

## **Wellspring of Opportunity**

### **Australian Financial Review on Tuesday 30th March 2010**

The US is looking to Australia for water management solutions, both technological and bureaucratic, writes Tracy Sutherland.

California and Australia share a natural bounty of sun, sand, beaches and rich farm country but the American state has something else in common with Australia that is less publicised - drought.

California is entering its fourth year of drought and in February 2009 governor Arnold Schwarzenegger declared a state of emergency. In agricultural tragedies now familiar to Australians, water scarcity has forced some Californian farmers to uproot orchards and vines or switch to lower-value cereal crops that require less water.

Some have given up entirely - in 2009 between 160,000 and 200,000 hectares of agricultural land in the southern San Joaquin Valley went unfarmed. While this winter has been relatively wet, depleted water reserves mean California will again struggle to meet its water demands in 2010.

The development has major implications for both the state and the nation - according to some estimates nearly 13 per cent of US agricultural production (as measured by dollar value) comes from California, most from the San Joaquin Valley.

Amid international predictions of a global water scarcity exacerbated by climate change, south-western US states such as California, Arizona, New Mexico and Nevada are increasingly facing the reality that water shortages not only may be here to stay but may worsen. And increasingly many are looking at the Australian experience as a pointer to the future and for longer-term answers.

The similarities between California and Australia are great, says Wendy Martin, the state-wide drought co-ordinator for the Californian Department of Water Resources. With similar weather patterns and topography, Martin says the prevailing wisdom has been "if something can grow in California it can grow in Australia".

As drought grips both regions, unfortunately the contrary is also proving to be true. "Australia is further down the road with drought than we are and so we could look at Australia and say, OK, this could be our future," says Martin.

It is not a future anyone wants to contemplate. The worst drought in 100 years pushed many Australian farmers to breaking point, with families forced off the land, orchards uprooted and stock sent to abattoirs by farmers unable to feed them.

It has also forced a radical reassessment of water management policies in Australia, highlighted by changes in the Murray-Darling Basin (MDB), where states ceded some of their traditional powers to the federal government and there is a new emphasis on the environment's right to water alongside human requirements.

Crisis has also sparked technological developments in areas such as water-mapping, desalination, stormwater harvesting, grey water recycling and irrigation.

While Australia is far from solving all the problems it faces, its crisis has elevated the country's international water management credentials alongside other water challenged nations such as Israel and the Netherlands.

"We believe there's a unique opportunity for Australia to position itself as a world leader in dealing with water scarcity," said Sally-Anne Watts, a senior Australian trade commissioner in Los Angeles.

"The harrowing experience [Australians] have all been through really has a silver lining in the sense that there are a whole lot of opportunities that could potentially come out of the tough times," she said.

Suggesting the issues facing Australia may soon be shared by many countries, a 2009 World Bank report concluded that without global action, demand for water in 2030 would outstrip supply by 40 per cent. The report also highlighted Australia's staged water reforms as a "path forward".

Americans regard Australia as the "canary in the water scarcity coalmine," says Ken Matthews, chief executive of the National Water Commission.

Matthews travelled to the US this year to give an address on the water issue and has hosted a succession of visiting missions from the US, Africa and other countries, all curious about how Australia has restructured its systems in the face of drought.

"No one wishes a drought on any country but I think there are big opportunities," says Matthews.

Austrade recently prioritised water as an export focus and is working to match Australian companies with unique technologies with foreign buyers seeking to implement water-wise solutions.

Last November, 11 US and Mexican drought management experts toured Australia in an Austrade initiative designed to highlight Australia's political and technological responses to water shortages.

The US is looking at the Australian experience as a guide in two areas: how to technologies; and how to restructure its water management bureaucracy.

Martin was on the Austrade trip and was struck by simple measures designed to save water such as dual-flush toilets, which are almost unheard of in California.

She says the trip also highlighted the scope that exists in the US to use broader restrictions on outdoor watering to reduce urban water use. Conversely, the US can help Australia with underground water mapping and management, she says.

The average Australian consumes between 110 and 170 litres of water a day. The Californian average is 680 to 760 litres per person per day.

Such figures are explained by the fact that Californians have yet to experience the depth of Australia's problems.

While California last year struggled after only 65 per cent of its rain and snow melts made it into the rivers (the rest being absorbed by very dry ground or evaporating) the MDB was struggling with just a 6.1 per cent run-off.

"I can't even fathom what we'd be like in California with our rivers at 6.1 per cent runoff," says Martin.

But should the situation in California deteriorate, Martin says the Australian experience demonstrates "there's an enormous opportunity" to reduce consumption.

Technology is part of the solution and the US is already embracing some Australian ideas. GHD global is an Australian professional services company now providing the engineering oversight for California's first large coastal desalination plant, construction of which will start soon.

"The Australian expertise is very well acknowledged by American water purveyors and in California has been sought out specifically by large water agencies," says GHD general manager Americas, Donald Graf. He predicts "huge growth".

Adelaide-based AquaSpy specialises in unique high-tech soil moisture probes that use satellites to transmit regular updates of soil water content at multiple depths, allowing farmers to maximise irrigation and reduce overall water use.

After two years in the US and Mexico, AquaSpy CEO Bruce Moeller says the company has made almost 1000 installations and predicts big growth in a \$US9 billion market, which is 10 years behind Australia.

"This will be a huge market, when the timing comes and it will come, whether it's in two or two years," says Moeller.

Australia's Optimatics consultancy and software company advises water utilities how to maximise the cost-effectiveness and reliability of water sources and delivery.

"They are looking for Australian leadership in this space," says Optimatics CEO Tim Anderson.

Drought has sparked fundamental changes to the state-based water management systems: Queensland, NSW, ACT, Victoria, South Australia and the federal government signed the 1992 Murray Darling Basin agreement to collaborate on water management in the area.

Australia has also developed the world's most sophisticated water trading market, permitting inter-state trading, which in recent years has allowed NSW rice growers to sell their water allocations to downstream SA grape growers trying to keep their vines alive.

Market rates mean rice growers received greater returns from selling their water allocations than from producing rice.

Such systems fascinate US experts such as Bradley Udall, who also toured Australia with Austrade, as the director of the University of Colorado's Western Water Assessment. Winding across 2300 kilometres of the US, the Colorado River Basin (CRB) and the MDB have much in common. The CRB takes in Wyoming, California, Utah, Colorado, Nevada, New Mexico and Arizona and is two-thirds of the size of the MDB. It provides water to 30 million people and 70 per cent of its resources are drawn to irrigate 1.4 million hectares along its route.

Half of Denver's water is drawn from the Colorado River system, as does all of the water for Las Vegas and about one-third of the water used in southern California.

Like the MDB, the CRB is stressed as a result of a combination of 10 years of low rainfall, being located in the fastest-growing population region in the US and having its water oversubscribed. Reservoirs are half full.

Predictions that between 10 and 20 per cent less water will enter the basin's rivers by 2050 pose a sobering warning. No water has reached the mouth of the river system (in Mexico) for a decade. Despite all this, water management in the CRB remains in the hands of the individual states and there is no collaborative approach or inter-state water trading.

US states consider water a "birth right", says Udall, who is struck by Canberra's involvement in water management. "It's hard to imagine getting to that level of federal involvement [in the US]," he says.

However, the lesson tour participants such as Martin and Udall take from the Australian visit is that a water crisis renders previously inconceivable actions conceivable.

"The same sequence of events that occurred in Australia are likely to be similar drivers for California," says Martin. "It will take a crisis or near-crisis to really galvanise people around this issue." While water scarcity may not yet have a national focus in the US, in the worst affected southern states awareness is growing.

Martin found her Australian visit strangely reassuring because it showcased the fact that in a worst-case scenario, a country can endure a water crisis and thrive.

"I was expecting very desolate, barren communities," she says. "Australia looked vibrant and healthy even with lower water use and it showed you can reduce water use without adversely affecting the quality of life."

Udall says Australia serves as a wake-up call that the US must at least plan for the unexpected.

"The shocking thing is that stuff happened in Australia that nobody anticipated would happen - climatologically the American south-west and Australia share many common features, so what happened to you could happen to us."

\*\* This article appeared in the Australian Financial Review on Tuesday 30th March 2010.