UniSA Business

GOYDER INSTITUTE FOR WATER RESEARCH

University of South Australia
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Goyder Institute for Water Research and UniSA Business Joint Seminar

Evaluating uncertain benefits of natural capital investments: the case of riparian buffer investments with carbon and water quality benefits

Presenter: Professor Jeff Connor, Professor of Water Economics, UniSA Business
Introduction: Dr Kane Aldridge, Director, Goyder Institute for Water Research
Moderator: Dr Leon van der Linden, Senior Research Program Manager, SA Water

Friday, 29th May 2020, 2pm – 3pm

Online event, free to register. Please follow this link for the Zoom meeting details:

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Utilities, governments and industries invest billions in water supply and treatment infrastructure. Typically, projects involve built capital like treatment plants or dams and man-made inputs like power and treatment chemicals. Recently, there has been increasing interest in "natural capital" investments that essentially restore and enhance the capacity of natural processes to improve water quality, quantity.

Natural capital investments can also create "co-benefits": outcomes that are potentially valuable but are not the main objective of the investment. The example considered in the case study presented involves buffer strips that can provide natural water quality treatment and a carbon sequestration co-benefit.

Business case evaluation of natural capital investments is challenging because of uncertainty in the processes leading to benefit from natural capital. Key sources of uncertainty in such contexts include: incomplete information and limits to ability to measure relevant environmental processes, difficulty in control for and measurement of confounding determinants of complex environmental outcomes; uncertainties around management measures of interest and, uncertainty in non-market and future market valuation estimates.

The presentation demonstrates a best practice approach to natural capital investment analysis featuring transparent treatment of the considerable uncertainties. It is demonstrated for a case study comparing costs of implementing buffer strips to economic benefit values of avoided water treatment plus carbon sequestration. Evaluation is at catchment scale for the Happy Valley SA Water Reservoir supply catchment assuming tree buffers along a proportion of presently cleared streambanks.

Biophysical process and statistical models are applied to evaluate carbon sequestration, reservoir phosphorus concentration, and water treatment frequency required to meet water quality standards. An economics overlay calculates land use change costs, carbon credit and avoided water treatment values. The sensitivity analysis method applied determines overall net economic benefit outcome as a probability distribution and relative uncertainty contribution of multiple biophysical and market uncertainties.

Please direct any queries to bis-research@unisa.edu.au