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Application of cost-benefit analysis for evaluating land degradation mitigation measures on agricultural land: a synthesis of findings and unsolved issues.

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Land degradation is human-induced and almost always occurs as an unintended side-effect of inappropriate land management. The cost of land degradation has been estimated by many authors and several review papers have appeared that synthesize findings. Combating land degradation is characterised by investing in land or setting it aside for recovery, i.e. frequently leads to incurring short-term costs for long-term benefits. Surprisingly, while more relevant for decision-making, applications of cost-benefit analysis to land degradation mitigation measures are scattered and there appears to be no common methodological approach. If we conceptualise costs and benefits in terms of ecosystem services, we can put up such a generic framework. This paper will review which effects and services (costs/benefits) have been taken into account, what valuation methods have been used, what was concluded about profitability of mitigation measures, how well ex-ante CBA has predicted successful adoption, and which issues have been reported or can be learned from the literature. On-site effects are more well-known than off-site or downstream effects. On-site effects are most relevant to land users and valuation strongly biased towards production functions. Off-site effects are often important from a governmental perspective, with valuation of regulation functions taking a dominant role. Increasingly, benefits of functions other than production are recognized or realizable by the land user, offering scope for application of a generalized framework. Despite evidence of economic benefit, many mitigation measures are not widely being adopted. Herein lays one of the main challenges for further methodological enhancement.