

Media release

Trading 'could help save our groundwater'

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A well-designed trading scheme could help protect one of Australia's most precious resources for the future, its groundwater, as well as the many wetlands and lakes it supports.

New research by the National Centre for Groundwater Research and Training (NCGRT) suggests that water trading would benefit both urban and rural users, the nation's water resources and also help protect the native environment, says Centre Director Professor Craig Simmons.

The research is based on a case study of Perth's Gnangara groundwater system (GGS), by Mr James Skurray and Professor David Pannell, published in the journal *Hydrology*.

The research proposes a trading scheme that allows groundwater users to transfer their water rights to one another, as is currently being successfully done with surface water in the Murray-Darling and other parts of Australia, Prof. Simmons says.

This would give groundwater users the freedom to buy or sell their rights at an agreed price both to neighbours and to people further away. To work well with groundwater, the researchers argue, trading schemes need to be based on 'sustainable extraction limits' – the amount of water that can be pumped out without exceeding the aquifer's recharge rate.

"Perth derives 60 per cent of its public water supply from the Gnangara system, which underlies some 2,200 square kilometres of the Swan Coastal Plain north of Perth's Swan River," Mr Skurray says. "Major users include horticulture, homes with bores and city parks. The Gnangara system supports important wetlands and groundwater-dependent ecosystems, such as Lake Mariginiup north of Perth.

"In recent years, lower rainfall and an increase in extraction have put the Gnangara supply under unprecedented stress. Demand for water is likely to grow as the population increases, while recharge could diminish due to climate change."

Current water allocations often fail to meet both human and environmental needs, he adds. "Although the Gnangara supports many at-risk ecosystems, current pumping of groundwater often exceeds environmentally sustainable levels.

"Groups in the community require different amounts of groundwater for their own uses, and so put a different value on their water," says Professor David Pannell, a Chief Investigator at NCGRT. "For example, a sports oval is usually highly appreciated by the community, so the value of its water would be relatively high," Prof. Pannell explains. "On the other hand, a farmer who uses the water to grow pasture for livestock might put a lower value on it."

"Our scheme would allow the farmer to sell their water entitlement to the local government at a win-win price. The farmer gets more for the water than its agricultural value, and the local government can use it in a way that is highly valued by the community."

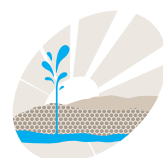
"Allowing water to change hands according to the needs of various users helps ensure it is used most productively. Trade can benefit both parties, without any increase the amount of water pumped."

"Indeed, one of the main reasons for a trading scheme is to gradually lower overall water demand."

A trading scheme could help protect local wetlands and flooded forests, along with their bird and animal life by encouraging trades that shift water use away from sensitive areas and limiting trades that shift water use closer to those systems.

The National Centre for Groundwater Research and Training is an Australian Government initiative, supported by the Australian Research Council and the National Water Commission.

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“As demands on groundwater supplies increase, it is increasingly important to give adequate attention to the role of groundwater in maintaining ecosystem health across Australia,” Prof. Pannell says.

“There are several requirements for an economically and environmentally robust groundwater trading system: one is that each trade made should leave society better off (or at least no worse off), after allowing for environmental impacts and the delayed effects that often happen in the case of groundwater.”

“Well-designed governance systems for groundwater trading will have clearly defined boundaries, extraction limits enforced to environmentally sustainable levels, and will predict the effects of withdrawals on both ecosystems and human users.”

“Surface water trading is already working well, we’re evaluating whether similar schemes could work for groundwater,” Prof. Pannell says.

“We’re not proposing to operate a single scheme throughout the nation – but if trading is found to work well in one area, it can be adapted locally in others.”

The study “Hydrological challenges to groundwater trading: Lessons from south-west Western Australia”, by James H. Skurray, E.J. Roberts and David J. Pannell was published in the Journal of Hydrology, Vol. 412-413, pp.256-268.

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