward in what is a politically and socially-sensitive maze. Thames Water's actions are illustrative of the efforts being made. Julian Tranter, collecting agency relationship manager for Thames, says of the disconnection ban: 'At the time, I don't think a lot of the water industry knew how to react. The industry as a whole has spent a lot of time developing new collection techniques – it has been a very hard road to go down.'

The companies are solely reliant on the willingness of their customers to pay and the company's ability to contact them and persuade them to pay, he adds. 'The primary principle for

us is about knowing our customers, who are the types of customers that are not paying and their needs, issues and concerns. We start by looking at their payment history. It's about breaking up non-payers into different areas so we can make investment decisions.'

Thames begins with reminders and notices warning of the consequences of non-payment. Next it tries to call non-payers before their bills are due if they have a history of non-payment, and try to persuade and remind the most forgetful. For genuine strugglers, Thames is willing to write off a certain amount of debt if they are sure their customer has tried to make payments – they have to demonstrate a willingness to pay. Mr Tranter notes: 'People that are struggling for genuine reasons have got a variety of options. They can pay weekly to help manage their budgets, for instance.'

For the 'why should I pay' group, though, tougher action is needed. TDX, with its in-depth understanding of debt and debtors, was engaged in 2004 to help Thames enhance its strategies and take the company a step further. 'TDX has helped to shed a light on the situation and has helped us to get money,' Mr Tranter says. 'They try to maximise returns. They start with all of the data that Thames is able to provide on the debt and scorecard it – they cluster the data into similar types, create a segmented strategy and tailor their action to suit.'

TDX's experts segmented this uncollected debt, placing debt portfolios with the most appropriate debt collection agency for each debtor,

a strategy that has resulted in a greater return for Thames according to Mark Hover, the company's head of agency management.

Before TDX came on board in 2004, Thames had attempted to collect outstanding debt through its existing portfolio of debt collection agencies, with each receiving a random allocation of debt. This resulted in much of the debt remaining uncollected.

Thames had provided the agencies with little information on the personal circumstances of the debtors, so a uniform method of debt collection was used for each debt portfolio. Any debt not collected was rolled through to the next round of debt placement, which was costly and time-consuming.

TDX tailored the collection activity and segmented debt into eight different bands according to which collection techniques were required. Individual bands were then matched with the agency best suited to collecting the debt. TDX was also tasked with increasing the amount of debt collected first time around. The company also tracked and analysed any historical debt from the first placement and ensured that this was collected.

TDX group recoveries management analysis manager Elliot Jackson says: 'What TDX tries to do is tailor the process so that the right recovery vehicle is chosen for the right debtor.' There are four steps to the process, he notes. First is a data-gathering exercise, in which TDX takes the information Thames has given it and augments it

with incremental data from third parties and across the industry.

Next is the segmentation process, in which debtors are clustered according to characteristics – increasing understanding of the company's way of working and how it handles its customers allows the segments to be closely tailored for optimum success.

The third step is execution, Mr Jackson says. 'It is important that the segments are matched to a specific, executable strategy. We have a network of some 30 of the best collection agencies that we reach into.'

The fourth step is monitoring – the process is watched very carefully. Mr Jackson adds: 'If it works out, that's great, but there are still opportunities to do something more intelligent. What we learn is fed back to the beginning of the cycle so we can make better, more powerful decisions. It is a continuous "test and learn" process, so for the client there is an ongoing virtuous cycle of innovation and optimisation.'

The results of the work have been significant: both new and old debt recovery levels have increased, leading to a 10% increase in debts recovered, with a forecast £1.25 million (\$2.2 million) additional debt recovered by the end of 2006.

Mark Onyett says: 'We believe many companies can benefit from a more considered and sympathetic approach to debt collection and we're now looking at working with more utility companies, motor financiers and other creditors. Debt is becoming more and more commonplace in the UK – there is no longer an 'average debtor', and creditors must react by adopting a more sophisticated approach to the recovery process.'

Mr Jackson adds that there are a number of fronts on which TDX aims to develop its offering. The group recently ran a water industry seminar 'so that the water companies could get talking, and see the opportunities to pull together and work centrally to drive improvement and share best practice,' he explains. TDX is also keen to deploy sophisticated collection techniques developed in the debt-savvy financial services sector to improve water industry debt collection success.

Consumer groups and the industry remain convinced that the only lasting solution is for government to act, to give companies some alternative to the payment incentives it has removed. Clear guidance and a regulatory framework are what is needed, it is agreed. The problem appears to be getting the government to share this view. ●

Payment options

The new consumer body for the water companies of England and Wales, the Consumer Council for Water (CCWater), recently issued advice to customers worried about debt. It made a number of specific recommendations including:

- Smaller households and those with high rateable values should consider changing from rateable value to metering.
- Metered customers should try water-saving measures including water butts, showering instead of taking baths, washing the car with a sponge and bucket, not a hose, and installing a water-saving device in the toilet cistern.
- Apply for the vulnerable customer tariff if appropriate. This helps metered customers receiving particular benefits that either have a large family or a medical condition that requires extra water use.

Companies also offer flexible payment methods and can take deductions directly from benefits. Some, like Anglian Water, have charitable or trust funding available for special cases, and this money can be used to help with other bills, as it is recognised that the whole of a person's debt needs to be tackled for repayment to be sustainable.

The water industry has developed a number of measures to help domestic customers to pay their bills, including:

- telephone helplines
- flexible payment plans
- charitable and hardship funds
- advice on free water meters, where suitable
- help in applying for direct payment through benefits (Water Direct scheme)
- promotion of debt advice agencies.

A perspective on private participation

Contract awards for private sector involvement in water and wastewater services provision can make the headlines, but what is the wider picture of how the market is developing? **KEITH HAYWARD** heard **DR DAVID LLOYD OWEN** review developments.

Last year two water sector contracts in particular made the headlines – those of Aguas del Illimani in the Bolivian capital La Paz and neighbouring El Alto and of City Water in the Tanzanian capital Dar es Salaam. ‘In both cases it seems to be a fairly grisly case of local politicians wanting something to hit, and there’s nothing more fun than beating up, sometimes literally, executives from a water company,’ comments Dr David Lloyd Owen. But these were of course exceptions to what was happening generally in the market.

Lloyd Owen is well placed to comment on developments in private sector participation in water and wastewater services provision. He runs the Envisager market analysis company and edits the Pinsent Masons Water Yearbook. Speaking late last year at the launch of the latest edition, Lloyd Owen describes 2005 as ‘busy-ish’ in terms of changes in the line-up of companies participating in contracts. Six companies left the sector, including Benpres, which Lloyd Owen describes as ‘rather a battered partner’ of Suez in Maynilad Water in Manila. Italy’s state-owned ENI and ENEL were other names to leave the sector. ‘The long awaited rationalisation of the Italian water sector finally took place, which is a very important goal in spurring on

the reform in that market and the mobilisation of serious investment,’ notes Lloyd Owen. Another significant loss is that of SAUR which, says Lloyd Owen, ‘has been broken up and broken up again’. He continues: ‘It was supposed to be sold off to private equity, but in fact they retained their Italian and African activities and Bouygues have retained the African activities and sold on the Italian activities.’

Alongside such losses, Lloyd Owen says he encountered some 11 companies around the world of which he was not previously aware, some of which were ‘truly weird and truly wonderful’. There were also cases of local partners leaving concessions to become players in the sector in their own right. ‘These are extremely important in my opinion because this is the transformation of companies from being an alien foreign presence in a concession to something with real local presence, local shareholders, local management, local accountability, and this what we really are all about,’ says Lloyd Owen. He also notes an enthusiasm on the part of private equity to buy into the sector.

The fortunes of the major global players have also varied. Despite talk of pulling out of water, Lloyd Owen notes that Suez remains at the top, actually gaining in terms of the number of people served despite taking

a more cautious view in developing countries. Veolia, meanwhile, is ‘certainly not taking a particularly cautious view about China’, and in the more developed economies is ‘very, very busy’, he notes. Other major players include Aguas de Barcelona, SABESP in Brazil, United Utilities and, for now at least, RWE. This said, the significance of smaller operators is important. ‘The grand process of consolidation has definitely has gone into reverse gear. It’s really now the portion of the market taken up by the smaller more local players which is shifting and that is really changing the nature of the beast,’ says Lloyd Owen.

In terms of contracts, Lloyd Owen highlights three key losses. Cascal’s concession in Belize shifted into an operation and maintenance contract which was ‘very much an agreed sale’ carried out in a ‘phased and controlled friendly process’. This contrasts with the more hostile losses of Aguas del Illimani and City Water. Meanwhile, he notes that Suez is ‘looking for an exit route’ in Aguas Argentinas.

At the same time there were very significant contract gains, with 40 new contracts serving at least 25,000 people identified, 21 of the contracts being in China. These new contracts included eight major ones serving more than a million people. ‘As a result, 28.3 million more people are being served

Evolution of distribution of companies operating in the water sector

	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Number of countries	13	15	16	15	18	23	27
Number of companies	70	81	82	84	102	117	130
- OECD countries	59	69	70	68	73	72	78
- advanced developing countries	2	2	2	2	6	13	16
- developing countries	9	10	10	14	23	32	36

Source: Pinsent Masons Water Yearbook 2005-2006 (p44)

in this type of financing and management body. Again, two thirds of those are from China – the China market really is driving the world market at the moment,' says Lloyd Owen. He also points out that the focus now is much more on sewage treatment contracts than was the case before, which has seen a gain of 24.7 million people served. This means that, while 2005 does not represent a peak year, it does indicate a good level of activity. 'It shows a rather more controlled climate than we have experienced in recent years,' says Lloyd Owen. He recalls 2004, 'a pretty traumatic year for the private sector', during which unrest in west Africa led to contract losses. Now, though, he notes 'a degree of stability is emerging into the sector again, with a slightly more rational environment.'

Having tracked these developments, Lloyd Owen is able to update his assessment of the current status of private sector activity globally. He estimates that around 393 million people have actual contract awards. Another nine million have been reached due to service extension and a similar amount due to population growth within the concession, although he says this is 'almost certainly a quite spectacular underestimate'. On top of this are the traditional markets such as the US, UK, France and Italy, which account for another 150 million. Overall then he estimates that 562 million people worldwide are served by the private sector – about 9% of the world's population and up from 5-7% in 1998.

This suggests a steady move towards greater involvement by the private sector, but there are of course differences to be observed. Globally there are now some 130 companies active in the sector. There is 'slightly sedate' progress in the OECD countries and 'a good progress' in intermediate countries, 'but it is the developing countries where we are really seeing the private sector now starting to engage with local issues and local projects,' says Lloyd Owen.

There are also differences from region to region. There are very different circumstances in North and Latin America – an economic climate created by 'anti-environmental legislation' in the former and 'a fairly toxic political atmosphere... where water is a proxy for other problems' in the latter – meaning that there are cautious forecasts for both. In central and eastern Europe, 'the private sector at the moment has a limited role and will maintain a limited role in the medium term while the municipalities and governments get to grips with the reality of European grant funding.' Lloyd Owen predicts that, when the

Contract awards for water-only, wastewater-only and combined contracts

	Water	Wastewater	Combined	Contracts
1987	0	0	1	1
1988	1	0	0	1
1989	3	0	10	13
1990	1	1	0	2
1991	1	0	1	2
1992	1	1	1	3
1993	8	3	4	15
1994	5	3	6	14
1995	7	1	10	18
1996	12	2	5	19
1997	12	4	10	26
1998	12	5	8	25
1999	15	6	28	49
2000	26	16	16	58
2001	17	18	19	54
2002	11	10	8	29
2003	18	8	16	42
2004	22	13	14	49
2005	13	16	11	40
Total	185	107	168	460

Source: Pinstent Masons Water Yearbook 2005-2006 (p37)

countries do this, 'then they will take a rather cooler look at how they are going to finance the upgrade their water services, especially with European Union compliance in mind.' He also highlights the prospects of India. 'South Asia is certainly a market which is taking off because the Congress Party has taken a much more progressive attitude towards financing and cost recovery than we would have expected three years ago,' says Lloyd Owen. 'Some of its coalition partners don't share this outlook, but India is most certainly becoming an interesting market,' and here he highlights the Chennai BOT contract.

China is of course a location where private sector involvement is being embraced. In the 1980s there was just Macau and a few small contracts, while in the last five years there have been over 70 contracts awarded, averaging around a million people a contract. The focus now is on improving wastewater treatment provision, says Lloyd Owen. The aim was for 30-35% of wastewater to be treated by the end of last year and the intention is that it will grow to 45-50% in five years' time and to 65-80% in ten years' time, requiring anything up to \$250 billion in capital spending.

Despite the apparently enormous potential that the Chinese market presents, Lloyd Owen offers words of caution to those who believe they can make money there. He draws attention to the high level of commercial awareness that exists. 'You just don't go in there making a quick buck. What you do do is you go in there if you have

really got something that will really get their interest,' he says. 'Because they recognise the need for quality, 65% of engineering goods the Chinese buy for municipal water and wastewater projects are imported, so that shows it is a quality-led market.' Once this is recognised, then there are indeed opportunities, and Lloyd Owen gives two example areas. 'China will arguably at some point become the world's largest market for desalination because of the sheer need for water in coastal north east China, and the key driver there is going to be water for industrial use.' The other relates to the Three Gorges dam project and the huge volume of untreated wastewater that is being discharged into its catchment. '700M tonnes of effluent are discharged there each year... They agreed to build 320 wastewater treatment plants for \$5 billion which are needed by 2010. My suspicion is there is going to be an awful lot more profound engineering required addressing those areas beyond that,' he says.

All of this shows that the private sector continues to increase its involvement in the sector and that there are further opportunities, but Lloyd Owen also raises some challenges for and challenges to the private sector.

One of the challenges for the private sector is what contribution it can make to improving Africa's fortunes. That there is an overwhelming need for improvements in water and wastewater services provision is clear, but Lloyd Owen adds his own voice. He notes

that 42% of people have to walk more than 30 minutes to obtain water, on top of which poor water quality presents health risks. 'If you think of the time getting back and forth, then you think of the sheer economic impact of women not being able to work, children not being able to go to school, their lives are dominated by fetching water of profoundly dubious quality... The second largest cause of death in Africa is bad water and it is the largest cause of child mortality... I always say it is Africa's AIDS.' He points out that the position in relation to the targets for access to improved water is merely being maintained for water, while the situation for sanitation is worse, with the continent falling behind the targets.

Some \$20 billion a year is needed in new funding to address this, but it is not forthcoming. This is despite the economic gains that such investment would bring. 'There are two empirical studies which have been done on this. One compared the poorest countries in the world. Those which had a reasonable quality of water and sanitation services, in the last decade their economies have grown at 3.7% per annum. Those without decent access to water and sanitation have grown at 0.1% - a 37 fold difference in economic gain,' says Lloyd Owen. Then there is evidence from assessing the economic benefits of getting ill people back to work, letting women work and letting children learn. 'For every pound you put into water and sanitation you get 6-11 back in Africa in economic growth.' But, he asks, where is the money? 'It's not coming. The West has I am afraid let Africa down badly.'

Lloyd Owen therefore calls on those engaged with private sector participation to contribute to addressing this situation. 'I really do want to see some hard thinking about how private funding, management techniques, etc, are going to be mobilised to help Africa overcome this terrible obstacle.'

The other issue Lloyd Owen raises is both a challenge to the private sector and a challenge for it. The challenge to the private sector comes in the form of the activity by those who are against the private sector and who have been very effective at communicating the failings of private sector involvement in water and wastewater services provision. The challenge for the private sector is therefore to better document its successes.

Lloyd Owen has done his own bit in this respect by preparing some case studies. 'I had to do these for the UN, because the UN in their 2006 world water review wanted to look at a number of water contracts around the world which showed excellence in providing private sector participation as

Distribution of numbers served (millions) by contract awards

Water	1985-99	1990-94	1995-99	2000-04
Europe	39.86	1.57	17.35	24.77
Americas	0.00	20.73	50.19	22.64
Asia	1.49	9.56	53.70	48.66
Middle East / Africa	7.25	1.28	14.81	13.62
Total	48.60	33.14	136.05	109.69
Wastewater	1985-99	1990-94	1995-99	2000-04
Europe	55.03	3.54	18.41	23.27
Americas	0.00	9.73	34.09	12.11
Asia	0.00	0.30	3.48	30.98
Middle East / Africa	1.50	0.00	1.96	5.69
Total	56.53	13.57	57.94	72.05

Source: Pinsent Masons Water Yearbook 2005-2006 (p38)

a tool for getting water to the poor.'

One example is the Armenian capital Yerevan, where the Italian utility ACEA began operating in 2000. Then, 15% of water samples were unfit to drink, average water delivery was six hours a day, and revenue collection was 21%. Now Lloyd Owen says only 0.3% of samples fail, average delivery is 16 hours and everyone pays their bills. 'As a result it actually means that for the poorest 30% of people in Yerevan who in 1999 were paying on average 8.1% of their household income on water, that had fallen to 4% this year.'

This, he says, is a typical example of what the private sector can deliver. In the case of Casablanca, Morocco, he notes that the Suez concession Lydec introduced a strong system of cross-subsidy to ensure affordability and recently sold equity on the local market, most of which went to local investors. He describes the work of the Ayala / United Utilities joint venture Manila Water Company connecting 1.5 million people over the last eight years as 'one of the great unsung successes'. This has included reducing non-revenue water from 63% to 36% and providing basic connections to 740,000

people in slum areas which, says Lloyd Owen, has resulted in a 36% drop in infant mortality due to diarrhoea.

Other examples he cites are the achievements of Latin Aguas in its 30 year Aguas de Salta concession, of the universal service provision achieved by the Suez / New World Infrastructure joint venture Macao Water Supply Company, and of RWE Thames Water in East Jakarta, Indonesia. On the latter, Lloyd Owen notes: 'One of the things they have done here is, when they started their concession in Jakarta, there was a heavy bias towards the wealthier people being served and the poor people being unserved. It has not been a brilliant concession in terms of everything going smoothly, but there is now no bias between connections and income, so in that sense the principle of universal service is being adhered to and they are now doing various projects on 'kampongs', which are informal settlements getting water across to the people.'

The final example he gives is Bolivia, where he compares what Aguas de Illimani was achieving in La Paz / El Alto when it was ousted last year with the situation in

Current and forecast extent of private sector participation

	2005		2015	
Western Europe	179.1	45%	210	52%
Central / Eastern Europe	24.5	7%	60	18%
Middle East / Africa	30.6	3%	105	8%
South Asia	3.3	0%	45	3%
Central Asia	0	0%	5	15%
South East Asia	146.7	7%	380	17%
Oceania	4.6	18%	10	35%
North America	79.3	19%	120	25%
Latin America	94.5	17%	150	24%
World total	562.6	9%	1085	15%

Source: Pinsent Masons Water Yearbook 2005-2006 (p43)

Cochabamba, which has been in public hands since the private operator was ousted in 2000. In Cochabamba, he notes that supply coverage is around 69%, service provision around 15 hours a day and the tariff \$0.27/m³. This compares with coverage of 99%, provision of 24 hours a day and a tariff of \$0.22/m³ in La Paz / El Alto.

For Lloyd Owen, such evidence counters the criticisms levelled by those who are against the private sector. 'But then of course that's the problem, it's not actually about service delivery, it's not about getting water to the poor, it's not about reaching the MDGs, it is about ideology.'

Such documentation will not be enough on its own. For example, there need to be developments in relation to financing. 'We need new financing mechanisms,' says Lloyd Owen. 'Climate change is going to fundamentally change the way we manage water and wastewater and is going to be a vast cost driver. The other great challenge is going to be diverting local wealth towards local needs. For example, in India there is actually quite a large number of prosperous people, but due to the lack of suitable financial instruments they send their money to Europe and America. What we need are water financing vehicles which are fully credit rated, liquid, and can generate business there.'

Lloyd Owen clearly feels the private sector has a valuable contribution to make. Indeed, he predicts that more than one billion people will be served by the private sector by 2015 (see box). However, he feels it is at risk of having its efforts overshadowed by those who are against private sector involvement. 'The private sector has got to engage in these debates. It is no good just doing nice brochures, nice meetings and nice dinners. They have to set the research agenda and bring water to the people.' ●

The Pinstent Masons Water Yearbook 2005-2006, ISBN: 0-9551747-0-8, is available from: www.bebc.co.uk. See also: www.envisager.biz

Lessons from Latin America: the potential of local private operators

The prospect of only limited input from multinational operators in meeting the water and wastewater services needs of Latin America means the continent's institutional frameworks need to be re-thought. **ALEJO MOLINARI** looks at the role local private operators can play.

This feature intends to encourage debate about exploring new institutional arrangements for the provision of water and sanitation services in developing counties in order to achieve universality, continuity and quality.

After a conceptual review of the experience with some privatisations that have taken place since the early 1990s, we explore some alternatives that will enable a change of course and the continuation of those aspects that have proved positive.

As an introduction, let us remember some characteristics of water and sanitation services. These services are, by nature, local monopolies. They are also strictly local services, since the transportation of water for potable purposes is very costly in relation to the revenue it generates. The same is true for the transportation of liquid waste.

These organisations are monopolies because it is socially convenient to have a single grid for water and one for sanitation, serving the same community. However, it is fair to point out that vertical fragmentation of the systems is possible, by separating some processes in the value chain. Horizontal fragmentation is also possible, though experience in this area is very recent.

Another important economic characteristic related to the ideas we

intend to analyse here, is the high cost of infrastructure compared to the revenue for services provided, when that is collected.

It is also pertinent to stress the social value of water and sanitation, which is relatively high in relation to other public services. Both services have an effect on people's health, either directly or through their effect on environmental quality. A recent WHO report states that a monetary unit invested in water and sanitation infrastructure represents a saving of three to 30 units of the same currency in costs related to public health.

These services, given their high societal value, have traditionally been rendered by the state, generally represented by local or regional authorities. For various reasons, among which is the inability of the state to fund the necessary investment to improve those services and make them universal, a number of authorities have sought different ways to invite the participation of private capital since the beginning of the 1990s.

Problems of the multinational private providers

For a number of reasons, which we will not go into here, the main operators winning recent privatisations have been a handful of multinational corporations. These corporations, due

to their experience, financial size and business knowledge, were expected to provide management capability, investment capital and technology to improve services.

A little less than a decade after the big rush of privatisations, these big corporations have revised their original expansive strategy to concentrate on northern countries, deserting contracts in peripheral countries to ensure the least harm to their interests.

An analysis of the massive failure of these big corporations, which is hard to make dispassionately today, will help us understand the best options for achieving the desired goals of universality and quality of service.

Let us start by saying that it is fair that private companies seek the profitability necessary for the survival of their business. Without that profitability, any business would be unsustainable. However, the pursuit of profitability as a single or main priority can also suffocate a good business.

In the case of water and sanitation services, their capital-intensive nature makes them a long term business, basically because of the difference between the high level of investment needed for infrastructure and the relatively low revenues that the operation of these services generate, because of their strong social component. However, the permanent search for short term profitability, probably necessary because of the high risk of investing in countries with unstable economies, has led to a number of problems. Companies are permanently renegotiating their contracts, applying pressure for rate increases and, when this has not been possible, indirectly adjusting revenues by failing to meet their investment obligations.

This sense of high-risk exposure may have led investors to become extremely cautious in committing their own capital for investment, turning instead to debt as the main source of finance. This policy enabled stockholders to quickly recover the minimum capital provided in the early stages of the contract, but leaving operating companies with high gearing. In this way, the expectation that big corporations would supply investment capital has been frustrated. They only provided plain debt capability and then only partially, because the main debt has been provided via multilateral credit agencies. This has not made them any different to the previous state managements.

But unlike previous state managements, the improved management capability allowed a relative move forward in terms of investment levels. However, this

investment was made by hiring companies owned by the corporation's own stockholders or their venture partners. Contracts were allocated mainly by a private bidding process, at prices that were generally favourable in relation to the probable market value, thus increasing the investment cost but improving the consolidated profitability of their head offices.

However, the technology provided has been no better than the corporation-owned technology, because the suppliers have been mainly controlled companies, which have little incentive to introduce technological improvements as their captive customers are the companies of their own group. This means that the attempt to incorporate cutting-edge technology via privatisations has also failed.

This systematic purchasing and hiring from corporate companies has also had a negative effect on local markets, because when purchases from previous suppliers have been discontinued they have gone out of business, producing a downward pressure on investment and an increase in unemployment. In other words, a great amount of the money yielded by customer payments, destined for investment and debt repayment, has gone instead to corporate hubs, via the corporation's contractors and suppliers.

In terms of the privatised companies' contribution to management capability, it is necessary to point out that services have improved remarkably in quality, compared with the previous state management, though they have not reached the levels demanded in the contracts. Nevertheless, years after this early improvement, service quality is now stagnant and has deteriorated in some cases as a result of high debt burdens and the missing investment capability.

We cannot deny the possible influence of the difficulties imposed by the macroeconomic instability in some of the countries that privatised their services. However, the expatriates from the large corporations, who contributed greatly to the improved management skills at the beginning of the privatisations, have slowly decreased in number as time goes by and have been satisfactorily replaced by local personnel, who have similar training but cost less. Management, therefore, apart from in the higher ranks, is now in the hands of properly trained local personnel.

Finally, let us examine the failure to reach the target of universal service, which happened because of the inability of big corporations to provide services to the poor. This inability has been acknowledged by the

top managers in some of those corporations.

The poor are not profitable, because their ability to contribute is below the cost of service provision. This means it is necessary to explore low-cost alternative technologies and associated participation plans to enable access at minimum cost.

In parallel, it is necessary to implement local community participation, to guarantee that services are sustained in the long run. All this is possible only if the local culture is correctly understood and a considerable ability to achieve consensus can be developed within the communities.

Some of the most significant failures of big international corporation management have been made in this area, as witnessed by the social rejection manifested in community meetings of those in need. Cases such as Cochabamba and La Paz, in Bolivia, or Tucumán and some municipalities of Greater Buenos Aires, in Argentina, provide a very clear picture of this.

Lessons for the future

We can now outline some conclusions, pointing out that the three reasons for privatisation – management capability, capital provision and technology supply – have reached a ceiling and we cannot expect, in the future, any contributions from the big corporations in these areas. This is even more the case, as we said, because they have shifted their strategy to concentrate on other markets.

It is evident that the solutions adopted in the past have reduced their capability and they have not reached the expected goals of continuity, universality and quality. If our society seeks to achieve the same goals, we must find different institutional schemes that enable us to achieve them at a lower cost and over the shortest possible term. Let us consider some options.

In some cases, where services have returned to state management, because the big corporations have deserted them, the results in terms of continuity, quality and universality are not very encouraging. This does not mean that state management should in itself be condemned. There are many cases of remarkably good state management, but they generally occur in specific institutional and cultural environments.

But there is management capability within the private operators of small-scale water and sanitation services, which encourages us to think this could be a feasible alternative. It is clear that local private experience in this type of service has so far been very limited. However, companies in the

private sector undoubtedly have good management capabilities. And it should not take long for this capability to adapt to these services and provide some advantages over the big international corporations. This is particularly the case if we remember that today's middle ranks in privatised companies are formed from local personnel who are highly skilled in their own specialities.

It is evident that contracts will have to be redesigned, creating adequate conditions for checking that this management goal is being achieved. Investment is among the fundamental issues that need to be reviewed. The investment needs are so great in relation to the revenues for this type of service that we cannot expect them to be supplied solely by the private sector. A decade of operation by the biggest international corporations, which specialise in this type of business, has not been able to solve this problem.

Acceptable charging levels relate to user affordability, particularly that of the poorest, which hinders reimbursement of necessary investment within periods that are compatible with the risks arising from unstable economies. Nevertheless, we could always design new levels of customer charges that allow us to invest part of the yield, dealing with cases of extreme poverty through an adequate system of social charging. This contribution of the customer charge to investment can be used as seed or counterpart capital to attract funds from other sources, such as the state and/or multilateral credit agencies. This way, we could develop infrastructure in accordance with community expectations on timing.

A local private operator would contribute their management capability, better interpretation of local culture and commitment to his community. To a great extent, local company managers have mainly been born and educated in their own countries and, if they have not emigrated, it is because they prefer to live and evolve in their natural environment. That is to say, not only will they remain linked to this environment, but they will also raise

their children in local schools and colleges. Therefore they will want to be seen as a part of their community and will be less keen to emigrate.

Their knowledge of local culture will enable them to adapt more easily to the demands of an unstable macro-economy, while their commitment to the local community will lead them to develop not only future managers but also local suppliers, thus generating jobs that are now exported, to the benefit of the economies of other regions.

On the other hand, the absence of any 'captive' in-house technology would open the possibility of developing new technologies, better adapted to the economy and service conditions, and suitable for countries with fewer resources. As an example, small-diameter sewage systems have a proven good performance in a number of urban areas.

This would not invalidate the need and convenience of looking to the international technology market for those parts of the system that require such input. But even this type of purchase would not be tainted by a requirement to buy in-house and obsolete technology at a high price.

Finally, the ability of such managers to better understand their local communities should make them more acceptable, when trying to implement any participative institutional arrangement for the expansion and management of services, in contrast with the deep social rejection experienced today by the foreign agents of big corporations.

Because of these factors, it would seem convenient to encourage the local private sector to participate in managing public water and sanitation services, gradually substituting them for the multinational corporations which, due to circumstances or their own decisions, seem to be withdrawing from emerging markets. ●

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Aguas de Portugal's push towards direct service provision



Creation of Aguas de Portugal in 1993 brought substantial consolidation of the Portuguese water sector, but much responsibility for the direct service to customers remains with municipalities. **PAUL GARRETT** spoke with the company's chairman **PEDRO SERRA** about the moves to increase direct provision of services.

All over the world the water industry is consolidating – or trying to. From a fragmented geography usually based around municipalities, economies of scale are increasingly being sought by bringing together water and wastewater activities into bigger umbrella organisations. This has happened in Portugal – almost.

Aguas de Portugal (AdP) was created in 1993 as the Portuguese state vehicle for operating and developing the water and urban solid waste network there

and to implement a concession strategy based on multi-municipal ownership. AdP is in effect the holding company of a group comprising 65 operating companies, of which 57 are direct and majority owned, covering water supply systems, wastewater treatment systems, treatment and disposal of urban solid waste and other sanitation systems. The largest subsidiary by far is the water utility EPAL (Empresa Portuguesa das Águas Livres), which has served the capital Lisbon since 1868. Apart from this, AdP's core business is in providing

wholesale services to municipalities. It does however have some retail activity serving customers directly, covering 29 municipalities with water distribution and wastewater collection and serving a population of around one million (around ten percent of the Portuguese population).

Pedro Cunha Serra is the chairman of the board of AdP. A civil engineering graduate specialising in water resource planning, he worked for a civil engineering consultancy until 1989, specialising in water projects in

'Regulatory benchmarking has shown that we are not as efficient as we could be.'

AdP's overseas operations

AdP has subsidiaries and investments in a number of overseas territories, namely those where the spoken language, culture or presence of Portuguese communities stand for competitive advantages. The group's portfolio of international investments is built around three countries – Brazil, Cape Verde and Mozambique – with each operation having its own characteristic structure: AdP acting as a concessionaire in Brazil and Cape Verde, as a concession manager in Mozambique, and as a service provider in Angola and East Timor. The international sector has been responsible for supplying water to 2.5 million inhabitants of Brazil, Cape Verde and Mozambique, with investments around €12 million in 2005.

The International Division (UNI) is one of the group's six operating divisions. The others are Water Production and Wastewater Treatment (UNA-PD), Water Distribution and Collection (UNA-DR), Urban Solid Waste (UNR), Other Businesses (UNON), and Shared Services (UNSP). The Water Production and Wastewater Treatment unit is AdP's largest business division, accounting for almost 60 percent of the group's revenues.

Portugal and in Africa. He was then appointed chairman of the Portuguese Institute of Water (the national water authority of Portugal), and after a spell as Portuguese water regulator and another period working on water resources in Mozambique, took over the helm of AdP in May 2005.

The AdP over which Serra presides is an organisation that has made rapid progress over the last 15 years, particularly in the two key areas of water resources and wastewater treatment. When the company was created, wastewater treatment was largely 'missing', he says. 'The last decade has seen a substantial investment in wastewater infrastructure, including the key southern coastal tourist region of the Algarve. Previously, municipalities had not invested in wastewater plants and networks – they were understandably reluctant to raise local taxes.'

But AdP's investment in wastewater has not completely solved the problem. This is because, crucially, it does not 'own' the whole water cycle. 'The municipalities are responsible for water and wastewater retail,' says Serra. 'And as their investment has not matched AdP's, some of our infrastructure is not working to its installed capacity.'

The exception is Lisbon's EPAL, which undertakes wholesale and retail activities.

To square the circle may require legislative change. Serra would like AdP to extend its responsibilities into the retail part of the value chain – but to do this in partnership with the municipalities and the smaller number of private companies which also operate in the retail space.

Southern Portugal shares, with southern Spain, a low rainfall which attracts tourism but also presents resource issues familiar around the Mediterranean. 'We have had a drought for the last two years and do share the resource issues that Spain has, although Portugal does not have the demands for water from agriculture that exist in Spain' says Serra. 'We have also been able to harness assets that already existed – hydroelectric dams – to enhance our water resources around the country. In addition we have built new dams and reservoirs over the last decade – there is one more project to complete, at Odelouca, in Algarve.'

Serra says that negotiations with Portuguese power companies to secure use of the water at their hydro-plants have been important in order to establish concessions for surface water use. AdP has also worked closely with the Portuguese Institute of Water and the Department of Agriculture.

Portugal shares five key rivers with Spain, the most important of which is the Douro. In some parts of the world, rivers which rise in one country and flow through another have been sources of contention. In fact, the two countries of the Iberian Peninsula have had agreements relating to shared use of their rivers dating back to the 1860s. 'The European Water Framework Directive is also going to be helpful in our joint management of these rivers,' says Serra, adding that shared river

basins actually comprise 64 percent of Portuguese territory.

As well as resources, bathing waters have been a challenge in this maritime country. Like many countries, wastewater treatment was until recently a low priority, but today, spurred on by legislation such as the European Bathing Water Directive and the Urban Waste Water Treatment Directive, Portugal can boast 98 percent compliance for its designated bathing beaches.

'We have invested €466 million in coastal wastewater collection and treatment systems over the last ten years,' says Serra. Sensitive coastal areas receive secondary treatment in the summer months, and primary in the winter, with long sea outfalls.

Portugal's water industry is ahead of many in that it has universal metering, and has had for many years. Water is therefore billed volumetrically and separately from municipal taxes.

Serra says that there are no plans to change AdP's status as a publicly-owned company. But he does foresee an expansion from being essentially a wholesale operation into retail, in partnership with the municipalities. He also sees a greater role for outsourcing.

'Regulatory benchmarking has shown that we are not as efficient as we could be,' he says. 'We have therefore begun outsourcing activities such as maintenance contracts and operation of plants to private sector contractors.'

'So the near future will see more outsourcing and a move into retail. I am certainly not comfortable with the present situation.'

It seems then that Aguas de Portugal's aim, of achieving full control of the complete water cycle, is on the verge of being realised. ●

Pedro Serra

Pedro Cunha Serra has been, since May 2005, the chairman of the board of Aguas de Portugal (AdP), which is responsible for the design, construction, operation and management of water supply and wastewater and solid waste collection and treatment systems in Portugal.

Born in Lisbon in 1946 he is a civil engineering graduate specialising in hydraulic and water resource planning and management. From 1969 to 1989 he worked in the private sector for Coba, a Portuguese engineering consultancy, where he was involved in the design of dams, irrigation, water supply and other water sector projects in Portugal and overseas – Algeria, Angola, Mozambique, Guinea-Bissau and Greece. In 1990 he became an independent consultant.

In 1999 he was invited by the Lisbon government to chair INAG (the Portuguese Institute of Water), the country's national water authority. In this capacity he was responsible for negotiating the Portuguese-Spanish Convention for Shared River Basins and the European Water Framework Directive.

After a spell with Portugal's National Road Administration he was involved from 2002 in the implementation of the Water Framework Directive in several river basins in Portugal, as well as acting as a water consultant for the government of Mozambique. A member of the National Water Council from 1994 to 2002, he is a member of the Portuguese Academy of Engineering, has written several books on water regulation and has taught water law at the University of Coimbra in Portugal.