Natural Resource Management roundtable: Synthesis

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Summary

In November 2016 a group of experts convened in a roundtable to review the achievements and challenges of Australia's integrated natural resource management (NRM) system, discuss opportunities for improvement and innovation, and identify new and emerging opportunities. The discussion was informed by a review of published literature and analysis of data on NRM participation, conducted prior to the roundtable.

The discussions identified that the value and achievements of the existing NRM system are often under-recognised. The NRM system here means the people, organisations, networks, policy frameworks and programs, from the national to local level, that come together to deliver on-ground outcomes. These include regional networks and organisations (Landcare, NRM, Indigenous groups), and from the public, private and not-for profit sectors.

This integrated system is critical to delivering NRM services and achieving outcomes. It is essential to enable this system to continue operating, and to better enable the capacity built into this system to be used to leverage new opportunities such as working with a wider range of organisations, reaching the changing landholder base, and developing new and innovative approaches to delivering on-ground outcomes. By doing this NRM can increase its contribution not only to its primary purpose of addressing land and water degradation, but also to broader outcomes such as regional development, market access based on a 'clean, green, sustainable' brand, and resilience in rural communities. Achieving this requires recognition that rural and regional communities operate on the basis of long-term, sustained relationships and networks: effective NRM needs to be a part of these networks, which in turn requires providing sustained and stable support for NRM. The roundtable, and review of literature, reinforce the importance of the regional scale – between that of the local community and the state – as an effective and needed focus for priority-setting, community engagement, knowledge integration and outcomes delivery, in collaboration with other scales of governance.

When effective, the Australian NRM system's achievements go beyond improving land condition and environmental health. By addressing land and water degradation, it also contributes to improved land productivity, agricultural profitability, and increased resilience and wellbeing for landholders and communities. Successful NRM outcomes are typically achieved when a diverse group of organisations commit to addressing a recognised challenge over the long-term, based on shared recognition of the benefits (private and public) of working to address the challenge; long-term funding by government/s is central to achieving these conditions. Key achievements, to which the NLP is a key contributor, include:

- The NRM system A key achievement of the NLP, predecessor programs such as Caring for our Country, and state-funded programs, has been supporting the development of a strong and interconnected set of local and regional networks and organisations (including Landcare networks and NRM regional bodies), underpinned by policy frameworks and investment (predominantly by state and national governments) that has enabled regional planning and priority setting informed by local, state and national objectives. This has enabled on-ground delivery of a range of state and national programs (examples include the Natural Heritage Trust programs, National Action Plan for Salinity and Water Quality, Caring for Our Country, emergency and disaster response, biodiversity conservation, threatened species recovery, farm programs, biosecurity and pest plant and animal programs).
- **Regional planning and priority setting** regional planning processes enable state/national priorities and local needs to be reconciled, synergies identified, and translation of these into regionally relevant priorities that can direct NRM funding and activity.
- **On-ground outcomes** these include conservation cropping practice change; salinity management in the Murray-Darling Basin; increased groundcover through changing grazing regimes; and, in some places, site-specific improvements in biodiversity and habitat.

A number of key challenges reducing effectiveness of the NRM system were identified:

- Lack of adaptive management despite the principle of adaptive management underpinning successful NRM, in practice disincentives for reporting failure, constraints of administrative and reporting requirements, and limited investment in research, reduce on-ground adaptive practice.
- **Difficulty demonstrating on-ground outcomes** in many cases, NRM activities aim to address slow-acting, long-term processes of land or water degradation; measuring outcomes of short-term projects on these processes is difficult.
- **Difficulty maintaining engagement** successful NRM relies on engaging the diverse people and organisations managing private land; rapidly changing private land management, together with engagement fatigue and poor resourcing for engagement are key challenges, while engagement can also be reduced by poor and overly prescriptive design of program settings.
- Prescriptive funding requirements reducing ability to design NRM to meet local needs -NRM funding is often provided contingent on funds being delivered using specific on-ground delivery methods, with little flexibility to identify and use methods designed to local needs; this can reduce success in achieving desired outcomes.
- Short-term projects to address long-term challenges in most cases available funding is short-term and tied to specific projects, while the land and water challenges being addressed are long-term problems; short-term funding can increase transaction costs, reduce effectiveness of regional planning processes, and in worst cases result in perverse outcomes.
- **Crisis focus** NRM funding is often delivered address acute land or water degradation issues, reducing investment in prevention activities that seek to prevent acute degradation.
- Lack of support for basic maintenance and operation of regional networks and agencies this is associated with challenges such as high turnover of staff on short-term contracts.

- **Tension between national, regional and local priorities** ongoing support for the necessary and productive discussions to reconcile these priorities is needed, with priority setting recognised as an ongoing process given changing circumstances and needs.
- Lack of research capacity since the closure of Land and Water Australia, there has been no large hub for NRM research in Australia, reducing capacity for development and diffusion of innovation and best practice across the NRM system.

Improving NRM and supporting innovation

It is important to recognise and support areas of value in the current system, and opportunities for improvement and innovation within these areas. Key areas of investment that can help address the challenges identified above through strengthening the NRM system, and building more capacity and scope to generate new practice and innovation are:

- Maintain regional planning processes and improve priority setting Increase the
 effectiveness of these processes in achieving desired outcomes by enabling more flexibility
 in delivery, and increasing their influence in directing funding to meet the priorities identifies
 in these processes. This can be achieved through (i) enabling regions to have flexibility in
 how they achieve outcomes by ensuring funders specify required outcomes but do not overprescribe the approaches to be used to achieve these outcomes; (ii) making funding
 contingent on meeting agreed, evidence-based regional priorities; and (iii) enabling longterm objectives to be set and maintained over time.
- Enable tailored delivery Ensure funding guidelines enable local and regional NRM practitioners to design a tailored suite of delivery mechanisms that can deliver long-term outcomes using locally appropriate delivery mechanisms; this requires specifying outcomes required but not over-prescribing approaches to achieving them, and through this creating space for development of new approaches at local and regional scales
- Provide longer-term base funding Future NRM systems should focus on better building capacity and skills of both new and existing NRM staff and retaining skilled staff with local knowledge; and on providing a base of capacity that enables NRM organisations to both deliver specific programs as they arise and to seek funding and collaboration with a wider range of sources beyond state and federal agencies; a shift to this approach has been successful for part of the NRM system, and enabled new partnerships and approaches to addressing land and water degradation
- Increase the reach of NRM and engage a wider range of organisations Recent data from the Regional Wellbeing Survey shows that NRM is disproportionately delivered to large farmers compared to other farmers and other types of landholders; there is in particular a need to better reach Aboriginal and Torres Strait Islander organisations, smaller & part-time farmers, and rural residential landholders; at the same time, NRM is being delivered via a wider range of organisations including environmental non-government organisations, producer groups and others, and future efforts should ensure the regional NRM system is supported to develop collaborations with the full diversity of organisations interested and engaged in NRM
- Enable regional, state and national evaluation to ensure outcomes are clearly identified Current monitoring and evaluation focuses on individual projects, and as a consequence often reports outputs more than outcomes; enabling measurement of outcomes across

multiple projects against regional, state and national priorities can improve ability to identify outcomes of NRM investments

- Enable adaptive management Measurement of NRM outcomes needs to explicitly enable adaptive management by ensuring outcomes can be learned from and built on, with failures acknowledged and learned from as much as success
- Recognise co-benefits of NRM Good NRM achieves improvement in land and water condition and through doing so supports broader outcomes such as regional development, agricultural productivity and profitability, and improved wellbeing; these co-benefits are a key reason for participation in NRM by many people and organisations, and designing NRM to maximise co-benefits can enable improved ability to address land and water degradation
- Build research and development hubs, and improve knowledge sharing Provide support for longer term, better coordinated research (e.g. research hubs) and knowledge sharing (e.g. via NRM peak organisations) that supports on-ground NRM practice across multiple regions, enables better use of opportunities to use 'big data' to monitor and model outcomes across multiple projects, and enables sharing of learning from innovative approaches already being used on-ground.

New and emerging opportunities

Key opportunities for Australian NRM lie in the ability to produce world best practice and research in landscape management, resilience and adaptation to climatic variability. Within this broad range, the specific opportunities identified included:

- Accreditation and branding for market access Having a 'clean, green' brand is a key area in which Australian agricultural producers (and other industries e.g. tourism) can gain market advantage over competitors; NRM could in future play a role in achieving this through providing branding, accreditation or certification for sustainable land and water management, or through other roles. This is likely to require moving beyond the current NRM system, to establishing accreditation or certification systems for NRM that could take a number of forms. To succeed would require investing in learning from the lessons of existing accreditation systems in areas such as forestry, fisheries and organic farming, and identifying appropriate systems that would be effective and trusted by consumers.
- **Payments for environmental services** Payments for environmental services (PES) already exist in Australia (e.g. voluntary carbon offset markets), but have significant opportunity for expansion; by providing regular payments they provide alternative incomes that can increase resilience for landholders.
- Renewing the Landcare/NRM group Despite decline in Landcare participation by traditional farmers, Landcare remains the public face of the NRM system, and there has been significant success in expanding and growing Landcare amongst new groups such as in urban areas; these examples show the potential for renewal of the Landcare group as a central part of the NRM system through enabling Landcare groups to be constructed in diverse ways (e.g. online as well as face to face) to diverse groups.

Introduction

The National Landcare Program (NLP), and predecessor programs such as Caring for our Country (CfoC) and the Natural Heritage Trust (NHT), have been an integral part of the funding and framework for conducting natural resource management (NRM) activities across Australia. However, they form only part of the overall 'NRM system' that has evolved in Australia over decades as a result of investment in a range of programs, organisations and activities by state and federal governments (as well as other organisations). The NRM system includes not only the Landcare groups and networks that have the highest public recognition of any part of the system, but also regional NRM organisations and a range of government and non-government organisations that undertake work with the support of funding from sources that typically include state and/or Federal government funding.

This means that any review of the NLP requires examination of its contribution to the NRM system as a whole, and of the opportunities and challenges occurring in the NRM system.

On 7 and 8 November 2016, a group of 21 NRM researchers, practitioners and policy-makers came together for a one and a half day roundtable meeting, also attended by four representatives of the Department of Agriculture and Water Resources and the Department of Environment and Energy. The aim was to review the achievements and challenges of the NLP, and of Australia's NRM system more broadly; and to discuss opportunities for improvement and innovation, and new and emerging opportunities that should be considered when designing future NRM policy and packages.

To support the roundtable process, a review of NRM literature was conducted, examining research published on NRM since 2011. This review built on a previous review conducted for the 'HC Coombs Policy Forum workshop' in 2011, a workshop that similarly sought to review the NRM system and identify key challenges and opportunities (HC Coombs Policy Review 2011a,b). The literature review is provided in Appendix 1. Additionally, a report of new evidence was compiled based on findings of the Regional Wellbeing Survey and other available data sources, examining the nature of participation in NRM in rural and regional Australia, provided in Appendix 2.

These background documents formed an initial basis for roundtable discussions, which drew on both this evidence and the knowledge and expertise of attendees, to synthesis key views about achievements, challenges, improvements, innovations and new opportunities that should be considered as part of both reviewing the NLP, and considering future directions in Australian NRM.

This document draw on the background reports and roundtable discussion to summarise key outcomes of the roundtable regarding:

- Achievements of the NRM system, including the NLP and predecessor programs;
- Challenges faced by the NRM system, with a focus on how these may be influenced by the design of programs such as the NLP
- Improvements and innovation, focusing on areas of change that can achieve significant gains in what is achieved via investment in NRM
- Emerging opportunities, focusing on areas that are emerging and as yet relatively undeveloped, and which have potentially significant relevance for Australian NRM.

The synthesis presented here is based on roundtable discussions and background documents. Not all the views presented will be shared by every participant. The areas included in this synthesis report are those for which a large number of roundtable participants expressed common views. Where counter views were discussed, they are described to ensure differing views about the value and achievements of the NRM system are understood. Appendix 3 provides a detailed summary of the roundtable discussions.

Achievements

When it works effectively, the Australian NRM system is a way of not simply improving land condition and environmental health. By addressing land and water degradation, it also contributes to improved land productivity, agricultural profitability, and increased resilience and wellbeing for landholders and communities. Key achievements of the NRM system, a system built and operating as a result of investment under the NLP and predecessor programs, together with many state programs, are described briefly below.

The NRM system

The development of the NRM system, supported by funding from multiple federal and state government programs over the last three decades, has resulted in growth in capacity to deliver coordinated on-ground action that delivers against regional, state and national priorities. This is, in and of itself, a significant achievement: on-ground delivery of NRM has been enabled by the development of a system that enables (i) delivery at regional scales against state and national priorities, and (ii) delivery across land tenures, stakeholders and sectors. This system of regional organisations (Landcare networks, NRM bodies) and policy and investment frameworks has been crucial to growing capacity in the system and building linkages within it.

The majority of roundtable participants felt that achieving on-ground outcomes from NRM funding in the first instance relies on having an NRM system – meaning locally and regionally based networks of people and organisations that both engage in NRM in their regions, and collaborate across regions and scales to achieve larger-scale outcomes. The current NRM system is represented in Figure 1, which shows the diversity of the organisations, scales and sectors in the system, as well as the depth of the networks developed. While this system has many challenges, the view of participants was that without its presence, efforts to achieve state and national NRM objectives would be unsuccessful.

The current NRM system, focused on Landcare networks and regional NRM agencies, together with state and federal agencies and non-government organisations, supports ongoing processes of collaboration, networking and engagement across multiple organisations and geographic scales. At its optimum, this enables local, regional and larger scale land and water challenges to be addressed using appropriate interventions, improves access of local and regional groups to a range of resources, and improves ability to respond to difficult challenges. Since the creation of the Natural Heritage Trust in the 1990s, the NRM system, in whole and its interdependent parts, has provided the capacity for delivery of numerous state and Commonwealth programs (NHT I and II, National Action Plan, Caring for Our Country, a number of connectivity conservation initiatives, and a range of current programs). In the absence of the organisational and human infrastructure represented by the NRM system, any future programs would be difficult, slower and more expensive to deliver. Furthermore, the NRM system enables communication between local, regional, state and national scales.



Figure 1 The Australian NRM system: interconnected networks operating across scales and public and private sectors (Source: Andrews, forthcoming)

The NRM system, which is currently supported by both the NLP and other programs at various levels of government, has enabled the development of strategies for delivering NRM on the ground that are tailored to the diverse needs of different regions and groups, including a wide range of delivery mechanisms. Landcare itself was and remains a unique Australian innovation that leverages the social capital of landholders working together; a wide range of further innovations have also emerged from the NRM system, including amongst others a number of new and different approaches to delivering grant funds, for example the use of peer mentoring approaches in which experienced landholders mentor other landholders to achieve improved land and water management.

Regional priority setting

Within the NRM system, regional planning processes were considered by many roundtable participants to be critical to its success. These priority setting processes enable both state/national priorities and diverse local needs to be considered, and translated into regionally relevant priorities that can be used to direct NRM funding and activity. The NRM system is most effective when clear and realistic priorities are agreed on (using appropriate systems such as SMART criteria for setting objectives) and then translated into operational objectives at the local and regional scale. When this works well, it ensures that NRM activities are coordinated to meet shared objectives, but are delivered using approaches tailored to local and regional needs.

The regional planning process involves significant reconciliation of different priorities and understanding both across vertical scales of governance and between different issues and sectors. As such, it represents a critically important arena for generating shared goals in policy and land and water management. Regional priority setting processes enable local and regional communities to have a stronger say in how NRM investment is directed to address issues that matter to them, while ensuring local and regional actions work to address key state and national priorities. However, while viewed as a key strength of the system, the potential of regional planning processes is not currently being fully realised, as documented subsequently.

On-ground outcomes

Participants cited some land and water management challenges as areas in which the NRM system has worked successfully to achieve on-ground outcomes. In these cases of success, key factors contributing to success included having clear priorities, measurable outcomes, and engaging a wide range of people and organisations over long timeframes to work together to achieve these outcomes, can achieve real change. In particular, the NRM system was a part of, but not the only or even the initiating area in which long-term action began for some of the successful outcomes achieved, but was a critical part of that achievement. These included:

- Conservation cropping practice change: This required research, adaptation by a large number of people, and engagement of large networks of farmer and producer groups as well as NRM organisations; a key factor influencing success was the visibility of problems of soil erosion and ability to demonstrate effects of action on improving profitability
- Salinity management in the Murray-Darling Basin: While success in preventing and reducing salinity risk was partly due to climatic variability (extended drought reducing water table levels), it also resulted from action taken through the NRM system that enabled coordinated

action to occur on a scale large enough to achieve real change in terms of preventing severe impacts from salinity

- Increased groundcover through changing grazing regimes: Success in these areas has been
 reported in different regions but not over the large landscape scales or with the same
 consistency as conservation cropping; where it is successful, it typically involves both direct
 engagement of landholders by NRM agencies, and a range of agricultural networks and
 organisations all collaborating to promote change and achieve it on the ground
- Biodiversity and habitat: Success in this area was typically reported for particular sites or programs, rather than across a larger landscape or consistently over time.

Understanding what underpins achievements

Overall, successful NRM outcomes were achieved where there was agreement about the nature and potential severity of a shared problem (soil health, salinity), and recognition of the benefits (private and public, for example landholders achieving on-property benefits and communities achieving higher water quality) of working to address the problem. Success typically involved engagement of a wide range of people and organisations, including not only NRM organisations but also organisations such as producer groups. Success was also achieved over long time periods: both salinity and conservation cropping achieved significant success over a timeframe of 20 to 30 years, while change in grazing regimes has been occurring over a similar timeframe, highlighting the importance of understanding the timeframes involved in intervening to change processes of land and water degradation.

Challenges

A number of key challenges facing the NRM system were identified. These challenges reduced the ability of the system to achieve successful on-ground outcomes, in terms of reduced land and water degradation, agricultural productivity, and resilience of communities, particularly land managers and the land they manage. The challenges were identified as those commonly experienced across the diverse regions in which NRM funding and action occurs in Australia. Depending on the specific context in which they occur, they either make it more challenging to deliver on outcomes, or result in failure to achieve outcomes.

Lack of adaptive management

The principle of adaptive management – adapting practices or interventions over time based on observing outcomes to improve overall success - underpins much of the thinking on what is needed for successful NRM. However, in practice adaptive management often does not occur: reporting failure or negative outcomes is discouraged and viewed as likely to be responded to with withdrawal of funding rather than investment in learning from lessons and improving practices. Administrative and reporting requirements typically make it difficult to adapt or change a program from its initial parameters based on observing initial outcomes. Additionally, lack of continuity of funding, highly prescriptive funding, and loss of skilled staff all contribute to a lack of capacity to undertake truly adaptive management that can respond to challenges such as the effects of climatic variability. Lack of funding for research has also limited adaptive management, as has lack of connectivity between researchers and the NRM system.

Difficulty demonstrating on-ground outcomes

In many cases, NRM actions are implemented to address slow-acting, long-term processes of land or water degradation. Measuring the outcomes of short-term projects on these large scale processes is challenging, and current evaluation methodologies are not designed to measure change over these timescales – despite evidence of achievement of successful change over these types of timeframes in areas such as salinity. A lack of funding, together with a focus on evaluating short-term outcomes of individual projects rather than outcomes at regional and large scales, and lack of continuity of NRM staff, all contribute to a situation in which there is often poor understanding of the outcomes NRM has achieved. This in turn means that the value of investment in NRM is often not well quantified, and as a result NRM may not be seen as a good value proposition compared to other investments for which outcomes are more readily observed and quantified over shorter periods.

Difficulty demonstrating outcomes may also in part result from differences in language and understanding of systems by NRM practitioners and program administrators. This can lead to poor communication between NRM practitioners and researchers, and policy makers.

In some NRM investment areas, particularly biodiversity, there was a view that failure to demonstrate on-ground outcomes is due to lack of achievement of these outcomes. Some participants felt biodiversity outcomes have been achieved only at a small scale and in a piecemeal fashion, due to a lack of clear shared objectives and priorities and coordinated investment to meet these.

Difficulty maintaining engagement

Much of Australia's land area is managed by private landholders, and public land is managed at a range of scales by a range of government agencies. As such successful NRM relies on being able to involve the diverse people and organisations managing that land, and will only continue to succeed if it succeeds in working with those land and water managers to achieve on-ground action.

Successful engagement requires having clear and realistic goals, a strong local and regional presence, continuity of relationships, and skilled staff who are trusted by local landholders and organisations and have the resources they need for good engagement. Successful engagement also requires there to be genuine benefit for the people engaged, in the form of outcomes such as direct benefit from NRM activities (e.g. improved productivity or profitability for farmers, improved land and water health), and the ability to have a genuine say in how NRM is delivered. Key threats to successful NRM engagement currently include lack of continuity of funding for local/regional staff, resulting in high turnover and poor continuity of relationships; and limited ability in some cases to deliver benefits due to low capacity to design NRM to best meet the needs of specific people and organisations.

These limitations mean the NRM system is not currently well placed to successfully maintain and grow engagement with changing rural and regional populations: engagement needs are changing as more Aboriginal and Torres Strait Islander organisations seek to engage with the NRM system, the number of traditional farming families decline, more 'treechangers' move into land management, and ageing rural populations challenge the ability to attract volunteers to do NRM work. There is a critical need to reach a wider range of groups beyond the 'usual suspects' often involved in engagement activities, but declining resources with which to do this. In particular, engaging appropriately with Aboriginal and Torres Strait Islander Traditional Owners and organisations requires improved continuity of funding for staff and the ability to ensure engagement provides benefit for these groups.

Prescriptive funding requirements reducing ability to design NRM to meet local needs

One challenge identified by several roundtable participants was concern about unintended outcomes resulting from highly prescriptive requirements accompanying funding from state and federal governments. Prescriptive here means that funding is provided contingent on the funds being delivered using specific approaches or mechanisms for on-ground delivery, with little flexibility for regional organisations to identify the optimal way to achieve the desired outcomes using approaches designed specifically for circumstances in their region. In some cases, this reduces the ability of local and regional staff to meet the needs of the groups they engage with. NRM delivery mechanisms, or 'tools', here refer to the methods used to deliver NRM funding on the ground, and range from provision of expert advice, training courses/workshops, to the provision of grants to landholders or Landcare groups, and peer to peer mentoring, amongst others.

In many cases, achieving change requires implementing a mix of these delivery mechanisms – for example, grants will be most effective if accompanied by access to expert advice to assist a landholder in carrying out the works being funded. Delivery mechanisms need to be designed to best meet local conditions, and both the literature and the roundtable provide multiple examples of NRM failing due to poor design of delivery approaches. For example, processes requiring landholders to

compete with each other for funding via direct tenders or similar have in some cases reduced social capital: by forcing competition, they have reduced trust and willingness of landholders to work together for collective outcomes. This example and others highlight that rather than over-specifying delivery mechanisms, state and federal governments should focus on specifying outcomes, while enabling skilled local and regional staff to design a package of measures that can best deliver these outcomes.

Short-term projects to address long-term challenges

A key challenge for NRM is that in most cases funding is made available for short-term projects only, yet the underlying land and water challenges being addressed are long-term problems. In the worst case, this leads to perverse outcomes: for example, a farmer successfully applies for funding to set aside and protect an area of land on their property for 10 years; however, the project funding must be spent within 12 months and so the farmer receives a single up-front payment with little to no way of providing incentives to ensure the full 10 years of management, or ongoing support from NRM staff to assist in the ongoing management and there are no funds to support this type of advice beyond the first 12 months. In other examples, weed problems successfully addressed in the short-term have returned when funding is withdrawn for a brief period, and by the time new funding is available the problem has returned to original levels. In the best case, NRM practitioners are able to link funding together across multiple projects (not all of which necessarily have the same objectives) to achieve long-term outcomes despite the changing nature of the short-term funding available.

The short-term focus of funding also reduces effectiveness of regional planning processes, as it creates incentive to specify very broad regional goals that can encompass any of the short-term objectives specified by state or federal government. In 2013, a survey of more than 2,000 Australian farmers identified that 57% believed funding provided to address NRM issues was too short-term, and that not enough funding was directed to addressing land and water degradation problems overall (Appendix 2).

The use of many short-term projects, and a large emphasis on planning and reporting and documentation for those short-term projects, also result in high transaction costs in the current NRM system, and reduces the amount of funding that ends up being delivered on the ground.

'Crisis' focus

Some participants felt that NRM funding is often delivered to 'crisis' areas, in other words to address acute land or water degradation issues, although not all felt that this type of prioritisation occurred in the regions they were familiar with. A 'crisis' focus is understandable (and often appropriate), but this ambulance approach means there is less investment in prevention activities that seek to maintain and improve the health of land and water assets that are currently in reasonable condition. Applying the precautionary principle makes sense, not just in preventing degradation but in preventing the social and economic consequences of reduced productivity and profitability associated with any crisis.

Lack of support for basic maintenance and operation of regional networks and agencies

Lack of continuity of funding threatens the regional system that underpins the success of Australian NRM. This balance between resourcing ongoing organisation and human capacity, and short term

programs has been an issue for many years. In particular, the success of the NRM system relies on having local and regional staff, particularly Landcare coordinators and NRM agency staff, with the skills, knowledge and relationships to draw together diverse people and organisations in their region to achieve NRM action on the ground. Lack of continuity of base funding to support these staff has resulted in high staff turnover. Many skilled staff are on short term contracts that turn over project to project, and this reduces retention of staff. As a result, many staff with in-depth local and regional knowledge leave the NRM area to work elsewhere.

Failure to provide forms of funding that can ensure skilled staff with local knowledge are retained has important consequences for the success of NRM. It means that the landholders and organisations these staff work with are often asked to deal with new case and liaison officers multiple times in the course of even one to two years; this in turn reduces trust and can prevent successful relationships developing. In 2013, 63% of landholders who had experience of the NRM system reported that turnover of local NRM staff such as Landcare coordinators was too high (Appendix 2). Overall, it reduces the ability of the NRM system to achieve action on the ground, particularly with private landholders who often need to develop trust in local NRM officers before being willing to engage in any NRM activities.

Tension between national, regional and local priorities

By their nature, NRM challenges are often locally and regionally specific: achieving a national NRM priority such as increased biodiversity requires undertaking very different types of action in different regions. When operating successfully, the NRM system enables both bottom up and top down objectives to be achieved, through ensuring regional bodies translate both local needs and national priorities into clear regional priorities as part of regional planning processes. This gives meaningful influence by local communities over how NRM funding is directed in their region.

However, over-specification of activities, delivery mechanisms and outcomes at the state and national level has in many cases reduced ability to design locally and regionally meaningful actions to address state/national NRM priorities. This can result in perverse outcomes. For example, funding has been provided at state and national level that requires NRM activities to be undertaken that are inappropriate or poorly match the needs of the regions the funding is provided to. In 2013, a survey of more than 2,000 farmers found that just over half who had knowledge of NRM programs in their region (54%) felt that these programs were not targeting the most important local environmental problems (Appendix 2). The converse is also true: having local and regional priorities determining the flow of NRM funding can result in a 'vegemite' approach in which many small activities are funded that, because they are not coordinated to achieve a larger outcome across communities or regions, have relatively little effectiveness. The key challenge is to ensure local and regional priorities drive and influence the direction of funding, while also ensuring there are clear national and state/territory priorities and the ability to measure and report on outcomes.

Related to this, some participants identified a need to better ensure that, when setting regional priorities, there is more explicit consideration and incorporation of Australia's international obligations for protecting both key environmental sites and achieving specific outcomes related to biodiversity, pollution, emissions, etc.

Lack of capacity for research and development

Since the closure of Land and Water Australia, there has been no large hub for research on NRM in Australia and for associated development and diffusion of new innovation and practice, although some key groups of researchers have continued to contribute strongly to progressing knowledge and thinking on NRM despite the lack of ongoing funding in this area. While NRM research has continued, driven in particular by key researchers (examples include David Pannell and Allan Curtis, amongst others), the sporadic and fragmented nature of research funding means research effort has not been able to build a coordinated and growing body of knowledge to the extent that would be possible with more coordinated investment in research funding. Importantly, it has substantially limited development and diffusion of innovative practice: as a result, many lessons, ideas, and new practices developed in the research sector do not reach many (if any) NRM practitioners.

This lack of knowledge sharing, both within the research community and between researchers and NRM practitioners, is largely due to an overall lack of ongoing investment in NRM research and lack of centralised hubs that can facilitate such knowledge sharing. This means that research conducted by individual researchers or research groups is often not produced in readily accessible formats that can provide lessons for those in the NRM system more broadly. This creates disconnection between research and practice, with often lengthy times between research innovations and implementation in the field. Lack of research capacity means that many of the innovations trialled in different regions have not been assessed and evaluated, or even well documented, and in many cases key lessons learned are lost as a result. Knowledge sharing does occur via NRM peak bodies, but it is difficult to develop enduring knowledge sharing between the research sector and NRM bodies in the absence of key research hubs.

In recent years some programs have successfully closed this gap in some regions: in particular, innovation grants have been used in Queensland to achieve rapid translation of research findings into on-ground practice change that can be applied by landholders. These provide examples of the type of investment that can create closer links between researchers and on-ground practice.

Improving NRM and supporting innovation

The best value proposition for moving forward with NRM in Australia is to build on the existing system, but substantially improve its operation to enable continual evolution of practice, including development of new and innovative approaches to achieving desired NRM outcomes. This means recognising areas of value in the current system and using these to achieve key outcomes, thus ensuring that core areas of value of the existing system are used to form the basis for new approaches to NRM going forward. The core areas in which roundtable participants identified that there is value to be gained from improving the capacity of the existing system, and through this enabling continued evolution and innovation of practice, are identified below.

Maintain regional planning processes and improve priority setting

Enabling regional planning processes to operate more effectively is a key improvement that can leverage and build on the existing NRM system. This requires maintaining regional planning processes and making them more effective: in particular, better enabling the setting of meaningful regional priorities and objectives that incorporate both 'bottom up' priorities of local regions, and 'top down' objectives at state and national level; and enabling ongoing processes by which regional plans are updated and priorities revisited. For regional priority setting to be meaningful, however, it needs to have impact: this can be achieved through making funding condition on demonstrating that proposed NRM activities demonstrably meet the priorities and objectives identified in the regional plan.

Enabling regional planning to succeed requires also ensuring regions have flexibility in how they deliver funding and achieve outcomes, and that long-term objectives can be set and maintained over time. Land and water conditions change over long timeframes, and state and federal governments need to assist in the setting of long term objectives and delivery of funding against them.

This means that funding should be contingent on meeting regional priorities, but that funders should not over-prescribe the processes by which these priorities should be achieved. A shift to a focus on requiring outcomes rather than specifying processes of delivery would help enable regional planning to work more successfully. This requires state and federal governments to shift to specifying desired outcomes from NRM activity while allowing local and regional groups to identify the best mix of actions that can be used to deliver those outcomes for their region, including not just the optimal mix of delivery mechanisms but also the best sequencing of actions. These changes would enable genuine influence by local and regional communities in directing and designing NRM, in turn ensuring better ownership and engagement in NRM, while also ensuring state and national priorities are reflected in regional planning.

Designing and delivering NRM packages tailored to the needs of a specific group, region or community will enable improved outcomes, through greater use of targeted methods such as peer mentoring, peer networking and others in addition to the more 'traditional' advice, training and grant approaches to NRM delivery.

Enable tailored delivery

Enabling tailored delivery is essential to making regional priority setting successful, and to better enabling delivery against specified outcomes. Tailored delivery here refers to the 'how' – enabling flexibility in how local people and organisations achieve specified outcomes for which funding is provided. The NRM system will work most effectively when local and regional NRM practitioners are able to design a tailored suite of mechanisms that will deliver long-term outcomes using delivery mechanisms that are appropriate and have benefit at the local scale. Tailoring delivery methods to match the knowledge needs, capacity, and individual circumstances of local communities enables better ownership of and engagement in NRM at local and regional scales. Ideally, it enables increased choice down to the individual level, with landholders and volunteers able to choose from a suite of approaches to engaging in NRM that best match their capacity and needs. Roundtable participants cited several examples of the successful use of tailored design in Australia and New Zealand, in which NRM participants had the ability to have a say in how they wanted to achieve particular outcome rather than being forced to use specific processes. Supporting tailored design requires a shift to specifying desired outcomes rather than specifying delivery methods when designing NRM policy and packages.

Tailored design will be successful if the capacity that exists in the NRM system is enabled to support it. There is considerable capacity in the system in terms of staff with expertise in delivering NRM using multiple approaches, and with in-depth understanding of differing contexts and conditions into which NRM programs are being delivered. Enabling tailored design requires better enabling use of that existing capacity, through actions such as supporting longer-term base funding and increasing the reach of the system.

Provide longer-term base funding

Future NRM systems should focus on better building capacity and skills of NRM staff and retaining skilled staff with local knowledge. This can be achieved through provision of some longer term base funding to enable improved staff capacity, and retention of skilled staff; currently this funding is provided in short-term amounts through individual short-term projects. Provision of base funding over longer term agreements would in turn support improved design and delivery of NRM on the ground, and better engagement with the NRM system by a wide range of organisations including producer and farming groups, Aboriginal and Torres Strait Islander organisations, and a range of community, social, industry and environmental organisations. It would also provide a base that can be used by NRM agencies and organisations to seek funding from a wider range of funding sources beyond state and federal agencies, improving the resilience and reach of NRM action by reducing dependence on government funding.

Providing longer-term base funding does not necessarily require increasing funding, and has been occurring successfully in recent years via some national funding provided on five year timeframes, demonstrating its potential. Had a greater proportion of past funding been provided over a longer term, rather than principally via short term project based agreements, this would have prevented loss of significant capacity from the NRM system (we note that in cases where this shift to longer term funding has occurred, it was viewed by participants as having very positive outcomes). Shifting to a system with longer term base funding enables NRM organisations to have the capacity to better identify and leverage short term funding to add to that base capacity, and can support growing the

overall NRM effort and on-ground activity while not requiring increased funding input from state and federal governments overall.

Increase the reach of NRM and engage a wider range of organisations

The current NRM system relies on supporting private landholders and public land and water managers to work together to achieve change not just on single properties but across landscapes and catchments. This relies on NRM practitioners having the skills and capacity to engage successfully with a diverse range of people and organisations.

However, in many cases, the evidence reviewed for the roundtable (in particular, Appendix 2) suggests that NRM is disproportionately delivered to large farmers compared to other types of farmers and other types of landholders. While this can be an effective approach to achieving some outcomes (e.g. conservation of particular ecosystem types that are represented on large farms), it is not for others: for example, some weed and pest control initiatives require widespread participation from all types of landholders to be effective. Increasing amounts of land are managed by rural residential landholders, by Aboriginal and Torres Strait Islander organisations, and by 'part-time' farmers who manage smaller properties while also working off-farm. NRM needs more strategic planning to ensure that these groups are reached, particularly when seeking to address challenges such as weed and pest control in which failing to include some landholders can reduce effectiveness of attempts to address the problem. Improved investment will enable a shift from engagement being done as a 'tick the box' exercise and which reaches only a small proportion of landholders, to more meaningful and targeted engagement of a wider range of people and organisations that leads to 'best bang for buck' for investors.

The NRM system can be used to engage better with groups ranging from local governments (who currently deliver a lot of NRM relevant activities) to producer groups and Aboriginal and Torres Strait Islander organisations. It can also be used to more explicitly link across landscape designations, including both public and private land managed by a range of groups. Increasing the reach of NRM is best achieved by building existing capacity, rather than attempting to create something new in an environment of 'engagement fatigue'.

Supporting existing groups who are interested in and engaging in NRM, and encouraging them to help deliver NRM actions, is a key action to enable increased capacity in the system. This includes environmental non-government organisations, farming and producer groups, urban volunteer groups and others. Better enabling these groups to interact in the NRM system can also increase resilience of those groups by enabling them to continue operating and providing them with increased resources to add to those they have already developed.

Enable regional, state and national evaluation to improve understanding of outcomes

Currently, reporting of NRM outcomes typically occurs against individual projects. Despite improvements in monitoring and reporting over time, there remains a focus on reporting outputs (activities conducted) rather than outcomes (changes achieved in land and water condition, land productivity or profitability, for example). Additionally, in many cases multiple projects are delivered in order to achieve a specific regional, state or national outcome: project based reporting does not enable true assessment of outcomes in these cases. Despite this, monitoring and evaluation is almost exclusively of individual projects rather than evaluating outcomes achieved against regional priorities, and measurement of outcomes is not done in ways that enable scaling up of project-based evaluation to consistently assess the extent to which regional, state or national priorities have been achieved. Enabling measurement of whether a suite of projects has achieved desired regional, state or national scale priorities will improve measurement of NRM outcomes. A shift to reporting against regional plans (and to reporting over longer timeframes and larger geographic scales) will better enable demonstrating outcomes of activities carried out across multiple projects to achieve a particular regional NRM objective.

Reporting against regional, state and national plans can occur through having consistent sets of environmental accounts that report at different scales. This in turn requires enabling data and information generated at local and regional scales to be used to report at larger scales, while also identifying how data generated at larger scales can be brought to bear to report on outcomes at local and regional scales.

Enable adaptive management

A shift to regional and large scale evaluation in addition to project based evaluation can also better enable adaptive management. The measurement of outcomes needs to explicitly enable adaptive management: this requires not only better measuring outcomes, but ensuring outcomes can be learned from and built on, with failures acknowledged and learned from as much as success. This is critical when working with complex adaptive systems, with NRM activities needing to be adaptive themselves to succeed.

Key suggestions for achieving this in roundtable discussions included establishment of a system of accounts that measure outcomes at different scales and enable feedback and adaptation of practice, with a shift from project-based outputs reporting to assessment of outcomes at the operational, regional, state and national scales. A key challenge in achieving this is the disjunct between principles of adaptive management (learning and changing practice over time), and the principles of public finance and administration (which often seek to constrain flexibility in order to ensure accountability).

Recognise co-benefits of NRM and design for them

Good NRM achieves improvement in land and water condition and through doing so supports broader outcomes such as regional development (for example, tourism industries having better and more stable income due to consistently high quality water in rivers and healthy ecosystems; industries having consistent access to quality water; improved agricultural productivity), agricultural productivity and profitability, and improved wellbeing. For example, across Australia in 2015, 43% of farmers who had engaged in NRM activities reported that these activities had improved their farm profitability, and they were more likely to report this if they engaged in NRM with assistance from a Landcare group or NRM organisation (see Appendix 2). The NRM system also delivers support for situations beyond environmental health: in 2015, almost one in three farmers reported that in recent years they had obtained information or assistance from Landcare or NRM groups to prepare for drought (Appendix 2). These types of co-benefits are a key reason for participation in NRM by many people and organisations, and need to be explicitly considered when designing NRM activities. More explicitly designing NRM to maximise co-benefits is likely to enable greater achievement of action to address land and water degradation issues.

Build research hubs and improved knowledge sharing

Provide support for longer term, better coordinated research that supports on-ground NRM practice across multiple regions. In particular, there are significant opportunities to leverage the potential of 'big data' in NRM, particularly in monitoring and modelling; there are also opportunities to evaluate the diverse mix of delivery mechanisms currently being used in the NRM space, but which are not well documented, evaluated, or shared to enable more widespread learning and practice change. Creating research hubs can provide a research base that enables greater evidence-based dialogue between NRM researchers and practitioners.

Ongoing knowledge sharing requires more than investment in research. It also requires support for organisations that can help share knowledge across the NRM system, particularly NRM peak bodies that play a key role in sharing lessons and knowledge across regions and jurisdictional divides.

New and emerging opportunities

A range of new and emerging opportunities exist for Australian NRM. In general, roundtable participants felt that key opportunities for Australian NRM in the future lies in the ability to produce world best research and practice in landscape management, resilience and adaptation to climatic variability. Within this overall opportunity, four more specific emerging opportunities were identified by roundtable participants. These represent areas that would involve fundamental change in the idea of NRM and how it operates and achieves benefits across environmental, economic and social domains.

Accreditation and branding for market access

Enabling market access was a key area in which NRM was identified as providing value beyond the inherent environmental value of reducing land and water degradation. In highly competitive markets, having a 'clean, green' brand was viewed a key area in which Australian agricultural producers (and other industries including tourism) could gain market advantage over competitors. Being recognised as sustainable was also viewed as increasingly important for achieving a social license to operate, particularly in agriculture. Key events in recent years have triggered concern amongst both small and large farmers about whether the social license of agriculture is changing in Australia, and associated interest in investing in activities such as NRM to help ensure social license is maintained and grown. Similarly, there has been growing investment in promoting the 'clean, green' image of Australian food. While often currently focused on the idea of food safety, this image also includes sustainability.

Moving forward, NRM therefore has a key role to play in ensuring access to markets for Australian producers, through ensuring Australian produce is recognised as sustainably produced. In competitive international markets, creating a market access point around sustainability branding can improve market access and stability for Australian producers.

However, creating market access from NRM is likely to require moving beyond the current NRM system, to establishing accreditation or certification systems for NRM. This involves having systems

in which agricultural producers (and potentially other industries) can be accredited as having sustainable land and water management practices. This accreditation can then be used to provide either market access and, in ideal circumstances, a price premium for products. There are multiple examples of existing certification schemes, particularly in the forestry sector where the Australian Forestry Standard (AFS) and Forest Stewardship Council (FSC) have developed a mature market for certified wood and paper products; and in the fishing sector where the Marine Stewardship Council (MSC) has contributed to new market development for fisheries. In the agricultural industry, the most commonly cited example is organic certification, in which certified products currently have a significant price premium and growing market share.

Certification/ accreditation can create market demand for sustainable produce, and can provide a form of stable market access that enables segmentation of a market that may otherwise have relatively low levels of product differentiation.

Leveraging this opportunity would require significant investment, and carefully identifying the role of the NRM system, industry, government and other entities. Existing certification schemes typically operate as voluntary accreditation that is not operated by government, although in areas such as forest industry certification government support has been provided to assist in development of appropriate standards against which certification can occur. The wide range of potential models for accreditation/certification systems means that investment is needed to identify viable and practical models for achieving certification or accreditation systems for NRM, as well as the role of the NRM system in any of these models

Payments for environmental services

Payments for environmental services (PES), meaning periodic payments for managing land or water to produce particular outcomes over the longer term, already exist in Australia in the form of things such as projects that have provided longer term payments for actions such as resting paddocks to enable regeneration of native vegetation. These have significant potential to be expanded in the long term, and to build resilience of landholders through providing an additional income stream on a property that continues even in times when other income streams decline, for example due to market difficulties, drought or other factors.

PES are often discussed in the context of activities such as creating voluntary markets for environmental services, in which private sector organisations pay to achieve environmental outcomes. Voluntary carbon offset markets are the best established example of this. However, PES can be delivered in other ways, including through government mandated approaches and specific longer term projects. PES provide a longer term way of giving incentives to landholders and others to undertaken NRM activities, that by providing regular payments over time differs from the current NRM approach that often centres on provision of a single grant at a single point in time.

Renewing the Landcare group

Over time, the proportion of farmers engaging in Landcare groups has declined, with 10% of farmers and 7% of rural residential landholders now participating in a formal Landcare group, down from just under 20% of farmers a decade ago (see Appendix 2). However, almost half of farmers – 45% - have at some point engaged with a Landcare group, as have 23% of rural residential landholders,

highlighting the reach of Landcare to Australian landholders over time. In recent decades, producer groups have grown in number and participation, and other new rural social networks have emerged. Despite decline in Landcare participation by traditional farmers, Landcare remains the public face of the NRM system, and there has been significant success in expanding and growing Landcare amongst new groups such as in urban areas. These examples show the potential for renewal of the Landcare group as a central part of the NRM system through enabling Landcare groups to be constructed in diverse ways to diverse groups. Supporting Landcare as an evolving movement that can reshape itself to better meet the needs of modern landholders and volunteers will enable support for the diverse ways in which Landcare currently operates, and for further diversification and renewal of the Landcare model. This may occur through actions such as investing more in virtual groups that meet and share expertise online, and that can interact at a range of times (thus enabling participation of time poor people); through streaming Landcare into the activities of existing groups (something already occurring with some producer groups); and through many other examples of tailoring Landcare to tap into rapidly evolving social networks in urban, regional, rural and remote settings.

Conclusions

Many of the future opportunities for Australian NRM rely on maintaining the regional NRM 'infrastructure' that has been developed in recent decades, and using it to generate new and different opportunities and action. The value of the existing NRM system needs to be recognised: decades of effort have resulted in establishment of local and regional networks that can be used to deliver services and achieve outcomes. This system is, however, threatened by short-term funding, lack of a sustainable base of funding, and difficulty maintaining ongoing research, knowledge sharing and documentation of outcomes. The value of this system for NRM and for achieving a range of cobenefits such as improved land productivity and improved resilience of local and regional communities should be recognised and retained. Going forward, the focus should be on ensuring the system is supported to operate more effectively and to leverage new opportunities, including connecting and working with a wider range of organisations beyond 'traditional NRM', reaching the changing landholder base, and providing opportunities for NRM activities to better support achievement of land and water sustainability. By doing this NRM can be recognised as contributing to broader outcomes such as regional development, market access based on a 'clean, green, sustainable' brand, and resilience in rural communities. Achieving this, however, requires recognition that rural and regional communities operate on the basis of long-term, sustained relationships and networks: effective NRM needs to be a part of these networks, which in turn requires providing more sustained and stable support for NRM.

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Appendices

Appendices 1 to 3 are provided in separate documents to reduce overall file size.