Everything is connected — why Australia needs integrated landscape management

Kate Andrews *NRM REGIONS AUSTRALIA and FENNER SCHOOL, AUSTRALIAN NATIONAL UNIVERSITY*

Introduction

The world is confronted by the interlocked challenges of biodiversity loss and climate change. We have known this for decades, and many have worked to address this wicked problem. Australia has committed to climate action and nature restoration under international agreements including the Global Biodiversity Framework and Paris Agreement.

The nature of these wicked problems requires integrated planning, investment and action at the appropriate scales that link across community and government objectives — agricultural productivity, environmental restoration, climate resilience and community well-being. These are all connected.

Integrated landscape management (ILM) and planning is based on the recognition that social, environmental and economic outcomes are interrelated and that wholistic planning at an appropriate place-based scale is essential if we are to protect and restore Australia's natural capital and all that relies upon it. Essentially this policy approach recognises the diversity of Australia's landscapes and associated environmental, cultural and socio-economic contexts. Australia's network of regional natural resource management (NRM) organisations now has over 20 years' experience of delivering integrated planning and outcomes on the ground. They are known by different names across Australia and include both non-government and statutory organisations for example Catchment Management Authorities in Victoria, NRM organisations in Tasmania, and Landscape Boards in South Australia.

The principles of integrated landscape management?

ILM recognises the socio-ecological system as a whole including the interdependencies. It requires a spatial understanding across the whole of a landscape to see how actions can be undertaken together to optimise multiple and minimise perverse outcomes.

The principles of ILM include:

- An integrated coordinated approach — recognising that natural resource management issues are linked (the health of each relies upon the others, both spatially and temporally) and working between all levels of government, across landscapes and tenures, and sectors and stakeholders. This approach understands that environment, productivity and well-being are linked — relying upon healthy environments such as soils, water, & biodiversity.
- Place-based — relevant and adaptive to reflect regional difference, regional needs, landscape diversity and change over time.
- Participatory including land managers, Traditional owners, industries, community groups. ILM brings together diverse partners at multiple scales, drawing upon expertise and empowering people to act. (Often the practice changes required are on private land.)
- Indigenous stewardship — there is a growing understanding of the rights, responsibilities, connection and knowledge of Indigenous Australians in land and sea management and the fundamental role of Indigenous stewardship.
- Relevant and adaptive to reflect regional difference, regional needs and landscape diversity.
- Strategic landscape-scale planning drawing upon the best available evidence including research, Indigenous knowledges and local knowledge. Integrated NRM planning works to achieve balanced environmental, social, cultural and economic outcomes including government priorities, and community values.
- Leveraging and coordinating investment through drawing upon multiple streams of investment, public and private, and aligning multiple outcomes at many scales. This creates complementarities, co-benefits, and efficiencies.

- Continuity and organisational capital ILM requires a long-term approach to establish trusted networks and organisational and social capital, a standing capability to deliver on the ground with the many partners and land managers.

Australia's growing understanding

Australia's history of managing our environment illustrates this growing awareness. The 1890s saw the establishment of national parks and the need for areas where biodiversity was protected. The recognition that our water was a finite resource led to the establishment of the River Murray Commission in 1914 as a partnership between relevant state governments and the Commonwealth government to share the water resources of the River Murray.

Following droughts and consequent soil erosion in the 1920s and 1930s a special meeting of Agricultural Ministers from the states and the Commonwealth (1936) was held and by 1945 all states had established a formal structure for addressing soil conservation. The 1940s witnessed a growing concern over river health with River Improvement Trusts being established in Queensland and Victoria and focussed on water quality and river function while the Hunter Valley Conservation Trust, NSW, established in 1950, also advised on broader matters including soil conservation and reafforestation.

By the early 1980s, the relationship between all natural resource issues was becoming apparent as salinity levels in land and water increased in the Murray-Darling Basin. In 1987, the Victorian Government released its salinity strategy that established local and regional catchment community-based planning committees to guide government investment[1] and charged with addressing both water and land management issues. The approach reinforced the need for coordination of land management activities with water management, and to take a landscape approach to addressing natural resource issues where the cause is separated geographically from the impact of the issue.

New South Wales (NSW) was the first Australian State to adopt catchment management as a state-wide statutory policy, with the Catchment Management Act 1989. Catchment management underwent several iterations in NSW with the Catchment Management Authorities Act 2003 being replaced by Local Land Services Act in 2013.

The Victorian Catchment and Land Protection Act 1994 legislated for the production of 10 Regional Catchment Strategies covering all of Victoria. These strategies were required to adopt a landscape (catchment) approach in partnership with regional communities for social, environmental and economic outcomes. Following a review in 1997, a wider range of issues, including river health, salinity management, land management issues (such as pest plants and animals) were brought into the framework and regional Catchment Management Authorities were established and empowered to plan and address these issues.

In South Australia, there are eight regional landscape boards and Green Adelaide formed under the Landscape South Australia Act 2019. Prior to this were eight Natural Resources Management (NRM) Boards who brought together roles previously performed by the Catchment Water Management Boards, Soil Conservation Boards, Animal and Plant Control Boards and Pastoral Boards.

The Tasmanian Natural Resource Management Framework 2002 and the Natural Resource Management Act 2002 (the Act) provide a structure for management of natural resources in that state, and establish the three NRM regions, prescribing memberships, functions and responsibilities.

Elsewhere in Australia regional NRM organisations are non-government entities.

Australian innovation and creating a nationwide sector

In 1999, the National Natural Resource Management Task Force released a discussion paper, Managing Natural Resources in Rural Australia for a Sustainable Future, outlining a possible overarching policy framework for regional natural resource management. Many of the elements of that paper remain relevant today such as devolving authority and empowering regions based on planning, negotiating, implementing and monitoring regional strategies.

In 2000, the Steering Committee for the National Natural Resource Management Policy Statement reported results to the Agricultural and Resource Management Council of Australia and New Zealand (ARMCANZ) and the Australian and New Zealand Environment and Conservation Council (ANZECC). The Council of Australian Governments adopted a regional landscape approach to NRM. This approach (implemented in partnership with State/Territory governments) identified 56 Natural Resource Management Regions. Each region has an identified regional landscape planning body that is responsible for assessing the state of their region and mapping a 5-year (renewable) strategy. These strategies/blueprints are intended to guide investment from all levels of government as well as community effort.

Developing such plans is a complex and participatory process. The plans cover land, water and biodiversity interactions as well as community and economic aspirations. They require a multidisciplinary knowledge-

based approach, including research, Indigenous knowledge and local knowledge. Planning needs to identify optimal outcomes across a range of competing objectives.

As well as guiding and coordinating NRM investment the plans have additional responsibilities depending upon state and territory legislative requirements. For example, plans can be part of State Environment Planning Policies, they can guide floodplain management activities, they can influence the location of carbon farming efforts, and they can link to local government local planning schemes.[2]

Ten years ago, regional NRM plans were updated to consider climate change projections, Climate Smart planning, to enable climate adaptive responses and advice to landholders. In 2024, funded by the Australian Government, all NRM regions undertook Emergency Response and Preparedness plans which define the priority natural capital (Matters of National Environmental Significance) and agricultural assets in each NRM region and identify the increasing risks to those assets presented by extreme events.

The essential role of Indigenous Australians

There is growing recognition of the 60,000-year history, continuing cultural connection and responsibilities, and the fundamental knowledge base of Indigenous Australians in caring for Country. ILM in Australia cannot genuinely occur without Indigenous Land and Sea Management, and this requires economic and cultural empowerment.

Currently more than 45% of Australia's land mass is covered by native title with estimates that this could rise to 60% in 15 years.[3] Indigenous water rights are still limited. Indigenous communities and organisations are playing an increasing role in land management practices as new funding opportunities emerge. Savanna Burning programs across Northern Australia are one example, funded through the Emissions Reduction Fund and carbon farming market. These implement early dry season, mosaic fires, consistent with Traditional practice, and less intense than summer wildfire significantly reducing negative environmental impact and greenhouse gas emissions.[4] However access to Country and resources to engage Indigenous land and sea management practices are still a major constraint for many Indigenous communities around Australia, particularly southern Australia.

The Australian Government is now providing funding for Indigenous Ranger Programs and Indigenous Protected Areas with funding to control invasive weeds and feral animals; maintain quarantine security; protect threatened species; manage fire in the landscape and reduce greenhouse gas emissions.[5] The program continues to attract strong bipartisan support with the Australian Government announcing further increase of funding for an additional 1000 ranger positions in 2024.

Australia's regional NRM organisations continue to work with indigenous communities on a range of issues including fire planning and cultural burning practices, cultural heritage management and protection, Indigenous knowledge for land and sea management, feral animal and weed control, culturally significant species and threatened species protection and translocation.[6] Once again all of these examples are connected with each contributing to an integrated or wholistic approach to land management.

In 2024, NRM Regions Australia, the North Australia Indigenous Land and Sea Management Alliance along with indigenous leaders and the Wentworth Group called for greater funding to restore the health of Australia's environment noting that "Indigenous land, sea and water management groups and regional natural resource management organisations are already working with their local community networks with a placed-based approach".

It's not just a current Australia phenomena

> . . . ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth — all while tackling climate change and working to preserve our oceans and forests.[7]

Since 1992, following the Rio Declaration, the United Nations has focussed on demonstrating the importance of integrated planning "it has been important to demonstrate that sustainable development and living in harmony with nature are not mutually exclusive, but in fact mutually reinforcing".[8]

The United Nations Millenium Goals reinforced the links between social, environmental and economic objectives — particularly in relation to the Climate Change challenge which recognises the essential nature of the link between economic development, social wellbeing and environmental catastrophe.

International awareness of and support for integrated landscape management has grown over the past decades. A coalition of international non-government organisations produced the Little Sustainable Landscapes Book in 2015, that promotes the importance landscape initiatives to sustainable development.[9] *Integrated Landscape Management: An approach to achieve equitable and participatory sustainable development*, prepared for the United Nations Convention to Combat Desertification,

describes Integrated Landscape Management (ILM):

> . . . as an innovative approach to land management that reduces land use conflicts, empowers communities, and achieves development objectives at the landscape scale. ILM is built on the principles of participation, negotiation, and cooperation; as such, it requires long-term collaboration among diverse stakeholders.[10]

The Food and Agriculture Organization Landscapes for life: Approaches to landscape management for sustainable food and agriculture regards landscape approaches as "putting people at the centre, while restoring and protecting natural resources" as "among the most effective ways to address these challenges".[11] Australia is the only country that has regionalised NRM across its entirety and maintained continuity over more than two decades.

Building on our national strengths

Australia has been leading the way with its integrated landscape management approach to natural resource management. We have established a national ILM infrastructure that has endured 25 years despite peaks and troughs in funding and policies. This approach and existing capability are more important than ever. ILM is well-placed to help Australia scale-up investment and on-ground action for nature protection and restoration, increase climate mitigation and climate adaptation, restock natural capital and build resilience while reducing risk to extreme events.

But we would argue that the infrastructure is underutilised. There is much that needs to be done to achieve Australia's long-term objective of sustainable development. The sector has advocated for the existing regional landscape infrastructure to be used in assisting the implementation of Australia's Environment Protection and Biodiversity Conservation Act's current regional planning provisions and has contributed to the proposed, yet not progressed, Nature Positive Reforms to the Act, advocating for a stronger role for integrated regional NRM planning.

The Wentworth Group's 2024 *Blueprint to Repair Australia's Landscapes* recommended the use of:

> . . . a regional approach to planning and delivery by strengthening the role and influence of integrated NRM planning to ensure actions are integrated, appropriate and strategic at the regional scale, enable coordination across sectors, address underlying drivers, and importantly, facilitate ownership and participation by regional communities, building on the successes and advances of strategic natural resource management planning over many decades.[12]

We can see the value of Australia's regional NRM organisations playing a significant role in responding to the interlocked challenges we face of climate change, biodiversity loss and land degradation to ensure ongoing provision of the ecosystem services people rely upon. This requires recognition of the role and benefits and potential of ILM in Australia.

Kate Andrews
CEO
NRM Regions Australia
Fenner School, Australian National University

Footnotes

1. Parliament of Victoria Natural Resources and Environment Committee, "Salt action: joint action: Victoria's strategy for managing the salinity of land and water resources" Government Printer, Vic, 1988.
2. For more details on current regional planning arrangements see https://nrmregionsaustralia.com.au/what-is-nrm/what-is-nrm. Also, S Ryan and others (Regional NRM Planning in Australia) *What is it? Where is it heading?* National NRM Regions Working Group, Canberra (2013) https://nrmregionsaustralia.com.au/wp-content/uploads/2017/09/Regional-NRM-Planning-final-draft-February-2014.pdf.
3. See the National Native Council website at https://nntc.com.au/what-can-indigenous-groups-do-with-native-title/.
4. See the Aboriginal Carbon Foundation web site for more information. This successful practice has been recognised by the Australian Carbon Credit Unit Scheme: www.abcfoundation.org.au/carbon-farming/savanna-burning.
5. Pew Trust 2019 Budget Submission: see https://treasury.gov.au/sites/default/files/2019-03/360985-Pew-Charitable-Trusts.pdf.
6. See Monthly NRM Snapshots for examples if regional NRM Initiatives: see https://nrmregionsaustralia.com.au/national-nrm-snapshot-september-2024.
7. United Nations Sustainable Development, "History", accessed 13 March 2025 https://sdgs.un.org/goals.
8. Sustainable Development in the 21st century (SD21), "Review of Implementation of the Rio Principles", 2011, p 10 https://sustainabledevelopment.un.org/content/documents/1127rioprinciples.pdf.
9. *The Little Sustainable Landscapes Book*, downloadable from https://globalcanopy.org/insights/publication/the-little-sustainable-landscapes-book/.
10. M Thaxton, S Shames and S J Scherr (EcoAgriculture Partners) *Integrated Landscape Management: An approach to achieve equitable and participatory sustainable development* Global Land Outlook Working Paper prepared for the United Nations Convention to Combat Desertification (2017) www.unccd.int/sites/default/files/2018-06/4.%20Integrated+Landscape+Management__Thaxton_Shames_Scherr.pdf.

11. Landscapes for Life, www.fao.org/land-water/overview/integrated-landscape-management; B Moggridge and R Thompson "Cultural value of water and western water management: an Australian Indigenous perspective" (2021) 25(1) *Australasian Journal of Water Resources* 4.

12. Wentworth Group of Concerned Scientists *Blueprint to Repair Australia's Landscapes National case for a 30-year investment in a healthy, productive & resilient Australia* Part I: Synthesis Report (July 2024) 18.