The importance of water to Australian supply chains

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Introduction

The volatility of commodity prices has had a profound effect on the Australian economy. In good times, extractive industries have benefited from high demand and prices, with the Australian economy enjoying a growth in exports. The current global economic recession paints a different picture. As growth in developed economies and the supply of certain commodities exceeds demand, profit margins are becoming tighter. One commodity that has not reduced in price or demand is water. This article assesses the importance of water to the effectiveness of supply chains, and in turn the economy.

At the global level, Australia and Oceania are more fortunate than other regions of the world when it come to the availability of water, with 5% of the world's water and 1% of the world's population located on the continent[1]. However, in common with several countries, it is the national distribution of water rather than its absolute availability which presents challenges for government and business. The challenge is multi-faceted, with economic, political, social and environmental dimensions – in short, a true sustainability challenge.

Economic impact

The importance of water to the Australian economy cannot be underestimated. If the wealth of a nation is determined by the value of its global trade then Australia has been in good shape, with exports valued at US$142.1 billion in 2007[2]. In a country blessed with natural resources, it is no coincidence that the main goods exported rely on a plentiful supply of water for their manufacture. The Water Services Association of Australia suggested that 67% of all water extracted is used in agriculture, with 7% used by manufacturing industry and power generation[3].

The World Food Organisation (FAO) produced statistics of water requirements for main food products. Pulses, roots and tubers were deemed to use one cubic metre of water for every kilogram produced. This rose to six cubic metres per kilogram in the case of poultry and fifteen cubic metres for beef production. Water therefore is more than just a commodity - it becomes a strategic enabler.

In another example, the Office of Energy Efficiency and Renewable Energy at the United States Department of Energy offered statistics for water consumption in hard rock mining[4]. The study concluded that around 1650 US gallons of water is used per tonne produced. In the case of sand and gravel extraction water use can be up to 5000 US gallons per tonne produced.

More specifically, in August 2006 the Australian Journal of Mining[5] (AJM) calculated how much water goes into mining. It stated that the mining industry consumed 401 GL (Giga Litres) or two percent of water consumption in Australia in 2000-2001, with 90% (479,635 ML) sourced from a combination of surface water and ground water extraction. The industry and research institutes suggest that water use in metal ore and coal mining are high income generators,

[1] World Water Development Report (2003), published by UNESCO (United Nations Educational, Scientific and Cultural Organisation).

[2] CIA World Factbook, online at https://www.cia.gov/library/publications/the-world-factbook/geos/as.html

[3] WSAA – Water Services Association of Australia. Testing water, urban water in our growing cities – the risks, challenges, innovation and planning, Position paper 01, October 2005.

[4] Mavis, J. (July 2003), Water Use in Industries for the Future: Mining Industry, Center for Waste Reduction Technologies, US Department of Energy, Washington DC 20585, USA

[5] http://www.theajmonline.com/informaoz/ajm/home.jsp?var_el=archart&art_id=1153929079571&seqnum=310

with the AJM suggesting that based on a selling price of AUS$9,000 per tonne of copper, $180 is generated from every cubic metre of water used.

Using a similar methodology, CSIRO[6] suggests that the economic value per cubic meter of water consumed is $80 in the mining industry, $40 in the industrial sector, and $5 in the agricultural sector. Of course, the corollary of this is that when commodity prices are low, the value generated is less – but costs remain the same.

Political implication

In conducting a PEST analysis[7], the supply chain professional has to consider political developments in water provisioning. In November 2008 ABC News reported that the Federal Opposition and the Green Party were opposing the state of Victoria's plans to boost Melbourne's water supply by piping water from the North East of the country.

At the federal level, the Australia Government's Department of the Environment, Water, Heritage and Arts, consolidated legislation for water management through three areas: the Water Act 2007, the Council of Australian Governments Memorandum of Understanding on Murray-Darling Basin Reform, and the major Water for The Future initiative. Further details are available on the department's website (http://www.environment.gov.au/).

Having established the economic impact and political implication of water management the following are some hints and tips for supply chain managers with responsibility for water management:

Hints and tips for supply chain managers

1. Assess the 'water footprint' produced by your organisation, both internally and externally to include the suppliers in the supply chain. Supply chain managers and their businesses need to be more aware of how they use water in the future. As the demand for and scarcity of water increases, prices will increase. Companies that do not plan ahead will suffer higher costs and reduced growth.

2. Establish how vulnerable your supply chain is. The availability of water is critical to Australian industries, whether producing goods for export or for domestic consumption. Identify vulnerable points in the supply chain to be targeted.

3. Identify potential savings throughout the supply chain and reduce consumption by modifying processes, systems or behaviours. Internally, this will be an inter-departmental effort. Externally, it will involve strategic suppliers. Regardless, it will require senior management buy-in.

4. Communicate your requirements down the supply chain and upstream to your customers.

5. Leverage your proactivity with your customer base. This is an excellent opportunity to demonstrate your credentials and develop business opportunities.

[6] CSIRO, the Commonwealth Scientific and Industrial Research Organisation, is Australia's national science agency and one of the largest and most diverse research agencies in the world.

[7] PEST analysis covers Political, Economic, Social and Technical considerations in analysis.

6. Seek out resources available. Good practice in water management will exist both with Australia and in other countries that face similar issues. In the UK, Envirowise offers free guidance. Similar government sponsored organisations will exist in Australia.

7. Refer to the CIPS Knowledge guidance on sustainability and other specific guidance such as the 'How to develop a waste management and disposal' strategy.

Conclusions

This paper highlights the importance of water provisioning for the Australian economy.

The volume of proposed legislation around the subject suggests that effective water management will be critical for economic growth. The short-term imperative will be to manage costs during the economic slowdown. In the longer term, the effects of climate change and population growth will heighten the challenges facing businesses and communities. Indeed, water may prove to be a more valuable commodity than crude oil.

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