

Groundwater and Ecosystem Services

A Water Utility View

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Which Groundwater Ecosystem Services are Important to Water Utilities?

- Groundwater is an important water source for many water utilities world-wide
- Aquifers provide cheap (free?) storage of water with low evaporation losses, unlike reservoirs
- Soil and its associated groundwater biota provide 'free' water treatment via various processes – denitrification, adsorption, etc.
- Soil/groundwater systems are often used for wastewater disposal and treatment
- Soil/groundwater systems assimilate stormwater, reduce contaminant loads and reduce flooding

Question 1

What tools (e.g. decision-making considerations, incentive payments) can the public and private sectors use to protect and increase water ecosystem services?

- In Australia most areas designated for public water supply are State-owned and protected by law; potentially harmful development is strongly regulated.
- Drying climate is encouraging aquifer replenishment with reclaimed water and removal of introduced pines – e.g.

http://www.water.wa.gov.au/sites/gss/Content/Projects/GS_S_DraftStrategy.pdf and

<http://www.watercorporation.com.au/g/gwr.cfm>

Question 1 - continued

- Proper 'apples-to-apples' economic valuation methods in which externalities such as ecosystem services are given a monetary value are urgently needed to guide both policy and business decision-making.
- If we don't do this we will simply continue the current 'tragedy of the commons' approach that is driving global warming and ecosystem destruction.

Question 2

How have ecosystem services concepts been used in law or policy or decision-making dealing with water?

- Under Western Australian water law, provision of water for ecosystem support is the first allocation, before water is licensed for consumptive uses; this is beginning to fail as the climate dries and groundwater reserves shrink.
- The value of protected catchments (watersheds) in protecting water quality has been long-recognized; protection is enacted for both surface- and groundwater source areas.

Question 3

In your experience, what successes and challenges have arisen?

- Source protection in declared public water supply areas has succeeded in protecting water quality.
- Although the value of ecosystem services in source protection is understood, they have not been properly valued.
- Extensive contamination of groundwater occurs in unprotected areas – farmland, urban, etc. – costs of this are increasing.
- Climatic drying is threatening both water quality and quantity.

Question 4

What existing or planned policies and projects examine links between groundwater and ecosystem services?

- The Water Corporation is developing advanced (economic) cost-benefit analysis (ACBA) as an in-house tool to value environmental and social externalities.
- For ecosystem services, the simplest valuation method is *replacement* or *substitution* cost – what would it cost to replace the service with an engineered ‘solution’?
- The Water Services Association of Australia (WSAA) is facilitating the adoption of ACBA by all Australian water utilities.

Question 5

Is there potential to extend existing projects that consider water ecosystem services, to groundwater?

- Yes – see previous slide. We urgently need credible studies to establish the value of ecosystem services – for groundwater systems and others.
- The results of these studies should then be pragmatically applied to real decision-making

Thank You

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