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Abstract

Keywords

1. Introduction
2. Policy context and study area(s)
3. Modelling to support multiple outcome MBI approaches
4. Explanation of costs
5. Cost and benefit results

Table 1

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6. Discussion
7. Conclusions

Acknowledgements

References

### Abstract

An auction-based approach (or MBI for "market-based instrument") was used to purchase environmental services from landowners and to establish a long-term economic resource (forest plantations) in two catchments in the state of Victoria (Australia). The policy goal of the MBI was to encourage the conversion of cleared land to forest plantations. It was desired to achieve this while also reducing the amount of land affected by dryland salinity with minimum impact on water available for irrigation. Operationally, interested landowners identified areas on which they would be willing to establish forest plantations, and stated the amount of money they would require from the government to undertake plantation establishment; this constituted a landowner bid. The proposed planting area associated with each bid was processed through a quantitative hydrological model to estimate off-site impacts on dryland salinity and the change in water yield resulting from the conversion of individual non-forested areas to forest plantations. Landowner bids were then accepted or not based on the economic trade-offs among dollars requested by a landowner, reduction in water yield, and decrease in dryland salinity. To enable a comparison of costs, the MBI was independently trialled in two catchments. For both, the cost to government of a hectare of plantation and/or a hectare of salinity benefit was calculated a number of ways. Assuming the existence of a calibrated hydrological model, costs associated with distributing money via such an MBI were publicity, fieldwork, processing the bids through the model, probity, legal, and administration. In the Gippsland catchment, the total cost to establish forest plantations was \$5340 per ha whereas it was \$1635 per ha in the Corangamite catchment. No salinity benefit was obtained in Gippsland, but in Corangamite, if considered in isolation of the economic forest plantation benefit, the cost per hectare of salinity benefit was \$5020.

Operational aspects of the MBI are presented and discussed and a comparison is made to the expected costs of a conventional, non-science driven approach to landowner incentives.

### Keywords

Market-based instruments; Dryland salinity; Hydrological modeling; Forest plantations; Environmental services; Environmental auction

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