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Measurement, valuation and recording in accounts of the water provisioning services in the central highlands of Victoria, Australia

Key words: Water Provisioning Service, System Of Environmental-Economic Accounting, Replacement Cost Valuation

Abstract:

This paper examines the theoretical and practical aspects of accounting for the ecosystem service of water provisioning in the Central Highlands of Victoria, Australia using the System of Environment-Economic Accounting Experimental Ecosystem Accounting (SEEA-EEA). In this area the water provisioning services are used by the water supply industry (Melbourne Water) to provide water to households and industry.

Using published information on the water supply industry, models of surface water run-off and the replacement cost method, the volume and value of the water provisioning service were estimated for the period 1990 to 2015. In 2015 the volume was 306 GL and the value was AUD\$75 million. Two different ways of defining the water provisioning service were explored: run-off into the reservoirs, or the amount of water supplied by Melbourne Water. The run-off was used because this reflects more accurately the timing of the service provision and the management of the water by the industry, where water in the reservoirs is effectively treated as an inventory. The replacement cost method was used to estimate the value of the water provisioning service because: (1) a valuation using the resource rent approach preferred by SEEA is problematic owing to government price control and in addition calculations in another study found negative rents; (2) insufficient information exists to apply a production function; and (3) physical infrastructure was built to replace lost, or expected to be lost, services. Two replacement options were valued: desalination and transfer from another river basin. Transfer had the lower cost and so was used in the estimates. The water provisioning services were placed in the context of other water stocks and flows as well as in the overall use of the area as part of a broader accounting exercise to provide information to help resolve conflict over land use.