

Recent developments in water resource management

By Tracey Moore, McCullough Robertson Lawyers

Australia is the driest continent on earth and for most participants in Australia's agribusiness sector, access to and the sustainable management of water, is a key business driver. Crop location, crop choice and indeed the long term financial viability of an agribusiness enterprise is invariably linked to the availability of appropriately priced and adequate quality water.

Water availability is influenced by a range of factors including seasonal, decadal and long term climatic fluctuations such as drought, storms, flood and global climate change. The substantial under investment in water infrastructure over many decades, pricing pressures, population growth and the migration to urban areas have all contributed to the sustainability challenge.

Complex and divisive

Water resource management is a politically complex and divisive issue, as there are multiple stakeholders with different needs and objectives. For example, regulators as well as environmentalists, now recognise the environment as being a significant water stakeholder. At a more regional level, indigenous elders from across the Murray Darling Basin (MDB) have recently sought a share of water from the MDB. The elders consider that there are important cultural reasons for their request and have been reported as planning to lobby government for access to 'cultural flows'.

Sustainability challenges are not just



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regional or national but worldwide. The International Water Management Institute estimates that most people drink only two litres of water per day but they consume about 3000 litres per day, when the water that goes into producing their food is taken into account.

The Institute believes that farmers will (if they use today's methods) need over 25 per cent more water than is used today to feed the world by 2030. As farming accounts for roughly 70 per cent of human water consumption worldwide, some academics are concerned that the present global water shortages in many farming areas will eventually escalate into food shortages.

At the Commonwealth level there have been substantial water reforms in the past 10–15 years. The 1994 Council of Australian Governments Agreement on Water Reforms sought to provide an initial framework for the allocation of water to the environment to ensure long term sustainability.

Since then water reforms have included the National Water Initiative (2004) and the National Plan for Water Security in 2007 and the Water Act 2007 (Cth). The Commonwealth and State Governments have also developed an Inter-Governmental Agreement on MDB reform, executed on July 3, 2008.

Government purchases

The Commonwealth has opened a new tender to purchase water in the Queensland section of the MDB and has recently announced several further measures aimed at addressing water shortages in the MDB. These measures are an expansion of the previously announced tender to acquire Queensland water allocations to include allocations in northern NSW, and a joint Commonwealth and State initiative to co-fund the purchase of properties holding large water entitlements, particularly in the northern part of the MDB.

Toorale Station, an irrigation property near Bourke in central NSW, was recently acquired by the Commonwealth and NSW governments pursuant to this program. The Commonwealth is also providing a



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\$57 million exit package for Murray River irrigators in the form of \$150,000 exit grants for small block owners.

In a controversial recent move, the Queensland government has gifted to the Commonwealth 10.6 billion litres to supplement environmental flows in the MDB, from existing unallocated reserves in the Nebine, Moonie, Warrego and Border Rivers systems.

How effective in the long term?

While regulatory changes and policy announcements are proceeding at breakneck speed, such initiatives are only a small part of the availability and sustainability equation. There is a great deal of controversy, even among the scientific community, as to how effective such initiatives will be in providing a long term solution to the current availability crisis and in changing water usage patterns.

Ultimately, a variety of different measures that provide a planned response to long term climate change and short term climatic fluctuations are likely to have a greater overall impact. Programs that encourage research and development into water use efficiency such as drip irrigation and leakage management, plant and animal genetics, diversification of crop type



Research programs to improve water use efficiency are to be encouraged.

and location and improved seasonal climate change forecasts should be actively encouraged.

What is water banking?

One of the more interesting initiatives arising out of the current water shortage is the development of water banking. Water

banking is a term that is now gaining wide spread usage. But this term does have at least two distinct meanings.

Water banking is often used in the context of conjunctive water management. Conjunctive water management recog-

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nises and utilises the connectivity between groundwater and surface water systems. One established conjunctive water management technique is aquifer recharge. This technique seeks to increase the amount of water stored in an aquifer, which is then recovered by pumping.

The theory is that water can be harvested and stored in times of high availability and then be recovered in times of low availability. As Australia loses approximately nine per cent of all of the water stored in its dams to evaporation each year, further research into such technologies should be encouraged.

Groundwater storage, including aquifer recharge, has been widely used in both Europe and the US for many years. International research strongly supports the view that groundwater should not be regarded as a resource separate from surface water as it is very difficult to effectively manage connected systems through different programs. While there have been some responses to integrated water management in the COAG reforms, implementation programs in Australia are mainly restricted to small pilot schemes.

Part of the reason for this slow take up is scientific, as the restraints of aquifer recharging, which can include clogging and water quality issues, need to be overcome.

Regulatory restraint

Another restraint is regulatory. The regulatory regime in Australia would require substantial amendment to fully address

connectivity issues. At present separate water entitlements are required for surface and groundwater use in most catchments. As things stand, the surface water could only be collected pursuant to a surface water entitlement.

When injected into the aquifer it would arguably lose its characteristic as a surface entitlement and become groundwater, hence requiring an entitlement holder to hold a groundwater entitlement to withdraw the banked water. In areas where there is not an integrated approach, anomalies arise, such as the issue of groundwater licences for wells adjacent to fully allocated streams, without a detailed hydrological analysis of the connectivity between the various water sources.

Economic water banking

The other type of 'water banking' does not involve conjunctive management and is more in the nature of 'economic' water banking. This type of water banking is fundamentally the acquisition of water entitlements by an entity that exceeds its short and medium term requirements. There is an increasing incidence of this type of water banking worldwide.

It can take many forms, from water banking by agribusiness operators and resource companies for the purposes of securing future business expansion to co-operative type arrangements between a category of water users, which aim to make excess water seasonally available to 'co-operative' members on an as needs basis.

At the end of the spectrum are the pure speculators who see water trading simply

as a wealth creation opportunity. This type of speculation has caused some concerns in overseas jurisdictions, where the ownership and use of water is not as highly regulated as it is in Australia.

A unique water market

Australia has an internationally unique water market in both its maturity and regulation. Publicly available statistics indicate that in 2007, the Australia-wide water trade was approximately \$1.1 billion in permanent and seasonal water rights, a 20 per cent growth in trades from the previous year.

Water trading and economic water banking is limited by both regulatory and natural restraints. Water trading is only permitted in Australia in those catchments where the water planning process is very advanced.

Economic water banking largely depends upon access to tradeable allocations and hence is not a realistic option in much of Australia. This will inevitably change as the water planning process is completed in more and more areas.

A further important restraint is geographic. The cost of moving water from place to place, by any means other than natural water flow, is extremely expensive. Water is heavy and the cost of building pipeline infrastructure and the energy used to pump large volumes of water over long distances is prohibitive.

At present there is no regulatory limit in most jurisdictions on the volume of tradeable water entitlements that an entity can acquire. It will be interesting to observe whether Australian governments choose to regulate 'economic' water banking if it becomes widespread. It is worthwhile noting that some Australian governments have adopted a 'use it or lose it' policy with respect to the issue of exploration permits, mining development leases and the like.

Whether water regulators will adopt a similar policy stance is unclear.

It is important for government to encourage research and development initiatives that seek to minimise the impacts of both short and long term climate change. Regulators also need to ensure that their policy is effective and adaptive and that there is sufficient government investment in new knowledge to regulate and keep pace with change. There is little doubt that a coordinated and multidisciplinary approach is required to effectively tackle the challenges that face all water users.

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