

Understanding Groundwater & law in the west



National Centre for
**Groundwater
Research and Training**

This resource introduces the work of the team of legal researchers at the University of Western Australia Law School working with the National Centre for Groundwater Research and Training. Those researchers are Chief Investigator Alex Gardner, PhD candidate Madeleine Hartley (pictured), and in 2012, Lecturer and Research Associate Lauren Butterly. This fact sheet is designed for a general audience.

THE ROLE OF LAW IN THE MANAGEMENT OF GROUNDWATER IN WA

Law has an important role to play in defining the rights and obligations of people who 'access' (or extract) and use groundwater. The *Rights in Water and Irrigation Act 1914 (WA)* (known as *RiWIA*) is the primary act regulating access to and use of groundwater in Western Australia.

Under the *RiWIA*, the right to the use and control of all artesian and non-artesian groundwater is vested in the 'Crown' (that is, the state of Western Australia). This does not mean that the state 'owns' all the groundwater, only that the legal rights to it are held by the Crown and that no other person can access or use groundwater except in accordance with rights and obligations conferred under the *RiWIA* or another law.

Most access to groundwater in Western Australia is regulated by licensing in proclaimed groundwater management areas. A licence is required unless a landholder is only extracting the groundwater to use for domestic or stock watering purposes or the water is to be used for fire-fighting. Water extraction for public water supply and for all commercial purposes, including mining operations, is regulated by licensing. Increasingly, the allocation of water to all these purposes is guided by water management plans.



WATER PLANNING IN WESTERN AUSTRALIA – IT'S DIFFERENT TO OTHER STATES!

Western Australia became a signatory to the Intergovernmental Agreement on a National Water Initiative (often simply referred to as the National Water Initiative or NWI) in 2006. The NWI proposes statutory planning mechanisms to provide clear and secure allocations of water resources for environmental, public interest and consumptive use purposes.

Although the *RiWIA* planning provisions enacted in 2001 authorise the making of water management plans, the provisions are not consistent with the NWI and so the Western Australian Department of Water (DoW) has developed a non-statutory planning process that is set out in *Water*

allocation planning in Western Australia: A guide to our process (2011). The DoW has now made numerous allocation plans, including plans for such key areas as the Gnamptara Mound and the Pilbara.

MEET THE TEAM

The regulation of Western Australia's groundwater is keeping the UWA Law School team busy on two projects. Madeleine Hartley is working on water use efficiency and sustainable groundwater management practices for the Gnamptara groundwater system and Lauren Butterly has been working on mine dewatering in the Pilbara region. Both projects are overseen by Chief Investigator Alex Gardner, and are discussed in more detail overleaf.

Want to know more?

The NCGRT team at the University of Western Australia includes not only legal experts, but also policy and economics experts. Researchers at UWA are working on various topics, including groundwater trading and agricultural productivity.

For more information about our projects, visit www.groundwater.com.au

PROJECT 1: WATER USE EFFICIENCY AND GNANGARA GROUNDWATER SYSTEM

What is the potential to legislate for groundwater use efficiency of the Gnamangara groundwater system (GGS)?

Legislating for groundwater use efficiency means metering the groundwater use of all users, monitoring resource conditions in order to fully understand the impacts of groundwater extraction, imposing restrictions on licence use, and retaining the discretion to alter licence entitlements according to water availability.

Why Gnamangara?

The GGS underlies Perth, the capital city of Western Australia. The GGS consists of three major aquifers: the Gnamangara Mound is the superficial aquifer; the Leederville aquifer, which is semi-confined; and the Yaragadee aquifer, which is almost fully confined. Together, these aquifers supply 40% of Perth's public water supply, through the Integrated Water Supply Scheme, and 60% of Perth's private water supply. The Gnamangara Mound is tapped for private use, while the Leederville and Yaragadee aquifers are tapped for the public scheme.

The waters of the GGS are also sourced for horticultural purposes for the market gardens that are so central to Perth's farmers' market identity.

The groundwater is shared between these competing uses, as well as being drawn upon by the pine plantations that are harvested in the northern regions of the GGS.

Evidence demonstrates that these competing uses are contributing to a significant lowering of the water table in the GGS. Current and projected

climate change impacts, which are already affecting rainfall and recharge to the GGS, place further stress on the system.

What is the current 'status quo'?

The GGS is a proclaimed area under the *RiWIA*. Therefore, users who take groundwater from the system require a licence. Exemptions to this requirement exist for stock and domestic use, ordinary domestic use, and watering of small garden lawns. The *Gnamangara Groundwater Areas Allocation Plan* governs access to and use of the GGS.

As they are used for domestic watering, garden bores are not licensed or metered. DoW estimates that up to a quarter of water abstracted from the Gnamangara Mound is done so for domestic use. DoW has implemented policies aiming to ensure efficient use of water.

What are the goals of this research?

This research compares Western Australia with jurisdictions in other Australian states and the United States of America. The focus of the comparison is to discover whether the frameworks established in other jurisdictions would be compatible with the operation of water law in Western Australia.

PROJECT 2: MINE DEWATERING IN THE PILBARA REGION OF WESTERN AUSTRALIA

How does government regulate the cumulative impacts of mine dewatering in the Pilbara region?

Why the Pilbara?

The Pilbara is in the north-west of Western Australia. The Pilbara is often colloquially called the 'engine room of Australia' due to the amount of mining revenue it generates. It is also one of

Australia's fastest growing regions in terms of population.

The competing uses for water in the Pilbara include residential, mining, industrial, ports, agricultural, Indigenous uses and the environment.

Why mine dewatering?

Mine dewatering is the process of taking groundwater out of a mine so that it is dry and can be mined safely. The main impacts of mine dewatering are the lowering of the local groundwater table and any impacts from poor quality of the mine water.

It is predicted that over the next 20 years, mine dewatering volumes in the Pilbara are likely to increase threefold.

What is the current 'status quo'?

The Pilbara region has a number of policies relevant to mine dewatering and groundwater, all developed by the DoW: the *Pilbara Regional Plan*, the *Pilbara Water in Mining Guideline*, the draft *WA Water in Mining Guideline* and the draft *Pilbara Groundwater Allocation Plan*.

These policies do not provide water allocations for the fractured rock aquifers in the central and eastern Pilbara where mine dewatering predominantly takes place. Rather they provide for case-by-case licensing in these areas. However, the policies do provide some guidance on consideration of cumulative impacts when making licensing decisions.

What are the goals of this research?

This research seeks to explore whether the regulation of mine dewatering to address the potential cumulative impacts could be brought within the NWI water allocation framework or some alternative regulatory framework.

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