Rethinking rehabilitation of salt-affected land: new perspectives from Australian experience

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Abstract

Soil salinity is emerging as a major threat to the sustainability of modern agricultural production systems and, historically, land and water degradation due to salinity has defeated civilisations whenever the cost of remediation exceeded the benefits. This work discusses the complexity inherent in working with salinity, and the opportunities where salt damaged land and water is viewed as a resource. It takes a wider look at land and waterscapes, seeing them as systems that link damage and repair across time and space to bridge the divide between the main beneficiaries of ecosystem services and the main actors, farmers, and land managers. We first discuss the mechanistic basis of crop reduction by salinity and evolution of ideas about how to shape the plant-soil-water nexus. We then discuss the needs of farmers and other land users required for adequate planning and land management within the constraints of existing policy. Lastly, an approach that provides a new technical and economic tool for the remediation of land in several land use categories is presented. We conclude that a more concerted effort is required to turn payments for ecosystem services into a true market, accepted as such by the land managers, whose agency is essential so the 'knowledge of what can be done can be transformed into benefits'. Achieving this will require a transformation in the paradigm of how natural resources are managed.

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