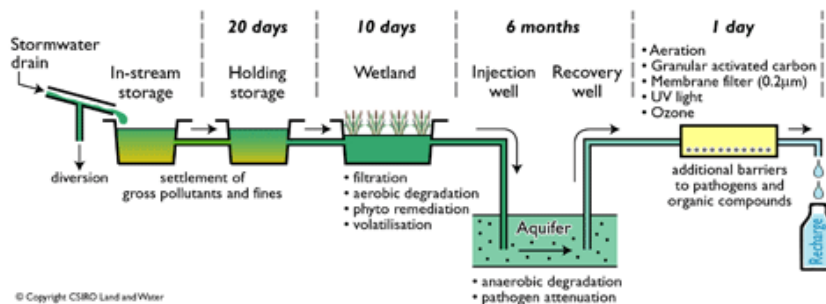


Large dams should go underground say scientists

Managed aquifer recharge – the injection or infiltration of excess surface water into underground aquifers – could help secure the nation’s water supplies for an uncertain future, say researchers from the National Centre for Groundwater Research and Training (NCGRT).



Credit: CSIRO

With bigger droughts and floods forecast under climate change, along with rapidly rising demand from growing cities and industries, managing water wisely will be central to the nation’s future prosperity and sustainability, says Professor Tony Jakeman of NCGRT and the Australian National University.

Groundwater experts from the NCGRT have identified twelve different sources of water in regional Australia that could be successfully ‘parked’ underground for use in time of need. These include supplementary irrigation water, surplus runoff into dams, and water brought to the surface by coal seam gas extraction and other mining activities.

‘There are many benefits from storing water underground,’ Prof Jakeman says. ‘These include recharging depleted aquifers, enlarging storages without building more dams, reducing evaporative losses, reconnecting surface and groundwaters, watering the Australian landscape from underground, and creating strategic reserves in critical food-growing or urban areas.’

Andrew Ross, also from the NCGRT, adds ‘Australia already stores the equivalent of 1800 Olympic-size swimming pools [around 4.5 gigalitres, or GL] of water underground in the Burdekin region of Queensland every year, bringing it up again for use in agriculture and horticulture.

‘But in Orange County California, they store around 300 GL a year – enough for the household use of 2.3 million people.’

He says the combined storage capacity of suitable aquifers below Perth, Adelaide and Melbourne is 200 GL – capable of meeting the needs of 2.5 million residents – and potentially as much as 430 GL.

According to Mr Ross, Australia loses around 4200 GL a year in evaporation from surface storages across the Murray-Darling Basin – sufficient water to supply Sydney and Melbourne for four and a half years.

Prof. Jakeman says that while managed aquifer recharge looks tremendously promising, ‘we need a more detailed understanding of our aquifers, likely environmental impacts and, of course, we need effective rules and rights for injecting and recovering water on a large scale’.

The researchers have identified four sites in regional Australia where the concept of underground storage could be tested more thoroughly – on the Condamine in Queensland, the Namoi in NSW and two rivers in northern Victoria.

Mr Ross says that injecting filtered wastewater or flood runoff into aquifers ‘looks to be a whole lot more affordable than desalinating sea water, which is often proposed as a solution to our urban water shortages’.

Source: NCGRT

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