



Volume 12 / Issue 12 / December 2011

# Global Water Intelligence

Market-Leading Analysis of the International Water Industry

Saying eau revoir **Veolia bids farewell to UK regulated water after 25 years**

Tall Lauder Cosmetics heir has big plans to make over water holdings

Forever blowing bubbles **Aeration market finds new burst of energy**

The wizardry of Foz Brazilian water operator looks to bewitch US market

Let Rajoy be unconfined **PP election win raises Spanish privatisation hopes**

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# December 2011

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Production by Gillian Fraser

# Need to Know

Frérot unveils the new-look Veolia; Saur and Séché fall out; Ashdod reaches financial close; SWCC's new governor; IFC buys into Kharafi National; GS goes global; all the latest news from around the world this month.

## THE NEW VEOLIA

- Veolia's plans to restructure its way out of trouble were largely met with indifference by the investor community earlier this month. Despite a sweeping array of proposals aimed at cutting debt and moving towards a more centralised management structure, investors seem unwilling to give CEO Antoine Frérot the benefit of the doubt – at least for now (*see story p8*).

- A central theme of Veolia's restructuring plan is an increased asset disposals programme, which includes the three English water-only companies that it bought at the time the sector was privatised in the late 1980s. Having failed to offload 49% of its UK water business last year, it seems that Veolia has finally admitted – like Suez and Saur before it – that UK regulated water is highly capital-intensive and offers little prospect for growth.

- Selling the three companies as a package to someone like Thames Water – which already provides sewerage services to Veolia Water Central's customers – would inevitably trigger a referral to the Competition Commission, thus slowing the process and impacting the price. The received wisdom seems to be to assemble a consortium of infrastructure funds and make a bid on the understanding that each member of your team ends up with one of the companies. That may be the only way Veolia can realise the 15-20% premium to regulated asset value that it is said to be seeking.

- Thames Water's shareholders, for their part, seem to be happy playing musical chairs. After Canadian investor British Columbia Investment Management Corporation upped its stake in holding company Kemble to 8.7% recently, a trio of investors – including two of the Macquarie funds that originally bought the company from RWE in 2006 – sold an aggregate of 9.9% to Infinity Investments, a subsidiary of sovereign wealth fund Abu Dhabi Investment Authority in early December. Santander Private Equity, which owns 4.35% of Kemble, is looking to follow suit.

## GERMAN AUSTERITY

- The German federal cartel office has decided that austerity should start at home, and has handed the cash-strapped city-state of Berlin a lifeline in its bid to buy back RWE's 24.95% stake in Berliner Wasserbetriebe (BWB). It has mandated a 19% cut in drinking water tariffs – which if upheld would inevitably reduce the value of the stake to a more affordable level. BWB's shareholders have few options to tighten their belts other than to trim profit margins (*see story p14*).

- The threat of tariff cuts in Germany has not daunted Remondis Aqua, which this month agreed to buy Eurawasser, the German water services division of Suez Environnement, for €95 million. Suez put the unit up for sale after it became disillusioned with the growth prospects on offer in the country. What does Remondis see that Suez doesn't (*see story p14*)?

## SAUR POINTS

- Relations between Saur, France's third-largest private water company, and its 33% shareholder Séché Environnement, have reached an all-time low. In a letter to French sovereign fund FSI last month, Saur claims that the synergies between the two groups are weak at best, and that if Séché takes control of Saur by exercising its call option on 18% of FSI's stake, the move would expose Saur to greater financial risk and increase the cost of servicing its €2 billion debt pile. Séché wants to push through a capital increase in order to reduce Saur's debt, but the FSI is dragging its feet (*see story p17*).

- After months of delays, Mekorot finally reached financial close on the

320,000m<sup>3</sup>/d Ashdod desalination project. It seems that one of the anchor debt providers, the European Investment Bank, decided half-way through the process that it didn't want to take any more exposure to the Israeli water sector, and opted instead to lend the money to Bank Hapoalim, the lead arranger on the shekel part of the loan. Although Hapoalim eventually managed to syndicate out two thirds of the shekel portion to Israeli institutions, the risk premium it was forced to add on for effectively quadrupling its exposure to the project pushed the overall cost of funding up, leaving the client as a helpless onlooker (*see story p22*).

## PRIVATE PROGRESS

- Saudi Arabia's National Water Company appears to be in good position to start the process of privatising its wastewater business next year (*see story p18*) after spending heavily on upgrading and expanding its asset base, most recently with the much-trumpeted Jeddah sewerage project. Its major obstacle now will be finding a way to improve cost recovery on the water supply side in order to support privatisation in that segment of the business. Identifying "high-value" customers is a good first step

Assemble a consortium of infrastructure funds and make a bid on the understanding that each member of your team ends up with one of the companies.

along this politically sensitive path.

- Meanwhile, the Saline Water Conversion Corporation has a new governor - Dr Abdulrahman Al-Ibrahim, formerly vice governor of the Electricity and Cogeneration Authority (ECRA). At the top of his in-tray will be finding a way to restart the privatisation process at SWCC. This was the main task given to his predecessor, Feheid Al-Shareef, when he was appointed governor in 2004. Despite tendering Shoaiba 3 and Shuqaiq 2 to private developers, there has been no progress with regard to selling off existing production assets since the global financial crisis and the decision to use public money to finance the 1,035,000m<sup>3</sup>/d Ras Al-Khair project. The Saudi electricity sector did not put its private finance programme on hold during the downturn.

- The hot rumour at the Saudi Water and Power Forum in Jeddah earlier this

month was that the IWPP (independent water and power project) programme is about to be restarted anyway. The Ministry of Finance is said to be unhappy with the cost and the delivery timetable of Ras Al-Khair compared to what might have been achieved by a private developer.

- If the rumours turn out to be true, the last publicly financed big desalination project in the Kingdom may turn out to be Yanbu 3. This is turning out to be one of the most bitter struggles in the history of thermal desalination. **Fisia Italmianti** came in as the low bidder, but **Doosan** is said to be lobbying hard to squeeze out the Italian firm, which has not won a major thermal order since 2008. Both are offering MSF (multi-stage flash) technology. The major MED (multiple effect distillation) suppliers – Sidem, Sasakura and Aquatech – were also upset by the bid. They claim the amount of titanium specified in the tender made their technology unnecessarily uncompetitive.

- The IFC is considering investing up to \$100 million for an equity stake in Middle Eastern water project developer **Kharafi National**. It would complement the organisation's existing stakes in Metito and Veolia Water's Africa, Middle East and India subsidiary (*see story p20*).

## SPANISH OMELETTE

- Spain's private water operators will be licking their lips over the chance to invest in previously forbidden territories, as metropolitan authorities look to ease their debt burdens by selling or leasing prize water assets. Top targets for privatisation include utilities in Madrid, Barcelona, Seville and Malaga (*see story p12*).

- Meanwhile, the new government in Spain is likely to re-jig the way contracts are tendered by transferring responsibility from public sector bodies to the Ministerio de Fomento, which already oversees transport infrastructure. The move would be a mixed blessing for the water sector.

- Korean contractor **GS Engineering** wants to use its €231 million takeover of Spanish desalter **Inima** as a springboard into new markets. It is already submitting unsolicited proposals for desalination plants to local governments in Korea, and its access to KEXIM funding should give it a competitive edge abroad as it tries to build a \$2 billion international water business (*see story p35*).

# Fixing Saudi's subsidised leaks

Christopher Gasson weighs up the Kingdom's options for cost recovery.



I have been in Jeddah this month for the Saudi Water and Power Forum. It is probably the most buoyant market for water businesses anywhere in the world today.

We are seeing a state-of-the-art water and wastewater system conjured out of the desert in the space of a few short years. As recently as 2008, people in Jeddah were expected to wait three weeks between water deliveries, while wastewater was taken away in tankers and disposed of in the notorious "musk" lake. As the first stage of the deep tunnel sewer nears completion, the National Water Company will start retrofitting the city with sewage connections. The water distribution system is being cured of its leaks and modernised as a smart network. Water production is being brought into line with demand.

From an international water business's point of view, the attraction of Saudi Arabia is not just the high levels of expenditure. The country is also becoming more attractive in the way that it tenders plants. The National Water Company has taken the procurement function in-house (it previously relied on another government agency to manage tenders), and put greater emphasis on technical quality.

Despite these attractions, the central problem of the water sector being over-reliant on government subsidy from oil revenues remains. Water from this shiny new system is being sold at the equivalent of \$0.03/m<sup>3</sup>.

In the past, the main problem of underpricing water was that it led to underinvestment. During the lean years of the 1990s and early 2000s when the oil price was low, there was little spare cash in the Kingdom to support the water sector. Service levels declined to the point that they caused rioting in Jeddah in 2006.

Nobody is concerned about underinvestment today. Instead, the problem is that tariffs don't provide enough restraint on demand. There are worries that, should the NWC start supplying water 24/7, demand for water will rise still further and more desalination plants will be needed, and more of the Kingdom's oil wealth will be burned in order to produce water.

Tariff reform has been central to the

discussion at the Saudi Water and Power Forum ever since the first incarnation of the event back in 2005. While there is general agreement that it is necessary, the challenge for the water minister is to find a way of doing it which is politically acceptable. The King may be one of the world's few great autocrats, but this does not give him leeway to put the price of water up to \$6.00/m<sup>3</sup> overnight. Instead, there seems to be a consensus that the right approach is to increase charges for government and commercial users first, then gradually impose more steeply rising block tariffs, while maintaining low tariffs for ordinary citizens who use water moderately.

This may rein in excessive usage, but in the longer term, the problem of attracting investment into a heavily subsidised sector is going to return. As the oil price slips back with the global economy, and as other demands on the Kingdom's wealth arise, the water sector is going to once again struggle to attract funding.

The problem is that for Saudi Arabia, and all other countries where water is subsidised for social reasons, it is very difficult to distinguish between spending money to make water cheap and spending money to provide a good service. For example, \$10,000 might make water cheap for 200 families, but it might also fix a leak which costs the system enough water to serve 200 families for a year. The money saved in fixing the leak might make the service cheaper to run, which might reduce bills in the longer term, but if the main thing that politicians are concerned about is the price of water, there is no incentive to invest in improving performance. Furthermore, if the water is subsidised, then the leakage is subsidised as well, making the economic case to fix it a whole lot harder to swallow.

There needs to be a clear separation of social water subsidies from the operational and investment decisions that a utility makes. This might involve a utility agreeing a shadow water price which would represent the price it would need to charge for water in order to deliver a certain level of service and to invest to improve performance. The subsidy would then be negotiated separately as a social transfer administered through the utility.

It may be the only way to avoid subsidising inefficiency.

## DIARY

## January 2012

**8 - 10: PPP Middle East**

Abu Dhabi, UAE

Website: <http://www.ppp-middleeast.com/>**30 - 31: CI Energy Group's Oil & Gas Water Management Strategies**

Calgary, Alberta, Canada

Website: <http://www.CanadianInstitute.com/WaterManagement/GWI>

## February

**2 - 3: Water Rights and Trading Summit: Southwest**

Arizona, USA

Website: <http://www.waterrightstrading.us/>**9 - 11: EverythingAboutWater Expo 2012**

Delhi, India

Website: <http://www.eawater.com/expo/>**15 - 17: Interaqua 2012**

Tokyo, Japan

Website: <http://www.interaqua.jp/eng/>**27 - 29: 2nd Annual Water & Waste Management in Mining Masterclass**

Johannesburg, South Africa

Website: <http://www.salvoglobal.com/WMMZA.asp>

## March

**7 - 9: IE Expo 2012**

Shanghai, China

Website: <http://www.ie-expo.com/>**25 - 27: Gulf Environment Forum**

Jeddah, Saudi Arabia

Website: <http://www.gulfenvironmentforum.com/>

## April - May

**30 - 1: Global Water Summit 2012: Brave New World****plus  
The 2012 Global Water Awards**

Cavalieri Hilton, Rome, Italy

Contact: [cb@globalwaterintel.com](mailto:cb@globalwaterintel.com)Website: <http://www.watermeetsmoney.com>

## May

**22 - 23: Global Water: Oil and Gas Summit 2012**

Dubai, UAE

Website: <http://www.cwcoilgasandwater.com/>

# Water palaver!

Emma Welsh discovers that persistence can pay off after all.



I had positive proof recently that if you go on about something for a really long time, eventually someone will take notice. It hasn't escaped the attention of my colleagues that I'm going to Mexico in three days' time. I realise that I may have been somewhat boring over the past few months, but now it has paid dividends – at the office Christmas lunch last week, Secret Santa bought me a book (you guessed it) about Mexico. Someone actually remembered what I'd said and put two and two together to make four – my husband could do worse than take a tip from Santa!

Marketing tends to be the written equivalent of me droning on about my holidays. Someone recently told me that every person has to see at least ten communications about your product before they are likely to take any action, and I believe it. With that in mind, this could be the first time you read about our Global Water Summit which takes place at the Cavalieri Hilton in Rome on 30th April and 1st May 2012, but it won't be the last.

We're going through a very unsettled period at the moment. Global events – whether financial, climactic or revolutionary – will have a lasting impact on the way the world of water works. Everywhere on earth, people are trying to guess what the future will mean for them. At our summit in Rome, we will lay down the challenge to think bravely about one question: what does our successful water future look like? We've worked hard over the years to bring together the highest level international delegates whilst maintaining an open and intimate atmosphere, and it is that which will enable us to give this question the thought that it deserves.

We plan to use a range of different formats to make the content of the summit more digestible and to ensure that each delegate participates fully. This year, innovative new formats and technologies will place even more emphasis on interactivity, spontaneity and creative thinking, including an extra session of our hugely popular round table networking.

During the course of the conference, we will also be celebrating the achievements of the water industry in our annual Global Water Awards. The categories for nominations this year are: Water Company of the Year, Desalination Company of the Year, Public Water Agency of the Year, Desalination Deal of the Year, Water Reuse Project of the Year, Desalination Plant of the Year, Industrial Water Project of the Year, Water Efficiency Project of the Year, Water Stewardship Award, Water Deal of the Year, Water Technology Company of the Year and Water Performance Initiative of the Year. If you would like to make a nomination for the Global Water Awards, then either go to [www.globalwaterawards.com](http://www.globalwaterawards.com) or e-mail me at [ewelsh@globalwaterintel.com](mailto:ewelsh@globalwaterintel.com).

The facts we need to know about your nomination are: What is it? What has it achieved? What makes it special?

Your entry needs to convince the judging panel that the company, project, plant or deal is head and shoulders above its competitors and deserves to make it through to the shortlist. Once you're on the shortlist, your entry will be voted for by GWI readers and members of the International Desalination Association. The closing date for nominations is 31st January 2012. And don't forget, judging by the ten communications rule, the more you brag about your nomination, the more likely people are to vote for it!

**NEXT MONTH IN GLOBAL WATER INTELLIGENCE**

GWI's annual water stocks survey

Where next for Indian water concessions?

# David Lloyd Owen

L'eau revoir: after 25 years, France is leaving the UK regulated water sector.



Veolia's timing for its exit of the UK regulated water sector – in the same week as David Cameron's veto of the EU financial stability pact – is intriguing.

Whoever acquires Veolia Environnement's water-only companies is acquiring a lot of history. Friern Barnet used to be a rural parish to the north of London. In Barnet Common, a spring was found in 1652 and visited by Samuel Pepys in 1664 (he drank five glasses before setting off for home). As the population grew, so did concerns about London's water supplies, and from 1892, services were provided by the Barnet District Gas and Water Company, which soon became the parish's leading water supplier. This company was founded in 1872, from the merger of several gas and water companies. It was renamed The Barnet Water Company in 1950 after Britain's gas services were nationalised and in 1960, it merged with the Herts and Essex Water Company and was renamed The Lee Valley Water Company. In 1987, Saur and Générale des Eaux (later Veolia Environnement) bought stakes in Lee Valley Water, and it was acquired outright by Générale des Eaux in 1988. Following clearance by the Monopolies and Mergers Commission in 1990, Générale des Eaux merged Lee Valley with Colne Valley Water and

Rickmansworth Water, two neighbouring statutory water companies, to form Three Valleys Water. This in turn was merged with North Surrey Water in 2000. Finally in 2009, Three Valleys Water was renamed Veolia Water Central.

Although VE is unlikely to sell off its stakes in various Scottish and Northern Irish wastewater PFIs, this nevertheless caps a remarkable retreat from the UK regulated water sector by the French. Between 1987 and 1989, Générale des Eaux acquired six of the 29 remaining statutory water companies in the run-up to the sector's privatisation, along with major stakes in two more. Over the past 25 years, Saur, VE and Suez Environnement have been involved in ventures which served nearly a fifth of the people of England, Scotland and Wales. Saur owned Mid Southern and South East Water; Suez acquired Northumbrian Water, North East Water and Essex & Suffolk Water, while VE held Three Valleys, North Surrey, Folkestone & Dover and Tendring Hundred Water, and at one point sought to acquire Southern Water. All three were also active in the Scottish PFI market.

Perhaps the high watermark was in 1995, when Lyonnaise des Eaux (Suez) acquired Northumbrian Water, while VE's General Utilities and Saur jointly bid for control of Mid Kent Water. The latter deal was blocked by the MMC in 1997, while

Vivendi Environnement's proposed acquisition of Southern Water in 2001 was blocked by the Competition Commission in 2002. In 2002-03, VE wound down its stakes in Bristol and South Staffordshire, while Northumbrian was spun off by Suez. The last decade has since seen an orderly retreat.

The timing of Veolia's latest sale is intriguing. If the 2012 Olympics are a success, and the legacy extends into long-term regeneration, everything in the Lee Valley will be seen in a more positive light.

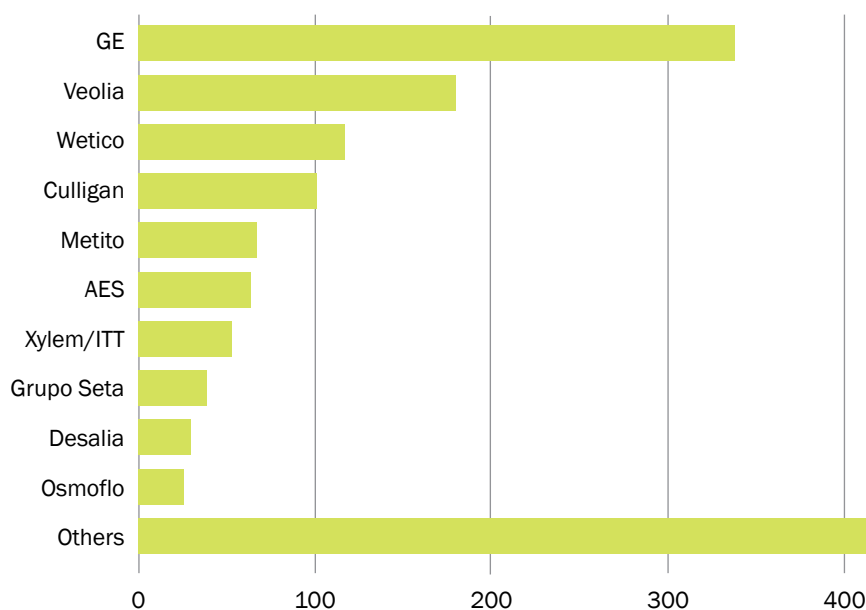
In Singapore this July, an Asian banker recalled being told by one of the French majors in 2000: 'we love Ofwat – they got rid of the British!' Their colleagues from the UK might have a different story to tell. Looking back at the acquisitions and divestments, it could be argued that each of the French companies had been seeking economies of scale in a highly capital-intensive sector. Ofwat has consistently opposed mergers, except when a water-only company merges with its surrounding water and sewerage company, for example when Suez merged North East Water with Northumbrian, in return for a 15% cut in customer bills.

Further mergers have been seen as necessary, especially in the wake of the 1999 and 2009 periodic reviews, but Ofwat has remained cool about trading further consolidation for consumer price cuts. In the past, the French retreat has been an orderly process and generally a profitable one. It will be fascinating to see how the Competition Commission views these latest sales, and how this will affect their selling price.

## CHART OF THE MONTH

This month's chart shows the market share in terms of companies supplying the smaller-scale membrane desalination plant market over the last five years. It demonstrates that GE has managed to retain a significant share of the RO market, despite becoming less active in big plants. The data on contracted capacity was collected as part of a wide-ranging investigation into the global desalination market by GWI researchers. As manufacturing technology has improved, the cost of pre-engineered plants has come down, lowering the barriers to entry in the membrane desal business, and contributing to a fragmenting of the market – note the number of projects in the 'others' category. This trend is starting to leak out into larger plant contracts as well, with many new firms using pre-engineered solutions to chance their arm in the membrane market.

## BWRO and SWRO installations since 2007 with a capacity <10,000m<sup>3</sup>/d



# Veolia goes on a pre-Christmas diet

Veolia Environnement CEO Antoine Frérot faced his biggest test yet when he unveiled a broad-based restructuring of the group in early December. Support for the stock will depend on the company's ability to deliver on its goals.

Investors were left largely unimpressed by Veolia Environnement's restructuring announcement on 6th December, which saw the group set out its priorities for the medium term in an attempt to restore credibility to the battered stock.

Although a concerted attempt to deleverage by ramping up its asset disposals programme to €5 billion over the next two years was generally seen as the right thing to do, it seems investors are – for the time being at least – continuing to adopt a 'show me' attitude.

"We believe that investors will most likely wait for Veolia to deliver before pricing it into the shares," wrote Exane's Yohann Terry in a note to clients. The widespread view is that investors are not being paid to wait, and that it will take time before the effects of the restructuring really begin to percolate through.

The decision to exit the US solid waste sector – where Veolia lacks critical mass – and the regulated UK water business makes sense, and the defensive nature of these businesses, combined with good earnings visibility, means that they have the potential to draw attractive offers (*see box opposite*). Like Saur and Suez before it, Veolia has finally acknowledged – after 25 years – that the UK regulated water sector is ultimately a capital-intensive business with limited growth prospects.

The move to divest the transport activities is more of a surprise, and marks a clear U-turn in policy – when GWI last interviewed CEO Antoine Frérot in July 2010, he dismissed outright the idea of selling the transportation business, arguing that

**Evolution of Veolia's business model**

|             | Types of contracts           | Typical length | Evolution |
|-------------|------------------------------|----------------|-----------|
| Heavy capex | Build-operate-transfer (BOT) | 10-25 yrs      | ↘         |
|             | Concession                   | 10-30 yrs      | ↗         |
| Light capex | Operations & maintenance     | 3-15 yrs       | ↗         |
|             | Design-build-operate (DBO)   | 2-15 yrs       | ↗         |
| No capex    | Works                        | <1 year        | →         |
|             | Design-build                 | <3 years       | →         |
|             | Service contracts            | ~5 years       | ↗         |

Source: Veolia

the prospects provided by the global trend towards urbanisation were simply too good to miss.

Analysts are in agreement that competitive pressures and high capex requirements are likely to mean that the sale of the transport division will be more tricky to push through at a decent multiple. The question remains as to whether state-owned CDC will step up to the plate, or whether an industrial buyer will emerge from the woodwork.

Veolia's decision to sell its regulated water operations underscores two of the main strands of its new strategy – to move away from a capex-heavy model (*see chart above*), and to increase its exposure to industrial clients from 30% in 2010 to 40% by 2014, aided by the creation of a dedicated group-wide marketing department.

The focus on the water side will be on

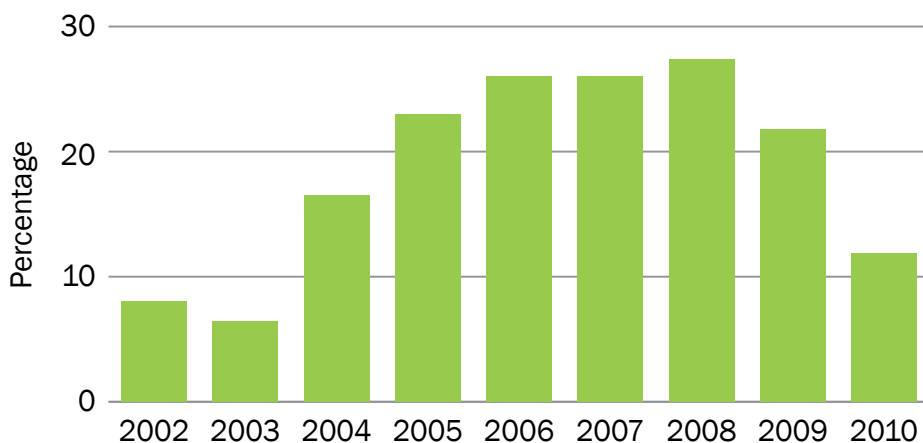
industries with heavy volumes and strict environmental constraints, such as oil & gas, mining and power, those with a defined water agenda such as food & beverage and cosmetics, and those with the potential to extract value from effluent streams, such as petrochemicals and breweries.

Although an increased exposure to the industrial sector will add to the cyclical nature of the stock, the increasing competitive pressures placed on the company make this a prudent move – in France, for example, Veolia faces water contract renewals worth 22% of its domestic revenue base over the next three years alone.

Despite the new strategy, and an aggressive – although back-loaded – cost-cutting programme, investors remain concerned about the lack of near-term earnings visibility, and took scant comfort from the apparent setting of a €0.70 per share dividend floor for 2012 and 2013, to be paid entirely in cash. This not only breaks with Veolia's policy of offering a scrip alternative, but implies a historically high payout ratio of around 100% in each of the next two years.

The impact of the divestments undertaken in 2011-2013 will be to wipe €9.8 billion off the group's revenue base, and €1 billion off adjusted operating cash flow. Apart from generating cash up front to reduce the group's net financial debt from €15 billion to below €12 billion by December 2013 (equivalent to around 3.0x leverage), the sales will help leave Veolia a leaner, more nimble organisation. This will be further aided by a move to aggressively cut

Percentage of Veolia shareholders domiciled in the US



Source: Veolia



## Veolia Water's current equity holdings in BOT projects

| Country     | Project                       | Scope                                       | Stake (%) |
|-------------|-------------------------------|---|-----------|
| Australia   | Coliban Water                 | Three WTPs (total 152,000m <sup>3</sup> /d) | 100       |
| Israel      | Ashkelon                      | 330,000m <sup>3</sup> /d desalination plant | 50        |
| Netherlands | Harnaspolder                  | 859,200m <sup>3</sup> /d WWTP               | 11        |
| Belgium     | Brussels North                | 275,000m <sup>3</sup> /d WWTP               | 73        |
| N. Ireland  | Project Omega                 | Various WWTPs in N. Ireland                 | 50        |
| Scotland    | Almond Valley, Seafield & Esk | Various WWTPs in Scotland                   | 100       |
| Scotland    | Project Aquatrine (Package B) | MOD sites in Scotland                       | 100       |
| Scotland    | Moray wastewater PFI          | Various WWTPs in Scotland                   | 16.67     |
| Scotland    | Tay wastewater PFI            | Various WWTPs in Scotland                   | 16.67     |
| Scotland    | Highland wastewater PFI       | Various WWTPs in Scotland                   | 25        |
| China       | Chengdu No. 6                 | 460,000m <sup>3</sup> /d WTP                | 60        |
| Brazil      | CLE Brasil Ltda               | Utility services to an industrial park      | 50        |
| S. Africa   | Durban Water Recycling        | 47,500m <sup>3</sup> /d industrial reuse    | 51        |
| Namibia     | WINGOC                        | 21,000m <sup>3</sup> /d water reuse plant   | 34        |

costs by centralising back-office functions and by eliminating a layer of management at the geographical level.

Once the transition is completed, 'new' Veolia is expected to generate organic revenue growth in excess of 3% on a compound annual basis, and a CAGR in excess of 5% for adjusted operating cash flow (assuming mid-cycle conditions). The guidance given for 2015 (adjusted operating cash flow of around €3.6 billion) was, however, almost universally described as excessively ambitious, and this air of scepticism also served to keep a lid on the share price as investors digested the new strategy.

While the group's restructuring will see it pull out of a number of jurisdictions in which it currently operates, Veolia also outlined a number of growing markets where it will look to increase its exposure to achieve targeted growth.

The group expects the percentage of revenues generated from the Asia-Pacific region and Central Europe to grow from 20% in 2011 to 26% in 2014, and expects its Chinese water business to grow from around €780 million this year to around €1 billion in 2014, driven by a combination of continued economic growth and tariff increases.

Eastern Europe, meanwhile, will be a priority area for capex allocation, as Veolia Water continues to upgrade treatment facilities to meet EU compliance deadlines, whilst consolidating its existing operations in the region.

In France, where the water division faces the constant threat of pricing pressures, re-municipalisation and low-cost competition, the focus will be on improving the group's competitive profile by promoting innovative solutions and allocating more resources to business development.

The group also plans to capitalise on its leading position in the UK waste PFI market to achieve a CAGR of over 7% between 2010 and 2017 on the revenue side, while future privatisations in the energy sector in Eastern Europe should provide a further growth platform, allowing for growth in excess of 10% over the same period.

The company still has everything to prove if it wants to regain its status as an attractive investment opportunity. US investors, who rode the stock up to its highs in 2008 on the back of the secular growth story, have sold off in droves since then, spooked by the governance issues that surrounded Henri Proglio's protracted departure, and a series of profit warnings (*see chart, left*). Frérot and his team still have a lot of work to do to prove that Veolia has finally left the spectre of Vivendi behind.

## Breaking up may not be hard to do

The sale of Veolia's regulated UK water assets will hinge on keeping the competition authorities happy. What are its options?

Veolia Environnement is likely to invite "break-up" bids for its regulated UK water business, in order to raise the £1.2 billion or more that it is hoping to achieve from the sale.

While interested groups will be asked to submit bids for all three of the Veolia UK water companies (Veolia Central, Veolia East and Veolia Southeast), the offers are expected to contain agreements to hive off each company to a separate member within the bidding consortium.

This would seem to be the French company's best bet of avoiding a referral to the Competition Commission, and thus maximising the proceeds it will receive from the disposal.

Although it is not certain that the Office of Fair Trading would decide that the sale of the three companies to a single buyer constitutes an industry merger under the Water Act (given that two of them were already owned by Veolia subsidiary General Utilities prior to privatisation), any risk of a referral would inevitably reduce the price buyers were prepared to pay.

The alternative would be to sell the three companies separately, but that would be a more complex process (particularly given the three's integrated management arrangements), which would also have a negative impact on the price.

Veolia needs as full a price as it can

get for the regulated water business – it is said to be aiming for a 20% premium to the companies' March 2012 regulated asset value – as it looks to raise €5 billion from asset disposals over the next two years. To this end, the sale will need to be as "clean" as possible.

For this reason, it will not include Veolia's equity stakes in Scottish and Northern Irish wastewater PFI contracts, all of which were acquired from either Thames Water or United Utilities between 2008 and 2011 (*see table above*). Neither will the French company retain any management interest in the three regulated water companies, a condition that restricted interest in Suez Environnement's recent sale of a 70% stake in Bristol Water. "They will have learned that lesson from Bristol," commented one industry consultant.

Despite industry analysts' insistence that the UK water asset sale ought to attract a great deal of initial interest, Veolia may nevertheless struggle to attract many serious offers. The big infrastructure and pension funds that typically take the lead in bids for such assets – such as the Goldman Sachs and Morgan Stanley funds and Canada's Borealis Infrastructure – may well be more focussed on the larger impending sale of E.ON's gas transmission business in Germany (which is expected to fetch between €2 billion and €2.5 billion).

# Europe drags index into negative territory

A poor showing from the European majors acted as a drag on the performance of the GWI Global Water Index this month. What will the new year bring?

European water stocks suffered the worst this month, as the EMEA segment of the GWI Global Water Index fell by more than 5%, led by double-digit declines at Kemira and Suez Environnement.

The poor performance dragged the whole index into negative territory, as it slipped by just under 1%, against an 0.7% rise in the underlying benchmark MSCI World Index.

Kemira's shares slumped by 13% after the company delivered a profit warning on 18 November, indicating that full-year revenues for 2011 would be similar to 2010, and that operative EBIT would be the same or slightly lower than last year. The company had previously forecast modest revenue and EBIT growth for 2011, despite raw materials headwinds.

The decline at Suez Environnement, meanwhile, sent the stock crashing out of the CAC 40 index, of which it has been a constituent since shortly after being spun off from Suez in July 2008.

Veolia Environnement, by contrast, held up relatively well, although the stock was not particularly well supported in the wake of a much-heralded restructuring announcement on 6th December (*see story p8*). It seems investors are waiting for tangible evidence of management's ability to deliver on the new strategy before re-pricing the stock.

Equipment suppliers had a mixed month: Pall Corp shares advanced by 8% on the back of strong results for the first quarter of fiscal 2012, which saw revenues rise by 16.5% to cross the \$700 million mark for the first time. Sales in the municipal water segment were up by 29%, driven by an order related to a large wastewater project in Australia, and by ongoing regulatory-driven investment by US municipalities in membrane filtration systems.

Xylem's first set of results as a stand-alone company were equally robust, despite a \$0.13 one-off EPS hit due to separation costs associated with the spin-off from ITT. Excluding restructuring costs, pro forma EPS came in at \$0.55 for Q3, compared to \$0.49 in the prior year. Quarterly revenues were up 17% year-on-year at \$939 million, boosted by the \$309 million acquisition of YSI Inc. Some \$67 million (pre-tax) has been spent to date on separation costs, with a further \$20-30 million of post spin-off costs expected to be incurred, the company revealed in late November.

Pentair did not fare so well, revising its Q4 2011 earnings guidance down from \$0.59-0.62 to a new range of \$0.53-0.55 on the back of weaker than expected sales into Western Europe. The company also introduced 2012 full-year guidance of \$2.60-2.75 per share.

The index performance will inevitably have been skewed this month by the forced removal of large-cap stock Nalco, following the completion of its merger with Ecolab on 1st December. We will be re-balancing the entire index with effect from 1st January, and establishing new weightings for each stock in light of the latest information available.

This month's two worst performers (Global Water Resources and Water Resources Group) are among the most likely candidates to be ejected from the index, owing to their thin trading volumes and low market capitalisations. WRG is down 83% this year, while GWR is down 56%.

## 10 Best Performers

| Company                        | Change 10 Nov - 10 Dec |
|--------------------------------|------------------------|
| China Everbright International | 29.46%                 |
| Pall Corporation               | 11.93%                 |
| Beijing Enterprises Water      | 11.11%                 |
| Cadiz Inc.                     | 9.27%                  |
| Energy Recovery Inc.           | 8.37%                  |
| China Water Affairs Group      | 7.98%                  |
| Séché Environnement            | 7.10%                  |
| Eastern Water Resources        | 6.14%                  |
| Aegion Corporation             | 5.17%                  |
| Thai Tap Water                 | 4.00%                  |

## 10 Worst Performers

| Company                      | Change 10 Nov - 10 Dec |
|------------------------------|------------------------|
| Water Resources Group        | -25.00%                |
| Global Water Resources       | -18.82%                |
| Shanghai Industrial Holdings | -13.38%                |
| Hyflux Limited               | -12.12%                |
| Kemira                       | -11.47%                |
| HanKore Environment          | -11.36%                |
| Suez Environnement           | -10.18%                |
| Qianjiang Water Resources    | -8.91%                 |
| Consolidated Water           | -8.85%                 |
| Salcon Berhad                | -8.11%                 |

## Big Water

| Company                 | Change 10 Nov - 10 Dec |
|-------------------------|------------------------|
| Xylem Inc.              | 2.96%                  |
| Sabesp                  | 2.71%                  |
| Pentair                 | 0.74%                  |
| American Water          | -0.35%                 |
| Kurita Water Industries | -1.12%                 |
| Aqua America            | -1.81%                 |
| United Utilities        | -2.59%                 |
| Veolia Environnement    | -3.93%                 |
| Severn Trent            | -6.22%                 |
| Suez Environnement      | -10.18%                |

## Major Indices

| Company                      | Change 10 Nov - 10 Dec |
|------------------------------|------------------------|
| MSCI World Index             | 0.70%                  |
| Dow Jones Industrial Average | 2.38%                  |
| FTSE 100                     | 1.53%                  |
| Hang Seng                    | -2.03%                 |

## GW I Water Index

Water on the markets this month

Global Water

**84.1** -0.9%  
10 Nov - 10 Dec

Asian Water

**65.7** +0.2%  
10 Nov - 10 Dec

EMEA Water

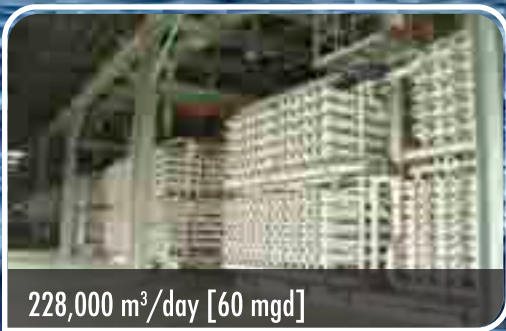
**63.4** -5.1%  
10 Nov - 10 Dec

Americas Water

**114.3** +0.8%  
10 Nov - 10 Dec

1st January 2008 = 100. Calculated on 10 Dec. Global index has 69 stocks, weighted by market capitalisation and water exposure.

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**AWARD** GWI 2010 Water Reuse Project of the year

The Sembcorp Changi NEWater Plant (SCNP) | Singapore



50,000 m<sup>3</sup>/day [13.2 mgd]

**AWARD** GWI 2008 Global Water Project of the year

Bundamba Advanced Water Treatment Plant (AWTP) | Australia



100,000 m<sup>3</sup>/day [26 mgd]

**AWARD** GWI 2008 Water Reuse Project of the year

Gibson Island AWTP | Australia

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## Committed to Quality & Technology

# Selling off Spain's municipal crown jewels

The formation of a new government in Madrid could catalyse a new wave of water privatisation in the country. Richard Weyndling investigates.

Spain's private sector water operators are convinced that circumstances have gifted them a one-off opportunity to expand their business into some of Spain's largest metropolitan areas, which have hitherto been the impregnable domain of long-established public sector water companies.

On the one hand, with public finances shattered by the collapse of Spain's construction boom and savage cuts in central government funding, municipal and regional authorities are desperate for cash. On the other, conservative parties which are ideologically amenable to the privatisation of commercially attractive public sector enterprises have made sweeping gains in local and national elections.

In Spain, private sector operators typically acquire 25-year municipal water concessions (but not the infrastructure assets themselves) by public tender. The winning bidder makes a one-off payment up-front (called a canon) to the municipality, which the municipal government can then use to rebalance its finances.

Ciril Rozman, director for concessions at Spain's largest water operator, Suez Environnement-owned Agbar, told GWI: "we have detected a great deal of interest for privatisation among municipalities, with the water sector the principal focus of attention." As a result of the municipalities' need for quick cash, private sector water operators will end up serving an additional 10 million inhabitants and have a 60 to 65% share of the total municipal water market within the next five years, he predicts.

Agbar's most accessible opportunities are in its home territory of Catalunya. Not only does the region have many cash-strapped municipalities, but the Catalan government itself has its back to the wall, with its water agency (ACA) €1.35 billion in the red.

The recently elected conservative Catalan administration and ACA are jointly preparing to package Aigües Ter Llobregat (ATLL), the bulk water operator in the Barcelona metropolitan region, into a concession for a period of up to 50 years as a means of reducing the agency's debt. "The longer the concession period, the more money it would raise," ACA director Leonard Carcolé told GWI, adding that "while the canon would not pay off the whole debt,

it would greatly help." The concession-holder would operate the whole bulk water system, including water treatment plants and wastewater treatment plants. It would also be responsible for certain specified infrastructure investments, but not for big-ticket infrastructure capex.

Carcolé says ACA's maximum priority is "to gain credibility with financial institutions" in order to be able to attract the private sector investment required to finance the €1.4 billion worth of wastewater treatment infrastructure needed to comply with EU legislation. Raising water tariffs (up 40% in 2011 for large consumers), cost-cutting through staff reduction, and selling off the ATLL concession by as soon as the middle of 2012 are seen as important steps towards restoring the agency's status, according to Carcolé.

Critics of the privatisation proposal worry about the strong influence that Agbar has with Catalan administrations. Eloy Badía of NGO Ingeniería sense Fronteras argues that ATLL is a viable enterprise which should stay in public hands. He ascribes ACA's debt burden partly to "the excessive scale of some of Barcelona's new infrastructure", but principally "to the failure of politicians to create the financial infrastructure to pay for it". By not raising tariffs in the past, "the politicians have ended up by handing a profitable water operation to the private sector on a plate." As a result, "citizens will have to pay off the debt, future capital investment and the operator's profits as well."

Ciril Rozman counters that Agbar, which already operates retail water services in most of the municipalities of greater Barcelona, could "add value to the operation, which would be made optimal by the integration of the water cycle."

Agbar sees its role "not as a financier, but in providing expertise so that we draw investors into the project. What we have done at Bristol Water, selling equity to Capstone and keeping our operational role, is a model for our expansion in Spain," according to Rozman.

Agbar also has its eyes on a role in Madrid's soon-to-be-privatised Canal Isabel II (CYII). "In the first phase, the Madrid regional government is likely to sell a 20% stake to institutional investors and bring in an operator, and then go public on the stock market at a later date," Rozman

## Top targets for water privatisation in Spain

- **CYII:**

Area served: Madrid  
Population served: 6 million  
Revenue: €776.96 million  
Net result: €93.89 million

- **ATLL:**

Area served: Barcelona  
Population served: 4.5 million  
Deficit 2010: - €40 million

- **EMASESA:**

Area served: Seville  
Total customers 2009: 337,000  
Population served: 1.06 million  
Revenue 2009: €108.49 million  
Net result: 2009: €74.640

- **EMASA:**

Area served: Malaga  
Population served: 680,000  
Revenue 2010: €60 million

believes. "The model has not been defined yet, but there will be an opening for stable partners like ourselves," he adds.

CYII is profitable under public ownership and is universally regarded in Spain as a model of quality and efficiency. As a result of CYII's healthy financial condition, Madrid is almost the only region where wastewater infrastructure investment has continued, unaffected by the economic crisis. Rozman believes, nonetheless, that "an international company like Agbar could add value" to its operation.

Another rumoured candidate for privatisation is EMASESA, the public sector operator in Spain's third-largest metropolitan area, Seville. Like CYII, it is a company with a record of quality of service, investment in infrastructure, efficiency in reducing water losses and an active expansionist policy in international markets.

Sevilla's mayor Juan Antonio Zoido has publicly denied that his recently elected Popular Party (PP) administration intends to privatise EMASESA. But according to Socialist opposition spokesman Juan Espadas, "political manoeuvring by suburban PP municipalities to get seats on EMASESA's board indicates they are, in

reality, planning something along these lines.”

Also in Andalucía, the PP ruling group on Malaga’s city council, which has held discussions with private sector operators, actually supported an opposition motion in September rejecting privatisation of the municipal water company EMASA. According to Luís Babiano of the public sector water operators’ association AEOPAS, there is a significant practical barrier to privatisation here, because “the financial operation has already been done in the form of a €75 million canon recently paid by EMASA to the council.”

Despite local setbacks, Agbar’s Rozman expects rumoured privatisation plans to become concrete now that Mariano Rajoy is set to lead a PP government in Madrid. PP mayors “avoided making public commitments to privatisation between municipal election victories in May and the general election in November, in order to help Rajoy,” he told GWI.

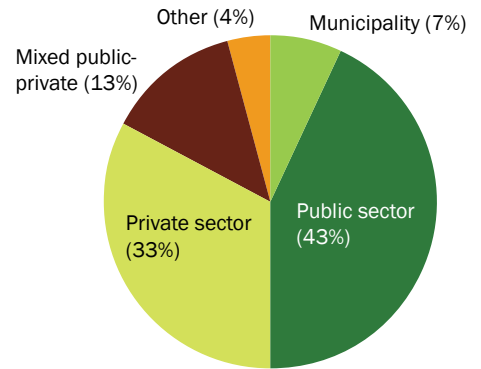
Opposition will nonetheless be vocal, and the arguments against the privatisation of these profitable urban water cycles are more often practical than ideological. Luís Babiano says his association does not

oppose private sector participation per se, but adds that there are several deep-seated problems within the model of privatisation in Spain.

First of all, the Spanish private sector is essentially a duopoly: “when you privatise, you privatise to Suez or FCC, so the element of free competition is weak.” Secondly, the system of awarding concessions through the payment of a canon acts as a bait for cash-strapped councils to sell off the most profitable water operations for “money which is then spent on other priorities, leaving no resources for investment in water.” Thirdly, there is no independent regulator or established criteria for assessing relative performance of operators to ensure efficiency and quality of service.

AEOPAS firmly supports private sector investment for the provision of wastewater infrastructure – which is a major national priority. However, Babiano argues that BOT (build-operate-transfer) contracts work better when the integral water cycle is operated by public companies “which can make the investment effort more easily”, especially in a region such as Andalucía, which has a ring-fenced water infrastructure charge included in tariffs.

**Spain: water operators’ market share**



Source: AEAS

These arguments are unlikely to be strong enough to deter cash-strapped municipal administrators, however. As Rozman points out, “for Rajoy, the reduction of the fiscal deficit is non-negotiable”, noting that he is committed to “a 4.4% reduction in public spending in 2012, with a further 3% cut projected for 2013.” He is quite open in recognising that “the principal driver pushing city councils to privatise water is the payment of the canon”, rather than a belief in the intrinsic benefits of private sector operation.

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# Berliner Wasserbetriebe faces 19% tariff cut

The federal cartel office has mandated a steep tariff cut in the German capital. It has clear implications for the value of the private partners' stakes in the operating company.

RWE's planned divestment of its 24.95% stake in Germany's largest water company Berliner Wasserbetriebe (BWB) has encountered an added complication after the federal cartel office (FCO) charged the company with imposing excessively high water prices.

Concluding an investigation that began in March 2010, the FCO is now demanding a 19% cut in net drinking water tariffs, or a reduction of roughly €0.36/m<sup>3</sup> (BWB currently charges €2.027/m<sup>3</sup> before VAT). If Berliner Wasserbetriebe is forced to comply, the value of RWE's stake in the company looks likely to fall.

RWE is still keen to sell its equity interest, with the share possibly being split between the city-state of Berlin – which currently holds 50.1%, and Veolia, the other private shareholder, which has 24.95%. Talks with the city government ground to a halt in the run-up to Berlin city elections in September, and have not yet been resumed with the new government.

BWB has kept water prices unchanged for two years, and had been planning a hike for 2012 in line with inflation (which stood at 2.5% in November 2011), to be followed by a price reduction in 2014. However, in view of the federal cartel office price investigation, the supervisory board

did not rubber-stamp the plan, deciding instead to continue with the current tariff levels until March 2012.

The cartel office informed BWB on 5th December that water tariffs must be reduced by 19% from the 2010 level over a three-year period ending in 2014, amounting to an aggregate saving of €205 million for Berlin's water consumers. BWB has until mid-January 2012 to comment.

Ironically, since BWB water prices are calculated according to rules set by the city-state, the Berlin government would have to revise the relevant law to enable BWB to comply with the cartel office requirement.

The cartel office compared costs at BWB with data from Hamburg, Munich and Köln, and found "significantly higher earnings" at BWB when compared with the water suppliers in the other cities, even taking into account the investments made by BWB in eastern Berlin after German unification in 1990, from which the long-term write-offs still impact prices today.

BWB intends to appeal the cartel office ruling, but if the authorities succeed in imposing the 19% price cut, BWB will suffer a financial shortfall of €70 million per year.

"The company does not have the possibility to cut costs. Either the substance

of the company will be eaten away, or the shareholders must decide whether their claims on BWB profits are in line with the times," spokesman Stefan Natz told GWI.

In recent years, RWE and Veolia have together reaped about €120 million per year (after tax) from BWB, although this sum will decrease in the coming years, given that their share is linked to the interest rate on long-term government bonds, which is currently falling. BWB provides the city with about €200 million per year in profits, abstraction charges and right-of-way charges. If this sum is reduced, either the city will have to reduce its expenditure, or taxes will have to be raised to make up the difference.

Even if the price cut is imposed, BWB hopes that its stakeholders will make concessions to enable it to proceed with planned investments over the coming years. BWB's current provisional five-year plan (awaiting supervisory board approval by March 2012) foresees investment rising from €241 million in 2011 to around €300 million in 2015/2016. The company expects to invest growing sums in modernising the wastewater collection network and in expanding the Wassmannsdorf wastewater plant, which will cost €200 million alone.

# Remondis takes Eurawasser for €95 million

The family-owned company has extended its domestic footprint. Where will the growth come from?

The water subsidiary of German family-owned waste disposal and water group Remondis is to acquire 100% of Eurawasser from Suez Environnement for €95 million.

The deal – which should be completed in Q1 2012 – values the company at 1.4 times annual revenues of €70 million (although Eurawasser's own website claims an annual turnover of €120 million), and 14.6 times the division's 2010 net result of €6.5 million. The last meaningful external valuation of the unit was in 2002, when ThyssenKrupp sold its 50% stake to Suez's Ondeo Services division for €38 million, or the equivalent of just over 1.0 times 2001 revenues.

Eurawasser serves more than 800,000 people in several eastern German cities,

as well as the Rheingau region in the west of Germany. It manages water and sanitation concessions, management and maintenance contracts, and has interests in a number of public-private companies.

"Taking Eurawasser on board will extend and sustainably strengthen our business in Germany," Remondis Aqua spokesman Michael Schneider told GWI. "We definitely see considerable growth potential." Nevertheless, it remains to be seen whether Eurawasser will succeed in extending existing contracts with municipalities when these expire.

"The perceived new enthusiasm for recomunalisation should not be overdramatised," commented Eric Heymann, a water analyst at Deutsche Bank Research. "In the wake of the

financial crisis, the idea of assuming more responsibility is being considered by many municipal governments. This is unlikely to happen to a large extent, however," he indicated to GWI.

"It really boils down to competitiveness and efficiency," Schneider emphasised to GWI. "Provided there is a fair tender and all market participants have an equal chance of winning back the contracts in question, we are convinced that we can deliver the best and most efficient services for a competitive price that will help municipalities to keep water charges low. Since most municipalities in Germany are suffering from considerable budget deficits, the privatisation of the water sector can and should be part of the solution to tackle that problem."

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The Clyde Pumps logo, featuring a stylized blue wave icon and the text 'CLYDE PUMPS' in a bold, blue sans-serif font. Below it, in smaller text, is 'Incorporating WEIR PUMPS Glasgow'.

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[www.clydeunion.com/water-industrial](http://www.clydeunion.com/water-industrial)

# Private sewer costs loom over UK interims

A mixed set of half-year results from the UK water and sewerage groups largely shunned the question of extra expenditure associated with the adoption of private sewers. Are companies being too complacent?

All but a handful of the UK's ten integrated water and sewerage companies reported reasonably healthy pre-tax profits for the first six months of 2011/12, as the industry weathered the volatility in the world's financial markets.

One exception was Welsh Water (Dwr Cymru), where the interim figures were again skewed by fair-valuation losses on financial instruments. An even more dramatic £129.8 million loss in this (largely academic) accounting provision than the £64.4 million recorded over the same six months of 2010 pushed the company into a pre-tax loss. Before financing charges, however, it made an operating profit of £108 million for the period.

Another was unlisted Northumbrian Water, which did not publish interim results following its recent takeover by CKI. A quirk in its licence means it does not have to do so, although as a publicly owned entity in previous years it did anyway (Severn Trent and South West Water have the same dispensation in their licences). Economic regulator Ofwat said the discrepancy is something it would "tidy up" shortly to ensure a uniform standard of financial accountability.

Despite a generally strong performance, the sector was not entirely immune from the worsening situation in the Eurozone. Severn Trent, for example, was obliged to make an exceptional bad debt provision of £21.9 million against accounts receivable from its SII associate company in Italy – which accounted for the bulk of a 35.4% shortfall in its pre-tax profit against the same period a year ago.

Overall there was no real deterioration in bad debt provisions, as some had feared, despite the toughening economic conditions in the UK. United Utilities, which has historically faced a bigger problem in this respect than others, said it had seen a "sustained improvement" from its position in 2009/10, when bad debts amounted to 2.5% of regulated revenues.

Some analysts questioned whether this reflects the true position, however, as under the IFRS accounting standards that it employs, UU does not include debt it believes it has no chance of collecting in its revenue figures (whereas under UK GAAP 2, all issued bills count in this

## UK WASCs' interim results for the six months to 30 September 2011 (£m)

| Listed groups             |                    |                               |        |
|---------------------------|--------------------|-------------------------------|--------|
| Company                   | Turnover (2010/11) | Profit (2010/11) <sup>1</sup> | Change |
| Severn Trent              | 886.0 (867.9)      | 65.3 (101.1)                  | -35.4% |
| United Utilities          | 792.7 (762.4)      | 124.4 (122.2)                 | +1.8%  |
| Pennon                    | 642.6 (593.2)      | 107.4 (96.2)                  | +11.6% |
| Unlisted groups           |                    |                               |        |
| Anglian                   | 581.1 (554.5))     | 145.0 (170.8)                 | -15.1% |
| Northumbrian <sup>2</sup> | -(369.4)           | -(87.0)                       | -      |
| Southern                  | 356.3 (343.3))     | 46.4 (51.1)                   | -10.1% |
| Thames                    | 850.8 (813.7)      | 145.6 (110.9)                 | +31.3% |
| Welsh Water               | 346.0 (334.0)      | -96.1 (-22.1))                | N/A    |
| Wessex                    | 235.6 (222.9)      | 76.3 (76.7)                   | -0.5%  |
| Yorkshire                 | 453.7 (444.1)      | 15.4 (51.0)                   | -69.8% |

1) Profit before taxation

2) No interim figures published for 2011/12

Source: Company data

calculation).

Independent sector analyst Robert Miller-Bakewell said the real figure for UU's bad debts was consequently nearer 4% of regulated revenues. He added that bad debt provisions across the sector are likely to rise come the final results for 2011/12, as the increase in the number of consumers now living in rented properties begins to feed through.

The results also give an indication of a potential time-bomb that will arise from the water companies' enforced adoption of private sewers from the beginning of October this year.

Pennon disclosed that South West Water would incur one-off costs of £46 million and ongoing additional annual expenditure of £6-11 million from taking over more than 4,700km of private sewers in its franchise area – a move which will more than double the length of its sewerage network. Most of the other companies face a similar expansion of their networks as a result of the change, and their additional costs (relative to the size of the networks) are expected to be broadly in line.

Most of the companies will need to recover the additional opex they incur as a result of the private sewer takeover through the IDoK (interim determination of K factor) regime, under which Ofwat allows them to make additional tariff increases during the course of five-year

pricing review periods for qualifying expenditure that was not foreseen at the time pricing limits were set. The sums involved will be considerable, as the IDoK claims will cover the net present value (NPV) of 10 years of operating expenditure (some of which Ofwat will reclaim at the next pricing review).

The problem is that none of the companies is likely to have enough information to file these IDoK claims before late 2013, which will mean the tariff increases will all be loaded onto the final year of the current review period (2014/15). This could produce an extra one-off hike in bills that year of as much as £80 – just ahead of a general election.

"It strikes me that this thing has been ill thought out to begin with," said Lakis Athanasiou, who until recently covered the sector for Evolution Securities.

While it is clearly in the companies' interest to highlight the problem, some appear to be more relaxed about it than others. The optimists believe that Ofwat will allow them to under-spend on agreed opex commitments in other areas up to 2015 to offset the additional expenditure associated with adopting private sewers (and thus prevent a politically unwelcome tariff hike).

"They are assuming that private sewers are likely to be funded at the expense of something else," explained Miller-Bakewell.



# Pressing home a Saur point

Saur's disdain towards major shareholder Séché Environnement has reached new levels. Breaking the current impasse may require drastic action.

The executive committee of Saur, France's third-largest private water company, has written to French sovereign fund Fonds Stratégique d'Investissement (FSI) to signal its opposition to Séché Environnement's ongoing bid to take control of the group.

In the letter, the main extracts of which were published in the French press at the end of November, Saur's management says "the synergies (between Saur and Seché) are very weak, its activities profoundly different and its business culture and principles of corporate governance even more so."

The committee also claims that Séché taking control would expose Saur to greater financial risk and increase the cost of its debts.

Séché has held 33% of Hime, Saur's holding company, since April 2007, and in June 2008, it negotiated a call option which entitles it to purchase 18% of CDC's stake at any time until 26 May 2012. CDC's entire 38% share was subsequently transferred to FSI in 2009 (see chart below).

Manuel Andersen, Séché's director of investor relations, defended his company's position by observing that "the combination of waste and water services management is, after all, the model on which Veolia and Suez Environnement are founded, and the synergies are considerable." Andersen also dismissed rumours circulating at the recent annual French mayors' conference regarding the possible dismantling of Saur.

FSI is currently deliberating a plan submitted by Séché six months ago seeking an increase in Saur's capital and the exercising of Séché's call option at a

re-negotiated price – the combined effect of which would be to reduce Saur's debt burden. This currently stands at more than €2 billion, the vast majority of which is held at the holding company level (Hime), and includes €430 million in 30-year convertible bonds held by Saur's shareholders. Repayment of the remaining €1.4 billion of senior loans and €200 million of junior loans is scheduled for 2014.

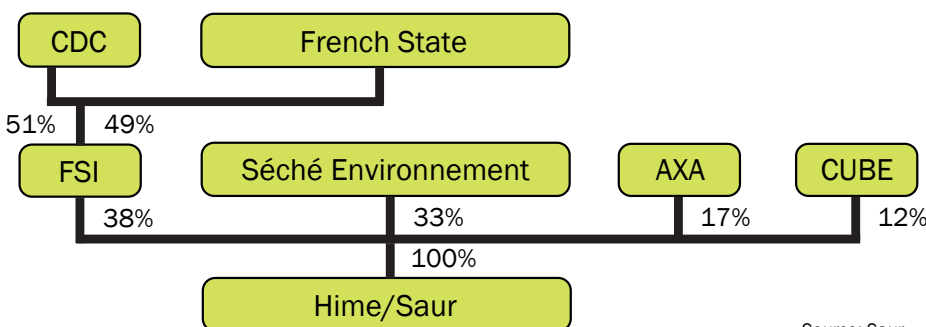
It remains unclear whether all Saur's existing shareholders would participate in any capital increase, and the growing hostility between Saur and Séché is believed to have resulted in an offer by some of the other shareholders to relieve Séché of its stake in order to resolve the impasse.

Nicolas Royot, utilities analyst at Portzamparc, told GWI: "It's difficult to see Séché paying the option price as laid out in the [2008] agreement for an additional 18% of Saur's capital, which works out at around €180 million. This price is very high, and significantly above current market multiples.

It appears almost certain that Séché will seek to re-negotiate [the price] as part of an agreement with the FSI and the other shareholders to increase Saur's capital. Séché's equity to debt ratio is manageable for a company of its size, but the problem is that in taking control of Saur, its debt burden will become enormous," he added.

"Séché is in a solid financial position and has the means to take control of Saur," Andersen told GWI. "We have political support for this takeover move from the government, and this has been re-endorsed in recent weeks, but the FSI is dragging its feet in examining our proposals."

Saur's shareholder structure



Source: Saur

## EUROPE IN BRIEF

- **Suez Environnement** will crash out of the benchmark CAC 40 index on 19 December, to be replaced by cable and wiring giant **Legrand**.
- The UK government indicated in its water white paper, published at the beginning of December, that it is "strongly minded" to raise the current merger threshold to £70 million, after admitting that "the effectiveness of the existing comparative regulation approach may be diminishing".
- A new body in charge of supervising the Italian water sector failed to see the light of day after its creation was announced earlier this year. The water agency was supposed to come into force in September, but under the new budget, its role will now fall within the remit of the existing energy watchdog, **AEEG**. Roberto Bazzano, president of Italian water industry trade body **Federutility**, has called for a swift definition of the powers that will allow AEEG to supervise the water sector "with the same efficiency it has demonstrated in the energy sector".
- The board of Dutch pipe manufacturer **Wavin** rejected a revised offer of €9.00 per share from Mexican suitor **Mexichem** in early December, stating that the price "materially undervalues the company". **Georg Fischer**, meanwhile, announced the acquisition of **Harvel Plastics** for \$50 million on 1st December, in a bid to boost its presence in the North American market for PVC and CPVC pipes for industrial applications.
- The **EBRD** has signed a follow-up loan of RUB1.5 billion (€35 million) with leading Russian private sector water operator **Rosvodokanal (RVK)**. The 13-year funding will be matched by a parallel RUB1.5 billion loan from **Vnesheconombank**. Since the EBRD extended the initial RUB1.5 billion tranche in April 2008, RVK has invested RUB5 billion (€125 million) in an ambitious capex programme covering drinking water supply and sewage treatment in the seven Russian cities in which it operates.
- A **Degrémont**-led consortium has been awarded a €257 million DBO contract for a 350,000m<sup>3</sup>/d wastewater treatment plant in Prague in the Czech Republic. The operating period will run for one year following construction.

# Saudi Arabia spends as privatisation nears

A capital investment blitz means the wastewater system in the Kingdom is almost ready for privatisation. The Kingdom still faces problems with procuring projects and recovering costs through tariffs.

**S**audi Arabia's National Water Company has stepped up its wastewater spending as it prepares for a business transformation next year that will see it make the first formal move towards adopting a holding company structure.

Senior sources at the body told GWI they are re-examining procurement procedures in a bid to get more contractors involved in the new generation of wastewater treatment plants – which will feature combined-heat-and-power energy recovery for the first time.

Crucially, NWC has also taken the first step towards reforming its tariff structure, with the identification of high-value industrial customers who could be charged a higher rate – a key move for cost recovery and the financial sustainability of its potable water division.

The latest version of the privatisation strategy at NWC – which currently owns and operates the vast majority of municipal water and wastewater assets in the Kingdom – involves the public body overseeing a number of independent public-private water operators and wastewater concession business units, as well as wholly owned central units providing technical support.

While the exact structure of the water and wastewater business units will be decided over the course of the coming months, NWC has been spending hard on its assets as it seeks to build up a sustainable business ready for private investment, with the wastewater network receiving the

bulk of the new money.

## KSA big spender

In total, NWC has spent SAR4.3 billion (\$1.2 billion) on 66 new wastewater projects in 2011. It plans to spend another SAR3.5 billion (\$933 million) on a further 31 projects next year.

The projects cover treatment works, transmission, and housing connections. Chief among them is the completion of the wastewater system in Jeddah, where some 3.8 million people had previously relied on septic tanks and subsequent tanker transportation to dispose of sewage in the nearby Musk Lake.

Over the course of the project, the Musk Lake has been drained [an achievement that won the Reuse Project of the Year title at this year's Global Water Awards], hundreds of kilometres of piping and tunneling have been installed, and work has started on one of the world's largest lifting stations at Jeddah Airport to transport sewage from gravity-driven tunnels to the surface for treatment.

The first seven homes have already been connected to the system. 8,000 connections are set to be online by the New Year, with this figure reaching 52,000 by the end of 2012 and 132,000 in total by 2015, according to NWC. The total cost of the project is estimated at SAR7.5 billion (\$2.0 billion), an average spend of about \$15,000 per household connection.

While the NWC wastewater capital

budget is heavily invested into network and transmission spending, there are also significant plans for spending on new wastewater treatment capacity.

In a new technical development for the Kingdom, future wastewater treatment plants will be installed with biogas power generating facilities. The first of these treatment plants – the 200,000m<sup>3</sup>/d Kharj phase 3 project – was provisionally awarded to the local Al Arrab contractor in November, and other projects at Manfouha and Jeddah Airport are likely to follow soon, all procured directly through engineering, procurement and contracting (EPC) contracts (*see table opposite*).

Procuring NWC's recent projects has been a tricky business, with some contractors voicing concern that they had not received enough information on how to proceed. NWC chief executive Loay Al-Musallam told GWI that procurement had been improved, but that contractors need to recognise that the new plants require a new set of more advanced technical skills, and might not be suitable for all bidders.

"If you compare the standard government processes and the NWC processes you will see a lot of progress," he said. "Our methodology focuses very much on the technical process, and some of these projects are being bid without any consideration for the quality. We are coming up with measures to fix the situation.

"On Airport 2 [the 500,000m<sup>3</sup>/d megaplant set to be built in Jeddah] there's going

## Deep thinking is only part of the solution

NWC recognises capex is not the only answer to infrastructure needs says GWI Middle East editor Tom Scotney.

**I**hit a bit of a low point earlier this month in Jeddah. To be precise, the bottom of NWC's soon-to-be-completed sewage lifting station – three shafts, each 85 metres deep and forming a crucial part of the Jeddah wastewater project that has filled so many headlines recently.

It's a big hole. And it is matched in scale by the Jeddah project, which is genuinely something that NWC can feel proud of. If the company can make a financially sustainable water and wastewater business with the tariff restrictions that are laid on it by political pressures, that will be a suc-

cess that's worth celebrating even more.

Identifying a handful of customers that might pay closer to the true value of the water they use is a modest step, but one that might be difficult to implement – government bodies don't like paying their bills any more than you or I do.

NWC now needs to make the case for smarter tariff levels across the board to the government. It won't be easy. And the best way to go about it will be for them to break down, per household, and per metre cubed, exactly what the government is handing out to NWC to keep the water

flowing.

The first goal has to be covering operating costs, then covering the actual cost of the water paid by NWC, and hopefully further on from there.

What makes us such big fans of NWC here at GWI is their realisation that success as a water utility needs to lie in connection numbers, in customer satisfaction, NRW reduction, reuse levels, and financial sustainability, rather than how many billions are spent each year – something that's not always the case in the region.

## National Water Company's WWTP pipeline (EPC contracts)

| Plant name             | Treatment capacity (m <sup>3</sup> /d) | Co-generation capacity (MW) | Status           |
|------------------------|--|-----------------------------|------------------|
| Al Kharj Phase 3       | 200,000                                | 2.2-2.5                     | Awarded          |
| Manfouha expansion     | 150,000                                | -                           | In bidding       |
| Jeddah Airport Phase 2 | 500,000                                | 8                           | Prequalification |
| Arana (Mecca)          | 200,000                                | undecided                   | In planning      |
| Al Hayer Phase 2       | 400,000                                | undecided                   | In planning      |

to be a much tighter design phase so people have a better idea what NWC wants to buy. It will be a transparent process. It won't be a buddy system, it won't be about who you know. On Airport 2, the contractor will submit a better proposal, and we in turn will have a better RFP."

**Potable plans**

All the wastewater development at NWC is underpinned by its growing business of selling treated sewage effluent (TSE) produced at WWTPs to industrial customers for use in district cooling, cement mixing, or for similar purposes that require lower-grade water.

However, the problem of cost recovery still faces the potable water supply business. Political pressure against raising Saudi Arabia's extremely low consumer tariff rates means that NWC struggles to cover even its operating costs for water supply – making it heavily reliant on government subsidy to cover both capital and day-to-day operating costs.

NWC business development director Ibrahim Shirazi said the company is in a very good position in terms of turning wastewater treatment into a revenue generator, and now needs to find a way to do the same with the potable water supply.

He said NWC is now in negotiations in an effort to levy higher tariffs on "high-value" customers in the industrial and government sectors, a move which might be easier to implement than a general domestic tariff rise.

"As far as TSE is concerned, we have really succeeded in achieving our targets for 2011, and we are stretching our targets for 2012," he said. "The new aspect for us is the high-value customers for potable water. On a financial front, this is a big issue for us and has big implications."

Al-Musallam said that "eight or nine" high-value customers had already been identified in Riyadh, which amongst them are supplied about 65,000m<sup>3</sup>/d of potable water. "Without compromising on the supply to domestic customers, we need to maximise income from potable water," he added.

**Time for transformation**

The moves toward financial sustainability come at a time when NWC is poised to take its first formal step towards privatising its water and wastewater assets and operations – a process that has so far been restricted to management contracts in three key cities.

The latest incarnation of the privatisation scheme envisions regional bodies directly controlled by NWC that own pota-

ble water assets; and a number of independent regional water O&M companies and wastewater business units, in which NWC would take a share.

The process has been in planning for some time internally, but will take a serious step forward at the start of 2012 when NWC puts out a tender for advisors on the formation of the first of the wastewater businesses – in Riyadh.

The wastewater business unit will involve the creation of a special purpose vehicle with one or more partners that would actually take ownership of wastewater assets, as well as NWC's existing agreements to sell TSE. They would then carry out a full-service concession for a set period, covering collection of wastewater, treatment, and the sale or disposal of treated effluent.

In the potable water business, the plan is to create regional water O&M companies which would hold contracts directly with NWC, but could also bid for contracts

outside the Kingdom. There are four 'clusters' in mind for O&M contracts: Central (Riyadh), east (Dammam/Al-Khobar), north-west (Medina, Yanbu, Tabuk) and south-west (Jeddah, Mecca). Depending on feedback, however, this number could be reduced to three, in order to make the contracts more appealing to the private sector. Original plans had NWC as the majority shareholder in the O&M companies, but this has not yet been set in stone, Shirazi said.

Overall, Al-Musallam told GWI he feels the spending on wastewater, the improvement in procurement procedures and the realisation of TSE revenues has put the company in a strong position to push through its reorganisation in the coming years.

"Three years ago I thought this was Mission Impossible," he said. "There was a huge list of challenges, but they have been tackled one by one. The people of Jeddah know this can happen."

## A role for designer water

One of Saudi's leading independent water suppliers says it will be pursuing industrial clients – and can thrive alongside an improving municipal service.

**T**he head of Saudi private water producer Sawaco has said it plans to double in size in the next five years as it exploits a niche demand for "designer water" from industrial customers.

Sawaco, which celebrates its tenth anniversary on 23 December, currently owns and operates three desalination plants with a combined capacity in the region of 30,000m<sup>3</sup>/d, selling potable-standard water via tanker to a series of private customers in the Saudi residential, commercial and industrial sectors.

General manager Nizar Kammourie said that despite NWC's work in the water sector, there is still an opportunity to sell water directly to industrial customers, and he expects the company to double the size of its portfolio to something in the region of 60,000m<sup>3</sup>/d within five years.

"I want to do this exclusively with

industrial users," he told GWI. "Industrial customers are more stable, and even if there is an abundance of water from NWC we will be able to design water, which will appeal to customers."

Sawaco supplies a number of different kinds of water, with specific levels of dissolved solids, pH and chlorine. The company – owned by the Saudi Brothers investment group – was the first private outfit given a licence to sell water in Saudi.

The company intends to use the debt markets to fund further plant-building in the Kingdom, Kammourie said, adding: "We currently have over 7,000 customers. NWC is providing more quality than before, and the government will be putting money into IWPPs, but because we have become water designers, we have built our business around customers, rather than the other way round."

# Doosan tips MED for its desal future

The Gulf's most successful MSF contractor of recent years is convinced that MED is the future of thermal desalination. How can the technical and political challenges that hold it back be overcome?

South Korean engineer Doosan has thrown its weight behind multiple-effect distillation as the solution to thermal desal needs in the Middle East – even as the company is locked in a vicious battle with rival EPC contractor Fisia for the latest MSF plant in the Middle East.

Doosan has established a dominance in Saudi Arabia – the region's largest desal market – winning contracts to build desalination capacity amounting to a total of nearly 3 million cubic metres a day (see chart, below right). The foundation of its success has been the MSF units that supplied a string of large power and water plants procured by the Saline Water Conversion Corporation (SWCC) since 1993.

Earlier this month, it started transportation of the first MSF unit for the Ras Al-Khair project, the world's largest desalination plant, from the company's production facility in Changwon, Korea. But despite its success the company now has big plans to pursue MED – which offers lower energy demands and easier operating requirements – for future projects.

Doosan's Europe, Middle East and North Africa managing director Hyun-Sang Ahn admitted the company was surprised MED had not yet taken off as the technology of choice in Saudi Arabia. "Before Ras Al-Khair, even we thought that MED would be more competitive," he told GWI.

One reason for the lack of development on MED in Saudi Arabia is the conservative approach of offtaker SWCC. On the most recent large desalination tender to come to the market – the 550,000m<sup>3</sup>/d Yanbu 3 pro-

ject on the Red Sea coast – SWCC required MED bidders to use titanium for all internal pipes on their design. This requirement – seen as unnecessary by some experts – made MED uncompetitive on capital cost.

Doosan is one of two MSF bidders waiting for a decision on Yanbu 3. It was heavily undercut by Fisia Italmimpianti on a quote for the plant in July, but a final decision from client SWCC has proved elusive.

MED also faces technical challenges in the Kingdom. Ahn told GWI that MED had been held back from dominating the thermal desal market because the need to use more units to reach the same capacity made it harder to fit into the geographically restricted areas available for many new desalination developments.

2011 will mark the start of operations at the experimental 15MIGD (68,190m<sup>3</sup>/d) single-unit MED plant in Yanbu, the contract for which was awarded earlier this year. With the project weighing in at almost twice the size of the current larg-

est MED unit, Doosan claims it will be a game-changer for thermal desal technology. It went as far as financing the \$124 million Yanbu unit itself through a combination of debt and equity, in exchange for an agreement from SWCC to buy back the unit once it had been proved operationally.

Referring to Doosan's decision to take on the financial risk at Yanbu, Ahn said: "Even the client couldn't believe that. We are waiting until we produce the required water perfectly, and then we will see the money. It's due to switch over to government operation at the end of next year."

The company says the mega-unit project means it is less than two years away from being able to implement multiple-effect distillation (MED) desalination on the same scale as the MSF mega-projects that made it one of the most successful EPC contractors in the Middle East. "We want to bring the competitive edge we have in MSF to all three types of desalination [MSF, MED and RO]," Ahn said.

## Doosan's desalination contracts in Saudi Arabia

| Project name               | Capacity (m <sup>3</sup> /d) | Process | Awarded |
|----------------------------|------------------------------|---------|---------|
| Assir Phase 1              | 95,470                       | MSF     | 1985    |
| Shoaiba Phase 2            | 454,600                      | MSF     | 1993    |
| Shoaiba Phase 3            | 881,920                      | MSF     | 2006    |
| Shoaiba Phase 3 RO section | 150,020                      | RO      | 2007    |
| Qurayyah CCPP add-on       | 6,000                        | MSF     | 2009    |
| Jeddah Phase 3 RO          | 240,030                      | RO      | 2009    |
| Rabigh Power add-on        | 9,820                        | MSF     | 2010    |
| Ras Al-Khair               | 1,036,490                    | MSF/RO  | 2010    |
| Yanbu Phase 2 expansion    | 68,190                       | MED     | 2011    |
| Marafiq Yanbu              | 54,550                       | MED     | 2011    |

## IFC lines up \$100m investment in Kharafi National

The private investment wing of the World Bank is backing the Kuwaiti developer and operator. The move is also a vote of confidence in the development opportunities on offer in Africa.

The International Finance Corporation is considering an equity investment of up to \$100 million in Kuwait-based Kharafi National, to support the expansion of its water and wastewater business in the Middle East and Africa.

Kharafi National operates or manages wastewater treatment facilities with a total capacity in the region of 1.4 million m<sup>3</sup>/d. Its most significant asset is the 375,000m<sup>3</sup>/d Sulaibiya RO treatment plant

in Kuwait, for which it holds a 30-year build-operate-transfer contract in partnership with GE.

It has a total investment plan for the water and wastewater sector worth \$250 million over the next 3-5 years, and is keen to pursue opportunities in Egypt, Iraq and South Sudan. Despite the turbulence in Egypt, the company has also said it plans to set up a business hub in the country.

While the IFC investment is targeted

specifically toward international expansion, Kharafi National will also be looking to expand its footprint in Kuwait in the near future. It is seeking funding for an expansion at Sulaibiya that will take the plant's capacity up to 600,000m<sup>3</sup>/d. It is also likely to bid for the Umm al-Hayman project, Kuwait's second privately-financed WWTP.

Kharafi National is currently 80% owned by the Al Kharafi family, and 20% by the Younis family.

# CH2M to advise on Doha sewerage project

Qatar plans to invest \$3 billion in improving sewerage infrastructure conditions in the capital. The authorities – and their new advisors – have yet to decide whether to include a private finance element.

The Public Works Authority in Qatar (Ashghal) has appointed CH2M Hill to oversee a QAR10-12 billion (\$2.7-3.3 billion) sewerage project that will overhaul wastewater services in developing areas of Doha over the next seven years.

The Inner Doha Re-sewerage Integrated System (IDRIS) project, due for completion by 2019, will deal with an area of the capital which is set to be heavily developed, with new higher-density buildings being built as part of the country's expected infrastructure boom over the next decade.

While many details of the project still remain undecided, it will include the construction of a major wastewater treatment plant to the south of Doha, as well as a deep-trunk sewer tunnel, pumping stations, ocean outfall and sewage forwarding and TSE return mains (see *Reuse Tracker p53*). The majority of the project will be

paid for through direct public funding. A private finance element for the treatment plant has not been formally ruled out, but no decision has yet been made.

The capacity of the plant has not yet been decided, with a source saying only that it would be in the region of 80,000-400,000m<sup>3</sup>/d. Treated water produced at the plant is likely to be reused, but the exact level of treatment and the choice of customers for the treated water will depend on consultation with the Qatari master plan for wastewater treatment and reuse.

CH2M Hill has been awarded the QAR225 million (\$62 million) contract to act as programme manager for the IDRIS scheme, and will be working on a feasibility study, concept design management and the oversight of procurement as well as post-contract asset management.

Amer Battikhi, the business develop-

ment director for the MENA region at CH2M's water business group, said the company had been awarded the contract based on its success in other deep-tunnel sewerage projects in places like Abu Dhabi and Singapore.

"We have been present in Qatar for a while, but this is our biggest contract yet with Ashghal, and it's key to us because of the type of work," he told GWI. "Sewerage tunnels and integrated systems is something that we have done all over the world, and this is a continuation of what we have accomplished."

CH2M will be working closely with MWH, the advisor on Qatar's national wastewater master plan, when it comes to carrying out the project, and particularly when it comes to thrashing out details of the reuse element of the scheme, Battikhi added.

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# Israel showcases new batch of water start-ups

Last month's Watec 2011 event played host to a new wave of water start-up initiatives. With quality and deal flow increasing, has the search for funding become easier?

**A**t the Watec 2011 conference in Tel Aviv in November, Israel's Industry, Trade and Labor Ministry hosted a pavilion to showcase start-up companies as part of its Israel New Tech programme.

The programme aims to promote local start-ups in the field of water and renewable energy. Gilad Peled, business development manager for the water sector at the Israel Export and International Cooperation Institute, told GWI that the ministry and the institute have been focusing their efforts on helping start-up companies obtain funding, as well as finding strategic partners for their technologies. "Start-ups are key to the future of the industry, which is growing rapidly despite the global economic situation," he said. Some of the companies involved in the New Tech programme are involved in pilot projects in Israel and are looking to conduct similar testing abroad. "We're seeing a lot more quality projects in the water sector, and the level of those involved has also improved dramatically," according to Harold Wiener, general partner at Terra Venture Partners, a Jerusalem-based venture firm that invests in water and renewable energy. He said the main niches of interest are wastewater treatment, water monitoring, and smart grid implementation for water networks.

Jack Levy of venture capitalist Israel Cleantech Ventures noted that deal flow is increasing. "We're also noticing that a

growing number of start-ups established in recent years are already making substantial sales running into the millions of dollars," he told GWI.

Some of the companies showcased at the Watec exhibition are listed below:

- Stream Control Ltd. focuses on water loss. The company's Aqua Guard electronic controller integrates hardware, software and hydraulics, and is designed to control water pressure on a real-time basis, saving up to 50% of the water loss in networks. The company is looking to raise \$3 to \$5 million. Contact Shlomo Avitbul. Tel: +972 545 544 376. E-mail: streamcontrol@o12.net.il
- Curapipe Systems has developed a technology to repair leaks in buried pipelines. It focuses primarily on urban water distribution networks. The company is looking to raise \$2.5 million. Contact Peter Paz. Tel: + 972 544 538 562. E-mail: peter@curapipe.com
- AquaSpark has developed a technology for the cost-effective treatment of organic industrial and agricultural wastewater flows. The company is planning to raise \$3 million in three stages over the next year. Contact Pesah Maor. Tel: +972 505 520 469. E-mail: pmaor@aquaspark.co.il
- Drying Sludge Technology (DST) has patented a method for drying sludge in a rotating loop reactor using a continuous process. The company says that its technology is highly energy-efficient. DST

is looking to raise \$1 million for a pilot plant. Contact Shai Schechter. Tel: +972 3 699 8543. E-mail: shai@novagon.com

- pH<sub>2</sub>O Water Technologies treats water and industrial wastewater streams without adding chemicals, by adjusting and stabilising the pH. The company is looking to raise \$2 million. Contact Meira Kain. Tel: +972 505 453 865. E-mail: meira@ph2o.net

- Greeneng Solutions specialises in ozone-based solutions for recycling water, purifying wastewater and disinfecting food. The company is trying to raise \$500,000. Contact Ittai Weissberg. Tel: +972 502 993 800. E-mail: info@greeneng.biz

- MDC (Membrane Development Company) is focused on the development of advanced nanofiltration membranes. The company claims to have developed a unique membrane that operates in acid, base and oxidant environments, and which rejects salts and low molecular weight organics. The company is trying to raise \$500,000 for a pilot. Contact Ken Shaked. Tel: +972 542 526 555. E-mail: ken@membranes.co.il

- Water Shield Advanced Water Security Technologies has developed a built-in protective safety system to counter hostile attacks. The system is designed for use by government institutions, water utilities and industrial users. The company is looking to raise \$2 million to expand its activities abroad. Contact Thor Halperin. Tel: +972 505 495 065. E-mail: thor@ipd-patent.com

## EIB diversifies its lending strategy at Ashdod

The bank's decision to channel its loan through Hapoalim has increased the cost of the desal financing package.

**T**he bank's decision to channel its loan through Hapoalim has increased the cost of the desal financing package.

The NIS1.5 billion (\$400 million) financing package for the 320,000m<sup>3</sup>/d Ashdod desalination plant in Israel was completed in early December with the signing of a NIS1.2 billion (\$319 million) loan package with a quartet of lenders.

The structure of the financing differs from that at Soreq and Hadera, as the €120 million loan being put up by the European Investment Bank is being extended to Israel's Bank Hapoalim, which will onlend the funds to ADL Ltd., a subsidiary of developer Mekorot Development &

Enterprise. Loïc Le Ruyet, the EIB's senior loan officer for the Middle East, explained the rationale behind the bank's decision not to lend directly to the project company. "It had to do with our diversification of risk," he told GWI. "It is less risky for us to lend to a bank as opposed to a project."

With the EIB already having committed funds to the Soreq and Hadera desal projects in Israel, the move is also seen as something of a re-balancing of the bank's Israeli portfolio away from water. "We want to do other projects, and renewable energy is the next obvious sector," Le Ruyet told GWI.

Channelling the EIB's loan through Bank Hapoalim will ultimately raise the cost

of the Ashdod financing package as a whole, although the client looks to have been left with little alternative. "The client has to take into consideration both our funding margin to Hapoalim, and the risk margin taken by Hapoalim itself," Le Ruyet observed.

The 22-year senior loan package also includes €120 million equivalent of shekel loans, syndicated equally amongst lead arranger Bank Hapoalim, Amitim Pension Funds and Clal Insurance. "There is increased interest by local institutional investors in desalination projects, as they are viewed as very low risk," noted Tzachi Cohen, senior vice president of Bank Hapoalim's corporate division.

# New governor appointed to top position at SWCC

The new man at the top of the world's largest desal off-taker will be revisiting its stalled privatisation programme.

The Saline Water Conversion Corporation (SWCC) – the body that procures the majority of Saudi Arabia's extensive municipal desalination assets – has appointed Dr Abdulrahman Al-Ibrahim as its new governor.

Dr Al-Ibrahim joins from his previous role as vice governor at the Electricity and Cogeneration Regulatory Authority (ECRA). He replaces former SWCC governor H.E. Fehied Al-Shareef. At the same time, Abdul Hadi Al-Sheikh has been

appointed as the new deputy governor for projects and technical affairs, replacing Ahmed Al-Mudaiheem.

The new governor will have the responsibility of overseeing the procurement of SWCC's future desalination projects. SWCC has an ambitious line-up of projects in the pipeline (*see table, below*), although contractors have voiced concerns that not enough information has been provided about the three EPC projects which are due to go ahead next year.

The future of SWCC's privatisation programme is also uncertain. The latest version of its projections still envisions future power and water projects being procured using the IWPP structure. It also still holds plans to look into the transfer of existing assets to private owners.

Despite this, the two most recent large projects (Ras Al-Khair and Yanbu 3) have both been publicly financed, while there have been no recent developments with regard to the asset transfer plans.

## Current timeline for SWCC's projected desalination roll-out

| Project name | Water capacity (m <sup>3</sup> /d) | Power capacity (MW) | Contract type | Construction start date | Projected finish date | Estimated contract value (\$ million) |
|--------------|------------------------------------|---------------------|---------------|-------------------------|-----------------------|---------------------------------------|
| Haql 3       | 17,000                             |                     | EPC           | Sep 2012                | Sep 2014              | 62.5<br>(combined)                    |
| Duba 4       | 17,000                             |                     | EPC           | Sep 2012                | Sep 2014              |                                       |
| Rabigh 3     | 9,000                              |                     | EPC           | Sep 2012                | Sep 2014              |                                       |
| Shoaiba 4    | 650,000                            | 665                 | IWPP          | Jan 2013                | Dec 2015              | 2,186                                 |
| Shuqaiq 3    | 175,000                            | 175                 | IWPP          | Jan 2014                | Dec 2016              | 750                                   |
| Khobar 4     | 250,000                            | 250                 | IWPP          | Mar 2015                | Feb 2018              | 1,687                                 |

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## MIDDLE EAST IN BRIEF

● **Marafiq**, the utility for the industrial cities of Jeddah and Yanbu in Saudi Arabia, is expected to close a SAR4.5 billion (\$1.2 billion) loan deal in the first quarter of 2012, according to sources in the Saudi banking community. Response to the call for commercial lenders has been high, with one bank – the **National Commercial Bank** – offering to fund the entire sum itself. Marafiq is looking to expand its water, wastewater and power infrastructure in the coming years.

● China's **Tri-Tech Holding** has won its first project in the Middle East, securing a contract to build a 5,760m<sup>3</sup>/d MED desalination plant at the Mesaieed Industrial City in Doha, Qatar. The \$8.3 million engineering, procurement and construction (EPC) contract was awarded by the **Qatar Petrochemical Company (QAPCO)**. The plant is scheduled to be completed by November 2012, and Tri-tech will also be responsible for training QAPCO's operating staff.

● Israeli desalination company **IDE Technologies** has said construction at the 510,000m<sup>3</sup>/d Soreq SWRO plant is running ahead of schedule. IDE chief executive Avshalom Felber told GWI: "We hope to begin deliveries from the first stage of the project by the end of 2012 – eight months ahead of schedule – and also move forward the second stage." The 25-year BOT contract for the Soreq plant was awarded to a consortium of IDE and Hutchison Water in May this year.

● **Taqa**, the national energy company of Abu Dhabi that owns power and water assets across the Gulf, drew \$7.5 billion of demand for a new \$1.5 billion bond issue at the start of December. The money will be used to refinance a bond issue that matures in October 2012. At the same time, Taqa is also looking to further expand its downstream portfolio, and has been linked to bids for power and water projects in Dubai and Kuwait.

● The **Palestinian Water Authority** has been ordered by president Mahmoud Abbas to free up land for a long-planned 274,000m<sup>3</sup>/d desalination plant on the Mediterranean coast of the Gaza Strip. A desal plant in Gaza has been in planning for a number of years, but funding has still not been agreed for the project, the cost of which could reach up to \$450 million, according to estimates.

## COMMENT

## Funding North Africa

The prospect of Islamist governments will make investors nervous – but it could spur growth in sharia-compliant project finance, says Tom Scotney.

In the aftermath of the Arab Spring, companies operating in North Africa are faced with a situation where Islamist politicians look set to play a more prominent role than at any other time in recent history.

In Morocco and Egypt, the electorates have already thrown serious weight behind religious political parties, and it's not unlikely that the same thing will happen in Tunisia and Libya.

Given that some of the North African markets were seen in the pre-revolution days as very exciting opportunities for investment, a lot of attention will be focused on whether project timetables will start up again under the new authorities – and if so, how they will be funded.

The technical ability to use private finance is still very much there – assuming the political will is. The technical bodies that dealt with the minutiae of procurement and the processes of privatisation have remained in place through the troubles.

One contractor who has recently returned to Libya after the civil war said he was pleased to see the Great Man-made River Authority still functioning, and the PPP Central Unit in Egypt is still very much in existence, despite having its executive powers hamstrung by the current lack of a long-term government.

In the end, the decision will come down to ideology. The spending required by changing demographics in the region, and the pressure on the finances of new governments, mean that private finance is the only sensible solution for water investment. The question is whether they will take the sensible approach.

The prospect of Islamic governments brings the issue of Islamic finance to the fore – can it provide an alternative source of project funding if the standard non-recourse commercial loan model becomes politically unviable?

In some ways, Islamic finance is particularly well suited to project finance, as it deals with a reliable cashflows from tangible assets that can satisfy the requirements of the Islamic lending structure. Petrochemicals aside, the power and

water sector has also mobilised significantly more funding from Islamic institutions than any other part of the market. The reliability of demand for water and power means that utilities are a more attractive option than most other infrastructure projects when it comes to risk-averse lending.

The most serious references to date in the water sector to have utilised Islamic project finance are probably the Shoaiba, Shuqaiq and Marafiq IWPPs in Saudi Arabia, on which around 10-15% of the debt was accounted for by sharia-compliant funding (\$300 million, \$140 million and \$400 million, respectively).

One key issue will be whether banks with a track record in Islamic finance will have the capital available to support major project lending. To be sure, desalination and water reuse do not usually require quite the same level of multi-billion dollar financing as some other infrastructure and industrial developments, but if the sector starts playing a more active role in funding, then liquidity will become an issue.

The case is different in Saudi Arabia, where large lenders used to Islamic financing are already present. If North Africa turns to sharia financing, then it is likely to be on projects with a smaller scope: plant-specific BOTs, rather than water or wastewater mega-developments.

The track record of Islamic project finance in the Middle East shows that if the appetite for a deal is there, then the companies involved can make it happen. It will, however, add yet another layer of complexity to financial negotiations, which are fast overshadowing the technical elements of procurement.

Because of the extra precautions necessary and the smaller scale of the lenders involved, pricing on Islamic finance is most likely to be higher than conventional sources of debt, and tenors shorter. While using it as a source of bridge financing could be a possibility (see GWI November 2011 p19), Islamic politicians will need to make a choice between pragmatism and ideology if they want to seriously pursue sharia financing for the long term.



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# Ecolab merger to build on Nalco's legacy

The fusion of Ecolab and Nalco will give both companies new opportunities for growth. Nalco's Dave Flitman talks to GWI about why the deal makes sense.

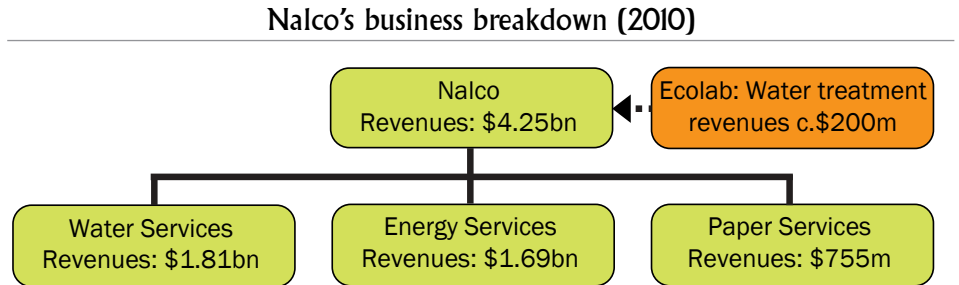
**E**colab completed its \$38.80-per-share takeover of Nalco Holding Company on 1st December, forming an \$11 billion-a-year powerhouse in water, hygiene and energy services and technologies, and marking the third time that Nalco has changed hands since 1999.

"We're excited about the combination because of the market leverage and because of the business model," said Dave Flitman, president of Nalco's water and process services division. "Over a five-year period, we hope to generate at least \$500 million in growth synergies and about \$150 million in cost synergies, but this is not a cost synergy play – the combination here is very much about growth, and about leveraging our expertise in water. It's very difficult to look at any one slice of our business and say that it's not heavily related to water treatment."

The Nalco business started out in 1928 supplying chemicals to treat boiler systems on locomotives in Chicago, and chemistry has remained at its core ever since. With the arrival of CEO Erik Fyrwald in February 2008, however, the company re-shaped its strategy to add automation and control capabilities to its offering, which has helped it to double organic growth in the intervening period.

"We view ourselves very much as an integrated market solutions provider," Flitman said. "Chemistry is always going to be foundational to what we do, but we felt very strongly that if we were only a chemical supplier going forward, that would limit our growth dramatically. The unique ability that we have is to take the offering capability that we have in chemistry, couple that with equipment-based technologies, take our automation platform, and really put together integrated solutions for customers."

"Two years ago, we introduced a new service capability in automation called Nalco 360, where we have water treatment experts monitoring industrial



processes for our customers 24/7, 365 days a year. We've now got more than 5,000 of these monitoring systems in place, and as customers gain confidence in our capability, so we're able to do internal benchmarking and talk about optimisation to a customer's internal standard. In addition to that, we've now got data across a wide array of operations in one industry, and we're able to do external benchmarking without sharing names."

Nalco introduced its 3D Trasar technology – which measures processes in real time and has the ability to control events every six seconds – more than a decade ago in cooling tower water systems. "We believe it's highly valued, highly differentiated, and we're building that platform out aggressively," says Flitman. The company rolled it out to boiler water systems in 2009, and to membrane systems in September this year. "We're now working aggressively to take an analogous automation platform built around 3D Trasar into wastewater treatment systems around the world," Flitman told GWI.

"Today, we have a wastewater treatment business that is several hundred million dollars, and is primarily a chemistry-based offering. But as we looked at the macros, the ability to recycle and reuse water is paramount to what we need to be able to help customers do in industrial operations. We are going to place a heavy emphasis on building out our capability in wastewater treatment. Apart from automation, there may also be some equipment additions that

we need to make over time to get the right hybrid solution of chemistry, equipment and automation to be able to create extreme value for our customers."

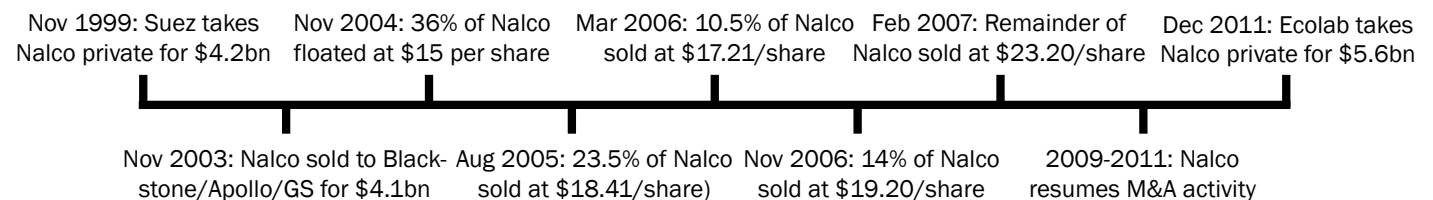
Offering wastewater treatment solutions to Ecolab's industrial and institutional customer base is one of two main ways in which Flitman sees the growth synergies between the two companies playing out.

Ecolab is the market leader in cleaning and sanitising within the food and beverage industry, generating close to \$2 billion of its annual revenues from this segment alone. "Water consumption in cleaning and sanitising F&B plants can be as much as 60% of the total water consumed in the plant, and so this is an opportunity for Ecolab to bring in a different level of expertise that they didn't have before," said Flitman.

Although Nalco reports in three divisions, water is central to the group's core offering, which according to Flitman is to save its customers money by reducing water and energy consumption. "The energy services business has a heavy and increasing water component to it, although it's much more process-related," he told GWI.

"Ecolab is heavily engaged in the process side of its food and beverage operations, and so there are huge commercial opportunities there to put the capabilities of both organisations together. We believe that bringing the best technology in cleaning and sanitising together with the best technology in water treatment will result in a unique offering for customers in these

## Nalco ownership timeline



spaces. We believe there's a great marriage of technology between our automation technology and their standard clean-in-place technology to help customers consume less water and be more confident that as you're reducing that water consumption, the process is actually clean."

The second way in which Flitman sees the combined group driving growth synergies is from a geographical standpoint. "As we've continued to drive productivity globally, we've disproportionately invested in the BRIC countries," said Flitman. "These economies account for something like 18% of the company's revenue now, and we've doubled our organic growth rate by growing very aggressively in the BRIC regions at a sustained rate of some 20-30% over the past two to three years. We are ahead of where Ecolab is in those regions, and we believe that legacy Nalco is in a very strong position to help Ecolab grow aggressively in those regions."

Although Nalco has a number of external technology partnerships, much of its technology has been developed in-house. While two sets of private owners – including a period under private equity ownership – have ensured the organisation

has remained lean, it also stifled the ability to make acquisitions, an area where Nalco had been an aggressive player in the years leading up to its takeover by Suez in 1999.

"We have increasingly looked for the rights sorts of technology and service acquisitions to augment our offering to the market, but our ability to go after an aggressive M&A strategy was somewhat encumbered by the balance sheet that Nalco had," Flitman admitted.

"Our private equity owners loaded the company up with quite a bit of debt, so that was something that kind of handcuffed us a bit. Legacy Nalco always had very strong cashflow, but the debt service meant we couldn't invest the lion's share of that back into the company.

"When you look at the combination with Ecolab, their balance sheet is pristine, and so our ability to fund organic growth aggressively, combined with the right sort of M&A activities, is an exciting part of this merger from Nalco's perspective," he told GWI. "We believe the growth trajectory going forward will be very different than it was stand-alone in either company, so it's really a win-win – there's growth opportunities and leverage both ways."

## Foz looks to US for growth

The Brazilian water concessionaire is looking to leverage its position within the Odebrecht group to enter the US market.

**B**razilian concessionaire Foz do Brasil is considering entering the US water market as soon as next year, as it seeks to replicate domestic successes in other jurisdictions.

"We are looking into some opportunities for acquisition on the regulated water and wastewater market, and we are also going to tackle opportunities in water reuse," Marcelo Moacyr, a director with Foz do Brasil, told GWI. "We believe that there's going to be very good opportunities within some of the states that have the need for water reuse. There is a big market to be explored, especially when it has some synergies with industry – specifically the oil and power generating industries," he said.

The move is part of a wider expansion plan by Foz's parent, Odebrecht, which has been present in the US on the construction side for more than 20 years, but is now making a push into North America both through Braskem – the petrochemical company it controls – and now Foz.

"In the beginning, we're going to target states where Odebrecht already has a presence, specifically Florida, Texas and

Louisiana," Moacyr said. "At the beginning of next year, I'm going to be setting up office at the same location as we have our construction office, which is in Coral Gables in Florida."

Although its core business is as an asset owner/operator, Foz will look to Odebrecht's construction capabilities to further leverage its approach to the US water market. Odebrecht was one of the shortlisted bidders for the Islamorada wastewater treatment BOT in Florida earlier this year, and Moacyr wants to harness the group's strength to tap into more DBO-type opportunities in the US. Odebrecht's EPC role on the 86,400m<sup>3</sup>/d Aquapolo reuse project in Brazil – one of the largest in the world – will be complemented by Foz's operating expertise when the plant comes online next year. "We will definitely try to replicate that model in the US market," Moacyr said.

The group will not, however, focus on pure O&M opportunities in the US – at least to begin with. "I don't think it brings a whole lot of synergies to us in the beginning, but we'll not discard doing this in the future," Moacyr told GWI.

## AMERICAS IN BRIEF

- Chilean economic development agency **Corfo** decided on 15 December not to proceed with the sale of a 40.46% stake in **Essal**, owing to the bids received not satisfying the minimum threshold set. Corfo had been targeting proceeds of around \$100 million from the sale.

- **Consolidated Water** announced on 15 December that it is still considering alternatives for the future of its 50% stake in **NSC Agua**, the company formed to develop a 378,500m<sup>3</sup>/d desalination plant in Baja California. The option extended to a third party – believed to be local businessman Alejandro De La Vega-Valladolid – to purchase CWCO's stake at a discount was not exercised. In addition, NSC expects to write off \$400,000 in non-refundable deposits linked to the purchase of land on which to build the project, after the relevant purchase agreements expired.

- **Pentair** shares slumped by nearly 6% on 14 December after the company announced a downward revision of adjusted Q4 2011 EPS guidance from \$0.59-0.62 to \$0.53-0.55. Among other things, the updated outlook reflects lower than expected western European sales, the company said. Pentair simultaneously introduced 2012 full-year EPS guidance of \$2.60-2.75.

- Shares in **Cadiz Inc.** shot up by nearly 9% after the company announced that it had entered into an option agreement with **Cal Water**, whereby the latter will have the right to acquire 16,900m<sup>3</sup>/d of water, as well as storage capacity. Cadiz also completed a \$6 million private placement of shares with warrants to **Altima Partners LLP** in late November. Assuming the warrants are exercised, Altima will hold approximately 12% of Cadiz going forward.

- **Aqua America** has announced the extension of CEO Nick DeBenedictis' employment contract through mid-2015. The company also appointed three members of the senior management team as EVPs, effective 1st January 2012.

- In early December, the California Public Utilities Commission approved the transfer of ownership of **Park Water Company** to **Carlyle Infrastructure Partners**, paving the way for the \$102 million sale to be completed. Park Water provides water to more than 225,000 people in California and Montana.

# Giving water the Lauder treatment

Having acquired three companies in the last 18 months, RWL Water Group is on an aggressive growth path. CEO Henry Charrabé wants to turn it into a \$500 million-a-year business within five years.

When cosmetics heir Ronald Lauder decided to buy out the remaining shareholders in Israeli desalination company Nirosoft Industries in spring 2010, he had more than just a couple of Cypriot desalination references in mind.

Now, with three acquisitions behind him, Lauder and his team at RWL Water Group are quietly building critical mass with a platform offering they believe is unique in the water space.

"We believe we can become the major mid-market player in a field in the next five years," CEO Henry Charrabé told GWI. "We want to really focus on medium-sized projects where we believe there's a real discrepancy between what's available in the market-place right now and what we can offer. We specialise in pre-engineered, containerised units, and we offer project finance, which is almost impossible to get for projects in the range of \$5-35 million. That is our differentiator."

Charrabé believes that the disappearance of companies such as USFilter, Ionics and Zenon has left limited options for smaller clients looking for off-balance sheet solutions when building new treatment plants.

While financial intermediaries such as Liberation Capital are beginning to realise the potential for offering tailored project finance solutions to this segment of the market, RWL Water goes one step further. "We are actually involved in running, building and operating the entire plant, so we believe that gives us a real competitive advantage," Charrabé explains. "What we offer is relatively unique in this field of the market, where it's easy to finance very small projects and very large projects, but in the \$5-35 million range it becomes very difficult, because you have to remain cost-competitive."

Although financing for BOO (build-own-operate) projects is currently handled out of the holding company offices in New York's Fifth Avenue, the group is in the process of setting up a financing subsidiary, RWL Capital, which will assume this role going forward.

In the meantime, Charrabé hopes that RWL Water's reference base of more than 3,200 projects in 70 countries will act as a valuable business development tool. Having established Nirosoft as the core of its fresh water division, the group added

## Where is RWL Water coming from?

RWL Water was founded in 2010 by Ronald Lauder, one of the heirs to the Estée Lauder cosmetics business.

- Acquired the remaining 51% of Nirosoft in 2010, bringing desalination and industrial wastewater expertise, plus more than 500 references. Nirosoft's 50,000m<sup>3</sup>/d desalination plant at Episkopi in Cyprus is due to come online in January 2012, while a 22,000m<sup>3</sup>/d mobile desal plant at Moni, also in Cyprus, is available for purchase from this month.

- Acquired 80% of Aeromix Systems in November 2010. Aeromix manufactures aeration systems and equipment for drinking water and wastewater treatment, and has 2,500 references worldwide.

- Acquired 67% of Eurotec in September 2011, bringing wastewater treatment, biomass treatment and waste-to-energy expertise. Eurotec has a reference list of over 200 installations, including a significant share of the Italian food processing market.

wastewater expertise by taking an 80% interest in Aeromix back in November 2010. A third leg was added in September this year through the acquisition of a controlling interest in sludge-to-energy specialist Eurotec (*see box*).

Now, the group plans to open or expand six offices around the world next year as part of an aggressive development phase. "To make these three acquisitions in 18 months was quite a management challenge, and now it's important for us to bring value to the shareholders," observes Charrabé.

"We're always looking at the potential of other add-on or complementary acquisitions, but we think that these three really serve the market segments that we're in. We don't believe that we need to buy a Kubota or a GE Water when it comes to membrane technology, for example – we think we can be best as systems integrators with the engineering capacity in-house, rather than having to acquire technologies."

The potential for cross-selling is clear. "We want to export Eurotec's waste-to-energy technology into the areas where Aeromix and Nirosoft are concentrated," Charrabé explained. "Right now there is a very high incentive in the EU to feed electricity back into the grid, and we're trying to bring the same concept – even without the incentive – to North and South America, Australia, and the Middle East."

Likewise, Nirosoft is branching out from its core Mediterranean franchise. "We have a wholly owned subsidiary in Australia, where we've taken on some industrial brackish water projects with Bechtel," he reveals.

Despite an entrenched position in the

industrial market, RWL Water derives the majority of its revenues from the municipal market. "We focus on municipal as well as industrial client relationships, and in a couple of years, we want to have a turnover of \$100 million," Charrabé told us.

"We're looking for internal growth over the next 24 months to really build up our three companies, and we will then look for another major acquisition that can double our critical mass and get us to our strategic goal of half a billion in revenues in five years' time."

The aggressive growth of RWL Water will inevitably come at the expense of profitability – at least initially. "There are a lot of changes that have to happen, such as setting up strong ERP systems, customer relationship management systems and consolidated financial statements, and that will have an effect on the performance," admits Charrabé. "We're not taking any money out of the companies right now – we're investing everything to reach critical mass."

Although Ronald Lauder remains the sole shareholder, RWL Water may seek equity partners in future to help drive its aggressive growth plan. "There will definitely be opportunities for us to seek partnerships, interest or ideas from others on how to aggressively build this business," Charrabé concedes.

"Our goal is to become a significant mid-sized market player in the next five years. The goal then will be to either have a public offering, or have a major industrial partner join us. We might find a financial or industrial partner early on, and things might take a different route, but that's where we want to head."



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# Ranhill goes private to keep growing

Malaysia's Ranhill has completed its delisting, but still has plans for expansion. It may yet re-appear on another stock exchange.

Ranhill Corporation, the parent company of Ranhill Utilities – which develops and operates water and wastewater infrastructure in Malaysia and across Asia – completed its delisting from the Kuala Lumpur stock exchange in mid-November.

The management buy-out which gave rise to the delisting was spearheaded by group president and CEO Hamdan Mohamad, along with Cheval Infrastructure, a regional private equity fund. The offer of MYR0.90 per share constituted a 20% premium over the 6-month VWAP of the shares when the deal was announced in August, valuing the company's equity at MYR538 million (\$179 million).

The group's share price had been weighed down by concerns about its oil and gas business, and in particular its exposure to Sudan. The water side of the business – the environment division – has rosier prospects.

Water, along with power and engineering consultancy, will be one of Ranhill's focus areas in the future as it seeks to rebuild value, Ahmad Zahdi, CEO of Ranhill Utilities, explained to GWI. The water business delivered revenues of MYR723 million (\$226 million) in 2010, out of total group revenues of MYR2.12 billion (\$663 million). This number looks set to grow in future.

Ranhill Water Technologies, which holds all the group's international water

assets, had already attracted the attention of private equity investors. In 2009, London-based Aqua Resources took a 45% stake for \$12.6 million, and made a follow-up investment of \$2.3 million in January 2011. It has committed to injecting a further \$2.25 million into the venture by February 2012.

RWT has an investment portfolio of five BOT projects in mainland China and two projects in Thailand combining water, wastewater and water reuse, in addition to a continuous flow of EPC contracts. The company is currently pursuing eight further targets in China, and is expecting to virtually double its revenue stream this year versus 2009 (see chart).

Ranhill Utilities is also looking for growth in India, where it took a 40% stake in a JV with JUSCO for a 25-year BOT water supply project in Haldia, West Bengal in 2008 (RWT was the EPC contractor). Thailand – which was the initial focus of the company's international expansion plans – has proven difficult to conquer, however.

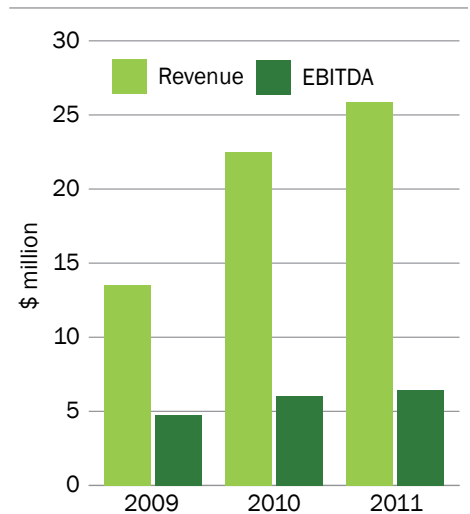
Meanwhile, the company's water supply operations in Johor in the south of Malaysia provide prospects for steady, if not spectacular growth. Demand for water is rising at 2.5% a year and the company secured a tariff increase of 12.5% in 2010. The next tariff review is due in 2013.

Instead of a portfolio of concessions in Malaysia, Ranhill has built up an MYR50 million-a-year (\$16 million) business in

service contracts. Zahdi is still hopeful that Ranhill can develop more local business. "We expect to announce several new contracts in 2012 or 2013," he told us.

Ranhill may yet reappear in the public equity market. Aqua Resources has floated the idea of listing RWT on the Hong Kong stock exchange, much like Salcon Asia and InterChina, which are also considering listing their portfolios of Chinese water projects. No timeframe has yet been set as yet, though, and more projects will be needed to beef up the current 240,000m<sup>3</sup>/d portfolio to a combined capacity closer to 1 million m<sup>3</sup>/d ahead of any IPO.

RWT's financials



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# Operators see the upside in Malaysia

The Malaysian government wants to introduce incentive regulation for water operators. It is the government itself that really needs incentives to drive through its reform programme. Olivia Jensen reports from Kuala Lumpur.

Speaking at the IWA Development Congress in Kuala Lumpur at the end of November, Datuk Loo Tok Gee, Secretary General of the Malaysian Ministry of Energy, Green Technology and Water (KeTTHA) announced that the country would introduce incentive regulation for the water sector.

Companies welcomed this as a signal that the economic regulator SPAN would allow water operators to retain profits generated through efficiency savings. At the moment, company returns are capped.

“Once a company has achieved its KPIs [key performance indicators], it receives the maximum payment and there are no incentives to continue driving forward efficiency,” said Ahmad Zahdi Jamil, vice president in charge of water business at Ranhill, which provides water services in the state of Johor. “If you don’t limit the upside, operators will perform better.”

The federal government’s priority is to integrate water and sewerage, Loo said,

although she did not confirm details of the plan. It is understood that state-owned company Indah Water Konsortium will be merged with KeTTHA’s Department of Sewerage Services to create a national sewerage company, and that service delivery will be licenced out to state-level operating companies. This will open up the possibility of joint billing for water and sewerage, and ultimately for full integration at the local level. A separate company will be set up to hold sector assets and raise funds, along the lines of PAAB, the national water asset holding company.

Ultimately, the key to achieving financial viability for the wastewater sector is not grand restructuring, but raising tariffs from their current levels of MYR8.00 (\$2.50) per month. However, when IWK tried this in the 1990s, consumers refused to pay their bills, and the government is loath to try such an unpopular experiment again. It is unlikely to address the issue now, however, with a national election looming in 2012.

Some companies are optimistic that the restructuring will lead to an injection of finance into the sector. Chinese, Japanese and local firms are already vying for influence in the capital region.

Reforms of the water sector, meanwhile, may now speed up thanks to a shift in the position of the federal government. One more state is expected to complete migration to the new regime before the end of 2012, according to SPAN CEO Teo Yen Hua. Five states have already completed the process.

“The government has become more flexible about the implementation of the legislation,” Teo told GWI. “The idea is for the states to be ‘asset light’, not ‘asset free.’ Penang was allowed to retain some of its assets – this was acceptable because the utility has an operating surplus. Terengganu is also going to be allowed to retain ownership of its assets, as these were largely paid for by the state itself, and Terengganu should be capable of financing future investments.”

# Shining a light on China’s local spending

China’s amended budget law promises better incentives for local governments to spend wisely. Kathy Liu reports.

It is the festive season again for Chinese local governments, which celebrate the end of the year with a flurry of extravagant spending to empty their purses of annual budget allocations.

This may be the last time that happens, however – an amendment to the 1994 Budget Law was passed in late November, which brings local government spending under public scrutiny. In future, officials will need to think carefully about how projects will look on their books.

Until now, local governments have reported expenditures across a few broad categories. Environmental protection was first included in 2006, and as the table indicates, expenditure in the sector has grown significantly, both in volume and as a proportion of total spending. But where the money goes is something of a mystery.

There is also very little transparency in the process for selecting projects, especially in the end of year rush. According to the Ministry of Finance, by the end of the third quarter, local governments have on average spent only 69% of their budget

| RMB billion                              | 2007    | 2008    | 2009    | 2010          |
|--|---------|---------|---------|---------------|
| <b>Central government</b>                |         |         |         |               |
| Environmental protection expenditure     | 99.58   | 145.14  | 193.4   | 244.2         |
| Total expenditure                        | 4978.14 | 6259.27 | 7629.99 | 8987.42       |
| EP as % of total                         | 2.0%    | 2.3%    | 2.5%    | 2.7%          |
| <b>Local government</b>                  |         |         |         |               |
| Environmental protection expenditure     | 96.12   | 138.52  | 189.61  | not available |
| Total expenditure                        | 3833.93 | 4924.85 | 6104.41 | 7389.3        |
| Local EP as % of total local expenditure | 2.5%    | 2.8%    | 3.1%    | -             |

Source: Ministry of Finance

allocations, and even less – 40% – of their environmental protection budgets. Over-buying and over-building are the result, and prices achieved by suppliers in government procurement projects can more than double at this time of year.

The amendment is expected to have a positive effect on the quality of spending. “If detailed budget information is published, then water and other industries that contribute to people’s well-being will get much more emphasis because they

have the characteristics of public goods,” Li Weiguang, finance professor at Tianjin University of Finance and Economics, and an expert on the budget law, told GWI.

Historically, more public spending on water has leveraged more finance from the private sector. In 2009, central and local governments spent RMB29.8 billion (\$4.7 billion) on urban water sector capex, out of a total of RMB183.7 billion (\$28.9 billion), up from RMB5.9 billion (\$930 million) and RMB51.4 billion (\$8.1 billion) in 2006.

# Wringing the revenue from NRW

Water loss reduction has become a profitable business in Asia. Companies are looking for a slice of this \$7 billion-a-year pie.

If just half the current volume of non-revenue water in Asia could be billed to customers at \$0.30/m<sup>3</sup>, it would generate \$6.7 billion in annual revenues. Utilities in the region are starting to take an interest in capturing this revenue stream, and Miya, Vitens-Evides International and Manila Water are all lining up to help them.

Until recently, NRW reduction had merely been one of many performance indicators in concession and O&M contracts, or else a small technical assistance component in major capex programmes funded by the World Bank and other donors. Now it is taking on a life of its own.

Israeli company Miya has been at the forefront of this trend. Since its establishment in 2008 with the specific goal of providing urban water efficiency services, Miya has built up scale and access to multiple markets through acquisitions: BBL in Brazil, Veritec in North America and WRP for the South African and Australian markets.

Miya's ongoing NRW project for Maynilad in western Manila is the largest of its kind in the world. When the project started in 2008, physical and commercial losses stood at 1.5 million m<sup>3</sup>/d, equivalent to over 60% of water supplied to the distribution system. Miya's approach has focused on the technical side, improving the utility's ability to spot and repair leaks quickly through collection and management of data and with the use of specialist detection equipment, combined with a major capital investment programme by Maynilad itself.

Miya's Director Roland Liemberger says they will meet their goal of reducing NRW by 500,000m<sup>3</sup>/d by the end of 2011 and will be able to make further gains under a contract extension that runs until 2014.

On the other side of the city is another NRW success story, that of Manila Water. Having reduced its own loss rates dramatically, the company won a 5-year service contract to reduce leakage at SAWACO, Ho Chi Minh City's water utility. Under the contract, Manila Water receives performance payments for each cubic metre of water saved, with funds coming from a World Bank loan.

Manila Water bid aggressively, and found itself in a challenging operating environment. Blueprints of the network were incomplete and getting excavation permits to carry out repair works was difficult, according to Ronnie Lim, head of new

business development at Manila Water. However, they have managed to reduce NRW from 60% to below 40% in the service zones covered in the contract, he says.

Convinced of the opportunities in the Vietnamese market, Manila Water submitted a follow-up proposal to SAWACO in October along with Mitsubishi and locally listed manufacturing and construction company REE Corporation.

Performance-based service contracts can give rise to disputes between the utility and the private company over pipe replacement and investments in other infrastructure and equipment – assets that will last well beyond the end of the contract period. Responsibility for investment usually stays with the utility, but delays in procurement or lack of funds can make it difficult for the private company to deliver the promised reduction in leaks.

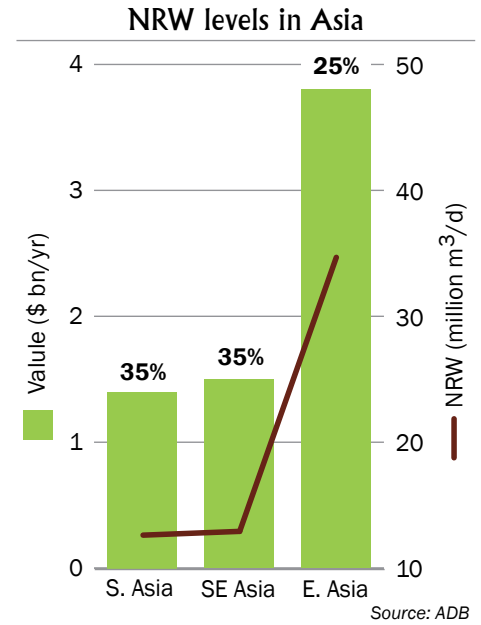
Manila Water's proposal gets around this by committing the consortium to make considerable investments, says Lim. Manila Water believes the contract can be carried out on a commercial basis and there has been no involvement from the World Bank or other international financial institutions.

The transition from a donor-funded to a commercial business is echoed by Gerhard van den Top, CEO of Vitens-Evides International. "Asia is no longer just an aid environment," he says. "There is strong demand for water utility management services."

VEI is the international arm of the two largest Dutch water companies. Currently, their international activities are conducted on a not-for-profit basis as part of their corporate social responsibility programme. Engaging in opportunities of a regular commercial nature, initially on a technical assistance basis and with local partners, would allow VEI to take on a wider range of projects.

Van den Top agrees that the contracts with the most potential are those in which the private party is also an investor. "Without an investment component, there is less opportunity for rapid progress and you have less leverage to make often necessary changes in the institutional context and tariffs," he observes.

"India is a huge playing field with very specific characteristics," continues van den Top. In India, some service contracts have been preceded by heavy investment



in repairing and replacing networks before the contract begins, which radically reduces the risks to the private party. In Nagpur, where Veolia and Vishvaraj Infrastructure began a 25-year lease contract in 2010, the city is investing INR4 billion (\$76 million) in the network.

Others see the Indian market in less favourable terms. "Much remains to be improved in the way projects and tenders are designed," says Liemberger. Some contracts require the private operator to do the impossible – reduce NRW at the same time as increasing service delivery under '24/7' programmes.

As Liemberger explains, "A utility reporting 30% NRW and supplying water only six hours per day will see its NRW jump to 60% if it moves to constant supply without fixing the network." Intermittent supply is itself part of the reason NRW is so high – switching the water on and off places enormous stress on the pipes and dramatically increases the number of bursts.

Stating NRW in percentage terms is also part of the problem. Systems with low pressure and intermittent supply show lower NRW numbers when it is quoted as a percentage. NRW rates then appear to jump up dramatically if the pressure is increased or service delivery time is extended. Volumetric measures – litres per connection per day adjusted for pressure and supply time – give a better idea of how much work there is to do to reduce losses – and how much can be gained.





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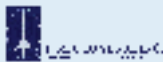
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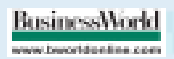


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# Murray-Darling plan to depress trading prices

The latest draft of the Murray-Darling Basin Plan sets out the government's strategy to achieve sustainable water use in the region. It could wipe 25% off the value of permanent water entitlements.

The Australian government's moratorium on large-scale buybacks of water rights in the southern Murray-Darling Basin could lead to a fall in permanent entitlement prices of up to 25%, according to water broker Waterfind.

The government's new stance on water buybacks – which it intends to implement between now and the end of 2013 – is enshrined in the draft of the Murray-Darling Basin Plan, which was released by the MDB Authority at the end of November.

The Plan sets out the diversion limits which the government believes are sustainable in the long term (10.9 billion m<sup>3</sup> per year), and proposes further reductions of 1.47 billion m<sup>3</sup>/year by 2019, to be achieved through smaller-scale buybacks and future investments in efficient infrastructure (see chart, right).

Waterfind's analysis of the Plan also includes an examination of the government's infrastructure development programme, which is viewed as a vehicle for increasing returns to the Basin through efficiencies. Although irrigators regard the improvements as too little too late, Waterfind estimates that investment in irrigation infrastructure has to date diverted some 2.75 million m<sup>3</sup> of water a year from consumptive uses, at a cost of A\$2.7 billion (US\$2.8 billion).

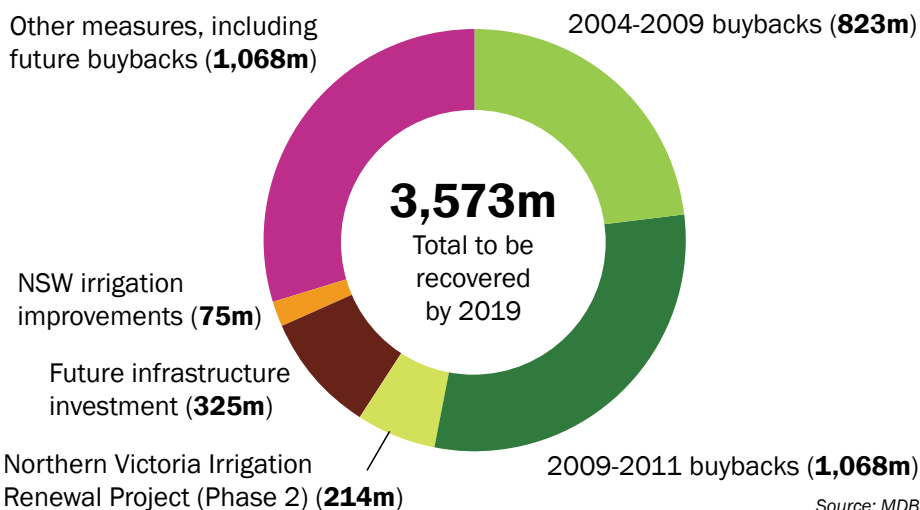
On 12 December, water minister Tony Burke announced up to A\$382.5 million (US\$390.6 million) of funding for four irrigation efficiency projects in New South Wales, which will contribute a total of 75 million m<sup>3</sup> per year towards the government's water use reduction target under the final Murray-Darling Basin Plan.

In spite of initiatives such as this, irrigators, downstream water users and the environmental lobby continue to complain that not enough water is available when and where it is needed.

South Australia, which as a state is heavily reliant on Murray-Darling water, wants somewhere between 3.5 and 4.0 billion m<sup>3</sup> returned to the river, and has threatened to take the federal government to court if the projected diversions fall short of this. For the time being, however, state premier Jay Weatherill has agreed to delay court action until the 20-week consultation period is over.

Although the 300,000m<sup>3</sup>/d desalination plant at Port Stanvac will provide 50%

Environmental water recovery in the Murray-Darling Basin (m<sup>3</sup>/year)



Source: MDBA

of Adelaide's consumptive water needs when it becomes fully operational next year, it is still too early to determine whether any additional infrastructure will be required to help make up any supply shortfall arising from reduced flows in the Murray river.

For the time being, at least, the draft plan is as dynamic as the water flows in the Basin itself. "It's simply the latest of a series of programmes – and there's no guarantee it's the last," Andrew Gregson, CEO of the New South Wales Irrigators Council, commented to GWI.

## Aussie water rights trading down 50%

New figures from the National Water Commission show that turnover in the Australian water rights trading market halved in the latest financial year.

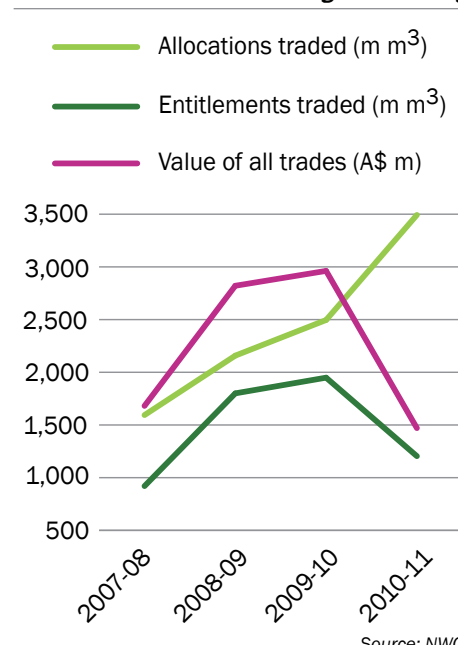
Turnover in Australia's water rights trading market fell by 50% from around A\$3 billion (US\$3.1 billion) in 2009-10 to A\$1.5 billion (US\$1.5 billion) in the 2010-11 trading year, according to new figures released on 8th December by the National Water Commission.

Trade in permanent entitlements fell by 40%, with prices falling by 10%, reflecting both seasonal conditions and the Commonwealth Government's policy shift towards smaller environmental water purchases (see chart, right).

The volume of allocation trades, meanwhile, rose by 40% as the drought eased, and irrigators traded their water allocations in large volumes to those who had the capacity to store water for future seasons.

The newly published draft of the Murray-Darling Basin Plan will shape the future direction of trading prices in permanent entitlements (see story above).

Trends in Aussie water rights trading



Source: NWC

# GS ready to take on some Latin flair

GS Engineering & Construction has opened the door to desalination and new regional markets with its acquisition of Inima. It wants to build a \$2 billion water business.

The €231 million acquisition of Inima by Korea's GS Engineering & Construction will bring the Spanish desalter under the wing of one of Korea's EPC majors when the deal closes in February 2012.

For GS, the acquisition means a rapid expansion of the company's activities in the environmental sector, in line with its corporate strategy. "Inima will allow us to enter new overseas markets and to expand our technology capabilities to include SWRO [seawater reverse osmosis]," Jung Ho Roh, executive senior vice president of GS, told GWI.

Inima also brings international references in operations, which will help GS achieve its goal of engaging in more BOT (build-operate-transfer) projects. "Their track record is very important to us," Roh said. So far, GS has just one BOT project in the environmental area – a solid waste project in Brazil – and it is looking for further opportunities to develop this side of the business.

GS's water and wastewater activities accounted for about 4% of overall group



**Inima will allow us to enter new overseas markets and to expand our technology capabilities to include seawater reverse osmosis.**

revenues of KRW8,420 billion (\$7.3 billion) in 2010, and the plan is to build this up to \$2 billion by 2020, Roh said.

Historically, the company's international activities have been heavily concentrated on refineries and processing plants for oil and gas, but GS is gradually building up overseas experience in environmental infrastructure projects. "The company's vision for the future is to expand the environment, power and plant business and to put less emphasis on civil engineering and architecture," said Roh.

GS has built up a strong base in the Middle East (87% of the group's overseas revenues are generated there), with major EPC projects such as the Barka III and Sohar II independent power projects in Oman (\$630 million) and the \$3.11 billion Ruwais Refinery expansion among its key references. The company is, however,

GS water and environment project wins 2010-2011

| Client                                 | Location | Project  | Value  | Award                  |
|--|----------|--|--------|------------------------|
| BAPCO (Bahrain Petroleum Company)      | Bahrain  | EPC of 24,000m <sup>3</sup> /d MBR (first international WWTP)  | \$70m  | Sep 2010               |
| Kuwait Ministry of Electricity & Water | Kuwait   | Az-Zour water distribution scheme (Phase II) (to connect with Az-Zour desal plant)                         | \$173m | Apr 2011               |
| KOC (Kuwait Oil Company)               | Kuwait   | Wara pressure project (pressure maintenance, enhanced oil recovery, effluent water treatment and disposal) | \$550m | Aug 2011               |
| KOC (Kuwait Oil Company)               | Kuwait   | Contaminated soil remediation  |        | To be awarded Dec 2011 |

interested in diversifying its international activities, particularly in Latin America, according to Roh. Inima offers a path for expansion in Brazil, Chile and Colombia, as well as in North America – where Inima has two on-going desalination projects – and in Eastern Europe.

Roh talks about 'cooperation' with Inima, rather than 'integration'. "Inima will be a stand-alone company within

governments.

GS already has operational experience in the wastewater sector in Korea, with 30 ongoing contracts. All wastewater EPC (engineering, procurement and construction) contracts in Korea have a mandatory two-year operational period, after which the local authority can decide whether to extend the contract or to transfer the operations to another company.

With its EPC and operational experience in the water sector, GS would seem the natural candidate of all the companies in the former LG Group to spearhead a push into the environmental sector. It therefore came as something of a surprise last year when LG Electronics, which has no track record in the sector, announced its plan to achieve \$7 billion in turnover from the water market by 2020.

When the LG Group was divided into two in 2006, the owners agreed that the rump of the old LG would focus on electronics, chemicals and other manufacturing, while GS would focus on refineries, gas and plants, and that the two groups would not compete for a period of three years.

The old LG group had a history of jumping into new technologies and markets with considerable success, which may account for the brashness of the ambitious plan announced last year. Roh expects that LG Electronics will concentrate on the production of advanced membranes, creating scope to work together on the technology side of projects, with GS taking a lead on EPC and operations.



GS," and its brand, CEO and management team will all remain in place, he confirmed to GWI. Going forward, GS will work with Inima to expand into new markets.

GS has set its sights on Vietnam for the expansion of the water business, and expects to clinch a WWTP project there within the next year. In Vietnam, Sri Lanka and other emerging markets, GS should be able to access concessional funds from Korea's EXIM bank to keep costs down.

Although GS's focus in Asia is on wastewater projects, Roh believes that desalination is going to take off, even in countries where water resources are not particularly scarce, such as Vietnam and Korea. GS is already trying to kick-start the market in Korea by proposing desal projects on an unsolicited basis to local

## ASIA IN BRIEF

- US-listed **Tri-Tech** has secured a ‘build-own-operate-subsidise-transfer’ project in western China. The ‘BOOST’ contract involves the construction and operation of water and wastewater facilities in a small town in Buerjin, Xinjiang for 30 years. Under the agreement, the local government will pay 60-65% of the \$3.15 million projected capex. It remains to be seen whether the BOOST model will catch on in poorer parts of China where tariffs are low but development potential is high.

- Malaysian water and wastewater plant developer **Salcon** is planning a new share issue of up to 10% of its issued share capital. The company hopes to raise around MYR30.8 million (\$9.7 million) to boost working capital and pay off debts. Profits for the nine months to 30 September were down 47% year-on-year, although concession revenues are starting to flow in from its two biggest projects in China.

- **China Water Affairs** stock rose 10% on the announcement of the company’s half-year results on 28 November. Revenues were up 38%, with the company’s water business segment delivering the bulk of the advance, although profits for the period were down 30% year-on-year, mostly due to a significant asset disposal in the corresponding period in 2010.

- In November, the **Philippines’ PPP Center** announced that it would provide financial support for pre-feasibility studies for three water-related projects, including a PHP25 billion (\$566 million) bulk water supply project to serve the city of Manila. Funds for the pre-feasibility study will come from the donor-supported Project Development and Monitoring Facility. One of the other projects is a “Water Hub” at Balara in Metro Manila. Whether a “water-themed destination for education, business and leisure” should be one of the country’s top water priorities is another question.

- Shares in **Calapan Ventures** closed out their first day’s trading on the Philippine Stock Exchange at PHP2.68, up more than 7% on the listing price. The November IPO was designed to raise cash for expansion works and non-revenue water reduction.

- Meanwhile, shares of **Asia Environment** were delisted from the Singapore Stock Exchange on 22 November, following the takeover by Ciena Enterprises.

## COMMENT

## Sweet water for the good earth

Charles Bodhi assesses the options for agricultural reform in China.

**A**fter a year basking in gloom and doom, one might welcome the news that China today has over 3.5 trillion m<sup>3</sup> of water, and that water supply is set to grow at an annual rate of 0.37%, meaning an extra 619 billion m<sup>3</sup> per year is expected to be available by 2030.

And then comes the crunch: only 20% of that water is accessible and reliable, and despite the supply increase, there remains a projected gap of about 25%. Average annual demand is forecast to be more than 820 billion m<sup>3</sup> in 20 years’ time, with an even sharper rise of 1.6% per year predicted, according to China state data (implying the truth is likely to be even worse).

The implications of a supply gap of over 200 billion m<sup>3</sup> of freshwater are grave. China urgently needs to review its water supply plans, as this gap alone effectively constitutes almost 130 times the total US water consumption in 2005.

One obvious solution is to increase water supply, either through further plant investments or technology upgrades to implement wastewater reuse. Fundamentally, however, what is needed is an increase in water efficiency, which on a national level is measured in terms of water consumption per unit of GDP. By 2020, this is to be slashed to 125m<sup>3</sup> per RMB10,000 of goods produced, from 229m<sup>3</sup> in 2009.

On paper, the easiest way to increase water efficiency is to focus on agriculture, which is the largest water consumer in China (50% of national consumption by 2030) but the smallest contributor to China’s GDP (15% today, and declining). Statistically, this is anomalous: the global annual average increase in water efficiency in agriculture is a mere 1% across both irrigated and rain-fed arable land, and so for this sector to contribute to China’s 125m<sup>3</sup> target, drastic changes are needed.

A tariff review that better reflects production costs is important. There are limitations, however: given the sprawling tracts of land used for agriculture, imposing unified prices will be a challenge.

Moreover, for a country with over a billion people indignant and occasionally violent over rising food and living

costs, measures that raise costs for food producers can be incendiary if done insensitively and sporadically. Thirdly, such a decision – even if successfully implemented nationwide – might simply force the rural Chinese to draw large amounts of groundwater, destabilising the geology and polluting historical sources, to the detriment of both rural and urban environments.

A second solution is to introduce water-efficient crops, although this is no panacea. Such a proposal would mean either radically changing the Chinese palette or investing heavily in genetic rice crops. The former calls for 1.3 billion people to move away from their water-intensive staple to other crops like potatoes, with the drastic financial and political costs that that would entail.

Depending on rice type, soil and climate, each kilogram of rice requires 1,900 to 5,000 litres of water to grow. This measures poorly against 500 to 1,500 litres of water for one kilo of potatoes.

A third approach would be to critically review China’s infamously inefficient irrigation technology. Current practices are so leaky that less than half of the water applied ever reaches the crops (similar levels of wastage occur in dripping pipes and taps in most Chinese cities). This should be an easier route to take, given that there are a number of successful models around the world today, with Israel’s modern drip-irrigation technology and India’s more rudimentary technologies as references. Besides reduced input costs with more targeted fertiliser applications, crop yields in those countries have risen by up to 50% – certainly something for China to study closely.

China’s demand and supply factors for water are complex, and it is not always easy to tease out the links between various factors, even on a macro level. This four-part series has been my most sustained discussion on this matter to date, and seeks to highlight not just the nuances of the matter, but also to accentuate the competitive and yet symbiotic interaction between water and energy, and the extent to which the supply crunch in China is looming.

# Market Profile: Aeration technologies

## Getting the right air ration

The wastewater aeration market is undergoing big changes. Gordon Cope looks at the challenges and opportunities.

**W**astewater treatment for the municipal and industrial sectors is one of the largest portions of the water market. According to GWI, global capital expenditure is in the range of \$25-35 billion annually; of that, aeration equipment represents about 10%. "Aeration is the backbone of wastewater treatment," says George Smith, director of biological services for Siemens Water Technologies. "It is the most efficient way of treating biological matter. That is why you see it in over 90% of treatment plants in North America."

But aeration, like most other valuable tools, is facing challenges – not least from rising energy costs. "Wastewater plants use a lot of energy, and 70-75% of that energy is consumed by the aeration process," says Smith.

Fortunately, much can be done. Manufacturers are creating more efficient kit and new techniques to optimise existing technologies. "You don't necessarily need to install new equipment to make gains," says Smith. "Huge gains can be made through the way you manipulate your process."

### Down the drain

Every day, municipalities, factories, beverage plants and other facilities produce billions of litres of wastewater. It can contain a wide range of solid material, faecal matter, dissolved ions, metals, organic and non-organic compounds. Municipal wastewater treatment forms the bulk of aeration use. Most treatment processes involve filtering, cleansing and disinfection.

The first stage, known as pre-treatment, uses screens to remove plastic bags, cans, sticks and other solid objects that collect in the sewer system. The next step is primary sedimentation.

Untreated wastewater enters large tanks where sludge settles to the bottom (where it is scraped away and pumped to sludge digestion facilities), and grease and oils float to the top, where they are skimmed off. Primary sedimentation gen-

## Forever blowing bubbles

The aeration market at a glance.

- Global capex on wastewater treatment is about \$25-35 billion annually. Of that, aeration equipment represents about 10%.
- Over 90% of wastewater treatment plants in North America use an aeration system.
- Aeration accounts for over 50% of the energy consumed in wastewater treatment plants.
- It takes approximately 1.5 kg of oxygen to treat 1 kg of biological oxygen demand (BOD). The most common ways of adding oxygen are surface aeration and diffusion aeration.
- Surface aeration is often used in smaller rural plants (200-2,000m<sup>3</sup>/d).

Diffusion systems are typically found in medium (4,000-200,000m<sup>3</sup>/d) and large (375,000-2 million m<sup>3</sup>/d) plants.

- The latest generation of aeration systems, including floating fine bubble and vortex systems, can reduce energy consumption by 30-50%.
- New aeration processes, such as hybrid and aerated-anoxic, can reduce energy consumption by 30-50%.
- The opportunities in North American and European markets are primarily for refurbishment and upgrade. Most greenfield project opportunities are coming up in Asia, Africa, the Middle East and Latin America.

erally removes up to 70% of suspended solids.

The wastewater, or liquor, still contains significant amounts of soap, detergent and other organic material (generally referred to as biological oxygen demand, or BOD). If released into surface waters, the BOD-laden liquor would promote the unregulated growth of bacteria and rob the water of oxygen, leading to aquatic kill-off.

It is therefore subjected to secondary treatment in closed basins (lagoons) and cement tanks, where bacteria and oxygen are mixed with the liquor under controlled conditions in order to degrade the BOD into inert compounds that can be removed from suspension through gravity. Over the course of several days, the BOD is reduced by over 90%. Excess quantities of nitrogen and phosphorus are also removed, and the water is treated with disinfectant. At this point, it can be safely discharged to surface waters.

It takes about 1.5 kg of oxygen to treat 1 kg of BOD, and naturally dissolved oxygen is soon depleted by bacterial action.

Treatment plants therefore incorporate some form of aeration to increase the amount of oxygen available. The most common systems are surface aeration and diffusion aeration. Surface aeration, or SA, sprays water into the air in order for oxygen to dissolve into the water.

Major manufacturers of SA systems include Siemens and Aqua-Aerobic Systems. "The Siemens Aqua-Lator is installed in thousands of systems throughout the world," says Terry Johnson, sales manager for Siemens. "Surface aeration is simple, relatively inexpensive to purchase, quick to ship and install, and doesn't require advanced technical training to operate. It is flexible, and a proven workhorse." SA is often used in smaller rural plants (50,000-500,000 GPD (190-1,900m<sup>3</sup>/d)), where land scarcity is not a consideration, and higher operating costs per treated gallon are offset by lower upfront capital expenditures.

Diffusion systems are typically found in medium (1-50MGD; 3,785-190,000m<sup>3</sup>/d) and large (100-500MGD; 378,500-1.9

million m<sup>3</sup>/d) plants. These are classified either as fine bubble or coarse bubble systems. These are mounted onto air manifolds or pipes running near the bottom of the tank, either on one side of the tank, or sometimes in a grid system to provide more uniform aeration.

"Fine bubble diffusers are more expensive and higher in maintenance, but their greater surface area allows for higher amounts of oxygen dissolving into the water, which increases the efficiency of the system by a ratio of 2:1," says Smith.

Surface and diffusion aeration have limitations, however. The SA process sprays water into the air, and if the air is too cold, then it cools down the water to the point where the biological process stops. Diffusion systems are therefore used in colder climates, but are more expensive. Both use large amounts of energy, accounting for more than half of a wastewater treatment plant's power consumption.

SA also requires relatively large amounts of land. Over the last decade, in an effort to handle increasing loads without expanding the physical area, many wastewater treatment systems have been adding various technologies to the secondary treatment step, including membrane bioreactors (MBRs), which separate clean effluent from the liquor by using a vacuum to draw the water through fibre filters.

GE Water & Process Technologies, Siemens and Kubota are major suppliers of MBR systems. GE has approximately 1,000 Zeeweed MBR technology systems in operation around the world.

"Conventional systems have two main functions," says Jeff Peeters, a senior product manager for GE. "The first is the biological process, where oxygen is diffused into the mixed liquor to enable the metabolism of the bacteria that degrade the organics in the wastewater. This is typically done through fine bubble aeration.

"The second component is separation of the treated water from the bacteria and other solids through gravity in a large tank, called a secondary clarifier. An MBR system differs from a conventional system in that it performs the solids-liquid separation using ultrafiltration."

MBR has its limitations, however. The technology requires larger upfront capital costs and operating costs (MBR systems consume large amounts of electricity and require considerable maintenance), which frequently makes them unsuitable for developing countries, where wastewater treatment competes for funding with other

infrastructure investments.

### Energy savings

Much is being done to address aeration's energy consumption. Mapal Green Energy, based in Israel, makes an advanced form of aerator called the CNM floating fine bubble system.

"A fine bubble system creates hundreds of millions of small bubbles that mix deeply in the reactor," says Zeev Fisher, vice president with Mapal Green Energy.

"You achieve aerobic action in the whole volume of the reactor, instead of just the surface. You have six metres of action with bubbles (the depth of a large secondary treatment tank), versus one to two metres with SA. This creates a much higher energy efficiency. You deliver 0.9 - 2.1 kg of oxygen per kWh with SA, and 3.6 - 4.8 kg with fine bubbles. That's four to five times more efficient."

Mapal has more than two dozen installations in Israel and Africa. One system was recently installed in Ramat Hasharon, an Israeli city with 50,000 inhabitants. "They have a system that treats 10,000m<sup>3</sup>/d in two biological reactors," says Fisher.

"It uses about 110 kWh in energy per reactor. We installed two blowers with eight floating fine bubble aeration units while the system was in operation. The system is easy to operate, and has sensors that automatically adjust the air flow rate as per the dissolved oxygen level in the water. It now uses 50-60 kWh. It's also possible to increase the wastewater flow rate by almost 50%, since it is a modular system and it is very easy to add more units. The plant, which is privately owned, pays us back through a percentage of the saved energy costs. The return on investment is around three years."

Sorubin, based in Sweden, has also pursued energy efficiency and simplicity of design in aeration systems. The company's recently launched Microluft aerator – which already has a clutch of references in Sweden – incorporates a bottom-mounted impeller that creates a vortex that mixes air and water, creating a foam that promotes BOD reduction. Sorubin's aerator claims to reduce the amount of energy consumed by more than 80% in comparison to conventional aerators. "Our system delivers more oxygen with less energy," says Stefan Sandström, CEO of Sorubin. "That's a tremendous saving of operating costs when you consider that in some jurisdictions, such as Indonesia, electricity can cost as much as \$1.00/kWh."

The Microluft module, which costs

in the \$20,000-25,000 range, and can deliver up to 3.5 kg of O<sub>2</sub>/kWh, is marketed primarily at the industrial leachate treatment sector. Sorubin is now turning its attention to the municipal market. "The aeration step requires a lot of energy, so it's the most expensive process step in any wastewater treatment setting," says Sandström.

"In Sweden, the required energy expenditure to achieve enough aeration is 22 kWh per person per year. This means that a city of one million citizens will spend 22,000 MWh per year on aeration treatment for their urban wastewater, costing in the vicinity of €2 million per year. On average, Sorubin's aeration technology can reduce energy expenditure by 55%, leading to savings on electricity of over €1 million per year. This means that energy expenditure will be lower, leading to a smaller carbon footprint, and the possibility to fund other projects."

MBR manufacturers are also addressing high energy consumption. "You need to employ air scour to keep the membranes clean," says Peeters. "In the past, this aspect of the MBR process used a lot of energy. Through R&D, we have designed the system to reduce the amount of air scour necessary to maintain efficiency. This has reduced energy consumption by 30% compared to our previous generation MBR technology."

Earlier this year, GE launched the LEAPmbr system, which combines aeration and separation functions. The basic building block is a membrane module that connects thousands of reinforced hollow-fibre strands to a header and footer collection assembly.

The modules are then amassed in cassettes, each of which can hold up to 48 modules. The cassettes can then be installed in process trains to handle large volumes of throughput.

The membranes are made of reinforced hollow fibres that, under vacuum, allow water to pass through, but reject particulate material greater than the pore size of the membrane (0.04 µm). Air scour is used to move concentrated wastewater away from the membranes in order to maintain efficiency.

The new design requires one third of the plant footprint compared to a conventional treatment system, says Yuvbir Singh, general manager of products and systems for GE Water. "It is also a simplified design that reduces the amount of aeration equipment and controls by 50%. It also reduces energy consumption by 30%. In the end, you have better quality

water, a smaller footprint, less energy use and lower operating costs.”

### New processes

Not all solutions require exotic new hardware. For the last several years, Siemens has been promoting a hybrid aeration system that leverages the surfactant action of fats and soaps in the waste stream. In a diffused aeration system, surfactants tend to coat the air bubble and prevent oxygen from dissolving easily into the water.

This means that, at the front end of the plant where fats and soaps are found in greater quantity, it takes a lot more air from a diffused aeration system to do the same job.

“On the other hand, surfactants tend to make sprayed water form smaller droplets, which increases their surface area,” says Smith.

“If you put an SA at the front end where surfactants are more concentrated, it is more effective in dissolving oxygen. As the biological action breaks soaps and fats down, their concentration decreases, and fine bubbles become more effective.

“A hybrid system simply starts treatment with an SA then finishes with fine bubbles. By leveraging the surfactant effect, you can save 30-40% on energy costs. We have installed a major hybrid system in Turkey.”

Siemens has also been promoting a process called aerated-anoxic. “Most plants keep a high level of dissolved oxygen (DO) throughout the aeration process,” says Smith. “But it takes extra energy to maintain that level. You can, however, run tanks in series, where the first tanks have just enough aeration to maintain zero dissolved oxygen – everything gets used up by the biological process. Later tanks have a high dissolved oxygen where the demand is lower. You can save 30 - 50% energy using the aerated-anoxic process.”

According to Siemens, installing an aerated-anoxic process can achieve significant gains within existing plant infrastructure. “A plant in Wisconsin with a fine bubble aeration process reduced their delivery and maintained zero DO for the first two thirds of their process, and only a positive DO near the end. Effluent performance was just as good, if not better, with an energy saving of 40%.”

Aerated-anoxic can also be used to reduce nitrates in water, which cause algal blooms and harm aquatic systems. “Most nitrogen entering a wastewater treatment plant is in the form of organic nitrogen and ammonia,” says Smith. “The aeration turns it into nitrate, which then acts as an

algae nutrient. In order to denitrify, you need a low oxygen level, which causes the biological process to strip oxygen from the nitrate, leaving harmless nitrogen gas to disperse into the atmosphere.”

State legislation is pushing many plants toward lower nitrate levels. “A plant in Jackson, Mississippi, was looking at adding tanks and a large investment to reduce its nitrates, but we have a proposal in to them where we could reduce nitrates using their existing tanks,” says Smith. “This would involve separating out aerated and anoxic processes in series, instead of running the tanks in parallel. The nitrate levels will fall, and the 30% energy savings is icing on the cake.”

Although significant progress has been made to reduce energy, facility size and capital costs, many aeration innovations face industry resistance.

“Our main obstacles are the consulting companies that base their fees on capex,” says Fisher. “A typical example is a lagoon in the US that is causing a bad odour. It would cost us \$2 million to fix the problem, but the consultant recommends a new \$30 million plant because it helps his bank account.”

“Many plants are upgrading equipment to save energy and increase the quality of effluent, so we are seeing first adopter utilities experimenting with aerated-anoxic and hybrid aeration,” says Smith. “It is, however, a very conservative sector, and many operators want to see someone else do it first – they don’t have a high comfort level.”

### Future opportunities

Aeration companies looking for growth opportunities are increasingly turning to developing countries. GE envisions an increasing portion of MBR business being conducted in China, India and other emerging geographies. “These areas want top-of-the-line technology, and to see that there are operational savings to be had,” says Singh.

Economical systems will also make headway. “We are following up lots of leads in Africa, South America and Asia,” says Fisher.

“For example, in Mumbai, one of the lagoon WWTPs handles 90,000m<sup>3</sup>/d, primarily through in-and-out lagoons. It uses 1,400 kWh. They want to upgrade to 250,000m<sup>3</sup>/d, but they are flanked by a nature reserve, so expansion space is limited. We put together a proposal where we reconfigure their system to handle 250,000m<sup>3</sup>/d, but only using 1,200 kWh. We avoid the cost of a new plant, which

would be \$250-300 million, versus the cost of retrofitting and upgrading the plant based on our system – about \$50-60 million. The system is robust and easy to maintain. We use the same space, and we save a lot in operational costs. And we do a live upgrade, while the plant is in full operation.”

Despite the innovations, however, SA is likely to remain a major force, not only in mature markets with large installed bases such as Europe and North America, but increasingly in developing markets, towards which Siemens foresees a marked shift in new-build activity over the next 10-20 years.

“Many developing countries don’t have huge amounts of money to purchase expensive equipment, but they do have lots of land, and a large need for wastewater treatment,” says Johnson. “Surface aeration is low cost, and the aeration basin is typically earthen with a plastic liner. This allows developing countries to build hospitals, schools and roads, but still have a good wastewater system.”

Further down the line, manufacturers hope to revolutionise energy usage. “We are working on processes where we may someday turn wastewater treatment plants from energy hogs into energy sources,” says Smith. “This involves a host of factors, from diverting sludge prior to the aeration process into anaerobic digesters, which produces gas and reduces aeration, to using aerated-anoxic and other processes to reduce energy consumption.

“I was in Hong Kong recently. They only have primary treatment, and pump the rest out into the bay. Now, they need to add secondary treatment. Land is very expensive, and a conventional process would require a very large plant to handle the load. We worked out a system on paper that would allow them to build secondary treatment and a digester within the limited area available, and end up delivering a surplus of energy. Instead of spending \$20 million per year on operating costs, they would end up with a \$5 million recovery.”

Participants in the sector are confident that aeration will continue to be a foundation of wastewater treatment for a long time.

“City water managers in arid regions are realising it is more cost-effective to treat wastewater to a higher level and reuse it, rather than simply treat and discharge it, due to regulation,” says Singh.

“For a small incremental cost with an MBR system, they can repurpose wastewater to constructive reuse.”

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# Desalination Tracker

## China

### UPDATE

**Project:** Baosteel Group Corporation, Zhanjiang Project

**Project description:** 30,000m<sup>3</sup>/d MED, to be expanded later. The plant will form part of a proposed steel production facility.

**Client:** Baosteel Group Corporation

**Status:** The proposed capacity is understood to have been revised down to 30,000m<sup>3</sup>/d from 40,000m<sup>3</sup>/d, and construction is expected to start in early 2012. This will involve the supply of MED units and preliminary engineering works at the site, although final government approval for the steel production project as a whole has not yet been received. This is expected to come through before the end of 2011, however. The desalination plant is scheduled to be online by 2013.

**Progress:** 3/5

**Reality rating:** 10/10

## China

### UPDATE

**Project:** Changxing Island Economic Zone

**Project description:** An SWRO plant with a capacity of 50,000m<sup>3</sup>/d in the first phase, to be expanded to 100,000m<sup>3</sup>/d.

**Client:** Administrative Committee of Changxing Island Economic & Technological Development Zone (CIETDZ)

**Expected cost:** Unknown

**Project structure:** BOT

**Status:** Hitachi and Befesa have signed an MOU to develop the project as a BOT, with Befesa holding just over 50% in the JV. The client would not discuss any further details of the project, but a contract should be finalised by February 2012.

**Progress:** 3/5

**Reality rating:** 8/10

## China

### UPDATE

**Project:** Laoting Desalination Project

**Project description:** 200,000m<sup>3</sup>/d SWRO

**Client:** China Metallurgical Group Corporation (MCC)

**Project structure:** EPC

**Status:** In late June 2011, CCTEC Engineering Co., Ltd., a subsidiary of MCC, signed a 30-year BOT contract to provide desalinated water for the Laoting Industrial Cluster District. The contract follows the signing of a framework agreement with the Laoting government in October 2010. CCTEC is now conducting a feasibility study using a pilot plant. The company is still considering an open tender for an EPC contract for either the supply of desalination technology, civil works or both, but has not made a firm decision yet. The first phase of the project will be smaller at 20,000m<sup>3</sup>/d, according to the client, and construction is scheduled to start in mid-2012.

**Progress:** 2/5

**Reality rating:** 8/10

**Contact:** Mr Li (MCC) Tel:+86 10 8442 3952.

## India

### UPDATE

**Project:** Chennai 3

**Project description:** 200,000m<sup>3</sup>/d SWRO initially, to be increased to 400,000m<sup>3</sup>/d.

**Client:** Chennai Metro Water

**Project structure:** Undecided

**Status:** The Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB) is still looking to appoint a consultant to carry out pre-feasibility studies, prepare a detailed project report and bid documents, and assist with the evaluation of construction bids. An RFP released by the client gives bidders until 12 January 2012 to submit proposals. The documentation can be downloaded from [www.chennaietrowater.tn.nic.in](http://www.chennaietrowater.tn.nic.in), or [www.tenders.tn.gov.in](http://www.tenders.tn.gov.in). AECOM and ILF Mantech (the Minjur desalination plant consultant) have already submitted bids.

**Progress:** 1/5

**Reality rating:** 4/10

**Contact:** T. Allaudin (Desalination Department, Chennai Metro Water). Tel: +91 44 2845 1300.

## Israel

### UPDATE

**Project:** Ashdod

**Project description:** 320,000m<sup>3</sup>/d SWRO

**Client:** Mekorot Water Company, through subsidiary Mekorot Development & Enterprise Ltd.

**Project structure:** 25-year BOT

**Status:** The project has reached financial close. Under the terms of the agreement, the EIB will loan Israel's Bank Hapoalim (the lead arranger for

the project) €120 million. An equivalent amount in shekels will be extended by Bank Hapoalim, Amitim Pension Funds and Clal Insurance. Each party will be responsible for one third of the shekel loan. The debt to equity ratio is 80:20. The financing agreement is between the banks and ADL Ltd., which is fully owned by Mekorot Development and Enterprise Ltd., a subsidiary of Mekorot Water Company. Israel's Minrav Holdings and Spain's Sadyt, which were awarded the project by Mekorot in November 2009, began construction on 9th October. Under the terms of the agreement, the plant is due to be completed by December 2013, with delivery of first water by September 2013 (see story p22).

**Progress:** 5/5

**Reality rating:** 10/10

## Morocco

### UPDATE

**Project:** Chtouka

**Project description:** 100,000-120,000m<sup>3</sup>/d SWRO for irrigation in the region of Chtouka, where high-value agriculture (notably tomatoes) is threatened because of water shortages.

**Client:** Ministry of Agriculture, which is being advised by the IFC.

**Expected cost:** Undetermined

**Project structure:** Public-private partnership. The exact form is as yet undetermined. The project's capex will be partly financed by the government, whilst the bulk of opex costs will be met directly by end users (about 500 large-scale farmers). BRL Ingénierie (technical advisor) and Gide Loyrette Nouel (legal advisor) worked on studies between September 2010 and February 2011, which were funded by FASEP-Etudes (Fonds d'Etudes et d'Aide au Secteur Privé, the Fund for Studies and Support to the Private Sector), part of the French overseas aid programme.

**Status:** The government of Morocco, with IFC as its adviser, is expected to announce its strategy for the project (final capacity, procurement method, price of water, and so on) shortly, and to follow that up with a tender.

**Progress:** 1/5

**Reality rating:** 3/10

**Contact:** Bouchra El Achkar (IFC, Rabat). Tel: +212 537 652 479. E-mail: [belachkar@ifc.org](mailto:belachkar@ifc.org)

## Namibia

### UPDATE

**Project:** Mile 6 (formerly Swakopmund)

**Project description:** SWRO. Capacities have not

yet been defined, but it is thought the facility will have a capacity of 60,000m<sup>3</sup>/d. The contract also includes the construction of a seawater intake and pumping station. The main offtakers will be uranium mines.

**Client:** Ministry of Agriculture, Water and Forestry (MAWF) and NamWater.

**Expected cost:** Undetermined

**Project structure:** 20-year BOOT, with NamWater owning a minority shareholding interest in the project company.

**Status:** An RFP has been issued to the shortlisted bidders, with proposals due in mid-March 2012. A site visit and pre-bid meeting was scheduled for 9th December. While an offtake agreement has not yet been formally signed, the government is confident that demand for water will be met by local mining interests, which include a proposed new iron ore mine near Walvis Bay, currently undergoing feasibility studies. The shortlisted bidders are: 1) Acciona/Orascom; 2) Befesa Water; 3) Degremont/WSSA; 4) Hyflux/JGC/Itochu; 5) IDE Technologies; 6) Tedagua/Wabag; 7) Veolia/Paragon Investment Holding.

**Progress:** 3/5

**Reality rating:** 8/10

**Contact:** Ileka Ewald. Tel: +264 61 208 7289. E-mail: ilekaE@mawf.gov.na. Abraham Nehemia (Undersecretary of the Department of Water Affairs and Forestry). Tel: +264 61 208 7699.

## Oman

### UPDATE

**Project:** Al Ghubrah IWP

**Project description:** Financing, construction and operation of 190,932m<sup>3</sup>/d (42MIGD) of new SWRO capacity at the site of the existing Al Ghubrah power and desalination facility, west of Muscat. The project was previously envisaged as a new IWPP, also including 450-600MW of new gas-fired power capacity. Due to the plant's proximity to residential areas, Oman PWP has changed the scope of the Ghubrah redevelopment to include just new desalination capacity, with a separate 1,500MW power project to be located at Sur.

**Client:** Oman Power and Water Procurement Co.

**Expected cost:** Undetermined

**Project structure:** IWP

**Status:** The deadline for statements of qualifications to be submitted was delayed again to 5th December. Oman PWP said it would aim to release an RFP within two weeks of this date. Companies believed to have purchased tender documents already include Marubeni, Veolia, GS Engineering, Metito, and Degremont. Client-side advisory services are being carried out by a group made up of KPMG (financial), SNR Denton (legal) and Fichtner (technical).

**Progress:** 2/5

**Reality rating:** 4/10

**Contact:** Ahmed Shaibani (project manager, Oman PWP). Tel: +968 2 450 8400.

## Philippines

### UPDATE

**Project:** Putatan WTP expansion

**Project description:** The expansion of an existing 100,000m<sup>3</sup>/d water treatment plant drawing water from Laguna de Bay to supply the West Zone of Metro Manila. The current facility was opened in February 2011 and uses MF and RO equipment supplied by Pall Corporation. The next stage will expand capacity at the site by a further 200,000m<sup>3</sup>/d. This will take the form of a separate facility adjacent to the current plant. There is a possibility that the current MF/RO configuration will be changed for the second facility, but RO will definitely feature, according to Maynilad.

**Client:** Maynilad Water

**Expected cost:** Approximately PHP2.5 billion (\$57 million)

**Project structure:** Undetermined, but likely to be design-build

**Status:** Three bidders were shortlisted in July: Biwater (Malaysia), Hyundai and VA Tech Wabag. The bidders were asked to provide further information on how they would handle ammonia levels. Arup evaluated the bids and has made recommendations to Maynilad, which is now considering them. In a concurrent process, a demand study has been conducted to assess the need for a new treatment plant. The recommendations of the study will be announced in mid-December, and are expected to support the implementation of the Putatan project. Final decisions are expected to be taken by February 2012.

**Progress:** 3/5

**Reality rating:** 7/10

**Contact:** Maynilad Water Corporate Affairs. Tel: +632 9813 4552.

## Qatar

### NEW

**Project:** Mesaieed Industrial City MED

**Project description:** 5,670m<sup>3</sup>/d MED-TC

**Client:** Qatar Petrochemical Co. Ltd. (QAPCO)

**Expected cost:** \$8.3 million

**Project structure:** EPC

**Status:** Tri-Tech Infrastructure has been awarded an EPC contract to design and build a 5,760m<sup>3</sup>/d MED seawater desalination plant. The facility is expected to be ready by November 2012.

**Progress:** 5/5

**Reality rating:** 10/10

## Saudi Arabia

### UPDATE

**Project:** Duba phase 4

**Project description:** 9,000m<sup>3</sup>/d MED

**Client:** SWCC

**Project structure:** EPC

**Status:** The project is still in the design stage with SWCC, and no new information has been received on tendering. The latest official guidance from SWCC indicates that work will start in September 2012, with a completion date of 2014.

**Progress:** 0/5

**Reality rating:** 2/10

**Contact:** SWCC. Tel: +966 1 463 1111.

## Saudi Arabia

### UPDATE

**Project:** Haql phase 3

**Project description:** 9,000m<sup>3</sup>/d MED

**Client:** SWCC

**Project structure:** EPC

**Status:** The project is still in the design stage with SWCC, and no new information has been received on tendering. The latest official guidance from SWCC indicates that work will start in September 2012, with a completion date of 2014.

**Progress:** 0/5

**Reality rating:** 2/10

**Contact:** SWCC. Tel: +966 1 463 1111.

## Saudi Arabia

### UPDATE

**Project:** Jubail RO upgrade

**Project description:** The addition of a second pass to SWCC's 78,182m<sup>3</sup>/d reverse osmosis plant at Jubail, which was commissioned in 2002.

**Client:** Marafiq

**Project structure:** Likely EPC

**Status:** Marafiq is now believed to be pursuing this project, but a timetable for tendering is not yet clear.

**Progress:** 0/5

**Reality rating:** 5/10

**Contact:** Thamer Al-Sharhan (CEO, Marafiq). Tel: +966 3 340 1111.

## Saudi Arabia

### UPDATE

**Project:** Khobar 4 IWPP

**Project description:** An IWPP with a capacity of 250,000m<sup>3</sup>/d & 250MW

**Client:** SWCC

**Project structure:** IWPP

**Status:** The project is included in SWCC's long-term plans for capacity building, but no move has yet been made on tendering. The latest official guidance from SWCC indicates that construction is to start in March 2015, with the plant coming online in February 2018.

**Progress:** 0/5

**Reality rating:** 5/10

**Contact:** SWCC. Tel: +966 1 463 1111.

## Saudi Arabia

### UPDATE

**Project:** Rabigh phase 3

**Project description:** A new 9,000m<sup>3</sup>/d MED desal plant in Rabigh.

**Client:** SWCC

**Project structure:** EPC

**Status:** The project is still in the design stage with SWCC, and no new information has been received on tendering. The latest official guidance from SWCC indicates that work will start in September 2012, with a completion date of 2014.

**Progress:** 0/5

**Reality rating:** 2/10

**Contact:** SWCC. Tel: +966 1 463 1111.

## Saudi Arabia

### UPDATE

**Project:** Shoaiba 4 IWPP

**Project description:** An IWPP with a capacity of 650,000m<sup>3</sup>/d & 665MW.

**Client:** SWCC

**Project structure:** IWPP

**Status:** The project is included in SWCC's long-term plans for capacity building, but no move has yet been made on tendering. The latest official guidance from SWCC indicates that construction is to start in January 2013, with the plant coming online in December 2015.

**Progress:** 0/5

**Reality rating:** 5/10

**Contact:** SWCC. Tel: +966 1 463 1111.

## Saudi Arabia

### UPDATE

**Project:** Shuqaiq 3 IWPP

**Project description:** An IWPP with a capacity of 175,000m<sup>3</sup>/d & 175MW.

**Client:** SWCC

**Project structure:** IWPP

**Status:** This was set to be the first project to be

included in SWCC's privatisation programme, with the new capacity being included in the contract to purchase SWCC's existing plant at Shuqaiq. However, the future of SWCC's privatisation timetable is now unclear. The latest official guidance from SWCC calls for construction work to begin on the new project in January 2014, with completion in December 2016.

**Progress:** 0/5

**Reality rating:** 5/10

**Contact:** SWCC. Tel: +966 1 463 1111.

## Saudi Arabia

### UPDATE

**Project:** Wasia BWRO

**Project description:** A 300,000m<sup>3</sup>/d brackish water treatment plant using reverse osmosis technology, serving the city of Riyadh.

**Client:** National Water Company (NWC)

**Expected cost:** \$450 million for the total Wasia project, which also includes reservoir buildings and transmission work.

**Project structure:** EPC

**Status:** The project has been re-tendered, with a new deadline set for March 2012. Original negotiations with bidders had stalled at the technical clarification stage. NWC's plans originally forecast a construction start date of May 2012, with the plant due to come online in May 2014.

**Progress:** 2/5

**Reality rating:** 3/10

**Contact:** NWC tendering department. Tel: +966 1 440 9203. E-mail: halhazmi@nwc.com.sa

## Spain

### UPDATE

**Project:** Santa Cruz de Tenerife extension

**Project description:** Second phase to add a further 21,000m<sup>3</sup>/d to an existing 20,000m<sup>3</sup>/d capacity SWRO. This could later be expanded to an additional 40,000m<sup>3</sup>/d.

**Client:** Consejo Insular de Aguas de Tenerife/ Ayuntamiento de Santa Cruz de Tenerife

**Expected cost:** €11.56 million

**Project structure:** Design-build

**Status:** According to the regional government, budget cuts to be introduced by the newly elected PP government in Madrid mean this project is now very unlikely to go ahead.

**Progress:** 1/5

**Reality rating:** 0/10

**Contact:** Iranzu Billeta (Contratación, Consejo Insular de Aguas de Tenerife). Tel: +34 922 208 802.

## UAE

### UPDATE

**Project:** Fujairah 1 SWRO expansion

**Project description:** Expansion of the existing 170,000m<sup>3</sup>/d SWRO section of the hybrid plant by 136,000m<sup>3</sup>/d (30MIGD). The extra output will go to Fujairah, Sharjah and other northern emirates. The existing 284,000m<sup>3</sup>/d MSF capacity will remain unchanged.

**Client:** Emirates Sembcorp Water & Power Company (ESWPC), a 40:60 partnership between Sembcorp and ADWEA

**Project structure:** DBO, including a 7-year operating phase.

**Status:** The client is set to name a reduced shortlist from among the six bidders in January 2012. Abeima (Abengoa) submitted the lowest of the six water tariffs by the 14 November 2011 deadline. EPC quotes were not disclosed. The client aims to award the contract by the end of February 2012. The full list of tariffs quoted by bidders is as follows: Abeima (\$0.518/m<sup>3</sup>); Acciona (\$0.565/m<sup>3</sup>); Degremont (\$0.644/m<sup>3</sup>); GE/Samsung (\$0.664/m<sup>3</sup>); Veolia (0.658/m<sup>3</sup>); Cadagua (\$0.694/m<sup>3</sup>).

**Progress:** 3/5

**Reality rating:** 7/10

**Contact:** William Chang (managing director, ESWPC). Tel: +971 9 208 8991.

## USA

### UPDATE

**Project:** Clearwater BWRO Projects, FL

**Project description:** The City of Clearwater is procuring two BWRO projects. The first is a 3,785m<sup>3</sup>/d (1MGD) expansion of an existing 11,355m<sup>3</sup>/d (3MGD) plant, including two storage tanks. The second is a new 24,602m<sup>3</sup>/d (6.5MGD) facility. Construction of the Plant #1 expansion is scheduled to be completed by 31 December 2012, and the new Plant #2 should be completed by 31 December 2015.

**Client:** City of Clearwater

**Expected cost:** \$7 million

**Project structure:** DB

**Status:** Plant #2 is now expected to be tendered in July 2012, according to the client. A site survey is currently being conducted for the facility. Plant #1 was awarded to CDM earlier in 2011 and is under construction.

**Progress:** 0/5

**Reality rating:** 9/10

**Contact:** Glenn Daniel (Public Utilities Dept, Clearwater). Tel: +1 727 562 4960, ext. 7249.

## USA

### UPDATE

**Project:** Marin County (formerly San Rafael), CA

**Project description:** 18,925m<sup>3</sup>/d (5MGD) initially, expandable to 56,775m<sup>3</sup>/d (15MGD) SWRO

**Client:** Marin Municipal Water District (MMWD)

**Expected cost:** \$50 million (5MGD), up to \$115 million (15MGD)

**Project structure:** The contract type has not yet been decided. The project cost will be met through public finance.

**Status:** Marin Municipal Water District (MMWD) has voted to appeal a decision by a Marin County superior court judge in September that ruled against the project, saying the EIR was invalid under California Environmental Quality Act (CEQA) rules. While the project is on hold due to funding shortages and reduced projected water demand, MMWD will appeal in order to keep desalination as an option for meeting future water supply needs.

**Progress:** 0/5

**Reality rating:** 1/10

## USA

### UPDATE

**Project:** South District BWRO, FL

**Project description:** A new 23MGD (87,055m<sup>3</sup>/d) BWRO plant treating water from the Floridan aquifer. A proportion of the feedwater will be freshwater, but the ratio has not been determined by the client as yet.

**Client:** Miami-Dade Water and Sewer Department (MDWSD)

**Expected cost:** \$150 million

**Project structure:** DBB

**Status:** Due to difficulties in securing funding through bonds, an RFP is likely to be delayed until some time in 2013, the client told GWI. Funding is not expected to be secured until September 2012. The client submitted an amended use permit to gain approval for a change in project scope to desalination — originally the facility was conceived as a water recycling plant. The permit is anticipated to be issued at some point during Q1 2012.

**Progress:** 0/5

**Reality rating:** 4/10

**Contact:** Douglas Yoder (Deputy Director, MDWSD). Tel: +1 786 552 8979. E-mail: yoderd@co.miami-dade.fl.us

## USA

### UPDATE

**Project:** Weatherford BWRO, TX

**Project description:** A new 1MGD BWRO plant to treat water from the Brazos River. The facility will also employ microfiltration technology.

**Client:** Parker County Special Utility District

**Expected cost:** \$5 million

**Project structure:** DBB

**Status:** Howard Estruct was awarded the contract in November, based on a low bid of \$5 million. Jacob & Martin Engineering was taken on as the design firm.

**Contact:** Derek Turner (Jacob & Martin Engineering). Tel:+1 817 594 9880.

### No change this month

| Country   | Desalination Plant Name             | Plant  | Status                                |
|-----------|-------------------------------------|--|---------------------------------------|
| Algeria   | Béjaïa                              | 100,000m <sup>3</sup> /d SWRO  | Early feasibility stage               |
| Algeria   | El Oued                             | 300,000m <sup>3</sup> /d BWRO  | Tender launched                       |
| Algeria   | El Tarf                             | 100,000m <sup>3</sup> /d SWRO  | To be re-tendered                     |
| Algeria   | Jijel                               | 100,000m <sup>3</sup> /d SWRO  | Early feasibility stage               |
| Algeria   | Oued Sebt                           | 100,000m <sup>3</sup> /d SWRO  | To be re-tendered                     |
| Algeria   | Tamanrasset                         | 100,000m <sup>3</sup> /d BWRO  | Tender process expected soon          |
| Algeria   | Tindouf BWRO                        | 27,000m <sup>3</sup> /d BWRO   | Awaiting tender                       |
| Algeria   | Tougourt                            | 37,000m <sup>3</sup> /d BWRO   | Tender launched                       |
| Australia | Albany Seawater Desalination Plant  | Upgrade of water supply  | Conceptual stage                      |
| Australia | Cape Riche                          | 35,000m <sup>3</sup> /d SWRO   | RFP issued                            |
| Australia | Hunter Valley Desalination, NSW     | 120,000m <sup>3</sup> /d SWRO  | Conceptual stage                      |
| Australia | Port Germein                        | 135,000m <sup>3</sup> /d   | Planning stage                        |
| Australia | Olympic Dam                         | 200,000m <sup>3</sup> /d SWRO  | Feasibility study ongoing             |
| Australia | Onslow Water Supply Scheme          | 2,000m <sup>3</sup> /d SWRO  | Conceptual stage                      |
| Australia | Toukley Desalination Plant          |  | Conceptual stage                      |
| Australia | Tugun Gold Coast expansion          | 125,000m <sup>3</sup> /d - 375,000m <sup>3</sup> /d SWRO             | Reserve option                        |
| Australia | Walpole Seawater Desalination Plant | Upgrade water supply   | Conceptual stage                      |
| Australia | Wheatstone LNG project, Pilbara     | 5,000m <sup>3</sup> /d SWRO  | RFP issued                            |
| Bahrain   | Ad Dur 3                            | Approx 227,000m <sup>3</sup> /d and 1200MW                           | Expected 2015/2016                    |
| Chile     | Agbar SWRO project, Copiapó         | 69,120m <sup>3</sup> /d - 86,400m <sup>3</sup> /d SWRO               | In permitting                         |
| Chile     | AguasMin                            | 25,920m <sup>3</sup> /d SWRO   | Feasibility study ongoing             |
| Chile     | Arica                               | Initial 17,280m <sup>3</sup> /d SWRO                                 | In dispute                            |
| Chile     | Atacama Sacyr                       | 42,500m <sup>3</sup> /d SWRO   | Proposal by Sacyr under consideration |
| Chile     | Central Castilla                    | 71,700m <sup>3</sup> /d SWRO   | Environmental licence granted         |
| Chile     | Cerro Negro Norte                   | 17,280m <sup>3</sup> /d  | Signed financial agreement            |
| Chile     | Collahuasi mine                     | 129,600m <sup>3</sup> /d SWRO  | Pre-feasibility study ongoing         |
| Chile     | Copiapó, MOP plants                 | 80,000-100,000m <sup>3</sup> /d SWRO plus 4-5 plants along the coast | Awaiting feasibility studies          |

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## No change this month

| Country    | Desalination Plant Name            | Plant  | Status                                      |
|------------|------------------------------------|--|---|
| Chile      | El Morro                           | 64,000m <sup>3</sup> /d SWRO                           | Pre-qualifiers named                        |
| Chile      | Desaladora Sur, Antofagasta        | 51,840m <sup>3</sup> /d SWRO                           | Prequalification process ongoing            |
| Chile      | Mantoverde copper mine             | 10,368m <sup>3</sup> /d SWRO                           | Tender process relaunched                   |
| Chile      | Minera Escondida                   | 123,000m <sup>3</sup> /d SWRO                          | Preferred bidder announced                  |
| China      | Fujian Coal Group                  |  | Early conceptual stage                      |
| Costa Rica | Guanacaste                         | 5,675m <sup>3</sup> /d SWRO                            | Developers in negotiations                  |
| Cyprus     | Ha Potami                          | 3,290m <sup>3</sup> /d approx.                         | Developers to submit planning application   |
| Cyprus     | Larnaca Desalination Plant O&M     | 52,000m <sup>3</sup> /d SWRO                           | Awaiting final notification of award        |
| Cyprus     | Venus Rock Development             | 5,000-7,000m <sup>3</sup> /d SWRO                      | Awaiting technical bids                     |
| Egypt      | Hurghada                           | 25,000m <sup>3</sup> /d, likely SWRO                   | Awaiting advisory tender                    |
| Egypt      | North Sinai                        | 35,000m <sup>3</sup> /d, likely SWRO                   | Awaiting advisory tender                    |
| Egypt      | Red Sea, Sinai and Matrouh         | 5,000-20,000m <sup>3</sup> /d                          | Pre-RFP stage                               |
| Egypt      | West Gulf of Suez                  | 70,000m <sup>3</sup> /d, likely SWRO                   | Awaiting advisory tender                    |
| France     | La Vendée                          | 20,000m <sup>3</sup> /d BWRO                           | Bids for consultation under evaluation      |
| Ghana      | Nungua, Accra (Aqualyng)           | 20,000m <sup>3</sup> /d SWRO                           | Project delayed                             |
| Greece     | Greek Islands                      | 31,500m <sup>3</sup> /d SWRO                           | Awaiting RFP                                |
| Hong Kong  | Tseung Kwan O                      | 130,000m <sup>3</sup> /d SWRO                          | Early conceptual stage                      |
| India      | Karaikal, Pondicherry              | 5,500m <sup>3</sup> /d - 10,000m <sup>3</sup> /d SWRO  | Four companies shortlisted                  |
| India      | Kutch (GIDB)                       | Four plants of 50,000m <sup>3</sup> /d each            | Early conceptual stage                      |
| India      | Kutch (FOKIA)                      | 150,000m <sup>3</sup> /d SWRO and 60MW                 | In planning                                 |
| India      | Mumbai                             | 100,000m <sup>3</sup> /d SWRO                          | On hold                                     |
| India      | Mumbai 2                           | Three plants of 100,000m <sup>3</sup> /d each          | Early conceptual stage                      |
| India      | Mundra SEZ                         | 200,000m <sup>3</sup> /d SWRO                          | Awaiting tender                             |
| India      | NIOT Chennai                       | 10,000m <sup>3</sup> /d                                | Awaiting tender                             |
| Iran       | Assalouyeh                         | 40,000m <sup>3</sup> /d SWRO                           | Award expected soon                         |
| Iran       | Charak Port SWRO                   | 10,000m <sup>3</sup> /d SWRO                           | RFQ issued                                  |
| Iran       | Kangan Petrochemical SWRO          | 10,000m <sup>3</sup> /d SWRO                           | RFP issued                                  |
| Iran       | Keshar Villages SWRO               | Keshar Villages SWRO                                   | RFP issued                                  |
| Iran       | Kharg Island SWRO (rehabilitation) | Rehabilitation of 6,000m <sup>3</sup> /d SWRO          | Bids from engineering consultancies invited |
| Iran       | Lengeh Port SWRO                   | 6,000m <sup>3</sup> /d SWRO                            | RFQ issued                                  |
| Iran       | Pars Economic Energy Zone          | 7,500m <sup>3</sup> /d MED                             | Prequalification ongoing                    |
| Iran       | Pars Site 2 - Assalouyeh (Bushehr) | 20,000m <sup>3</sup> /d + 7,500m <sup>3</sup> /d SWRO  | Tender to be launched soon                  |
| Iran       | Ramchah SWRO, Qeshm Island         | 500m <sup>3</sup> /d SWRO                              | Bids under evaluation                       |
| Iran       | Salakh Village, Qeshm Island       | 1,000m <sup>3</sup> /d SWRO                            | Bids under evaluation                       |
| Israel     | Ashdod Municipality                | Undetermined   | Conceptual stage                            |
| Israel     | Ashkelon, Palmachim and Hadera     | Expansion of three existing plants                     | Palmachim expansion proposal accepted       |
| Israel     | Ashdod - Paz Oil Company           | 274,000m <sup>3</sup> /d SWRO                          | Conceptual stage                            |
| Israel     | Containerised desalination plants  | 14,000m <sup>3</sup> /d - 41,000m <sup>3</sup> /d each | Conceptual stage                            |
| Israel     | Dan Region Association             | Supply for Tel Aviv region                             | Conceptual stage                            |
| Israel     | EAPC desalination plant            | 137,000m <sup>3</sup> /d                               | Preliminary stage                           |
| Israel     | Five new plants                    | Each region 400,000 - 550,000m <sup>3</sup> /d         | Conceptual stage                            |
| Israel     | Granot expansion                   | 41,095m <sup>3</sup> /d - 49,315m <sup>3</sup> /d BWRO | Expansion approved by government            |
| Israel     | Hadera industrial zone             | 411,000m <sup>3</sup> /d                               | Project in preliminary phase                |
| Israel     | Hadera inland                      | 137,000m <sup>3</sup> /d - 274,000m <sup>3</sup> /d    | Government approval delayed                 |
| Israel     | Kfar Masaryk                       | 13,700m <sup>3</sup> /d - 21,918m <sup>3</sup> /d BWRO | Project in development                      |
| Israel     | Jordan Valley BWRO                 | 19,178m <sup>3</sup> /d BWRO                           | RFEI issued                                 |
| Israel     | Lahat                              | 41,095m <sup>3</sup> /d - 49,315m <sup>3</sup> /d BWRO | Final approval received                     |
| Israel     | Ma'agan Michael                    | Expansion to 35,000m <sup>3</sup> /d                   | Hydrological survey ongoing                 |
| Israel     | Red-Dead Sea Canal project         | 274,000m <sup>3</sup> /d pilot plant                   | Feasibility studies ongoing                 |



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## No change this month

| Country    | Desalination Plant Name        | Plant  | Status                                |
|------------|--------------------------------|--|---------------------------------------|
| Israel     | Rishon Le Zion                 | 10,000m <sup>3</sup> /d-30,000m <sup>3</sup> /d            | Project under review                  |
| Israel     | Sabha expansion                | Expansion up to 57,534m <sup>3</sup> /d                    | Awaiting outcome of study             |
| Israel     | Soreq 2                        | 411,000m <sup>3</sup> /d (150 MCM/yr)                      | Government approval received          |
| Israel     | Temporary desalination plants  | 247,000m <sup>3</sup> /d - 274,000m <sup>3</sup> /d        | 13 proposals under consideration      |
| Israel     | Timna                          | 87,670m <sup>3</sup> /d; thermal technology                | Feasibility study ongoing             |
| Israel     | Western Galilee                | 137,000m <sup>3</sup> /d initially                         | Early planning stage                  |
| Jordan     | Jordan Red Sea Project Phase 1 | 548,000m <sup>3</sup> /d                                   | Awaiting technical and financial bids |
| Kazakhstan | Aktau SWRO                     | Completion of 20,000m <sup>3</sup> /d                      | Pre-feasibility stage                 |
| Kuwait     | Az-Zour North 1 IWPP           | 454,600m <sup>3</sup> /d & 1,500MW                         | Awaiting contract award               |
| Kuwait     | Az-Zour North Stages 2-5       | Four stages of upgrades                                    | Conceptual stage                      |
| Kuwait     | Az-Zour South hybridisation    | 136,000m <sup>3</sup> /d                                   | Contract provisionally awarded        |
| Kuwait     | Doha (Kuwait) SWRO             | 2 x 227,300m <sup>3</sup> /d SWRO                          | RFQ expected 2012                     |
| Kuwait     | Doha East                      | 454,600m <sup>3</sup> /d and 2,300MW                       | Tender to be re-issued in 2012        |
| Kuwait     | Doha West                      | 109,100m <sup>3</sup> /d                                   | Bids under evaluation                 |
| Kuwait     | Khirran South                  | 189,000m <sup>3</sup> /d and 500MW initially               | Changed to IWPP                       |
| Kuwait     | Shuaibah South                 | 231,846m <sup>3</sup> /d & 1,400MW                         | Tender expected 2012                  |
| Libya      | Abu Taraba extension           | New 100,000m <sup>3</sup> /d                               | Conceptual stage                      |
| Libya      | Benghazi                       | 400,000m <sup>3</sup> /d, likely SWRO                      | Conceptual stage                      |
| Libya      | Derna extension                | 100,000m <sup>3</sup> /d                                   | Tender expected 2014-2016             |
| Libya      | Jfara                          | 300,000m <sup>3</sup> /d, likely SWRO                      | Tender expected 2014-2016             |
| Libya      | Misurata                       | 500,000m <sup>3</sup> /d, likely SWRO                      | Tender expected 2010-2013             |
| Libya      | Sirte                          | 100,000m <sup>3</sup> /d, likely SWRO                      | Tender expected 2014-2016             |
| Libya      | Soussa extension               | 100,000m <sup>3</sup> /d SWRO                              | Tender expected 2014-2016             |
| Libya      | Tripoli East                   | 500,000m <sup>3</sup> /d                                   | Tender expected by 2013               |
| Libya      | Zawia                          | 100,000m <sup>3</sup> /d, likely SWRO                      | Tender expected 2017-2020             |
| Libya      | Zwara                          | 100,000m <sup>3</sup> /d, likely SWRO                      | Tender expected 2017-2020             |
| Mexico     | Acapulco SWRO                  | 4,320m <sup>3</sup> /d - 40,000m <sup>3</sup> /d SWRO      | Conceptual stage                      |
| Mexico     | Cabo San Lucas expansion       | 17,280m <sup>3</sup> /d                                    | Feasibility study ongoing             |
| Mexico     | Ensenada rural                 | 21,600m <sup>3</sup> /d SWRO                               | RFP issued                            |
| Mexico     | Ixtapa, Zihuatanejo            | 12,960m <sup>3</sup> /d SWRO Phase 1                       | Feasibility studies underway          |
| Mexico     | La Misión                      | 6,912m <sup>3</sup> /d SWRO                                | Early conceptual stage                |
| Mexico     | La Paz, Baja California Sur    | 17,280m <sup>3</sup> /d Phase 1                            | Tender expected soon                  |
| Mexico     | Planta San Carlos              | Initial 60,480m <sup>3</sup> /d - 194,400m <sup>3</sup> /d | Planning stage                        |
| Mexico     | Puerto Peñasco, Sonora         | 8,640m <sup>3</sup> /d SWRO                                | Cross-border project being considered |
| Mexico     | Rosarito (NSC Agua)            | 189,250m <sup>3</sup> /d SWRO                              | Securing funding                      |
| Mexico     | Rosarito Beach (SDCWA)         | 94,625m <sup>3</sup> /d - 189,250m <sup>3</sup> /d         | Feasibility stage ongoing             |
| Mexico     | Rosarito-Tijuana               | 43,200m <sup>3</sup> /d, likely SWRO                       | Planning phase                        |
| Mexico     | San Quintin, Baja California   | 21,600m <sup>3</sup> /d, likely SWRO                       | Pre-study phase                       |
| Mexico     | Tijuana-La Misión-Ensenada     | 21,600m <sup>3</sup> /d SWRO                               | Awaiting tender                       |
| Morocco    | Agadir                         | 100,000m <sup>3</sup> /d SWRO                              | Awaiting bids                         |
| Morocco    | Al Hoceima                     | Two 10,000m <sup>3</sup> /d SWRO                           | Consultancy tender expected soon      |
| Morocco    | Boujdour                       | Expand SWRO to 6,000m <sup>3</sup> /d                      | Pre-feasibility study stage           |
| Morocco    | Laayoune SWRO expansion        | Doubling of capacity to 26,000m <sup>3</sup> /d            | Tender expected 2013                  |
| Morocco    | Safi                           | 68,000m <sup>3</sup> /d SWRO                               | Conceptual stage                      |
| Morocco    | Sidi Ifni                      | 34,560m <sup>3</sup> /d SWRO                               | Phase 1 tender expected 2013          |
| Morocco    | Tan Tan and Guelmim            | Two SWRO desalination plant                                | Pre-feasibility stage                 |
| Oman       | Duqm                           | 1,000MW & 20,000-50,000m <sup>3</sup> /d                   | Conceptual stage                      |
| Oman       | Qurayat IWP                    | 181,840m <sup>3</sup> /d SWRO                              | RFQ expected in Q3 2013               |



## No change this month

| Country      | Desalination Plant Name                 | Plant  | Status                                   |
|--------------|---|--|--|
| Oman         | Suwaiq IWP                              | 227,300m <sup>3</sup> /d SWRO                        | RFQ expected in Q1 2014                  |
| Oman         | Tibat, Musandam governorate             | New 6,000m <sup>3</sup> /d RO                        | Advisory RFP issued                      |
| Oman         | The Wave, Muscat                        | Total capacity of 6,000 - 7,000m <sup>3</sup> /d     | Awaiting final specifications            |
| Pakistan     | Gwadar Industrial Estate                | 9,000m <sup>3</sup> /d                               | Preliminary feasibility phase            |
| Pakistan     | Korangi (formerly Port Qasim)           | 50 MIGD (227,300m <sup>3</sup> /d) & 35MW            | Negotiations ongoing                     |
| Palestine    | Gaza desalination plant                 | 136,986 - 164,383m <sup>3</sup> /d initial phase     | Conceptual stage                         |
| Peru         | Aguas de Lima Sur II                    | 100,000m <sup>3</sup> /d SWRO                        | Awaiting bid documents                   |
| Peru         | Tia Maria Copper Mine                   | 20,000m <sup>3</sup> /d SWRO                         | Awaiting EIA approval                    |
| Philippines  | Bay City                                | 140,000m <sup>3</sup> /d SWRO                        | Project on hold                          |
| Philippines  | Rizal WTP                               | 100,000m <sup>3</sup> /d                             | Awaiting RFP                             |
| Puerto Rico  | Caño Tiburones                          | 37,854m <sup>3</sup> /d BWRO                         | Groundwater study ongoing                |
| Qatar        | Abu Samra                               | 2,000m <sup>3</sup> /d skid-mounted SWRO             | Tender process ongoing                   |
| Qatar        | Ras Abu Fontas A2                       | 409,140m <sup>3</sup> /d                             | Preferred bidder announced               |
| Qatar        | Ras Laffan A SWRO expansion             | 181,840m <sup>3</sup> /d SWRO                        | Shortlist announced                      |
| Qatar        | Ras Laffan C expansion                  | 409,140m <sup>3</sup> /d MED                         | Under negotiations                       |
| Qatar        | Solar-powered desalination plants       | 100,000-200,000m <sup>3</sup> /d                     | Feasibility study underway               |
| Saudi Arabia | Al Khafji                               | 5,680m <sup>3</sup> /d                               | At design stage                          |
| Saudi Arabia | Al Khafji solar-powered SWRO            | 20,000-50,000m <sup>3</sup> /d SWRO                  | Early stage of procurement               |
| Saudi Arabia | Al Khobar 2 expansion                   |  | Tender process ongoing                   |
| Saudi Arabia | Al-Waji 4                               | 11,000m <sup>3</sup> /d-13,500m <sup>3</sup> /d MED  | Re-tender delayed                        |
| Saudi Arabia | Gasas industrial RO plant               | 83,000m <sup>3</sup> /d RO                           | Early conceptual stage                   |
| Saudi Arabia | Jizan Economic City                     | 12,000m <sup>3</sup> /d P1 & 3,000m <sup>3</sup> /d  | Technical bids under evaluation          |
| Saudi Arabia | King Abdullah Economic City             | 70,000m <sup>3</sup> /d SWRO                         | Decision on project's future due soon    |
| Saudi Arabia | Rabigh IWSP stage 2                     | 96,000m <sup>3</sup> /d                              | Awaiting bids                            |
| Saudi Arabia | Ras Tanura                              | Approx 150,000m <sup>3</sup> /d, 1000MW              | Awaiting RFP                             |
| Saudi Arabia | Yanbu                                   | 6,000m <sup>3</sup> /d                               | EPC bids under review                    |
| Saudi Arabia | Yanbu 3                                 | 550,000m <sup>3</sup> /d & 1,700MW                   | Bids submitted                           |
| South Africa | Cape Town SWRO                          | 100,000 -150,000m <sup>3</sup> /d SWRO               | Pre-feasibility stage                    |
| South Africa | Durban SWRO                             | Two SWRO of 150,000m <sup>3</sup> /d each            | Pre-feasibility stage                    |
| South Africa | Lamberts Bay                            | 1,700m <sup>3</sup> /d - 5,000m <sup>3</sup> /d SWRO | Awaiting contract award                  |
| South Africa | Saldhana Bay                            | 25,500m <sup>3</sup> /d SWRO                         | Consulting engineering contract awarded  |
| Spain        | Adra, Almería                           | 12,000m <sup>3</sup> /d BWRO                         | Conceptual stage                         |
| Spain        | Almuñecar, Granada                      | 24,000m <sup>3</sup> /d SWRO                         | Construction delayed                     |
| Spain        | Balsa del Sapo, Almería                 | 11,000m <sup>3</sup> /d BWRO                         | In planning                              |
| Spain        | Calpe/ Marina Alta, Alicante            | 26,000m <sup>3</sup> /d SWRO                         | Environmental impact assessment underway |
| Spain        | Campo de Cartagena, Murcia              | Up to 25,000m <sup>3</sup> /d approx. BWRO           | Feasibility stage                        |
| Spain        | Carboneras II                           | 115,000m <sup>3</sup> /d SWRO                        | Early planning stage                     |
| Spain        | Foix/Cunit, Tarragona                   | 55,000m <sup>3</sup> /d SWRO                         | Project postponed                        |
| Spain        | Guardamar/Vega Baja, Alicante           | 100,000m <sup>3</sup> /d SWRO                        | Awaiting government approval             |
| Spain        | Las Palmas IV                           | 10,000m <sup>3</sup> /d SWRO                         | Conceptual phase                         |
| Spain        | Las Palmas V                            | 10,000m <sup>3</sup> /d SWRO                         | Conceptual phase                         |
| Spain        | Levante de Mallorca, Balearics          | 10,000m <sup>3</sup> /d-20,000m <sup>3</sup> /d      | Under consideration                      |
| Spain        | Llanadas BWRO                           | 6,000m <sup>3</sup> /d BWRO                          | Conceptual stage                         |
| Spain        | Mahon, Menorca, Balearics               | 10,000m <sup>3</sup> /d-20,000m <sup>3</sup> /d SWRO | Under consideration                      |
| Spain        | Marina Baja/Mutxamel Phase II, Alicante | Up to 30,000m <sup>3</sup> /d                        | Conceptual stage                         |
| Spain        | Melilla Phase II, Melilla               | Additional 10,000m <sup>3</sup> /d                   | Project delayed                          |
| Spain        | Rincón, Malaga                          | 50,000m <sup>3</sup> /d SWRO                         | Conceptual stage                         |
| Spain        | River Guadalhorce                       | 80,000m <sup>3</sup> /d BWRO                         | Planning stage                           |

## No change this month

| Country | Desalination Plant Name                                    | Plant   | Status                                     |
|---------|--|---|--|
| Spain   | San Bartolome and Mogan                                    | Three projects totalling 15,500m <sup>3</sup> /d        | Conceptual phase                           |
| Spain   | Tordera, Catalunya II                                      | 20,000m <sup>3</sup> /d-30,000m <sup>3</sup> /d SWRO    | Project postponed                          |
| Spain   | Valle de Güimar, Tenerife                                  | 10,000m <sup>3</sup> /d SWRO                            | Conceptual stage                           |
| Spain   | Valle Guerra, Tenerife                                     | 10,000m <sup>3</sup> /d BWRO                            | Conceptual stage                           |
| Tunisia | Djerba   | 50,000m <sup>3</sup> /d SWRO                            | Project re-tendered                        |
| Tunisia | Kerkennah  | 6,000m <sup>3</sup> /d SWRO                             | Conceptual stage                           |
| Tunisia | Phase 1, Southern Tunisia                                  | 36,200m <sup>3</sup> /d                                 | Awaiting contract award                    |
| Tunisia | Phase 2, Southern Tunisia                                  | 8 sites with total 32,500m <sup>3</sup> /d              | Consultancy contract awarded               |
| Tunisia | Zaarat   | 50,000m <sup>3</sup> /d SWRO                            | Bids submitted                             |
| Tunisia | Sfax   | 3 units of 50,000m <sup>3</sup> /d each (SWRO)          | Awaiting tender                            |
| Turkey  | Istanbul   | 300,000 - 350,000m <sup>3</sup> /d SWRO                 | Conceptual phase                           |
| UAE     | Abu Dhabi, Desert Islands                                  | Unknown   | Conceptual phase                           |
| UAE     | Abu Dhabi, Port Authority                                  | 113,700m <sup>3</sup> /d (25 MIGD) & 1000MW             | Consultants sought for feasibility study   |
| UAE     | Desalination refurbishment at E station phase 1, Jebel Ali | 114,000m <sup>3</sup> /d MSF                            | Bids under review                          |
| UAE     | Fujairah 1 SWRO expansion                                  | 136,000m <sup>3</sup> /d (30MIGD)                       | Awaiting contract award                    |
| UAE     | Fujairah Fresh Water SWRO                                  | 4,500m <sup>3</sup> /d SWRO                             | Awaiting bids from engineering consultants |
| UAE     | Hamriyah IV MED  | 182,000m <sup>3</sup> /d (40MIGD) MED                   | Under consideration                        |
| UAE     | Hamriyah IV SWRO   | 364,000m <sup>3</sup> /d (80MIGD) SWRO                  | Under consideration                        |
| UAE     | Hassyan 2  | 455,000-545,000m <sup>3</sup> /d & 1500 MW              | Expected after Hassyan IPP completion      |
| UAE     | Hydrogen power and desalination                            | 500MW   | Tender process ongoing                     |
| UAE     | Jafza  | 100,000m <sup>3</sup> /d SWRO                           | Bids under evaluation                      |
| UAE     | Masdar   | 10,000m <sup>3</sup> /d-12,000m <sup>3</sup> /d BWRO    | Preliminary stage                          |
| UAE     | Mina Rashid  | 100,000m <sup>3</sup> /d across two RO plants           | Awaiting tender                            |
| UAE     | N Station  | 182,000m <sup>3</sup> /d (40MIGD) SWRO                  | Planning stage                             |
| UAE     | Palm Jebel Ali / Madinat Al Arab                           | 2 x 75,000m <sup>3</sup> /d SWRO                        | Three bidders shortlisted                  |
| UAE     | RAK Ceramics   | 15,000m <sup>3</sup> /d (3.3MIGD) SWRO                  | Likely to be sited at Al Hamra             |
| UAE     | Saadiyat Island  | 10,000m <sup>3</sup> /d SWRO                            | Planning stage                             |
| UAE     | Takreer  | 33,600m <sup>3</sup> /d (7.4MIGD) MSF                   | Feasibility study ongoing                  |
| UAE     | Taweelah C IWPP  | 455,000m <sup>3</sup> /d and 1500MW                     | Planning stage                             |
| UAE     | Umm Al Nar   | 123,000m <sup>3</sup> /d (27MIGD) SWRO                  | Expected to move forward soon              |
| UK      | Brighton   | Up to 20,000m <sup>3</sup> /d                           | Plant under consideration                  |
| UK      | Newhaven   | 9,500m <sup>3</sup> /d                                  | Long-term supply option for 2021-2035      |
| USA     | Alamogordo, NM   | 15,000m <sup>3</sup> /d BWRO                            | RFP expected in 2012                       |
| USA     | Bay Area RDP, CA   | 75,700m <sup>3</sup> /d - 189,350m <sup>3</sup> /d      | Feasibility study ongoing                  |
| USA     | Brownsville, TX  | 95,000m <sup>3</sup> /d SWRO                            | Feasibility study ongoing                  |
| USA     | Calleguas Creek, CA  | Four projects under consideration                       | Conceptual stage                           |
| USA     | Cambria, CA  | 3,785m <sup>3</sup> /d SWRO                             | Pre-feasibility                            |
| USA     | Camp Pendleton, CA   | 89,250-567,750m <sup>3</sup> /d SWRO                    | Technical feasibility ongoing              |
| USA     | Carlsbad SWRO, CA  | 50MGD (189,250m <sup>3</sup> /d) SWRO                   | Financing negotiations ongoing             |
| USA     | Carlton WTP, Sarasota, FL                                  | Replacement of existing plant                           | In design phase                            |
| USA     | Coquina Coast, FL  | SWRO, 37,850m <sup>3</sup> /d - 56,775m <sup>3</sup> /d | On hold                                    |
| USA     | East Hanover, NJ   | 7,570m <sup>3</sup> /d (2MGD) BWRO                      | In permitting                              |
| USA     | Fort Myers, FL   | 38,000m <sup>3</sup> /d river water RO                  | Conceptual stage                           |
| USA     | Galveston, Texas City & League City Desal, TX              | 302,800m <sup>3</sup> /d - 378,500m <sup>3</sup> /d     | Early conceptual stage                     |
| USA     | Granbury BWRO, TX  | 28,387m <sup>3</sup> /d                                 | WPA under negotiation                      |
| USA     | Gulf of Mexico to supply TX                                | Undetermined  | RFQ for feasibility study on hold          |
| USA     | H2Ocean Cristina   | 50,000m <sup>3</sup> /d ship-mounted SWRO               | Awaiting environmental impact study        |

## No change this month

| Country | Desalination Plant Name                        | Plant   | Status  |
|---------|--|---|---|
| USA     | Haverstraw, NY                                 | Initial 9,460m <sup>3</sup> /d BWRO                   | Pilot study ongoing                             |
| USA     | Huntington Beach, CA                           | 189,250m <sup>3</sup> /d SWRO                         | In permitting                                   |
| USA     | Laguna Madre, TX                               | 3,785m <sup>3</sup> /d SWRO                           | Conceptual stage                                |
| USA     | Long Beach, CA                                 | 34,065m <sup>3</sup> /d SWRO                          | Pilot study ongoing                             |
| USA     | Moss Landing, CA                               | Up to 68,510m <sup>3</sup> /d                         | Very early stage of planning                    |
| USA     | Oceanside, CA                                  | Expansion to 37,850m <sup>3</sup> /d                  | Feasibility study completed                     |
| USA     | Rio West, NM                                   | 3,785m <sup>3</sup> /d BWRO                           | In planning stage                               |
| USA     | Regional Desalination Project, CA              | 10MGD (37,850m <sup>3</sup> /d) SWRO                  | In planning stage                               |
| USA     | Reynolds BWRO at Chula Vista, CA               | Expansion to 37,850m <sup>3</sup> /d                  | Awaiting tender                                 |
| USA     | San Antonio, TX                                | 37,850 m <sup>3</sup> /d BWRO                         | RFQ expected soon                               |
| USA     | San Luis Obispo, CA                            | 7,100m <sup>3</sup> /d SWRO                           | Conceptual stage                                |
| USA     | Santa Barbara, CA                              | Up to 10,000m <sup>3</sup> /d SWRO                    | Long-term possibility for City of Santa Barbara |
| USA     | Santa Cruz, CA                                 | 2.5MGD (9,463m <sup>3</sup> /d) SWRO                  | In permitting                                   |
| USA     | South Orange Coastal Desalination Facility, CA | 113,550m <sup>3</sup> /d SWRO                         | Feasibility study ongoing                       |
| USA     | Tarpon Springs, FL                             | 5MGD (18,925m <sup>3</sup> /d) BWRO                   | RFP expected in 2012                            |
| USA     | Texas BWRO                                     | Undetermined  | Bids under evaluation                           |
| USA     | West Basin, CA                                 | 75,700m <sup>3</sup> /d-378,500m <sup>3</sup> /d SWRO | Feasibility study awarded                       |
| USA     | Withlacoochee, FL                              | Up to 95,000m <sup>3</sup> /d (25MGD)                 | Preliminary stage                               |
| Yemen   | Mocha  | 150,000m <sup>3</sup> /d                              | Development agreement reached                   |
| Yemen   | Taiz   | Undetermined  | Feasibility study underway                      |

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# Global water reuse tracker

GWI's monitoring service charting the progress of major water reuse projects around the world.

## Australia

NEW

**Project:** West Pilbara wastewater scheme, WA

**Project description:** To increase the capacity of the existing Karratha WWTP from 1,000m<sup>3</sup>/d to 10,000m<sup>3</sup>/d, and to increase the existing South Hedland WWTP up to 10,000m<sup>3</sup>/d. The South Hedland plant will supply treated water for irrigation and replace the existing WWTP in the nearby town of Port Hedland, which currently uses primary treatment technology and is being demolished to make way for 2,500 new houses. The project also involves the construction of a pipeline from the expanded South Hedland WWTP back to Port Hedland.

**Client:** Water Corporation of Western Australia

**Expected cost:** A\$200 million (\$195million)

**Project structure:** Alliance model. Under similar previous contracts, the winning bidder operated the plants in partnership with the Water Corporation, which would retain ownership of the facilities. However, the client told GWI that it has yet to decide on the ownership of the facilities.

**Status:** The client is reviewing proposals and will announce a shortlist of four firms by the end of December 2011. As in previous alliance contracts with the Water Corporation, a second shortlist of two firms will be decided upon in January 2012, with a final award due in mid-2012. Works are scheduled to be completed by mid-2014.

**Contact:** Mark Donoghue (Principal Project Manager). E-mail: mark.donoghue@watercorporation.com.au

## China

UPDATE

**Project:** Dongguan Songshanhu Hi-tech WWTP

**Project description:** To supply and install UF and RO units for the treatment of wastewater at Dongguan Songshanhu Hi-tech Development Zone, Guangdong Province. The winning bidder will also supply and install pumps and an ozone system. The facility will have a capacity of 5,400m<sup>3</sup>/d and the treated water will be used for industrial purposes. Shenzhen International Tendering is the consultant.

**Client:** Committee of Songshanhu Hi-tech Development Zone

**Status:** Guangdong Jianbang Development Group has been awarded the civil works contract, which has a value of RMB8.8 million (\$1.37 million). Earlier in December, Fujian Hengji Construction won

the contract to supply and install the UF and RO units.

**Contact:** Mr Yin (Shenzhen International Tendering). Tel: +86 769 2280 6630.

## India

NEW

**Project:** Pune Wastewater Treatment Plants (Phase II)

**Project description:** Construction of six new sewage treatment plants with locations, capacities and technologies as follows: Warje (25,000m<sup>3</sup>/d, extended aeration); Hadapsar (8,000m<sup>3</sup>/d, MBR); Mundwa (45,000m<sup>3</sup>/d SBR); Wadgaon (20,000m<sup>3</sup>/d, activated sludge); Dhanori (36,000m<sup>3</sup>/d, activated sludge); Kharadi (14,000m<sup>3</sup>/d, SBR), and Naidu Hospital (125,000m<sup>3</sup>/d, SBR with power generation). The project also includes the augmentation of three existing STPs: Bhairoba (70,000m<sup>3</sup>/d, SBR with power generation); Tanajiwadi (19,000m<sup>3</sup>/d, extended aeration) and Bopodi (21,000m<sup>3</sup>/d, SBR). The consultant for the project is Maharashtra Jevan Pradhikaran.

**Client:** Pune Municipal Corporation

**Expected cost:** INR7.15 billion (\$137.5 million)

**Project structure:** 5-year DBO. The project will be funded in part by the Maharashtra State government (20%) and the central government (70%), with the remaining funding coming from the City of Pune.

**Status:** Funding proposals are due to be sent to the central government for evaluation by the end of December. Following approval, RFPs will be issued, which is expected to happen by March 2012, according to the client. The project is scheduled to be completed by the end of 2013.

**Contact:** Mr Vijay G Kulkarni (Superintending Engineer, Water Supply and Sewerage Department, Pune Municipal Corporation) Tel: +91 20 2550 1383. E-mail: vijay.kulkarni@punecorporation.org

## Oman

UPDATE

**Project:** Al Amerat WWTP

**Project description:** Design, construction, operation and maintenance of a sewage treatment plant, as well as attached works including a tanker facility, sewage pumping station, rising mains, treated effluent storage reservoir and treated effluent pumping station. The STP will use MBR technology and have an initial capacity of

18,000m<sup>3</sup>/d, with the ability to allow for future expansion to an eventual capacity of 36,000m<sup>3</sup>/d.

**Client:** Haya Water

**Expected cost:** Undecided

**Project structure:** Design-build-operate (DBO), with an operating period of two years.

**Status:** The deadline for bid submissions was put back to 12 December 2011. Tender documents were made available on 27 July, and 39 companies have so far purchased the documents, Haya Water told GWI. There is no separate prequalification stage; instead this will be included in the bid evaluation process. Separate tenders have been issued for the related wastewater collection and treated effluent distribution network. An award is expected in June 2012.

**Contact:** Abdullah Al Hashimi (General Manager, Contracts & Procurement, Haya Water). E-mail: abdullahhashimi@haya.com.om

## Qatar

NEW

**Project:** Doha South WWTP

**Project description:** A new WWTP forms part of the Inner Doha Re-sewerage Integrated System (IDRIS) project. The project is currently in the planning stages and no capacity has been fixed, with a source saying only that it is likely to be between 80,000m<sup>3</sup>/d and 400,000m<sup>3</sup>/d. Water will be treated and reused, although the level of reuse and type of destination for the treated water has yet to be decided.

**Client:** Ashghal

**Expected cost:** Undecided. The whole IDRIS project has a budget of QAR10-12 billion (\$2.7-3.3 billion).

**Project structure:** Undecided. The IDRIS project will be mainly funded with public money, although a private finance element as part of the treatment plant funding has not been ruled out.

**Status:** CH2M Hill has been appointed as programme manager for the IDRIS project by Ashghal. The US company will work on design specifications and procurement. It will also liaise with MWH, the advisor on Qatar's wastewater master plan, about what to do with the treated water from the plant. No date has been fixed for procurement to start, but 2013 is a likely year, with the whole project to be completed by 2019.

**Contact:** Ashghal Head Office. Tel: +974 495 0000. Website: <http://www.ashghal.gov.qa>

## Spain

UPDATE

**Project:** Adeje Arona expansion

**Project description:** Second phase to add a further 16,000m<sup>3</sup>/d of tertiary treatment capacity to an existing 20,000m<sup>3</sup>/d facility.

**Client:** Consejería de Obras Públicas, Gobierno de Canarias

**Expected cost:** Initial estimate of €30 million

**Project structure:** Design-build

**Status:** The contract has been provisionally awarded for a price of €21.35 million, and construction is due to begin in early 2012, according to the Canary Islands regional government. The award is being challenged, however, and no data on bidders or the winner will be made available until this issue has been settled.

**Contact:** Luisa Ojeda (Consejería de Obras Públicas y Transporte). Tel: +34 922 475 022. Website: <http://www.gobcan.es/citv/>

## Spain

### UPDATE

**Project:** Barranco Seco WWTP expansion

**Project description:** 20,000m<sup>3</sup>/d of EDR capacity, with the addition of dual-sand filtration. The treated water will be reused for irrigation, golf courses, and the cleaning and watering of municipal parks

**Client:** Consejería de Obras Públicas, Gobierno de Canarias

**Expected cost:** €17 million

**Project structure:** Design-build

**Status:** According to the regional government, central government budget cuts mean this project is now very unlikely to go ahead.

**Contact:** José Luis Guerra, Consejo Insular de Aguas de Gran Canaria. Tel: +34 928 293 456. Website: <http://www.aguasgrancanaria.com>

## Spain

### UPDATE

**Project:** El Bobar, Almería

**Project description:** Expansion of an existing plant from 32,000m<sup>3</sup>/d to 48,000m<sup>3</sup>/d. Capacity at a connected tertiary treatment plant is to be expanded from the current 16,500m<sup>3</sup>/d to 48,000m<sup>3</sup>/d. The treatment technology is to be upgraded from ozonisation to microfiltration and UV disinfection.

**Client:** Acuamed, Agencia Andaluza del Agua

**Expected cost:** €10.5 million

**Project structure:** Design-build for the main plant, although the irrigation communities which will own and operate the connected tertiary treatment plant will be responsible for seeking the finance for this. The Andalusian regional government says that financing may come from a mixture of EU, regional government and private sector sources.

**Status:** No date has been set for the opening

of economic bids, but technical bids from 29 companies and consortia have been opened. The list is as follows: 1) Dragados; 2) Dytras; 3) FCC; 4) Abeinsa/Heliopol; 5) Acciona/Construcciones Felipe Castellano; 6) ACT Sistemas SLU/Construcciones Sanchez Dominguez Sando; 7) AZVI/Espina Obras Hidraulicas; 8) Comsa/Desarrollos Ecologicos e Industriales/Explotaciones Agrarias Jima; 9) Construcciones Maygar/Socamex; 10) Construcciones Otero/Aquagest Andalucía; 11) Construcciones Perez Jimenez/Arian Construcción y Gestion de Infraestructuras/Hormigones Asfalticos Andaluces; 12) Constructora San Jose/Hispano Almeria/Depuración de Aguas del Mediterráneo/Cartuja Inmobiliaria; 13) Ingeniería y Obras/OHL/Integral de Aguas; 14) Corsan Corviam/Construcciones Vera; 15) Cyes Infraestructuras/Cysur Obras y Medio Ambiente; 16) Desarrollo de Tecnologías de Depuración/Arpo Empresa; Constructora/Ramon Ruiz Fernandez Construcciones; 17) Detea/Isolux Ingeniería; 18) DRACE *medioambiente*/Construcciones Temir; 19) Eiffage Infraestructuras/Dinotec; 20) Facto Almeriense de Construcciones y Obras Publicas/aqualia; 21) Cadagua/Manuel Nieto Garcia; 22) GEA/Passavant España; 23) Joca Ingeniería y Construcciones/Argar Construcciones Servicios y Transformaciones; 24) Lirola Ingeniería y Obras/Nacimiento Empresa Constructora y Medioambiental/Enemes; 25) Padelsa Infraestructuras/Eygema/Guamar; 26) Riegosur/Acciona Agua; 27) Depuración y Tratamientos/Talleres y Gruas Gonzalez; 28) Salcoa/Viguencons Estevez/Acsa Obras e Infraestructuras; 29) Ucop Construcciones/Construcciones Mego.

**Contact:** Lorena García (Agencia Andaluza del Agua). Tel: +34 955 693 236. Website: <http://www.juntadeandalucia.es/agenciadelagua>

## Spain

### UPDATE

**Project:** Hoya del Pozo WWTP

**Project description:** Expansion of capacity at Hoya del Pozo WWTP, adding 3,000m<sup>3</sup>/d to the current 3,000m<sup>3</sup>/d capacity. The technology to be used is EDR, with the addition of dual-sand filtration. Treated water will be used for irrigation.

**Client:** Consejería de Obras Públicas, Gobierno de Canarias

**Expected cost:** €1.5 million

**Project structure:** Design-build

**Status:** Budget cuts to be introduced by the newly elected PP government in Madrid mean this project is now very unlikely to go ahead, according to the regional government.

**Contact:** José Luis Guerra, Consejo Insular de Aguas de Gran Canaria. Tel: +34 928 293 456. Website: <http://www.aguasgrancanaria.com>

## Spain

### UPDATE

**Project:** Jinámar WWTP expansion

**Project description:** Expansion of the existing Jinámar WWTP in the Canary Islands by 10,000m<sup>3</sup>/d. The technology will be MBR and electrolysis, and the treated water will be used for irrigation, golf courses, and the cleaning and watering of municipal parks.

**Client:** Consejería de Obras Públicas, Gobierno de Canarias

**Project structure:** Probably design-build

**Status:** Central government budget cuts now mean that this project is very unlikely to go ahead, according to the regional government.

**Contact:** Luisa Ojeda (Consejería de Obras Públicas y Transporte). Tel: +34 922 475 022. Website: <http://www.gobcan.es/citv/>

## Spain

### UPDATE

**Project:** Martorell WWTP

**Project description:** Tertiary treatment for a 10,000m<sup>3</sup>/d WWTP. The treated water will be used for industrial purposes. The technologies to be used include microfiltration, RO and disinfection.

**Client:** Agencia Catalana de l'Áigua

**Expected cost:** €8 million

**Project structure:** Probable BOT

**Status:** Agencia Catalana de l'Aigua has confirmed to GWI that the tertiary treatment element of the project has been cancelled as a cost-cutting measure.

**Contact:** Xavier Durán (Agencia Catalana de l'Áigua). Tel: +34 93 567 2884.

## Spain

### NEW

**Project:** Nordeste de Tenerife WWTP

**Project description:** New 7,000m<sup>3</sup>/d WWTP, extendable to 9,300m<sup>3</sup>/d. The facility will incorporate 4,000m<sup>3</sup>/d of EDR and UV tertiary treatment for reuse, expandable to 8,000m<sup>3</sup>/d.

**Client:** Consejería de Obras Públicas y Transporte, Gobierno de Canarias

**Expected cost:** Original estimate of €16.45 million

**Project structure:** Design-build

**Status:** According to the Canary Islands government, this project has been provisionally awarded for €11.75 million, and construction is due to begin in early 2012. No details of bids or the winner will be made available until issues involving the scoring of some other bids have been resolved, according to the regional government.

**Contact:** Luisa Ojeda (Consejería de Obras Públicas y Transporte). Tel: +34 922 475 022. Website: <http://www.gobcan.es/citv/>

## Spain

## NEW

**Project:** Puerto del Rosario WWTP, Fuerteventura

**Project description:** An expansion of an existing 3,000m<sup>3</sup>/d of tertiary treatment capacity by a currently unknown amount.

**Client:** Consejería de Obras Públicas y Transporte, Gobierno de Canarias

**Expected cost:** €11 million

**Project structure:** Design-build

**Status:** Budget cuts to be introduced by the newly elected central government mean that this project is very unlikely to go ahead, according to the regional government.

**Contact:** Domingo Montañes (Consejo Insular de Aguas de Fuerteventura). Tel: +34 928 530 010.

## UAE

## UPDATE

**Project:** Abu Dhabi East wastewater operation

**Project description:** Operation and maintenance of wastewater networks, pumping stations, wastewater treatment works and treated effluent storage and transmission facilities in the eastern half of Abu Dhabi. Limited capital works and operation & maintenance of SCADA systems may also be included. The contract scope includes the collection of an average daily flow of 143,000m<sup>3</sup>/d, the management of 19 wastewater treatment plants, and the distribution of 142,000m<sup>3</sup>/d of treated sewage effluent, largely for reuse.

**Client:** Abu Dhabi Sewerage Services Company (ADSSC)

**Project structure:** O&M, with a contract period lasting 7-10 years

**Status:** Bids have been submitted, and a winner is set to be named before the end of 2011, ADSSC told GWI. Ten companies and JVs were prequalified for the contract: Metito Berlinwasser; Tamas Projects/Aquatech; Veolia/Mubadala; Severn Trent/Miahona; Emirates Link Nitco; Al Qudra Suez Services; aqualia/Mace; Kharafi National; Wesco; and Saur. After a contract is awarded, there will be a six-month transition phase while the new winner takes over from previous operators.

**Contact:** Pradeep Kumar Dubey (Senior Contracts Engineer, ADSSC). E-mail: Pradeep.dubey@adssc.ae

## UAE

## UPDATE

**Project:** Abu Dhabi West wastewater operation

**Project description:** Operation and maintenance of wastewater networks, pumping stations, wastewater treatment works and treated effluent storage and transmission facilities in the western half of Abu Dhabi. Limited capital works and operation & maintenance of SCADA systems may also be included. The contract scope includes the collection of an average daily wastewater flow of 295,000m<sup>3</sup>/d, the management of 14 wastewater treatment plants, and the distribution

of 486,000m<sup>3</sup>/d of treated sewage effluent, largely for reuse.

**Client:** Abu Dhabi Sewerage Services Company (ADSSC)

**Project structure:** O&M, with a contract period lasting 7-10 years

**Status:** Bids have been submitted, and a winner is set to be named before the end of 2011, ADSSC told GWI. Ten companies and JVs have been prequalified for the contract: Metito Berlinwasser; Tamas Projects/Aquatech; Veolia/Mubadala; Severn Trent/Miahona; Emirates Link Nitco; Al Qudra Suez Services; aqualia/Mace; Kharafi National; Wesco; and Saur. After a contract is awarded, there will be a six-month transition phase while the new winner takes over from previous operators.

**Contact:** Pradeep Kumar Dubey (Senior Contracts Engineer, ADSSC). E-mail: Pradeep.dubey@adssc.ae

## UAE

## NEW

**Project:** GlobalFoundries WWTP

**Project description:** Design, construction, operation and maintenance of an industrial wastewater treatment plant with a capacity of 805m<sup>3</sup>/hr (19,320m<sup>3</sup>/d). The plant will feature UF/MF and reverse osmosis treatment stages and will serve the GlobalFoundries (GF) semiconductor plant planned to be built in Abu Dhabi. The operations period will be 10 years. The output will go into the existing ADSSC network.

**Client:** Abu Dhabi Sewerage Services Company (ADSSC)

**Project structure:** 10-year DBO

**Status:** Tender documents had been ready to go to the market, but the process has been put on hold while GF assesses whether to continue with its plans to construct the facility it will be serving. GF has now said it will not be breaking ground in 2012, and ADSSC said this means it could be a year or more before it can continue with the tendering of the WWTP.

**Contact:** Pradeep Kumar Dubey (Senior Contracts Engineer, ADSSC). E-mail: Pradeep.dubey@adssc.ae

## USA

## UPDATE

**Project:** East Bethel New WWTP, MN

**Project description:** A new 0.4MGD (1,514m<sup>3</sup>/d) WWTP using membrane bioreactor (MBR) technology to demonstrate the viability of a water reuse system for the region. The project also includes a distribution system.

**Client:** Metropolitan Council Environmental Services

**Expected cost:** \$20 million

**Project structure:** DBB

**Status:** An RFP had been expected by 27

September 2011, but is now not expected until late December. The following firms have been shortlisted as general contractors: Corval Constructors, Graham Construction Services, Gridor Construction, Knutson Construction Services, Magney Construction, Municipal Builders, Rice Lake Construction Group, Sheehy Construction Company, Staab Construction Corporation and Veolia Water North America. More information is available at [http://www.metrocouncil.org/doing\\_business/solicitindex.htm](http://www.metrocouncil.org/doing_business/solicitindex.htm)

**Contact:** Jan Bevins (Principal Contract Administrator). Tel: +1 651 602 1132.

## USA

## UPDATE

**Project:** Orange County Eastern WRP, FL

**Project description:** The expansion and upgrade of an existing 19MGD (71,915m<sup>3</sup>/d) facility, adding another 5MGD (18,925m<sup>3</sup>/d) of biological treatment capacity. The work is part of a larger project – phase 4C involved adding the extra capacity, while phase 5 will add a pre-treatment stage to the plant as a whole, converting from a shallow sand and coal filtration system to a rotating disk filtration system.

**Client:** Orange County (Florida) Water Utilities

**Expected cost:** \$70-100 million

**Project structure:** DBB

**Status:** Bids for phase 5 had been expected to be advertised by the end of 2012, but the RFP has now been delayed until June 2013, according to the client. AECOM's design is taking longer to complete than anticipated. Phase 4C, the capacity expansion, went online in the week of 3rd October 2010.

**Contact:** Shane Benner (Plant Manager). Tel: +1 407 254 6701.

## USA

## UPDATE

**Project:** Palm Coast New WWTP, FL

**Project description:** A new WWTP, using MBR technology, is to be located west of Route 95. A network of pipelines is under construction to bring treated effluent from existing sewer lines to residential areas in the south, and golf courses in the north. The initial capacity will be 2MGD (7,570m<sup>3</sup>/d), though it could be expanded to 6MGD (22,710m<sup>3</sup>/d). The new design includes ultrafiltration, UV technology and provisions for 100% of the treated water to be reused.

**Client:** City of Palm Coast Utilities Department

**Expected cost:** \$20 million

**Project structure:** DBB

**Status:** Construction had been expected to start in early 2012, but has been delayed. A plant capacity analysis is due in October 2012 on an existing WWTP serving the area. If the existing plant is found to have reached 80% or more of its capacity, then plans for the new facility will proceed. Current

estimates indicate that construction could start early in 2013. The designer was CPH.

**Contact:** Brian Matthew (Environmental Specialist). Tel: +1 386 986 2353. Danny Ashburn (Manager of Wastewater Operations). Tel: +1 386 986 2370.

## USA

### UPDATE

**Project:** Pigeon Forge New STP, TN

**Project description:** The city of Pigeon Forge intends to build a new 6MGD (22,710m<sup>3</sup>/d) wastewater treatment facility. The effluent will be treated to tertiary standards and reused. The plant's design includes an oxidation ditch, disk filters and chlorine disinfection.

**Client:** City of Pigeon Forge

**Expected cost:** \$35 million

**Project structure:** DBB

**Status:** A construction RFP will be issued on 7th February 2012, according to the client. SSR Engineering of Knoxville, TN, has completed 90% of the design work.

**Contact:** Sam Harrison (SSR Engineering). Tel: +1 865 560 9622.

## USA

### NEW

**Project:** San Mateo reuse study, CA

**Project description:** To develop a recycled water study for the City of San Mateo, in order to determine the demand for, and viability of, a recycled water treatment and distribution system for the city and neighbouring areas. The study will identify potential users of reclaimed water, levels of treatment, and locations for a potential

future treatment facility. Space at the existing 15.7MGD (59,425m<sup>3</sup>/d) subregional WWTP site is understood to be tight, and thus the possibility of a satellite facility has been mooted.

**Client:** City of San Mateo

**Expected cost:** \$65,000

**Project structure:** 6-month study

**Status:** RMC Water and Environment has been chosen from among four bidding teams to act as consultant for the study. A formal contract is now being drawn up, according to the client.

**Contact:** Kenneth Chin (project manager). Tel: +1 650 522 7313. E-mail: kchin@cityofsanmateo.org

## USA

### UPDATE

**Project:** Snapfinger WWTP upgrades, GA

**Project description:** DeKalb County is seeking to expand and upgrade an existing WWTP. Capacity will be increased to 54MGD (204,390m<sup>3</sup>/d) and the plant will be converted to use membrane technology. The plant will support water reuse for irrigation and industrial cooling. Work will take place in three phases. Phase I will involve demolishing the existing facility. Phase II will include headworks, aeration work, an MBR system and a new solids handling system. Phase III will include installing new primary clarifiers.

**Client:** DeKalb County Department of Watershed Management

**Expected cost:** \$375 million

**Project structure:** DBB

**Status:** Funding through a bond issue should be secured by mid-December 2011. The client embarked on the public notice period of the permitting process for the plant on 12 September,

and expects to issue a construction RFP in January 2012. Parsons is working on the design, which is 90% complete.

**Contact:** Colin Decker (Snapfinger WWTP Superintendent). Tel: +1 770 808 2913.

## USA

### UPDATE

**Project:** Yucca Valley Wastewater & Reclamation Project, CA

**Project description:** Due to pressure from regional government regulations, Yucca Valley must discontinue the use of septic tanks by 2016 and treat the resulting wastewater flows. The city is putting together a plan that will phase out septic systems and involve the building of a wastewater treatment plant. The project will be in three phases, the first phase being the construction of the WWTP and collection system. The treated water will be used to replenish groundwater resources, but longer-term plans call for it to be used for irrigation.

**Client:** Hi-Desert Water District

**Expected cost:** \$121 million

**Project structure:** DBB

**Status:** Part of the funding has been released, and the RFP for design services will be issued in January 2012, the client told GWI. Interested parties can sign up for e-mail updates regarding the RFP at [www.yuccavalleywastewater.org](http://www.yuccavalleywastewater.org). Bidding for construction should occur in 2013. Construction of the plant should be complete in 2015, and the collection system should be complete in 2016 or 2017. Phases II and III will begin once this major step is complete. Proposed funding sources include taxes and rate hikes.

**Contact:** Jennifer Cusack. Tel: +1 760 861 8031.

## No change this month

| Region    | Location/Project                            | Description   | Status  |
|-----------|---|---|---|
| Australia | Beenyup Groundwater Replenishment Programme | Recycle 4,100m <sup>3</sup> /d of wastewater, later rising to 68,500m <sup>3</sup> /d | In pilot phase; expected to move forward after 2013 |
| Australia | Cooroy STP, Queensland                      | Upgrade of existing plant   | Awaiting bids                                       |
| Australia | East Rockingham WWTP, WA                    | 40,000m <sup>3</sup> /d   | Conceptual planning stage                           |
| Bahrain   | Tubli WWTP                                  | 200,000m <sup>3</sup> /d DBOO   | Awaiting tender                                     |
| Bahrain   | South East Bahrain                          | New WWTP  | Conceptual planning stage                           |
| Barbados  | Water and wastewater upgrade                | Increase capacity of WWTPs  | Consultant to be appointed soon                     |
| Colombia  | Bello WWTP                                  | 432,000m <sup>3</sup> /d  | Awaiting tender                                     |
| Colombia  | Cañaveralejo WWTP expansion                 | Expansion to 607,824m <sup>3</sup> /d   | Awaiting tender                                     |
| Colombia  | Canoas WWTP                                 | 1,209,600m <sup>3</sup> /d  | Financing agreement reached                         |
| Egypt     | 6th October WWTP                            | New 150,000m <sup>3</sup> /d  | On hold   |
| India     | Koyambedu RO, Tamil Nadu                    | New 45,000m <sup>3</sup> /d WWTP  | Conceptual stage                                    |
| India     | Nagpur Municipal Corporation                | New 130,000m <sup>3</sup> /d WWTP   | Awaiting RFP  |
| India     | Pimpri Chinchwad, Mumbai-Pune               | 120,000m <sup>3</sup> /d  | Awaiting RFP  |
| India     | Solapur WWTPs                               | 75,000, 15,000 & 12,500m <sup>3</sup> /d  | Awaiting RFEI                                       |
| India     | Vrishabhavathi Valley                       | 300,000m <sup>3</sup> /d  | Conceptual stage                                    |



## No change this month

| Region       | Location/Project                 | Description   | Status                                   |
|--------------|----------------------------------|---|--|
| Iran         | Astara WWTP                      | 12,600m <sup>3</sup> /d                               | Prequalification process ongoing         |
| Iran         | Hashtgerd WWTP                   | Recycled water for irrigation                         | RFQ issued                               |
| Iran         | Kosar Wastewater Treatment Plant | Treated wastewater for irrigation                     | RFQ issued                               |
| Iran         | Langroud WWTP                    | 21,500m <sup>3</sup> /d                               | Prequalification process ongoing         |
| Iran         | Nir Wastewater Treatment Plant   | Treated wastewater for irrigation                     | RFQ issued                               |
| Israel       | Ramat Hasharon Demo Plant        | New WWTP for ground contamination                     | RFP issued                               |
| Israel       | Sirin WRP, Lower Galilee         | New 10,959m <sup>3</sup> /d WWTP                      | Awaiting tender                          |
| Israel       | Zvulun WRF                       | 68,493m <sup>3</sup> /d reuse system                  | Awaiting tender                          |
| Jordan       | As Samra WWTP expansion          | Upgrade to add 100,000m <sup>3</sup> /d               | Under negotiation                        |
| Jordan       | Kofranja WWTP upgrade            | New 9,000m <sup>3</sup> /d plant                      | Bids under evaluation                    |
| Jordan       | Na'Our                           | Construction of 9,000m <sup>3</sup> /d plant          | Five Korean bidders shortlisted          |
| Jordan       | South Amman WWTP                 | Construction of new plant                             | Advisory RFP issued                      |
| Jordan       | Upgrade of Mafraq                | 6,500m <sup>3</sup> /d                                | RFP issued                               |
| Kuwait       | Kabd WWTP                        | New 275,000m <sup>3</sup> /d WWTP                     | Delayed                                  |
| Kuwait       | Sulaibiya WWTP expansion         | Expand existing 375,000m <sup>3</sup> /d              | Awaiting tender                          |
| Mexico       | Caborca WWTP                     | 17,280m <sup>3</sup> /d WWTP                          | Awaiting tender                          |
| Mexico       | Coyoacán WWTP O&M                | Operate 25,920m <sup>3</sup> /d WWTP                  | Conceptual stage                         |
| Mexico       | El Caracol WWTP                  | New 259,200m <sup>3</sup> /d-345,600m <sup>3</sup> /d | Underground work contract awarded        |
| Mexico       | Empalme WWTPs                    | A group of three WWTPs                                | Awaiting tender                          |
| Mexico       | Guadalupe-Zacatecas WWTP         | New 39,744m <sup>3</sup> /d                           | Awaiting tender                          |
| Mexico       | Morelos WWTP package             | Rehabilitation of 14 plants                           | RFP postponed                            |
| Mexico       | Parral WWTP                      | 20,736m <sup>3</sup> /d                               | Awaiting tender relaunch                 |
| Mexico       | Puerto Peñasco WWTP              | 10,000m <sup>3</sup> /d WWTP                          | Early study phase                        |
| Mexico       | San Cristobal de las Casas WWTP  | New 34,560m <sup>3</sup> /d                           | Planning stage                           |
| Mexico       | Santa Fe WWTP O&M                | Operate 24,192m <sup>3</sup> /d WWTP                  | Conceptual stage                         |
| Mexico       | Xico Lake, Mexico City           | Two new WWTPs & 1 WTP                                 | Feasibility study ongoing                |
| Morocco      | Marrakech WWTP                   | Tertiary treatment plus upgrade                       | Conceptual planning stage                |
| Morocco      | Safi WWTP                        | Pretreatment for existing facility                    | Feasibility study ongoing                |
| Namibia      | UJAMS industrial effluent WWTP   | Landscape irrigation & industries                     | Preferred bidder announced               |
| Oman         | Al Ansab WWTP                    | Construction of a 25,000m <sup>3</sup> /d plant       | Awaiting tender                          |
| Palestine    | Hebron WWTP, West Bank           | 9,000m <sup>3</sup> /d first phase                    | Funding obtained                         |
| Qatar        | Doha North/West WWTP             | 127,000m <sup>3</sup> /d upgrade for irrigation       | Conceptual planning stage                |
| Saudi Arabia | Al Khafji WTP                    | 27,000m <sup>3</sup> /d WTP                           | Bids under evaluation                    |
| Saudi Arabia | Jeddah WWTPs                     | 750,000m <sup>3</sup> /d of WWTP capacity             | RFQ to follow tender of Riyadh WWTPs     |
| Saudi Arabia | Jeddah Airport WWTP Phase 2      | New 500,000m <sup>3</sup> /d STP                      | EOI issued                               |
| Saudi Arabia | King Abdullah Economic City      | Construction of a 30,000m <sup>3</sup> /d plant       | Project delayed                          |
| Saudi Arabia | Mecca/Medina/Greater Dammam      | WWTPs, total of 1,228,000m <sup>3</sup> /d            | Expected to follow Riyadh & Jeddah WWTPs |
| Saudi Arabia | Manfouha STP expansion           | Construct 200,000m <sup>3</sup> /d                    | RFEI issued                              |
| Saudi Arabia | Riyadh WWTP                      | New 100,000m <sup>3</sup> /d WWTP; O&M                | Awaiting RFP                             |
| Singapore    | Changi NEWater plant expansion   | 228,000m <sup>3</sup> /d                              | Conceptual planning stage                |
| Singapore    | Changi Water Reclamation Plant   | Expansion of 60,000m <sup>3</sup> /d                  | Bids under evaluation                    |
| Singapore    | Tuas NEWater plant               | 6th NEWater plant                                     | Conceptual planning stage                |
| South Africa | Durban Reuse Project             | 84,000m <sup>3</sup> /d                               | Early conceptual stage                   |
| Spain        | Alacantí Norte WWTP              | 5,000m <sup>3</sup> /d                                | Awaiting re-tender                       |
| Spain        | Algete II WWTP                   | New 10,000m <sup>3</sup> /d                           | Awaiting bids                            |
| Spain        | Almazora, Castellón              | Tertiary treatment 8,000m <sup>3</sup> /d WWTP        | Awaiting tender                          |
| Spain        | Algorfa-Almoradí, Alicante       | New WWTP  | In planning                              |
| Spain        | Alguazas WWTP                    | New 15,000m <sup>3</sup> /d WWTP                      | Awaiting tender                          |

## No change this month

| Region       | Location/Project                        | Description                                      | Status                              |
|--------------|---|--|-------------------------------------|
| Spain        | Badajoz, Extremadura                    | Additional 14,000m <sup>3</sup> /d               | Preliminary design contract awarded |
| Spain        | Bajo Andarax WWTP                       | New 22,000m <sup>3</sup> /d plant                | Preliminary studies underway        |
| Spain        | Borriol WWTP, Castellón                 | Expansion of existing plant                      | In planning                         |
| Spain        | Buenos Aires WWTP                       | Renovation & expansion 20,000m <sup>3</sup> /d   | Conceptual stage                    |
| Spain        | Burgos WWTP, Castilla y León            | Expansion of existing plant                      | Awaiting tender for construction    |
| Spain        | Ca'an Picafort WWTP, Balearics          | New 5,000m <sup>3</sup> /d WWTP                  | Conceptual stage                    |
| Spain        | Callosa de Segura WWTP                  | Additional capacity for agriculture              | In planning                         |
| Spain        | Carchuna-Calahonda WWTP                 | Additional tertiary treatment                    | Conceptual stage                    |
| Spain        | Cartagena WWTP                          | Construction of a 35,000m <sup>3</sup> /d WWTP   | Awaiting EIA                        |
| Spain        | Castellón WWTP                          | Upgrade existing WWTP                            | Government approval received        |
| Spain        | China-Butarque WWTP                     | Construct new WWTP                               | Conceptual stage                    |
| Spain        | Cuenca del Carraixet WWTP               | Increase tertiary capacity                       | Conceptual stage                    |
| Spain        | Eivissa City                            | Tertiary treatment expansion                     | Awaiting tender                     |
| Spain        | El Chorrillo, Tenerife                  | New 8,000m <sup>3</sup> /d WWTP                  | Conceptual stage                    |
| Spain        | El Tiemblo WWTP, Ávila                  | 5,000m <sup>3</sup> /d expansion of WWTP         | RFP expected soon                   |
| Spain        | Esiviel, Toledo WWTP                    | New 70,000m <sup>3</sup> /d WWTP                 | RFP issued                          |
| Spain        | Figueres WWTP                           | Upgrade existing 18,000m <sup>3</sup> /d WWTP    | Awaiting tender                     |
| Spain        | Flix WWTP                               | New 1,500m <sup>3</sup> /d WWTP                  | Awaiting tender                     |
| Spain        | Gafsa WWTP                              | Rehabilitation & extension                       | Awaiting tender                     |
| Spain        | Guía de Isora                           | New WWTP for irrigation                          | Conceptual stage                    |
| Spain        | Hondo, Elx, Alicante                    | Pipelines to convey recycled water               | Tender expected 2012                |
| Spain        | Hondón de las Nieves WWTP               | Additional capacity for existing plant           | Tender expected 2012                |
| Spain        | L'Horta Nord WWTP                       | 30,000m <sup>3</sup> /d expansion for irrigation | Conceptual stage                    |
| Spain        | L'Oliveral, Riba Roja                   | Increase to 3,000m <sup>3</sup> /d               | Awaiting tender                     |
| Spain        | La Garriga                              | Upgrading existing WWTP                          | At design stage                     |
| Spain        | La Herradura WWTP                       | Additional tertiary treatment                    | Conceptual stage                    |
| Spain        | Moncofar WWTP                           | 3,000m <sup>3</sup> /d expansion for irrigation  | Conceptual stage                    |
| Spain        | Motril Salobreña WWTP, Granada          | Addition of extra 34,100m <sup>3</sup> /d        | Preliminary studies complete        |
| Spain        | Murcia City WWTP                        | Upgrade to 75,000m <sup>3</sup> /d               | Awaiting statement of EIA           |
| Spain        | Nerja WWTP, Málaga                      | New 25,000m <sup>3</sup> /d plant                | Awaiting tender                     |
| Spain        | Palencia WWTP                           | To increase tertiary capacity                    | Awaiting tender                     |
| Spain        | Paterna-Fuente del Jarro WWTP           | 10,000m <sup>3</sup> /d expansion for irrigation | Conceptual stage                    |
| Spain        | Roquetas de Mar WWTP                    | Tertiary expansion of 13,700m <sup>3</sup> /d    | Initial design being drawn up       |
| Spain        | Sagunto WWTP                            | 7,000m <sup>3</sup> /d expansion for irrigation  | Conceptual stage                    |
| Spain        | San Javier WWTP                         | 8,745m <sup>3</sup> /d WWTP for irrigation       | Tender process ongoing              |
| Spain        | Sanlucar de Barrameda                   | New WWTP to replace old plant                    | Planning stage                      |
| Spain        | Santa Eulalia WWTP                      | Tertiary expansion of 13,000m <sup>3</sup> /d    | Awaiting tender; completion by 2015 |
| Spain        | Sot de Chera WWTP                       | Expansion of existing WWTP                       | Awaiting tender                     |
| Spain        | Sureste WWTP                            | 6,000m <sup>3</sup> /d of new capacity           | Awaiting tender                     |
| Spain        | Tarragona treatment expansion           | Treat water for petrochemical works              | Conceptual planning stage           |
| Spain        | Torrent WWTP                            | 6,000m <sup>3</sup> /d WWTP for irrigation       | Project design underway             |
| Spain        | Vall dels Alcalans/Montserrat           | 9,000m <sup>3</sup> /d WWTP for irrigation       | Project design being drawn up       |
| South Africa | Witwatersrand Basin                     | Initial 155,000m <sup>3</sup> /d                 | Under consideration                 |
| Syria        | Lattakia STP                            | 1,500m <sup>3</sup> /d                           | RFP issued                          |
| Tunisia      | Gafsa WWTP                              | Rehabilitation and extension                     | RFP expected in January 2012        |
| Tunisia      | Mahres WWTP                             | Rehabilitation and extension                     | RFP issued                          |
| Tunisia      | Projet de transfert des eaux épurées    | 362,000m <sup>3</sup> /d for irrigation          | RFEI expected soon                  |
| Tunisia      | Projet valorisation effluents           | Improve the quality of treated effluent          | Bids under evaluation               |
| Tunisia      | Projet d'extension et de réhabilitation | Rehabilitation & extension                       | Tender of first plant expected soon |

## No change this month

| Region  | Location/Project                       | Description                                      | Status  |
|---------|--|--|---|
| Tunisia | SE4 WWTP                               | Rehabilitation and extension                     | Bids under evaluation                         |
| Tunisia | Sidi Bouzid WWTP                       | Rehabilitation and extension                     | RFP expected soon                             |
| Tunisia | WWTP tertiary treatment upgrades       | Upgrade of 48 WWTPs                              | Planning stage                                |
| Turkey  | Samsun WWTP                            | Design and construction of new plant             | Conceptual planning stage                     |
| Turkey  | Sivas WWTP                             | Design and construction of new plant             | Conceptual planning stage                     |
| UAE     | Al Marjan Island WWTP, RAK             | New WTP including polishing plant                | Bid evaluation ongoing                        |
| UAE     | Madinat Al Arab WWTPs                  | 256,000m <sup>3</sup> /d of new capacity         | Bidders shortlisted                           |
| UAE     | Mafraq and Zakher                      | O&M of 360,000m <sup>3</sup> /d                  | Bidder shortlist expected soon                |
| UAE     | Masdar WWTP, Abu Dhabi                 | Membrane bio-reactor WWTP                        | In planning                                   |
| UAE     | Mina Rashid WWTP                       | Construction of a 20,000m <sup>3</sup> /d plant  | Under review by Nakheel                       |
| UAE     | Palm Jebel Ali WWTPs                   | DBO contracts: 220,000m <sup>3</sup> /d          | Conceptual planning stage                     |
| UAE     | Saadiyat Island WWTP                   | Construction of a 78,000m <sup>3</sup> /d plant  | Conceptual planning stage                     |
| USA     | Alamogordo WWTP upgrade, NM            | Upgrade existing 15,140m <sup>3</sup> /d WWTP    | Bids received                                 |
| USA     | Apple Valley WWTP, CA                  | New 15,140m <sup>3</sup> /d                      | Final stage of permitting                     |
| USA     | Bacon Park WWTP, Savannah, GA          | New 3,785m <sup>3</sup> /d MBR                   | Design RFP expected soon                      |
| USA     | Cape Girardeau New WWTP, MO            | New 41,635m <sup>3</sup> /d SBR facility         | Design work still ongoing                     |
| USA     | Carlsbad WRF, CA                       | Feasibility study for Phase III                  | Feasibility study ongoing                     |
| USA     | Castaic Lake, CA                       | Recycled water masterplan                        | Conceptual stage                              |
| USA     | Central District Water Reclamation, FL | New 5,678m <sup>3</sup> /d                       | Conceptual stage                              |
| USA     | City of Coalinga WWTP, CA              | New WWTP with initial 5,677m <sup>3</sup> /d     | Temporarily on hold                           |
| USA     | Davis WWTP upgrade, CA                 | New tertiary 28,388m <sup>3</sup> /d             | Awaiting bids                                 |
| USA     | East San Gabriel Valley, CA            | Reuse water storage                              | Conceptual planning stage                     |
| USA     | El Monte Valley Project, CA            | 18,925m <sup>3</sup> /d WWTP                     | Conceptual stage                              |
| USA     | Gilroy Recycled Water System, CA       | Expansion of reuse facilities                    | Conceptual stage                              |
| USA     | Hermiston New WWTP, OR                 | New 18,925m <sup>3</sup> /d WWTP                 | Awaiting tender                               |
| USA     | Ione Tertiary Treatment Expansion, CA  | New 2,000m <sup>3</sup> /d WWTP                  | In planning                                   |
| USA     | LADWP Masterplan, CA                   | 169,000m <sup>3</sup> /d by 2019                 | In planning                                   |
| USA     | Los Angeles Joint Water Purification   | Study to purify 757,200m <sup>3</sup> /d         | Feasibility study underway                    |
| USA     | Modesto WWTP expansion, CA             | Upgrade existing 45,420m <sup>3</sup> /d         | Delayed by funding issues                     |
| USA     | Morro Bay WWTP, CA                     | New 1.5MGD (5,678m <sup>3</sup> /d) plant        | Awaiting tender                               |
| USA     | North District WRP, FL                 | New 3.5MGD (13,249m <sup>3</sup> /d) plant       | Conceptual stage                              |
| USA     | Northwest Water Reclamation, FL        | Expansion of 14,200m <sup>3</sup> /d             | Construction RFP expected soon                |
| USA     | Otay Water Reclamation Facility, CA    | 22,710m <sup>3</sup> /d                          | Feasibility studies ongoing                   |
| USA     | Padre Dam, Santee, CA                  | Expand current WRF                               | Feasibility studies completed                 |
| USA     | Paso Robles WWTP upgrades, CA          | Overhaul 18,546m <sup>3</sup> /d plant           | RFP expected May 2012                         |
| USA     | President Street WWTP, Savannah, GA    | Upgrade WWTP                                     | Conceptual stage                              |
| USA     | Roanoke New WWTP, AL                   | New 5,678m <sup>3</sup> /d                       | Early testing stage                           |
| USA     | Riverside County IPR project, CA       | To use 100% recycled water                       | RFQ for consultants issued                    |
| USA     | San Clemente WRF expansion, CA         | Expand to 16,654m <sup>3</sup> /d                | Design work ongoing                           |
| USA     | San Diego City IPR demonstration, CA   | 60,560m <sup>3</sup> /d                          | Demonstration plant started                   |
| USA     | San Luis Obispo County Los Osos, CA    | 4,542m <sup>3</sup> /d WWRF                      | Tender for construction of pipelines expected |
| USA     | Southeast Reuse System, FL             | Treatment plant upgrades                         | Conceptual stage                              |
| USA     | South District WRP, FL                 | New 23MGD (87,055m <sup>3</sup> /d) facility     | In permitting                                 |
| USA     | St. Johns Northwest New WWTP, FL       | Upgrade of 11,355m <sup>3</sup> /d               | Design phase ongoing                          |
| USA     | Wandendale New WWTP, DE                | 5,490m <sup>3</sup> /d                           | In permitting                                 |
| USA     | West District WRP, FL                  | New 189,271m <sup>3</sup> /d (50MGD) facility    | Conceptual stage                              |
| USA     | Westside Recycled Water Project, CA    | 7,570m <sup>3</sup> /d - 15,140m <sup>3</sup> /d | Design work ongoing                           |
| Yemen   | Ibb WWTP                               | Expand existing WWTP                             | Awaiting RFQ                                  |

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# Global PPP project tracker

GWI's monitoring service charting the progress of public-private partnerships in the international water industry.

## Algeria

NEW

**Project:** Arris

**Project description:** A new WWTP in the Wilaya of Batna, with a capacity of 63,000 p.e., using biological treatment.

**Client:** Office National de l'Assainissement (ONA)

**Project structure:** Design-build, with a two-year operating contract.

**Status:** Interested bidders have until 31 January 2012 to submit their offers.

## Algeria

UPDATE

**Project:** Barika

**Project description:** A new 27,700m<sup>3</sup>/d WWTP for the town of Barika in the Wilaya of Batna.

**Client:** Office National de l'Assainissement (ONA)

**Project structure:** Design-build, with a two-year operating contract.

**Status:** ONA has issued an RFP, and interested bidders have until 20 December 2011 to submit their offers.

## Algeria

UPDATE

**Project:** Biskra

**Project description:** A new WWTP to serve a population equivalent of 330,000 in the town of Biskra.

**Client:** Office National de l'Assainissement (ONA)

**Expected cost:** DZD2.9 billion (\$38 million)

**Project structure:** Design-build, with a two-year operating contract.

**Status:** A consortium of Hydro Aménagement/COPASA/DAM was awarded the contract for DZD2.9 billion (\$38 million). The construction phase will last 24 months.

## Algeria

NEW

**Project:** Bou Ismail

**Project description:** A new 22,500m<sup>3</sup>/d WWTP (230,000 p.e.) in the town of Bou Ismail in the

Wilaya of Tipaza, with activated sludge treatment.

**Client:** Office National de l'Assainissement (ONA)

**Project structure:** Design-build, with a two-year operating contract.

**Status:** ONA issued an RFP on 24 July 2011; interested bidders have until 2nd January 2012 to submit their offers.

## Algeria

NEW

**Project:** Boufarik

**Project description:** A new WWTP in the Wilaya of Blida, with a capacity of 375,000 p.e., using biological treatment.

**Client:** Office National de l'Assainissement (ONA)

**Project structure:** Design-build, with a two-year operating contract.

**Status:** Interested bidders have until 30 January 2012 to submit their offers.

## Algeria

NEW

**Project:** Oum El Bouaghi

**Project description:** A new WWTP in the Wilaya of Oum El Bouaghi, with a capacity of 145,000 p.e., employing biological treatment.

**Client:** Office National de l'Assainissement (ONA)

**Project structure:** Design-build, with a two-year operating contract.

**Status:** Interested bidders have until 31 January 2012 to submit their offers.

## Algeria

NEW

**Project:** Sidi Aich

**Project description:** A new WWTP in the Wilaya of Béjaïa, with a capacity of 65,000 p.e.

**Client:** Office National de l'Assainissement (ONA)

**Project structure:** Design-build, with a two-year operating contract.

**Status:** Interested bidders have until 2nd February 2012 to submit their offers.

## Bahamas

UPDATE

**Project:** Baha Mar Hotel WWTP

**Project description:** A new wastewater treatment plant to serve the Baha Mar Hotel, a major new resort development on Nassau. The facility will have a capacity in the region of 1MIGD (4,546m<sup>3</sup>/d).

**Client:** Water and Sewerage Corporation

**Expected cost:** Approximately \$50 million

**Project structure:** BOO, with a likely concession period of 15 years.

**Status:** A request for proposals had been expected during November, but has been slightly delayed, and will now be issued by early January, the client told GWI. The Water and Sewerage Corporation signed a letter of intent to supply wastewater services to the new resort earlier in 2011.

**Contact:** Glen Laville (General Manager, Water and Sewerage Corporation). Tel: +1 242 302 5509.

## Canada

UPDATE

**Project:** Abbotsford WTP, BC

**Project description:** To design, finance, build and operate a new water treatment plant as part of a larger project to secure future water resources for the City of Abbotsford. The plant is planned to be built in phases, with the first phase totalling 150,000m<sup>3</sup>/d. The ultimate capacity is foreseen as 400,000m<sup>3</sup>/d. The project is being tendered in two phases: Bundle A will consist of an intake, a pump station and the water treatment plant, while Bundle B will include transmission mains. Bundle A is planned to be tendered as a DBFO, and Bundle B as a DBO. CH2M Hill is acting as owner's engineer. The original timetable foresaw the issuance of an RFP in January 2012, followed by an RFP in May 2012, with a submissions deadline of December 2012. A preferred bidder was due to be chosen in February 2013, with financial close to be reached in April 2013. Three possible sites for the WTP have already been identified.

**Client:** City of Abbotsford

**Expected cost:** Can\$284 million (US\$295 million). An application has been made to PPP Canada to fund up to 25% of the projects' eligible costs (approx. Can\$ 66.5 million).

**Project structure:** 25-year DBFO/DBO

**Status:** Abbotsford voted on 19 November 2011 not to proceed with the project as a public-private partnership. The city will now look at other options to secure a sustainable water source.

**Contact:** Tracy Kyle. Tel: +1 604 864 5519. E-mail: tkyle@abbotsford.ca

## Canada

### UPDATE

**Project:** Evan-Thomas WTP and WWTP

**Project description:** To design, construct and partially finance upgrades to an existing WTP and WWTP and operate them for a period of ten years. The scope also includes 11km of force main, and the construction of two 2,800m<sup>3</sup> reservoirs. The WTP will be upgraded from its current capacity of 1,200m<sup>3</sup>/d to 3,000m<sup>3</sup>/d (0.79MGD). It will have UV and most likely membrane filtration steps added. The WWTP will be expanded from 1,200m<sup>3</sup>/d to 1,800m<sup>3</sup>/d (0.5MGD). The project expects to apply to the P3 Canada Fund for up to 25% of the cost.

**Client:** Government of Alberta

**Expected cost:** Can\$40-45 million capital cost (US\$40.5-45.6 million). The private sector will be expected to contribute 20% of the funding cost in the form of equity and debt, while the Government of Alberta will cover the remaining 80%.

**Project structure:** BOT with a 10-year operating period.

**Status:** Of eight SOQs received by the 31 October deadline, three firms have been shortlisted: EPCOR, Plenary Environment and a consortium of SNC Lavalin and Black & Veatch. A winner is expected to be named by May 2012. The facilities are expected to be completed by October 2013. More details are available on Alberta Purchasing Connection's website at <http://www.purchasingconnection.ca/>.

**Contact:** Kawser Ahmed (Government of Alberta). Tel: +1 403 297 5185.

## China

### NEW

**Project:** Lianjiang WWTP, Guangdong Province

**Project description:** To build a new 15,000m<sup>3</sup>/d WWTP. Guangdong Construction Engineering Supervision has been appointed as the consultant.

**Client:** Committee of Lianjiang Economic Development Zone

**Expected cost:** RMB26.17 million (\$4.1 million)

**Project structure:** BT (build-transfer). The winning bidder will build and finance the plant, then hand it over to the municipality, which will repay the investment within two years of the plant starting operations.

**Status:** Bids are due to be opened on 19 December.

**Contact:** Mr He (Guangdong Construction Engineering Supervision). Tel: +86 138 0973 7168.

## India

### NEW

**Project:** Allahabad WWTP

**Project description:** A new 14,000m<sup>3</sup>/d STP plus ancillary works such as pumping stations and pipelines.

**Client:** Ganga Pollution Control Unit, Allahabad

**Project structure:** Design-build, with a five-year O&M period, including a 6-month trial run.

**Status:** The client has invited tenders for a feasibility survey, as well as the design, construction and operation of a new WWTP for Allahabad. Pre-qualification documents will be available from 22 - 30 December 2011.

**Contact:** Lalit Kumar Gupta (General Manager, Ganga Pollution Control Unit, Allahabad). Tel: +91 532 268 4691. Mobile: +91 947 394 2672. E-mail: gm-ganga.allahabad@gmail.com

## India

### NEW

**Project:** Basuaghai WWTP, Bhubaneswar City

**Project description:** New STP with a capacity of 28,000m<sup>3</sup>/d for Basuaghai, an area within Sewerage District 2 of Bhubaneswar City in Orissa State. The plant will employ activated sludge technology.

**Client:** Orissa Water Supply and Sewerage Board

**Project structure:** 7-year DBO. The project is part of the Jawaharlal Nehru National Urban Renewal Mission (JNNURM).

**Status:** The client has invited tenders for the construction of a new STP. Bids are due by 27 December 2011.

**Contact:** DK Padhi (Secretary, Orissa Water Supply and Sewerage Board). Tel: +91 674 257 1341 / 257 1185. E-mail: msowssb@yahoo.co.in

## India

### NEW

**Project:** Khammam Water Supply Improvement Programme

**Project description:** Construction of a new 16,000m<sup>3</sup>/d WTP and distribution system for the town of Khammam, Andhra Pradesh.

**Client:** Andhra Pradesh Public Health and Municipal Engineering Department

**Expected cost:** INR360 million (\$6.9 million). 80% of the funding will be supplied by the central government and 20% by the state government and the ULB (urban local body). The project is part of the Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT).

**Project structure:** Design-build, plus a 7-year O&M period.

**Status:** An RFQ for construction was due to go out in late November, according to the client.

**Contact:** P. Sambaiah. Tel: + 91 40 2331 6841, or +91 40 2339 3371. E-mail: enc\_pubhealth@ap.gov.in

## India

### NEW

**Project:** Kochilaput WWTP, Bhubaneswar City

**Project description:** A new STP with a capacity of 43,500m<sup>3</sup>/d for Kochilaput, an area within Sewerage District 3 of Bhubaneswar City in Orissa State. The plant will employ activated sludge technology.

**Client:** Orissa Water Supply and Sewerage Board

**Project structure:** 7-year DBO. The project is part of the Jawaharlal Nehru National Urban Renewal Mission (JNNURM).

**Status:** The client has invited tenders for the construction of a new STP. Bids are due by 27 December 2011.

**Contact:** DK Padhi (Member Secretary, Orissa Water Supply and Sewerage Board). Tel: +91 674 257 1341 / 257 1185. E-mail: msowssb@yahoo.co.in

## India

### UPDATE

**Project:** Kollam and Kochi

**Project description:** Design, construction and operation of wastewater treatment plants in Kollam (12,000m<sup>3</sup>/d) and Kochi (13,000m<sup>3</sup>/d). Kochi will have a 13,000m<sup>3</sup>/d capacity plant in the first phase, to be expanded to 27,000m<sup>3</sup>/d in the second phase. The technology for the Kollam and Kochi facilities will be either SBR or MBBR.

**Client:** Project Implementation Unit, Kerala Sustainable Urban Development Project (KSUDP)

**Expected cost:** Kollam: \$2.4 million. Kochi: \$4.6 million

**Project structure:** 5-year DBO. The project is part of the Kerala Sustainable Urban Development Project (KSUDP), which is being funded by an Asian Development Bank (ADB) loan of \$221.2 million.

**Status:** RFPs for both plants will be issued as soon as a construction permit is obtained from the Coastal Regulatory Authorities. The permit is anticipated to be issued by the end of December, the client told GWI, making the likely tender date sometime in January 2012.

**Contact:** K. Venu Kumar (Technical Officer). Tel: +91 99 4648 7923. Website: <http://ksudp.org/>. Seena Jerome (Technical Officer). Tel: +91 99 4648 7940.

## India

### UPDATE

**Project:** Kozhikode

**Project description:** Design, construction and operation of a wastewater treatment plant using moving-bed bio-reactor (MBBR) technology for the city of Kozhikode, with a capacity of 13,500m<sup>3</sup>/d in the first phase, to be expanded to 27,000m<sup>3</sup>/d.

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Current status of tribal water rights, settlements & marketing  
Mark Myers, *Montgomery & Associates*  
Bill Staudenmaier, *Snell & Wilmer*

Opportunities for reuse and effluent  
Walraven Kettelapper, *Water Property Investors*

The end of abundance  
David Zetland PhD, *Wageningen University*

Sourcewater for mining  
Robert Anderson, *Fennemore Craig, PC*

Water demands for real estate development  
Vince Vasquez, *Diamond Ventures*

Water demands for solar are heating up  
Rita Maguire, *Maguire and Pearce*  
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Walraven Kettelapper

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**Client:** Project Implementation Unit, Kerala Sustainable Urban Development Project (KSUDP)

**Expected cost:** INR250 million (\$4.8 million)

**Project structure:** 5-year DBO. The project is part of the Kerala Sustainable Urban Development Project (KSUDP), which is being funded by an Asian Development Bank (ADB) loan of \$221.2 million.

**Status:** An RFP to construct the plant had been expected by September, but permitting delays have held up the project, in particular the need for a permit from the Coastal Regulatory Authorities. The client told GWI that the plant will now be tendered around six months after the completion of the accompanying sewer network, which is already under construction, but would not say when the pipeline construction might be completed. Feasibility studies and design work have been carried out, and an RFP seems likely to be issued in Q1 2013.

**Contact:** Mr Othenan (Technical Officer, Project Implementation Unit, Water and Sewerage, Kozhikode). Tel: +91 49 5236 6776.

## India

### NEW

**Project:** Meherpalli WWTP, Bhubaneswar City

**Project description:** A new STP with a capacity of 56,000m<sup>3</sup>/d for Meherpalli, an area within Sewerage District 1 of Bhubaneswar City in Orissa State. The plant will employ activated sludge technology.

**Client:** Orissa Water Supply and Sewerage Board

**Project structure:** 7-year DBO. The project is part of the Jawaharlal Nehru National Urban Renewal Mission (JNNURM).

**Status:** The client has invited tenders for the construction of a new STP. Bids are due by 27 December 2011.

**Contact:** DK Padhi (Member Secretary, Orissa Water Supply and Sewerage Board). Tel: +91 674 257 1341 / 257 1185. E-mail: msowssb@yahoo.co.in

## India

### NEW

**Project:** Pune Water Supply Improvements, Phase 3

**Project description:** Design, construction and operation of a 500,000m<sup>3</sup>/d water treatment plant at Parvati water works, along with a pumping system and piping network. The plant will draw 40% of its feedwater from canals and 60% from rivers. The feasibility study for the project was conducted by Tata Consulting Engineers.

**Client:** Pune Municipal Corporation

**Expected cost:** INR2.5 billion (\$48 million)

**Project structure:** EPC with a 10-year O&M contract, funded by the city government.

**Status:** An RFP for the plant will be issued in

March 2012, the client told GWI. Separate RFPs for the piping network will be issued on a piecemeal basis. The project is scheduled to be completed by the end of 2013.

**Contact:** Pramod Nirbhavane (Superintending Engineer, Water Supply and Sewerage Dept, Pune Municipal Corporation). Tel: +91 20 2550 1384. E-mail: pnirbhavane@punecorporation.org

## Iran

### NEW

**Project:** Lengheh Port & Kong STP

**Project description:** Construction of a new 8,500m<sup>3</sup>/d WWTP plus a 150km sewerage network.

**Client:** Hormozgan Water & Wastewater Co.

**Expected cost:** \$35 million

**Project structure:** 25-year BOT

**Status:** The client issued a request for statements of qualification on 1st December 2011. The submission deadline was set for 26 December 2011.

**Contact:** Website: www.abfahormozgan.com

## Iran

### NEW

**Project:** Tehran South & West WWTP

**Project description:** A transfer in ownership of four modules of the existing South Tehran WWTP complex, which have a combined capacity of 449,280m<sup>3</sup>/d (5.2m<sup>3</sup>/sec). The contract also includes the construction of an additional four modules with an equivalent capacity at the existing West Tehran WWTP.

**Client:** Tehran Sewerage Co.

**Expected cost:** \$240 million

**Project structure:** 25-year BOT

**Status:** The client issued a request for statements of qualification on 11 December 2011. The submission deadline was set for 10 January 2012.

**Contact:** Tehran Sewerage Co. Tel: +98 218 8435 9613.

## Philippines

### UPDATE

**Project:** Laiban Dam

**Project description:** To design, finance, construct and operate the Laiban Dam project, which includes a dam and a water treatment plant providing an extra 1.83 million m<sup>3</sup>/d of water to Metro Manila.

**Client:** Metropolitan Waterworks and Sewerage System (MWSS)

**Expected cost:** PHP48 billion (\$1.02 billion), excluding the cost of relocating 3,000 informal settlers out of the watershed area.

**Project structure:** Possible BOT

**Status:** Speaking to GWI, MWSS chairman Ramon Alikpala said that a study conducted this year had found that future water demand in Manila would be less than previously thought, in part because of new water supply projects totalling 300,000m<sup>3</sup>/d underway by Maynilad and Manila Water. There have been calls for a scaleable water source to meet supply gaps in more manageable increments, and the Laiban Dam is just one of a number of options under consideration. The dam is still considered a live project, but appears unlikely to be implemented given the concessionaires' preference for smaller projects, and a reluctance on the part of MWSS to rely on a single source for such a significant part of the capital's water supply (as is currently the case with the ageing Angat Dam, which provides the source for over 97% of Manila's drinking water).

## Spain

### NEW

**Project:** Aigües Ter Llobregat

**Project description:** The Catalan government is planning to offer a 50-year concession for ATLL, the bulk water operator for metropolitan Barcelona, which serves 4.5 million inhabitants. The winning contractor would operate WTPs and WWTPs and the connecting canal between the Ter and Llobregat rivers. The assets would, however, remain the property of the regional government. The concession-holder would also be responsible for carrying out certain stipulated investments in building new infrastructure or expanding existing plants.

**Client:** Agencia Catalana de l'Àigua (ACA)

**Project structure:** 50-year concession

**Status:** According to ACA, the concession may go out to tender by mid-2012.

**Contact:** Xavier Durán (Agencia Catalana de l'Àigua). Tel: +34 93 567 2884.

## Tunisia

### UPDATE

**Project:** El Allef & El Attar 2

**Project description:** To construct two wastewater treatment plants, at El Allef (55,000m<sup>3</sup>/d) and El Attar 2 (50,000m<sup>3</sup>/d).

**Client:** Office National d'Assainissement (ONAS)

**Expected cost:** TND150 million (€80 million) for the EPC component.

**Project structure:** 25-year BOT. The debt to equity ratio currently stands at 80:20. The winning developer will be expected to retain 60% of its stake in the project company. The remaining 40% can be sold. ONAS, the client, will not have a share in the project company.

**Status:** ONAS has been awaiting final notice from the government since 2009 to proceed with the tender (the state bears the bulk of wastewater capex costs). The transitional government in power



since February 2011 did not want to commit itself because of the long-term aspect of the project, but ONAS plans to re-submit the project to the new government as soon as it is elected (negotiations are underway following parliamentary elections on 23 October 2011). The following companies were shortlisted in 2009: aqualia/Inima; Kuwait Privatisation Project Holding Co; and Veolia Water AMI with EMP Africa Fund PPC; Cobra-Tedagua and Agbar.

## USA

### NEW

**Project:** Alamogordo O&M, NM

**Project description:** To operate and maintain the city's water and wastewater treatment facilities, water collection and storage systems, and water transmission systems. The city's WWTP has a design capacity of 4MGD (15,140m<sup>3</sup>/d), although it treats an average daily flow of 2.2MGD (8,327m<sup>3</sup>/d). The main WTP has a design capacity of 7MGD (26,500m<sup>3</sup>/d) and treats an average daily flow of 4MGD (15,140m<sup>3</sup>/d). A second WTP has a design capacity of 2.5MGD (9,463m<sup>3</sup>/d) and treats an average daily flow of 0.8MGD (3,028m<sup>3</sup>/d). The facilities are currently operated by Severn Trent Services.

**Client:** City of Alamogordo

**Project structure:** 5-year O&M, with three one-year renewal options

**Status:** An RFQ for the contract renewal has been released, and a mandatory pre-proposal conference was held on 13 December 2011. Companies in attendance included CH2M Hill, Severn Trent Services, U.S. Water and American States Utility Services. Statements of qualification are due to be submitted on 10 January 2012, with a contract award scheduled to be made on 12 June 2012.

**Contact:** Barbara Pyeatt (Procurement Specialist). Tel: +1 575 439 4115. E-mail: bpyeatt@ci.alamogordo.nm.us

## USA

### NEW

**Project:** Grand Island O&M, NE

**Project description:** The City of Grand Island is planning to outsource the operations and

maintenance of its 12MGD (45,420m<sup>3</sup>/d) wastewater treatment plant as a cost-saving measure. The city hopes that outside expertise can help with odour control issues. The private contractor will be required to hire 20 city staff, while the city will continue to fund capital repairs at the plant – which average around \$100,000 per year – and retain responsibility for sewer collection lines.

**Client:** City of Grand Island

**Expected cost:** \$3.5 million per year, or approximately \$18 million over the 5-year contract.

**Project structure:** O&M for five years, with an opt-out clause after three years.

**Status:** The city is in negotiations with Veolia, having received proposals in September. At a meeting on 15 November, the city council agreed to delay a vote on whether to accept Veolia's proposal. A decision is expected at some point in January 2012.

**Contact:** John Collin (Public Works Director, City of Grand Island). Tel: +1 308 385 5444, ext. 269.

## USA

### UPDATE

**Project:** Lodi WTP O&M, CA

**Project description:** To operate a new 10MGD (37,850m<sup>3</sup>/d) surface water treatment plant that is currently under construction.

**Client:** City of Lodi

**Expected cost:** \$2.0-2.5 million per year

**Project structure:** Two-year O&M, with two three-year extension options.

**Status:** The city council decided on 22 November not to outsource the operation of the plant to the private sector. City staff will thus operate the plant when it comes online. A city official told GWI that the final financial proposals were sufficiently close to one another so as to have made the decision not to opt for the lowest financial offer immaterial. He also cited that fact that questions had been raised over SouthWest Water's track record in the contract operations market as having influenced the city's final decision. Veolia's revised offer of \$2.2 million per year is understood to have come in 0.4% above the city's own projection, while SWWC's revised bid was 4% lower than the city's.

**Contact:** Gary Wyman (Public Works Department). Tel: +1 209 336 6706.

## USA

### UPDATE

**Project:** Woonsocket New WTP, RI

**Project description:** To design, build and operate a new drinking water treatment plant to replace the ageing facilities currently serving the City of Woonsocket. The projected capacity is likely to be around 8MGD (30,280m<sup>3</sup>/d)

**Client:** City of Woonsocket

**Project structure:** DBO

**Status:** An RFQ for the project is now expected to be re-issued around May or early June 2012, as the city is still working on selecting a site. A previous RFQ process for a DBO resulted in submissions from consortia led by Veolia and AECOM. The procurement method is highly likely to be a DBO the second time around, most likely with a 20-year operating period. CDM is the consultant engineer.

**Contact:** Sheila MCGavran (Public Works Director). Tel: +1 401 767 9209. E-mail: smcgavran@woonsocketri.org

## USA

### UPDATE

**Project:** Woonsocket WWTP upgrade, RI

**Project description:** Upgrades will be needed at the regional 16MGD (60,560m<sup>3</sup>/d) plant to limit nutrient discharge. The plant will be a moving-bed bioreactor (MBBR) facility.

**Client:** City of Woonsocket

**Expected cost:** \$45 million

**Project structure:** DBO

**Status:** An RFP will be issued on 1st January 2012, although there is an ongoing dispute over the funding contributions from various towns and cities to be served by the facility, which could delay the process. The submissions deadline on a separate RFP for consulting proposals fell due on 9th December.

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### No change this month

| Region    | Project name/Location      | Purpose of project                                   | Status                                   |
|-----------|----------------------------|--|--|
| Algeria   | Ain M'lilla                | New 16,800m <sup>3</sup> /d WWTP                     | Tender process ongoing                   |
| Algeria   | Beni Mered                 | New 39,500m <sup>3</sup> /d WWTP                     | Awaiting RFP                             |
| Australia | Beenyup WWTP, WA           | Expansion of existing plant                          | Tender expected by 2018                  |
| Australia | Mount Barker WWTP          | Expanded wastewater network                          | EOI issued                               |
| Australia | Murray Bridge WWTP         | New housing developments                             | EOI issued                               |
| Australia | Perth O&M                  | Water distribution & waste collection                | Treatment contract bids under evaluation |
| Australia | Woodman WWTP expansion, WA | 160,000m <sup>3</sup> /d to 240,000m <sup>3</sup> /d | Tender expected by 2018                  |

## No change this month

| Region     | Project name/Location                  | Purpose of project                                 | Status  |
|------------|--|--|---|
| Bahamas    | Pinewood Gardens WWTP                  | New 1,363m <sup>3</sup> /d plant                   | Awaiting bids                                 |
| Bangladesh | Khilkhet Water Supply Project          | Expand water treatment capacity                    | Feasibility studies ongoing                   |
| Bangladesh | Khulna Water Supply Project, Dhaka     | New 110,000m <sup>3</sup> /d WTP                   | Shortlist announced                           |
| Brazil     | Onda Limpa new WTPs and WWTPs          | Build, O&M water & sewage plants                   | RFP expected in 2012                          |
| Brazil     | Santos, São Vicente and Praia Grande   | Expansion and O&M of STPs                          | RFP expected in 2012                          |
| Brazil     | São Lourenço-Alto Juquiá WTP           | New 406,080m <sup>3</sup> /d plant                 | Conceptual stage                              |
| Brazil     | São Paulo prison STP                   | New WWTP   | Feasibility study ongoing                     |
| Brazil     | Tietê River Basin WWTP                 | Upgrade and build new facilities                   | Tender expected in 2012                       |
| Bulgaria   | Bulgaria Water                         | Operate regional water company                     | Pre-qualification delayed                     |
| Canada     | Greater Sudbury biosolids              | New 430m <sup>3</sup> /d                           | Awaiting contract award                       |
| Canada     | Huron-Elgin O&M                        | 340,000m <sup>3</sup> /d & 91,000m <sup>3</sup> /d | Awaiting contract award                       |
| Canada     | Regina WWTP, SK                        | Upgrade of existing 70,000m <sup>3</sup> /d        | AECOM hired as consultant                     |
| Canada     | Saint John, New Brunswick              | Modernise system and build 2 WTPs                  | Conceptual stage                              |
| Canada     | Victoria, British Columbia             | New sewage treatment facilities                    | Awaiting decision on procurement options      |
| China      | Laohekou Chenbu Industry WWTP          | Build & operate 25,000m <sup>3</sup> /d            | Awaiting contract award                       |
| China      | Qiqihar Urban WWTP                     | Operate 200,000m <sup>3</sup> /d                   | Project delayed                               |
| China      | Tongren Wastewater Treatment Plant     | 40,000m <sup>3</sup> /d                            | Project stalled                               |
| China      | Xichongxian Duofuzhen WWTP             | Build & operate a 20,000m <sup>3</sup> /d plant    | Bids under evaluation                         |
| China      | Yuncheng Chengxi WWTP                  | 50,000m <sup>3</sup> /d WWTP                       | Awaiting contract award                       |
| Colombia   | Bello WWTP                             | 432,000m <sup>3</sup> /d                           | Bids under evaluation                         |
| Colombia   | Los Angelinos WTP                      | 86,400m <sup>3</sup> /d                            | Award expected soon                           |
| Colombia   | Río Bogotá wastewater plant            | Expand WWTP to 691,200m <sup>3</sup> /d            | Awaiting RFP                                  |
| Colombia   | Pereira WWTP                           | 224,640m <sup>3</sup> /d                           | International tender process expected in 2012 |
| Croatia    | Inland Waters Project                  | Design/supply several small WWTPs                  | 20 companies expressed interest               |
| Cyprus     | Astromeritis Sewage Treatment Plant    | Build & operate three STPs                         | RFP launched                                  |
| Ecuador    | Guayaquil WWTPs                        | Two WWTPs of 302,400m <sup>3</sup> /d each         | Bids for feasibility study under evaluation   |
| Egypt      | Abu Rawash WWTP                        | Operation & maintenance                            | RFP expected soon                             |
| Egypt      | Arment WTP expansion                   | 34,000m <sup>3</sup> /d to 60,000m <sup>3</sup> /d | International bids due soon                   |
| Egypt      | Alexandria West WWTP                   | Expand and upgrade, 680,000m <sup>3</sup> /d       | Awaiting RFP                                  |
| Egypt      | Gabal Asfar WWTP (phase 3)             | Expand plant to 3 million m <sup>3</sup> /d        | Procurement process to be launched soon       |
| Egypt      | Gabal El Asfar WWTP, Stage II Phase II | Expand plant to 500,000m <sup>3</sup> /d           | Tender expected soon                          |
| Egypt      | Kafr El Zayat WTP expansion            | 26,000m <sup>3</sup> /d to 60,000m <sup>3</sup> /d | International bids to be submitted soon       |
| Egypt      | Helwan WWTP expansion                  | Expand to 1.05 million m <sup>3</sup> /d           | Client procuring advisory services            |
| Egypt      | Nahia WWTP                             | New 200,000m <sup>3</sup> /d plant                 | Awaiting start of procurement process         |
| Egypt      | Smaller WWTPs                          | 3 plants; total capacity 80,000m <sup>3</sup> /d   | Not tendered yet - lower priority             |
| Hong Kong  | HATS stage 2A                          | Various upgrades of WWTPs                          | Tender process underway                       |
| Hong Kong  | Tai Po WTP expansion P2                | 400,000 - 800,000m <sup>3</sup> /d                 | Awaiting bids                                 |
| Hong Kong  | San Wei WWTP                           | Upgrade & expand to 259,000m <sup>3</sup> /d       | Environmental impact statement re-drafted     |
| India      | Amreli, Gujarat                        | Ensure water supply                                | MOU signed with undisclosed companies         |
| India      | Ahmedabad New West Zone                | 125,000m <sup>3</sup> /d WTP                       | Awaiting design bids                          |
| India      | Anand, Gujarat                         | Improvement of water supply                        | MOU signed with undisclosed companies         |
| India      | Assam - Guwahati                       | Water supply & drainage system                     | Reservoir and pipeline contracts awarded      |
| India      | Bhilwara, Rajasthan                    | Treat & transport bulk water                       | Project delayed                               |
| India      | Gandhinagar, Gujarat STP               | New 10,000m <sup>3</sup> /d STP                    | RFP issued                                    |
| India      | Hubli-Dharwad                          | Provide 24-hour water supply                       | Awaiting RFP                                  |
| India      | Hyderabad Sewage Project               | Ten new STPs                                       | Awaiting government approval                  |
| India      | Jodhpur water supply project           | Two new WTPs, total 150,000m <sup>3</sup> /d       | RFP expected December 2011                    |
| India      | Karnataka 24/7 Water Supply Project    | Water supply augmentation                          | Tender expected soon                          |
| India      | Koyambedu STP, Tamil Nadu              | New 120,000m <sup>3</sup> /d STP                   | RFP issued                                    |

## No change this month

| Region    | Project name/Location                 | Purpose of project                                | Status  |
|-----------|---------------------------------------|---|---|
| India     | Lambaline WTP                         | New 25,000m <sup>3</sup> /d plant                 | Awaiting tender documents                     |
| India     | Ludhiana PPP, Punjab                  | 117,000m <sup>3</sup> /d WWTP for industry        | SOQs under evaluation                         |
| India     | Nashik, Maharashtra                   | Increase capacity to 1,000,000m <sup>3</sup> /d   | Under discussion                              |
| India     | Osman Sagar, Hyderabad                | 205,000m <sup>3</sup> /d WTP                      | Awaiting government approval                  |
| India     | Patna, Bihar                          | Design, build, operate & maintain                 | Tender expected soon                          |
| India     | Project UDAY                          | 24-hr water supply for city of Gwalior            | Tender expected by end of 2011                |
| India     | Rajkot, Gujarat                       | Provide 24-hour water for Morbi town              | Pre-qualification underway                    |
| India     | River Hooghly WTP, Kolkata            | New 104,000m <sup>3</sup> /d plant                | RFP issued                                    |
| India     | Shimla, Himachal Pradesh              | Expansion and improvement                         | RFP issued                                    |
| India     | Vellore Drinking Water Supply Project | 60,000-70,000m <sup>3</sup> /d WTP                | Awaiting tender                               |
| Indonesia | Jatiluhur-Jakarta water supply        | New 432,000m <sup>3</sup> /d plant                | Technical feasibility study completed         |
| Indonesia | Karawang Water Supply                 | 432,000m <sup>3</sup> /d WTP                      | Awaiting pre-qualification documents          |
| Indonesia | Maros (Makassar, South Sulawesi)      | 17,280m <sup>3</sup> /d WTP                       | Prequalification ongoing                      |
| Indonesia | Pekanbaru and Cimahi                  | Wastewater master plan                            | Awaiting contract award                       |
| Indonesia | Pondok Gede                           | Two WTP's 12,960m <sup>3</sup> /d each            | On hold                                       |
| Indonesia | Southern Bali                         | 86,400m <sup>3</sup> /d                           | Feasibility study revision                    |
| Indonesia | Surakarta Water Supply                | New 86,400m <sup>3</sup> /d WTP                   | Planning stage                                |
| Indonesia | Umbulan Spring                        | Construct 34,560m <sup>3</sup> /d                 | RFP expected soon                             |
| Iran      | 4 WWTPs, Khorasan Razavi Province     | Construction of four new WWTPs                    | RFQ issued                                    |
| Iran      | Expansion of Sangar (Rasht) WTP       | Rehabilitation (259,200m <sup>3</sup> /d)         | Awaiting bids                                 |
| Iran      | Ghamsar Sewage System                 | Construct 3,600m <sup>3</sup> /d                  | Bids under evaluation                         |
| Iran      | Ghoochan WWTP                         | Construct new WWTP                                | RFQ re-issued                                 |
| Iran      | Parand WWTP                           | New 30,000m <sup>3</sup> /d                       | Awaiting bids                                 |
| Iran      | Sayedi Area WWTP, Mashad City         | Initial 11,000m <sup>3</sup> /d                   | RFQ issued                                    |
| Iran      | Shahrak Gharb WWTP                    | Expansion to 138,240m <sup>3</sup> /d             | RFQ re-issued                                 |
| Iran      | South Tehran STP (modules 7 & 8)      | Construct new WWTP                                | RFQ issued                                    |
| Iran      | West Tehran STP                       | Construct new WWTP                                | RFQ re-issued                                 |
| Ireland   | Arklow WTP                            | New 9,000m <sup>3</sup> /d                        | Tender documents sent out to pre-qual bidders |
| Ireland   | Arklow WWTP                           | New WWTP to serve the community                   | Tender process expected in a couple of years  |
| Ireland   | Donegal (Group B) WWTPs               | Four wastewater treatment plants                  | Pre-qualification expected in 2011            |
| Ireland   | Dublin regional WWTP                  | New wastewater treatment plant                    | Early planning stage                          |
| Ireland   | Glenties/Dungloe WWTPs                | Package of two WWTPs                              | Shortlist announced                           |
| Ireland   | Grange Lough WTP                      | New 7,330m <sup>3</sup> /d WTP                    | RFP expected soon                             |
| Ireland   | Kildare WWTP                          | Part of Kildare Sewerage Scheme                   | Preferred bidder selected                     |
| Ireland   | Lough Guitane WTP                     | 54,000m <sup>3</sup> /d drinking WTP              | In planning                                   |
| Ireland   | Laois Grouped Towns WWTPs             | Package of new WWTP for five towns                | Awaiting proposals                            |
| Ireland   | Mutton Island WWTP upgrade            | Upgrade and operate plant                         | RFQ re-advertised                             |
| Ireland   | Newtownmountkenedy regional           | New WWTP to replace small plants                  | Appointment of consultant expected soon       |
| Ireland   | Thurles WTP                           | 5,000-5,500m <sup>3</sup> /d                      | Awaiting new EOI                              |
| Ireland   | Waterford Grouped Towns & Villages    | Seven WWTPs                                       | RFP expected early 2012                       |
| Jordan    | Zarqa Central Industrial WWTP         | Design and build new plant                        | Bids due soon                                 |
| Kuwait    | Umm Al-Hayman WWTP                    | Design, finance, build 650,000m <sup>3</sup> /d   | RFEI expected soon                            |
| Lebanon   | Bourj Hammoud                         | To construct a 330,000m <sup>3</sup> /d plant     | RFP expected in 2011                          |
| Lebanon   | Nabaa es Safa and Barouk WWTPs        | 3,000m <sup>3</sup> /d and 1,200m <sup>3</sup> /d | Tender process ongoing                        |
| Mexico    | Agua Futura, Stage II, Durango        | A 191,808m <sup>3</sup> /d WTP                    | Tender expected soon                          |
| Mexico    | Monterrey VI                          | Construct 1,296,000m <sup>3</sup> /d              | Tender launch and award expected in 2011      |
| Mexico    | Monterrey-Tampico Aqueduct            | Transport of bulk water                           | Funding being sought                          |
| Mexico    | Presa Paso Ancho                      | 86,400m <sup>3</sup> /d WTP                       | RFP expected in 2011                          |
| Mexico    | Sistema Hidráulico Metropolitano      | Expansion to 457,920m <sup>3</sup> /d             | Plant will expand as necessary                |

## No change this month

| Region       | Project name/Location                      | Purpose of project                                 | Status                                  |
|--------------|--|--|---|
| Mexico       | Valley of Mexico WWTPs                     | Build 6 new WWTPs; upgrade 4 dams                  | On hold                                 |
| Morocco      | Dakhla WWTP                                | 10,000m <sup>3</sup> /d WWTP                       | Tender for construction issued          |
| Morocco      | Fes/Meknès WTP                             | Construct 173,000m <sup>3</sup> /d plant           | RFP expected early 2012                 |
| Morocco      | Ifrane WWTP                                | 3,700m <sup>3</sup> /d WWTP                        | Tender for construction issued          |
| Morocco      | Kenitra WWTP                               | New 165,000m <sup>3</sup> /d WWTP                  | Awaiting RFP                            |
| Morocco      | Khouribga WTP                              | New 129,600m <sup>3</sup> /d plant                 | Tender expected in 2012                 |
| Morocco      | Laayoune WWTP                              | 25,000m <sup>3</sup> /d WWTP                       | Tender expected in 2013                 |
| Morocco      | Marrakech WTP                              | Construct 216,000m <sup>3</sup> /d plant           | Tender expected in 2013                 |
| Morocco      | Nador WTP                                  | New 48,000m <sup>3</sup> /d WTP                    | Tender planned in 2012                  |
| Morocco      | Oum Azza WTP                               | New 432,000m <sup>3</sup> /d WTP                   | Award expected first half of 2012       |
| Morocco      | Ouarzazate WTP                             | 26,000m <sup>3</sup> /d WTP                        | Tender expected in 2013                 |
| Morocco      | Tangier WTP extension                      | 121,000m <sup>3</sup> /d WTP                       | Award expected early 2012               |
| Morocco      | Taroudant WTP                              | 20,000m <sup>3</sup> /d WTP                        | Tender expected in 2012                 |
| Nepal        | Kathmandu                                  | WTP, and water diversion tunnel                    | Tunnel component awarded                |
| Nigeria      | Odomola Water Supply Scheme, Lagos         | New 318,220m <sup>3</sup> /d                       | RFP for technical advisor expected soon |
| Pakistan     | Karachi K4                                 | Increase water supply                              | Awaiting government approval            |
| Pakistan     | Karachi S3                                 | Increase sewerage capacity                         | Awaiting government approval            |
| Peru         | Chillón expansion                          | Expand WTP to 432,000m <sup>3</sup> /d             | Conceptual stage                        |
| Peru         | Lurin                                      | New 216,000m <sup>3</sup> /d WTP                   | Conceptual stage                        |
| Peru         | Pachacútec WWTP                            | 22,464m <sup>3</sup> /d WWTP                       | Tender process ongoing                  |
| Peru         | Sedapal WWTPs, Lima                        | O&M, improvement of 16 WWTP's                      | Pre- RFP stage                          |
| Philippines  | Laoag City water supply expansion          | Potable water supply system                        | Conceptual stage                        |
| Philippines  | Marikina City STPs                         | 100,000m <sup>3</sup> /d & 18,000m <sup>3</sup> /d | Feasibility underway for smaller plant  |
| Puerto Rico  | Beatriz Dam & WTP                          | 52,996m <sup>3</sup> /d                            | On hold                                 |
| Puerto Rico  | Casey Dam & WTP                            | 68,137m <sup>3</sup> /d - 208,197m <sup>3</sup> /d | On hold                                 |
| Puerto Rico  | PRASA NRW project                          | NRW reduction                                      | Seven bidders shortlisted               |
| Puerto Rico  | South Coast Aqueduct & WWTP                | 56,781m <sup>3</sup> /d                            | On hold                                 |
| Puerto Rico  | Valenciano Dam & WTP                       | 83,300m <sup>3</sup> /d WTP and dam                | RFP issued                              |
| Qatar        | Qatar PTPs                                 | Three plants; 5,000m <sup>3</sup> /d each          | Tender process ongoing                  |
| Russia       | Northern WTP, St. Petersburg               | Expansion to 800,000m <sup>3</sup> /d              | Pre-qualified bidders announced         |
| Rwanda       | Kigali                                     | Development of water system                        | Technical contract awarded              |
| Saudi Arabia | Greater Dammam/Medina/Mecca                | Management contracts                               | On hold                                 |
| Saudi Arabia | Smaller cities                             | Water/wastewater services                          | Initial stages of procurement           |
| Saudi Arabia | Riyadh/Wasia WWTP                          | 360,000m <sup>3</sup> /d WWTP                      | RFEI issued                             |
| Spain        | Lamiako WWTP, Bilbao                       | New 95,040m <sup>3</sup> /d plant                  | Conceptual stage                        |
| Spain        | Sur Aglomeración WWTP                      | Construct & operate new WWTP                       | Conceptual stage                        |
| Serbia       | Novi Sad                                   | Stake in local water & wastewater co.              | Awaiting tender                         |
| Singapore    | Tuas WRP                                   | Second phase of Deep Tunnel SS                     | In planning                             |
| Sri Lanka    | Greater Colombo Wastewater Management Plan | To improve public health and environment           | Contract award expected soon            |
| Syria        | Damascus WWTPs                             | Four WWTPs   | Initial stages of procurement           |
| Tunisia      | Hammamet Nord WWTP                         | Construct 25,000m <sup>3</sup> /d                  | Awaiting RFEI                           |
| Tunisia      | Menzel Timim WWTP                          | Design & build 10,000m <sup>3</sup> /d plant       | Awaiting contract award                 |
| Tunisia      | Monarguia WWTP                             | Design & build 10,000m <sup>3</sup> /d plant       | Awaiting contract award                 |
| Tunisia      | Sousse-Hamdoune                            | Construction and rehabilitation                    | Awaiting bids                           |
| Uganda       | Nakivubo WWTP, Kampala                     | A 45,000m <sup>3</sup> /d WWTP                     | Prequalified bidders announced          |
| USA          | Ascension Parish WWTP, LA                  | O&M of newly upgraded 5,678m <sup>3</sup> /d       | Bids under evaluation                   |
| USA          | Benton Harbor O&M, MI                      | 45,420m <sup>3</sup> /d                            | Under negotiation                       |
| USA          | City of Modesto O&M, CA                    | O&M of city's wastewater assets                    | Pre-RFP stage                           |

## No change this month

| Region  | Project name/Location                     | Purpose of project                                       | Status                                    |
|---------|---|--|---|
| USA     | City of Reidsville O&M, NC                | O&M of water and wastewater plant                        | Under negotiation                         |
| USA     | City of Stamford O&M, CT                  | 24MGD (90,840m <sup>3</sup> /d)                          | Planning stage                            |
| USA     | City of Vero Beach O&M, FL                | O&M water and sewer system                               | Tender expected soon                      |
| USA     | Coosa Valley City O&M, AL                 | 22,700m <sup>3</sup> /d WTP                              | Under negotiation                         |
| USA     | Davis-Woodland Water Supply, CA           | New 196,063m <sup>3</sup> /d WTP                         | Three DBO teams shortlisted               |
| USA     | Frederick County O&M, MD                  | Operate 26,500m <sup>3</sup> /d                          | In planning                               |
| USA     | Islamorada new WWTP, FL                   | New 1.2 MGD (4,542m <sup>3</sup> /d)                     | Bids under evaluation                     |
| USA     | Lyndhurst O&M, NJ                         | O&M water system   | Bids under evaluation                     |
| USA     | Milwaukee, WI                             | O&M of WTPs and network                                  | Delayed, may be cancelled                 |
| USA     | Napa Berryessa Resort, CA                 | Rehab of water/wastewater systems                        | Awaiting award of contract                |
| USA     | Nassau County O&M, NY                     | O&M sewer system   | RFP issued                                |
| USA     | North Spit wastewater treatment plant, OR | New 37,850-45,420m <sup>3</sup> /d                       | Awaiting tender for design & construction |
| USA     | Ridgecrest WWTP, CA                       | New 109,000m <sup>3</sup> /d WWTP                        | Delayed                                   |
| USA     | Roosevelt Irrigation District, AZ         | New 109,000m <sup>3</sup> /d                             | Contract award expected soon              |
| USA     | Steubenville O&M, OH                      | O&M of water & wastewater systems                        | Under consideration                       |
| USA     | Thomaston O&M, GA                         | 11,355m <sup>3</sup> /d WTP & two 3,785m <sup>3</sup> /d | Awaiting contract award                   |
| USA     | Tulsa Assessment, OK                      | Financial, engineering, legal services                   | Bids under evaluation                     |
| Vietnam | Dông Anh WTP, Hanoi                       | 100,000 - 150,000 m <sup>3</sup> /d                      | Early conceptual stage                    |
| Vietnam | Song Hau River Water Plant No. 1          | 500,000m <sup>3</sup> /d in phase 1                      | Early conceptual stage                    |
| Vietnam | Song Hau River Water Plant No. 2          | 1 million m <sup>3</sup> /d in phase 1                   | Early conceptual stage                    |
| Vietnam | Song Hau River Water Plant No. 3          | 200,000m <sup>3</sup> /d in phase 1                      | Early conceptual stage                    |

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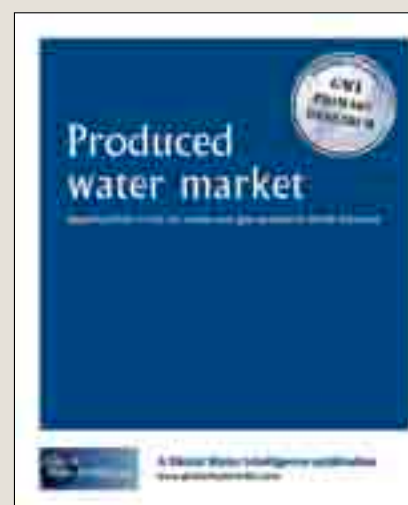
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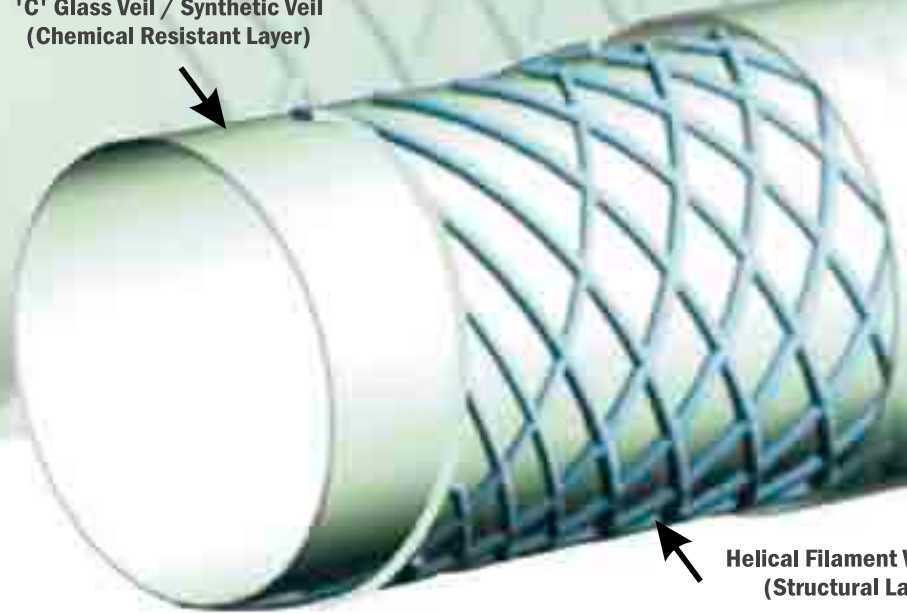
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