Australia's
NRM GOVERNANCE SYSTEM

Foundations and principles for meeting future challenges

Australian Regional NRM Chairs

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This paper was drafted by Sarah Ryan, Kathleen Broderick, Yvonne Sneddon and Kate Andrews on behalf of the Australian Regional NRM Chairs.

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The Chairs welcome comment on this paper, the issues it raises and any practical implications and experiences that follow.

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Executive summary

Governance – the manner in which something is governed or influenced (Oxford English Dictionary) – is about how society organises itself to achieve its goals. Governments play a major role, but many people and organisations outside government are involved. Natural resource management (NRM) governance is about the mechanisms all these people and organisations use to influence decisions about the sustainable use of Australia's lands, seas and waters.

Accompanying a growing awareness of the decline in natural resources that is allied with increasing use, the number and complexity of NRM governance mechanisms in Australia has magnified in recent years. No one has examined the impact this has on the effectiveness of NRM governance as a whole.

This paper provides an introduction to thinking about NRM governance across Australia as a connected system of social organisation set within a linked social-ecological system. Particular characteristics of Australia that need to shape its NRM governance design include: a variable rainfall and slow ecosystem repeat cycles; high ecosystem diversity; a range of social and political systems; local rules and customs; and a low rural population density.

The paper outlines the structure and mechanisms of Australia's NRM governance system, and draws on science and practical experience in analysing its shortcomings. The analysis draws on a systems framework from Woodhill (2008) that sets out the following main mechanisms of governance:

- **Organisations and relationships**: Formal and informal relationships between organisations (e.g. government departments, landcare groups, environmental NGOs and national peak groups) provide capacity for people to work together and achieve more significant goals. Cross-scale relationships, stretching from the local to the national within industry, community and government sectors, and cross-sector relationships between different organisations operating at the same scale are critical to achieving good NRM outcomes.
- **Rules and strategies**: The system is a complex mass of rules and strategies, including legal laws and regulations, mandates, policies, strategies, plans and other agreements that often operate independently across scales and natural resource issues. This complexity challenges the ability of NRM governance actions to be integrated with each other. Clear rules and strategies linked across appropriate scales results in organisations better able to integrate their work and more clearly apply rules.

- **Practices and behaviour** are where organisations apply rules and strategies and exercise their relationships in formal or informal ways.
- **Beliefs and understandings**: NRM choices are shaped by what the community believes and understands. These beliefs and understandings determine acceptability of possible change, as well as temper the capacity for change. They can be influenced using legislative or market processes. Knowledge comes from research and academic study (including socioeconomics), practical on-ground experience and cultural knowledge from a number of sources.

When the mechanisms are looked at together, it is clear that there are opportunities to improve effectiveness through addressing issues of complexity, discontinuity, lack of linkage across scales, and uncertainty about the roles of all participating people and organisations. The paper wraps up its findings by proposing a set of principles to underpin the design of future changes in governance. Australia's Regional NRM Chairs encourage further debate and discussion about our analysis and proposed principles. No single organisation is responsible for the effective working of the NRM governance system as a whole; improving it needs to be a collaborative activity.

PRINCIPLES

1. **Continuity: for Australia to be sustainable, it needs an enduring, country-wide NRM delivery infrastructure**

   Maintaining healthy ecosystems needs an enduring NRM delivery infrastructure, one that can respond as NRM challenges change over time, but is based on skills and social capital maintained locally. The governance system needs structures and processes – from local to national, private to public – that are linked and stable in the medium term, but are also able to change and adapt in the longer term (see Principle 10).

2. **Subsidiarity: devolve decision making to the lowest capable level**

   For best engagement of people's skills and effort, decision making needs to be devolved to the lowest capable level. However, because there is public benefit in looking after every piece of land well, governance design needs to recognise that governments have a legitimate interest in influencing local decisions. Their influence is better exerted through providing direction, standards, guidelines, incentives and sanctions, than through direct decision making at local level. All devolved decision makers need to be accountable for their decisions.

3. **Integrated goal setting: base investments and governance mechanisms on coherent, nested and integrated goals**

   Clear and shared direction is crucial for good governance of any system. Goals must be linked across scales; and take account of the interactions in ecosystem processes, and tradeoffs between ecosystem services. Integrated goals will result in better targeted actions.

4. **Holism: plan to address whole systems**

   All organisations and activities that impact on natural resources need to be considered. Within government, planning departments and planning decisions should be more included in NRM governance; water plans and agencies need to be better integrated with land management plans and agencies. At the local scale, landscapes must be better managed across tenures. Amongst investors, more inclusion of the community and private sector in governance design could result in mechanisms that would increase their investment.

5. **Systems approach: match governance mechanisms to the nature of the linked social-ecological system**

   In 'complex' ecosystems, system behaviour emerges from interactions within the system and outcomes from interventions are not easily predictable. Experiments can probe for the interventions that work best and then be scaled up. Mixes of policy and delivery instruments can be used. A single 'institution' should only be used when the evidence is clear that this will address the issue and not produce perverse outcomes. Arrangements in remote areas need to be tailored to suit remote communities. Complex, contested and connected issues need to be dealt with thoughtfully and slowly so that rates of change are matched to the time scale of social capacity building.

6. **Relationship orientation: recognise that relationships are as important as organisations**

   Connectivity across the governance system is crucial for integration across sectoral interests and between organisations at different levels. Responsibility and accountability for effective relationships need to be built into organisational objectives. Investment in relationships is crucial for the system to work as a whole and best captures the synergies within it.

7. **Resilience: manage for resilience of ecosystems and communities**

   We need to draw on the developing knowledge and practice of ecosystem resilience for better targeting investments. A resilience approach aims to keep the slow controlling variables of ecosystems away from undesirable thresholds, or to take them over thresholds to a more desirable state. This approach needs ecosystem function to be relatively well understood (Principle 8) or an active adaptive management approach (Principle 10) to be taken.

8. **Knowledge and innovation: equip the governance system with skills, capacity and knowledge, and encourage innovation**

   A strategic approach needs to be taken for developing the skills, capacity and knowledge that supports the governance system. Encouraging innovation – both in NRM governance and in ecosystem intervention – is crucial to development of healthier ecosystems. More connections need to be made within and between monitoring data, information and knowledge.

9. **Accountability: base the case for investment and accountability on sound systems data and knowledge**

   Cases for government NRM investment and the choice of mechanisms need to be transparent and better quantified in order to compete with other demands on the public purse. They need to draw on good data and ecosystem understanding (from Principle 8) and where possible, be targeted using a resilience approach (Principle 7).

10. **Responsiveness and adaptability: regularly review and adapt the whole Australian NRM governance system**

    Good corporate governance requires regular, strategic assessments of performance and achievements. Accordingly Australia's NRM governance system should be periodically and collaboratively reviewed. The review should recognise the effects of past decisions and investments, and apply an adaptive management approach, searching for innovation in governance mechanisms and testing and experimenting using case studies. It should recognise where the system is in the adaptive governance cycle (rapid growth, conservation, release or reorganisation) and formulate appropriate responses. Changes in governance mechanisms need to be collaborative and take account of the whole NRM governance system (Principles 4 and 6) in order to avoid perverse impacts and to retain productive relationships.

Contents

Abbreviations

ACT	Australian Conservation Foundation
APS	Australian Public Sector
CMA	catchment management authority
EIA	environmental impact assessment
SEA	strategic environmental assessment
ESD	ecologically sustainable development
MDB	Murray-Darling Basin
MOU	memoranda of understanding
NAPSWQ	National Action Plan for Salinity and Water Quality
NFF	National Farmers Federation
NFP	not-for-profit
NHT	Natural Heritage Trust
NRM	natural resource management
NWI	National Water Initiative
NWI	National Water Initiative
OECD	Organization for Economic Co-operation and Development
SoE	State of Environment
UNEP	United Nations Environment Program
WWF	World Wide Fund for Nature

1 Introduction

1.1 BACKGROUND

The Forum of Chairs of Regional NRM organisations, held in Hobart in 2009, identified government policies and programs as the greatest single force for future change in natural resource management. Chairs were concerned that the roles of regional bodies and their relationship to the Australian Government had been altered under the new arrangements in the Caring for our Country program, and that there had been little shared discussion about the impacts this would have on delivery of NRM. New arrangements for the Commonwealth Landcare program were also uncertain and it was felt that a broad-based discussion about the NRM governance system as a whole would be a valuable platform on which to base future change.

While this paper is an initiative of the Chairs of Regional NRM organisations, its objective is to include perspectives from all NRM actors. Initial thinking was informed by interviews with a range of people (see Appendix 1) and, based on this foundation paper, the Chairs will sponsor a broader discussion with other stakeholders through 2010. Improving the system depends on the collaborative efforts of all stakeholders in the system.

1.2 OBJECTIVES

1. To articulate the NRM 'governance system' – its architecture and how the bits fit together. No single organisation or body of people in Australia is responsible for the whole NRM 'governance system', yet the connections and interactions between the components mean that change in one of them can have cascading impacts through the system.
2. To reflect on our NRM governance system in terms of the rich research literature that has developed over the last twenty years in various disciplines, and in terms of recent practical experience both in Australia and to a lesser extent, overseas. Do we have a sound governance system that will help us deal with the challenges of the future?
3. To propose a set of principles for good governance design that will underpin its future change. Social capital develops slowly, and ecosystems respond over long time frames. Australia needs some nationally articulated and enduring cornerstones for its NRM governance that match the social and ecosystem timescales.

1.3 DEFINITIONS

A dictionary definition of governance is the *... manner in which something is governed or influenced* (Oxford English Dictionary). The term implies an emphasis on manner or process, and does not restrict the governing to governments (see Box 1).

NRM governance therefore is about the ways in which a society arranges itself to have influence over its natural resources. There are many avenues of such influence – from government policies, legislation and implementation programs; to community and farmer actions. Many organisations are involved, each with some control over their own actions, but without any one of them being responsible for the design or effective working of all the components as a whole. The whole is what we are terming the '**NRM governance system**' – and it is a collective responsibility to ensure it is working well.

The range of ways in which society has influence over decision making – through laws, regulations, policies, programs, customs and practices, as well as through formal organisations and their relationships – are termed '**institutions**'. This is a technical term that means much more that just organisations.

Terms that refer to the functioning and state of the linked social and ecological system described as NRM include:

- **Sustainability** is defined as *... sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs* (UNEP 1972).
- **Resilience** is the ability of a system to absorb disturbance and to withstand shocks without flipping into a different state.

BOX 1. A contemporary definition of governance from the academic literature (Ferreyra 2006).

Governance, a more encompassing notion than the term government, incorporates both governmental and non-governmental actors and acknowledges the fuzzy boundary dividing the public and private sectors ...

... the notion of government as the central ruler that advances the stated goals of environmental policies through hierarchical coordination is being replaced by the more fluid notion of environmental governance, in which social coordination and collective action is based on non-hierarchical interaction within networks of public, private and voluntary/community organizations.

1.4 SCOPE

The **scope** of NRM governance is broad – any players or actions that influence natural resources can be considered part of it. We focus on the big picture, the system as a whole, and on the principles for good governance design. Details of individual state, regional and local arrangements generally are not covered, although their different experiences contribute to our knowledge and are reflected in the development of the principles.

We also take a correspondingly broad view of natural resources so that, as well as natural landscapes, we include agricultural land and seas.

Consumers of ecosystem services could also be included in a discussion about NRM governance. Their decisions and consumption patterns have a significant indirect impact on natural resource use. Influencing their behaviour is critical to achieving a more sustainable world, but they are not included in this paper. An analysis of 'sustainability governance' would clearly have to include them.

Consistent with the use of the term governance in the NRM governance literature, we do not consider the issues of governance *within* organisations in the NRM system. This is a corporate governance issue with a focus on internal processes. The focus here is on the interactions *between* components in the system.

1.5 STRUCTURE

Section 2 itemises the nature of the governance challenge and presents the underpinning knowledge of governance design from the academic literature. It reflects on the importance of goals for directing governance design. In this, and all subsequent sections, some key lessons have been highlighted that have implications for the principles of governance design.

Section 3 introduces the systems framework that underpins the remainder of the paper and the governance principles proposed.

Section 4 paints a picture of the current NRM governance system in Australia, and draws out the strengths and weaknesses of some components of the system, based on recent evaluations. Some readers will be familiar with this detail, but it is included to illustrate what needs to be included if a systems approach to governance is taken, and to ensure that we are talking about the same things.

Section 5 gives a brief description of some key general NRM trends overseas and, in more detail, the system in Canada. It reminds us that there are options in governance, and we should draw on a wider set of experiences beyond our own as Australia develops its NRM governance system.

Section 6 draws together the key points made throughout the report and proposes a set of principles for NRM governance derived from the literature, discussions with experts and the experiences of the Regional Chairs.

2 The challenges

2.1 THE NATURAL RESOURCE CHALLENGE

The weight of evidence suggests that the sustainability of Australia's natural resources is not assured. While *... it is still impossible to give a clear national picture of the state of Australia's environment because of the lack of accurate, nationally consistent, environmental data ...* (Beeton *et al.* 2006), the same SoE report provides evidence that does reveal a trajectory of ongoing decline in a number of important indicators.

Policy developments (e.g. efforts to reduce the rate of native vegetation clearing or growing the area protected under the national reserve system) and investments in NRM have grown substantially in recent decades, and are having a positive impact on the condition of natural resources in some places. However, these actions have not been enough to halt decline elsewhere. As the likelihood of substantial new investments in NRM to turn this around is low, reviewing how Australia can best deploy the resources it has in its governance system, and looking for smarter ways to use them, is essential.

Even with protective processes in place, some ecosystems continue to decline due to the impact of old disturbances (e.g. pests and weeds) slowly working themselves through the ecosystem. New disturbances (e.g. urban expansion, demand for water and the impacts of climate change) continue to arise and interact with past disturbances so that it is almost impossible to predict their combined impacts – the past may be a weak guide to the future. Further land use change is certain as the *... converging insecurities of water, energy, carbon and food' play themselves out across global landscapes* (Campbell 2009a).

Key Point 1. Australia does not have the information to be confident that its NRM governance arrangements and investments are maintaining or improving their condition.

Key Point 2. Natural resource challenges will always be present and will change over time. A good governance system needs continuity and in-built mechanisms for responding to new NRM challenges.

2.2 THE GOVERNANCE CHALLENGE

The NRM governance challenge for Australia is one of adapting and designing the governance 'institutions' so that they collectively result in good governance of our natural resources – now and into a changing future. The goal is to shape a system that is effective in terms of sustainability and consistent with societal expectations about fair and effective process.

The crux of the challenge is in how the 'institutions' work collectively – *how do the multiple actions by multiple players at multiple scales together influence natural resource outcomes* – and in understanding how these components work as a **system**. Many existing components work reasonably well on their own but there are recurring themes about shortcomings:

1. there is no overarching Australian NRM strategy or policy framework
2. the linkages between development planning and natural resource planning are weak, yet after agriculture much of the impact on natural resources comes from development decisions
3. policies are often developed to address single issues with inadequate planning for the impact this has in landscapes and seascapes where outcomes are determined by ecological interactions and their integrated effects
4. stop-start component-by-component interventions suggest NRM issues can be dealt with once and fixed and finished with, however the need to invest in the maintenance of natural capital will always remain.

Perhaps these themes recur, and are seen as intractable, precisely because Australia does not yet share or act on a systems view that complements the component view.

Trying to improve how the collection of 'institutions' works together is not intended to imply that more formal integration is necessarily is required. Rather, arranging 'institutions' for more coherence and synergy will produce more effective results and is more feasible politically than locking the system into a single rigid structure. Some duplication and overlap allows better communication and makes a system more resilient to shocks.

Australia needs a well-tuned NRM governance system capable of foresight, innovation and adaptation at a rate that deals with new challenges without becoming chaotic. It also needs to take into account some key characteristics of Australia's natural resources and people, including:

- Australia has a highly variable rainfall in a very large and generally dry continent, making ecosystem dynamics complex in nature. Rainfall dynamics are often shaped by big infrequent events and their particular sequences

or conjunctions make it almost impossible to predict future dynamics in specific places. Complex natural resource systems need sophisticated governance systems (Andersson and Ostrom 2008).

- There is a high diversity in ecosystem structure and function across the continent, needing diverse and appropriately tailored NRM interventions.
- Social and political systems, local rules and laws, and people's cultures are diverse across the country.
- A very low population density over most of the continent creates a challenge to develop and maintain social capacity. Repeat cycles in the ecosystem may be longer than a generational memory, making the retention of local knowledge difficult, especially in more remote and more arid areas (Stafford Smith and Cribb 2009).

Key Point 3. It is the aggregated and integrated impact of governance arrangements that influences natural resource outcomes at any one place.

Key Point 4. Australia's natural resources are highly variable – across space and time. Complex natural resource and social systems need sophisticated governance systems.

2.3 ISSUES IN GOVERNANCE DESIGN

Major theoretical developments in understanding governance of natural resources have come over the last 20 years from recent Nobel prize winner, Elinor Ostrom, and her colleagues. They were particularly interested in situations where resource users could be actively involved in the governance of common pool resources such as irrigation schemes or fisheries. Their initial principles for good governance (Ostrom 1990) were developed from evidence gleaned from a large number of case studies where groups of people have successfully managed a common natural resource pool over more than one generation. The principles included the need for:

- clear definition of resource boundaries and governance responsibilities
- appropriate participation
- mechanisms for sanctions and for conflict resolution and
- in the case of larger common pool resources, organisation in the form of multiple layers of nested enterprises.

2.3.1 Nested enterprises and devolution

The last of these principles has received particular attention in designing large-scale governance systems and the term 'polycentricity' has been used to describe this form of governance arrangement. A polycentric (i.e. many decision-making

centres) system consists of organisations that have considerable autonomy at a range of scales from the local to the national (or global) (Marshall 2009). A polycentric system can allow for greater local participation, trust and voluntary cooperation, and use of local knowledge. At smaller scales it is easier to practise adaptive management and a wider range of local approaches provides learning across the system.

Even if gains are made through devolution, government retains a key role in natural resource management. Where governments do devolve decision making to a local level, the devolution has a greater degree of success if the government retains roles relating to:

- definitional guidance on what issues to address, who is able to participate, geographical boundaries, legal nature, outcomes expected, funding arrangements and operational relationship to other existing institutional structures
- participatory incentives – positive or negative – for the targeted actors to participate
- enforcement capability through specification of performance criteria and the assessment of performance (Gunningham 2009).

Gunningham also suggests that there is a lesser need for a government role when there are win-wins involved, and that it is essential for government to retain a coordination and facilitation role if it is relying on a collaborative governance approach rather than on regulation. On the other hand, where governments retain very tight control over funding, often out of concern about accountability, development of relationships that more equally share power and responsibility is hindered.

The issue of which roles are carried out at what level is clearly central in a multi-level governance system. There is evidence in Australia that there has been recent confusion over NRM roles and responsibilities and that it has had negative impacts on legitimacy and effectiveness.

> [If] ... *the Australian system of devolved governance is to be effective, then governments have central roles in backing it with appropriate levels of technical support and funding, a degree of budgetary flexibility, clear allocation of roles and responsibilities and in ensuring minimal conflict between such roles* (Davidson and Lockwood 2009).

The principle of 'subsidiarity', which says that tasks should be decentralised to the lowest level of governance with the capacity to conduct it satisfactorily, is often proposed as a starting point for selecting which roles are carried out at

what level. Judgements about capacity will clearly affect the degree of devolution and governments need to be aware that they tend to underestimate the capacity of small groups to organise themselves to solve problems for which they are 'too small' (Marshall 2008). Observed solutions include reconstituting themselves at a higher level, cooperating horizontally or federating.

Whatever the degree of decentralisation, actors at all scales continue to play roles in NRM governance. It is how roles are specified, and the power and resources are shared, that is important. Deficiencies at one scale (e.g. perverse incentives and information problems) need to be backed up at another scale (e.g. positive incentives and information capabilities) (Andersson and Ostrom 2008). The capacity of governments to set conditions when they have strong control over distributing resources is an opportunity to put positive incentives into place (Pannell 2009). However taking a purely contractual approach to service delivery is not ... *a robust model for developing partnerships based on shared thinking and devolution of authority and resources* (Head *et al.* 2007).

Sharing of power and resources between organisations to carry out tasks that neither party can solve individually implies partnership. Factors found to be important for effective relationships in the NRM arena were:

- positive personal relationships in which participants have high levels of motivation for being involved
- adequate support resources and
- skilled, enthusiastic coordinators who enjoy and are skilled at working in the constantly changing social and organisational environment that is typical of NRM (Oliver 2004).

Key Point 5. Understanding the strengths of and clearly defining the different roles of organisations at multiple scales is critical. Functions (powers and resources) can then be decentralised to the lowest level with the capacity to conduct them satisfactorily.

Key Point 6. Governments have key roles in providing definition, incentives, standards and sanctions.

Government policies can also actively support devolution to and participation by philanthropists. Development of more mechanisms to increase the level of private giving would assist the not-for-profit sector to become less dependent on government funding and therefore less susceptible to stop-start funding (Productivity Commission 2009). Governments could also provide incentives for increasing the level of planned giving (e.g. small and medium businesses could receive incentives to provide payroll deductions for staff) (FACS 2005).

Planned giving is effective because the total amounts collected are higher than for spontaneous giving and it enables non-government organisations to be more strategic, plan ahead and invest in longer-term, larger-scale projects. Bequests are another form of direct giving that could be further stimulated through government incentives.

When designing roles and responsibilities in a more devolved system, democratic principles still need to be maintained – a decentralised government service delivery that retains government power over decision making is regarded as less democratic than devolution that includes accountability to local constituencies. Without devolution of some decision-making power … *Communities become instrumentalities of government, involved in practical activities rather than deliberative discussion* (Davidson and Lockwood 2009). Development and accreditation of regional plans in order to receive Commonwealth NHT funding was more consistent with democratic decentralisation than the current Caring for our Country focus on the Australian Government making its investment decisions alone.

2.3.2 Legitimacy

Achieving a governance system that is widely accepted to be legally constituted, and the result of good government decision making, is one of the biggest challenges for NRM governance, given the breadth of sectoral interests in natural resources (Marshall 2005). Multiple conversations and building of consensus vertically and horizontally are essential.

Acknowledging that good government decision-making processes contribute to legitimacy also underpins a 'citizens as partners' approach recommended by the Organisation for Economic Co-operation and Development (OECD 2001):

> *Governments can practice leadership in two ways. They can either practice leadership ignorant of citizens' direct concerns and input. This gets governments into crises of lack of trust. Or governments may practice leadership open to citizens' concerns and input. This gives government the chance to tap into wider resources of citizens and civil society in order to develop better policies and gain more trust and legitimacy. It is in line with an informed and collaborative kind of leadership that balances leading and listening. Strengthening government-citizen relations is a means for government to fulfil its leadership role in an open way and more effectively, credibly and successfully.*

This is supported by studies in procedural justice that suggest that policy decisions can have high acceptance even in the face of disagreement and unfavourable outcomes for some stakeholders, as long as the decision-making process is seen as fair and legitimate (Newig and Fritsch 2009).

2.3.3 Hybrid governance

Political scientists have proposed that recent developments in NRM governance in Australia (and elsewhere) represent a hybrid form of governance in which apparently competing political paradigms co-exist. On one hand, the neo-liberalism strategies of recent decades lean towards small government, fiscal austerity, individual freedom and private property rights. On the other hand, governments are also trying to fulfill social expectations about community empowerment, partnerships, capacity building and social capital (Lockie and Higgins 2007; Morrison *et al.* 2004). This hybrid model contains some tensions. For example, farmers are expected to be independent and successful business people operating with little government support or interference. On the other hand they are also expected to provide off-site and public good benefits to others.

Planners have called the shift towards local community participation in NRM as civic regionalisation (Lane 2006). Issues arising from the creation of new role, new boundaries, and new community expectations and responsibilities include:

BOX 2. Long-term challenge – quotes from interviewees (Appendix 1).

- *Long-term NRM needs long-term relationships, not those created and lost over a short-term project application.*
- *A landcare facilitator **is** a long-term project.*

- boundaries that might not encapsulate all environmental issues well, and that don't match other rural boundaries, particularly local council boundaries
- decisions made by local people may not take larger-scale or more systemic causes of environmental decline into account; nor may they account for the views of distant stakeholders
- ensuring the locally based boards have the capacity to be effective; and that both local and distant stakeholders see them as legitimate
- concerns about the efficiency of having to equip local people with new sets of skills – especially in negotiation, mediation and corporate management
- the need for more sophisticated integration both vertically and horizontally across the governance system; integration won't be solved by interventions at the regional scale alone
- ensuring that high level technical knowledge remains an important contribution to regional decisions; that local wisdom doesn't out-compete it
- designing appropriate accountability mechanisms to ensure fairness in decision making; that decisions are not dominated by local power groups, the articulate or the well-organised.

On the last point, it has been proposed that 360 degree accountability is more appropriate than detailed vertical accountability in a distributed governance system where power is theoretically shared and there are many interactions across scale and sectors (Paquet 2005).

Key Point 7. Participation of local resource users who also have a stake in successful management can bring many benefits.

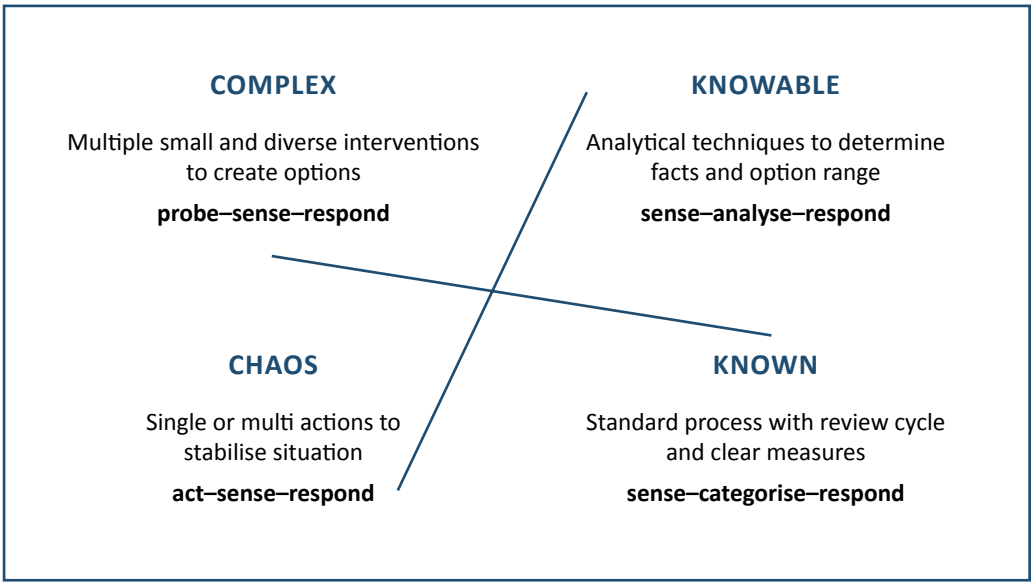
2.3.4 Stability versus change

An additional issue in governance design is thinking through how it will work over time. The design needs to achieve a balance between stability, and change that comes from innovation or from dealing with social and environmental change. Sufficient stability is needed for investors to have the confidence to invest their time and resources and to allow time to build social capital and capabilities, but not so much stability that the system fails to adapt when required. More perspectives on 'adaptive governance' are covered in the next chapter.

Not all governance and natural resource challenges are complex. One governance issue is ensuring that the solution (both the governance around that issue, and the intervention) matches the nature of the task. The Cynefin framework (see Figure 1) is often cited as a tool to help guide such decisions. This framework and the design of accountability mechanisms are linked. Actions in the 'known' and 'knowable' domains are more amenable to detailed 'backward looking' accountability (because the outcome could be predicted with reasonable certainty). Actions in the 'complex' domain need accountability mechanisms that allow for well reasoned and well monitored, but more adaptive, interventions.

No complex shared NRM governance system will be perfect. The challenge is to capture the advantages of polycentricity but retain institutional backup systems to help offset its imperfections.

Figure 1. Matching response to nature of the problem. The Cynefin framework. From Woodhill 2008.



A final issue in governance design is that design solutions need to be reviewed and re-shaped for changing contexts:

> *Along with many areas of public policy, integrated catchment management has shifted from technocratic planning to various forms of participative planning. In Australia, this shift took place in the late 1980s and early 1990s, with little consideration either of the implications for the definition of resource governance regions, or of the considerable body of theory in the social sciences that is relevant to the regionalisation issue, such as theories of place attachment, central places, gravity modelling, institutional design and hierarchy theory. During the same period, local government has increasingly been given a considerable responsibility for local environmental planning and management.* (Brunkhorst 2009)

Three principle-based implications of applying an institutional and complexity perspective to the design of interventions for third world country development (Woodhill 2008) are also relevant despite the different context:

1. develop a deeper practical understanding of institutional innovation
2. focus on long-term capacities and processes that enable societies to be learning and adaptive oriented and
3. distinguish between the simple, complicated, complex and chaotic; and design interventions to match.

Research describing governance systems and approaches and observing qualities of systems such as power sharing and devolution of resources are useful in that they identify areas that may be improved. However it is not always clear which specific changes will lead to improvements or avoid unintended consequences. Critical thinking applied to our governance systems is really important and changes to governance systems should be carefully considered.

Key Point 8. Shared governance with a consistent approach over time is more likely to result in good outcomes.

Key Point 9. A learning approach that searches for innovation in governance and builds adaptive capacity has long-term benefits.

2.4 WHAT DOES AUSTRALIA WANT?

Governance design needs a goal. But Australia has not yet widely discussed and agreed land use and the role of rural landscapes, either at national or most state/territory levels. The regional forest agreements are the best examples to date, and the integrated regional plans developed by the NRM regions contain such goals implicitly but few have legal status. Few people would argue with a vision of Australian landscapes and seascapes that protects Australia's natural resources while giving livelihoods and recreational opportunities to many. The challenge is in bringing the different perspectives together and having the conversations at multiple scales that reach broad agreement on the land uses and desired outcomes.

Perhaps one reason that Australia finds it difficult to progress this national conversation is that the principles of ecologically sustainable development (ESD) have not been turned into practice. Despite Australian and state/territory governments agreeing to a National Strategy for Ecologically Sustainable Development in 1992 and the principles being widely espoused in subsequent strategies, it has been patchily applied when examined critically (Ross and Dovers 2008). The task is often framed as one of 'balancing' economic and environmental objectives, as if they are separate, competing and non-interdependent whereas in the long run they are intimately interdependent.

The National Water Initiative (NWI), for example, refers to optimising economic, social and environmental outcomes. While acknowledging that there are indeed some tradeoffs between using water for economic and environmental purposes, Australia fails to consider solutions that start from a more integrated view of sustainability because it continues to see them as distinct either/or alternatives.

The Natural Heritage Trust (NHT) of Australia Act 1997 set out to be a comprehensive, integrated response to ... *conserve, repair and replenish Australia's natural capital infrastructure*. However it had no articulated mechanism (nor could it under current constitutional arrangements) to foster discussions about landscape and seascape goals. Although the requirement to develop regional NRM plans under NHT2 came closer to what needs to happen, these are no longer required by the Australian Government. They are required in some states and are a part of good governance for all regional bodies. Only NSW and South Australia currently have state-wide NRM plans.

Key Point 10. Improving the design of Australia's NRM governance system requires more clarity about NRM goals – at all scales – so there are clear and agreed objectives for the system design.

3 Frameworks for understanding complex systems

3.1 TAKING A SYSTEMS VIEW

NRM governance and the natural resource system it interacts with is a complex adaptive system – a system consisting of many components that interact in varying degrees. Cause and effect relationships are not simple or linear and simple command and control interventions often do not work. Multiple interactions determine its behaviour (Walker and Salt 2006) and this cannot be predicted by understanding how individual components or even several components work together. Variation between system components and time can lead to different outcomes from the same intervention. In these circumstances, no individual, organisation or government is in control.

Thinking about large systems is challenging because of their complexity and our lack of experience in studying or thinking about systems as a whole rather than their individual components or simple relationships. Policy making in general has focused on individual policies for individual problems or outcomes, but this approach is becoming more difficult to sustain as its limitations become more apparent. Widespread clearing of native vegetation for short-term economic and social outcomes through agricultural development is an example, as is the treatment of rivers as pipelines and drains for carrying water, without considering ecological outcomes. Both policies satisfied short-term goals but at the cost of considerable damage to the sustainability of dryland and riverine ecosystems, which now need repair at huge cost.

Science and academic scholarship has contributed to and been shaped by this policy approach. The focus on individual expertise in narrow disciplinary areas gives a have deep knowledge of components of systems, but little knowledge of how the system works as a whole.

The challenge that this way of thinking presents for policy setting has been recognised in a publication by the Australian Public Service Commission (2007). Using the terminology of 'wicked' problems rather than 'systems' the paper clearly acknowledges that wicked problems derive from systems being complex, and that they require a systems approach to their solution. 'Wicked' problems are those that … *go beyond the capacity of any one organisation to understand and respond to, and where there is often disagreement about the causes of the problems and the best way to tackle them.*

Although a system may be described as a complex system, this doesn't mean that its outcomes are random. The structural and functional relationships between

components, and the feedbacks between them, usually act to maintain the system in a state that is self-sustaining. Over long time periods and at larger spatial scales, a few slow-changing variables can usually be identified that have a stronger influence than others on the status of the system. These present a much simpler focus for thinking about how to influence long-term system behaviour (see Section 3.2).

Another approach to governing complex natural resource systems focuses on 'social learning' and is consistent with the approach to intervening in complex systems that was met in the Cynefin framework (see Figure 1).

BOX 3. A social learning perspective of complex natural resource systems. From Ison *et al*. (2007).

Water catchments are characterised by connectedness, complexity, uncertainty, conflict, multiple stakeholders and thus, multiple perspectives. Catchments are thus unknowable in objective terms although this understanding does not currently form the dominant paradigm for environmental management and policy development. In situations of this type it is no longer possible to rely only on scientific knowledge for management and policy prescriptions. 'Social learning', which is built on different paradigmatic and epistemological assumptions, offers managers and policy makers alternative and complementary possibilities. Social learning is central to non-coercion. It is gaining recognition as a potential governance or coordination mechanism in complex natural resource situations.

The need for different ways of understanding natural resources and their governance is at least as great as the need for technical innovation (Woodhill 2008). It is ironic that agricultural development in Australia has been strongly driven by technological innovation, drawing on a strong and well supported agricultural research and development system, while innovation in sustainable natural resource management has been much more neglected. The latter is much more reliant on new knowledge where application comes through changes in learning and behaviour using mixes of 'institutional' and social mechanisms. Australia is less experienced at this type of innovation, the research base is less well supported and it needs a wider disciplinary base with a stronger input from the social sciences. There is an opportunity here for Australia to be as hungry for new options in governance innovation as it has been for new developments in agriculture, although the recent closure of Land and Water Australia suggests otherwise.

By considering new ideas about systems thinking and looking at all the major NRM 'institutions' together and how they interact we, as stakeholders, will be looking at NRM governance through a different lens. It may produce new insights and provide suggestions for ways forward in which components of the system reinforce rather than work against each other.

Key Point 11. The governance system needs to support building ecological systems understanding at regional or ecosystem scale.

3.2 RESILIENCE

Identifying the few slow controlling variables in complex social-ecological systems underpins application of the concept of resilience (e.g. Walker and Salt 2006). Interactions between these variables keep the structure and function of the system roughly stable until thresholds are crossed and the system changes to be substantially different with a different structure and function (see Figure 2 for an illustration of a resilience analysis of the Goulburn-Broken Catchment).

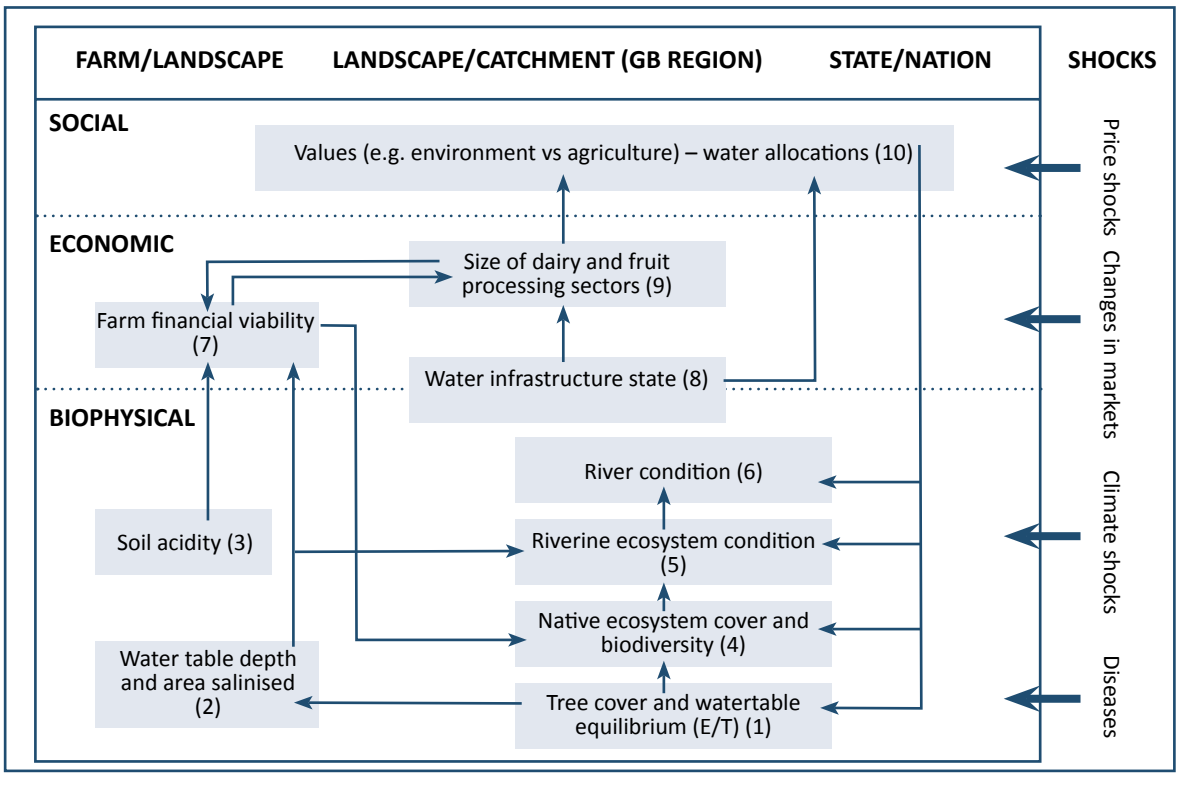
The Goulburn-Broken analysis goes beyond a qualitative description of the system; it quantifies or estimates thresholds for each variable. These become the targets that management actions need to address, whether the objective is to keep the system in its current state or to deliberately move it towards a different state. It is these variables that are monitored and then responded to when they approach thresholds, rather than all variables. Instead of 'picking winners' in an ecosystem, managers try to avoid the worst problems and stay away from thresholds that are difficult to return over once crossed.

Resilience provides direction on how variables should be managed. It does not provide advice on which governance arrangements would best steer it and how they would need to change as the linked system changes.

Key Point 12. A good understanding of the key controlling variables in an ecosystem – particularly those that will work in concert with natural processes – is key to designing effective interventions.

Key Point 13. Understanding when variables are approaching thresholds and intervening before danger levels provides an approach to managing ecosystems for resilience.

Figure 2. Example of identification of the slow controlling variables in an Australian catchment. From Walker *et al.* (2009). The arrows between boxes indicate possible cascading effects of crossing any one of these thresholds.



3.3 ADAPTIVE GOVERNANCE

Observations of past patterns of change in NRM governance arrangements have led to a theory of adaptive governance (Gunderson and Light 2006). Four phases of a cycle that repeats over time have been defined:

- a short period of rapid growth when innovation is important
- a long period of conservation as new arrangements first solidify and become productive, but then fail to adapt and become very rigid
- a release phase when pressures finally cause these arrangements to fall apart and
- a reorganisation phase that sets the starting conditions for the next cycle.

Key lessons from case studies analysed against this framework are that the release phase is usually chaotic, although short, and in the reorganisation phase even small decisions can affect the starting conditions and have large long-term consequences.

The governance history of the Murray-Darling Basin (MDB) is an excellent case study for thinking about adaptive governance in Australian because it is a large-scale issue involving multiple jurisdictions and actors from national to irrigation farmer scale. Based on the institutional history of the MDB documented in Connell (2007), three cycles of governance arrangements can be discerned (Table 1). The MDB is currently poised at the beginning of the first phase of its fourth cycle.

Key Point 14. Understanding where the Australian NRM governance system is in the adaptive cycle is important. Different responses are required in different phases of the cycle.

Table 1. Adaptive cycles in governance of the Murray-Darling Basin. From Ryan (2009).

Phase in adaptive cycle	Characteristics	Events		
		Cycle 1 1890s–1914	Cycle 2 1914–1985	Cycle 3 1985–2008
Rapid growth	Innovative exploitation of new opportunities	First irrigation settlements under state auspices	Major dam and weir construction, irrigation expansion	Major new environmental policies developed
Conservation	Efficiency increases, capital grows, inter-connections strengthen, system becomes rigid, resilience declines	New Australian Constitution (1901) locks in strong independent state powers over water	Technological innovation in irrigation drives diversions to very high levels, irrigators develop strong political influence	Early success with salinity strategy, and Cap (1995) but then lack of sanctions and slow decision making leads to lags in environmental flows policy and dealing with future risks
Release	Disturbance breaks the connections, regulatory controls weaken, capital is released	Pressure for reform built from inability to plan for the use of shared water under the Constitution	Long trend of increasing salinity finally resulting in damage to irrigated crops	2002–07 drought, lowest inflows on record. Prime Minister announces plan for new MDB governance
Reorganisation	Starting conditions set for next cycle	1914 River Murray Waters Agreement signed	1985 Murray-Darling Basin Agreement signed	2008 Murray-Darling Basin Authority established

3.4 A GOVERNANCE FRAMEWORK

NRM governance, or the ways in which a society arranges itself to have influence over its natural resources, has a very broad scope. To make the analysis in this paper more concrete we use a categorisation by Woodhill (2008), placing the governance component as one in a linked social-ecological system and adding the concept of scale (see Figure 3).

Each of the categories in Woodhill's categorisation has formal and informal mechanisms that interact and often reinforce each other. 'Institutional' analysis often focuses on the more formal components of this system (e.g. laws, rules, organisations) and less often on the less formal institutions (relationships, networks, beliefs and behaviours).

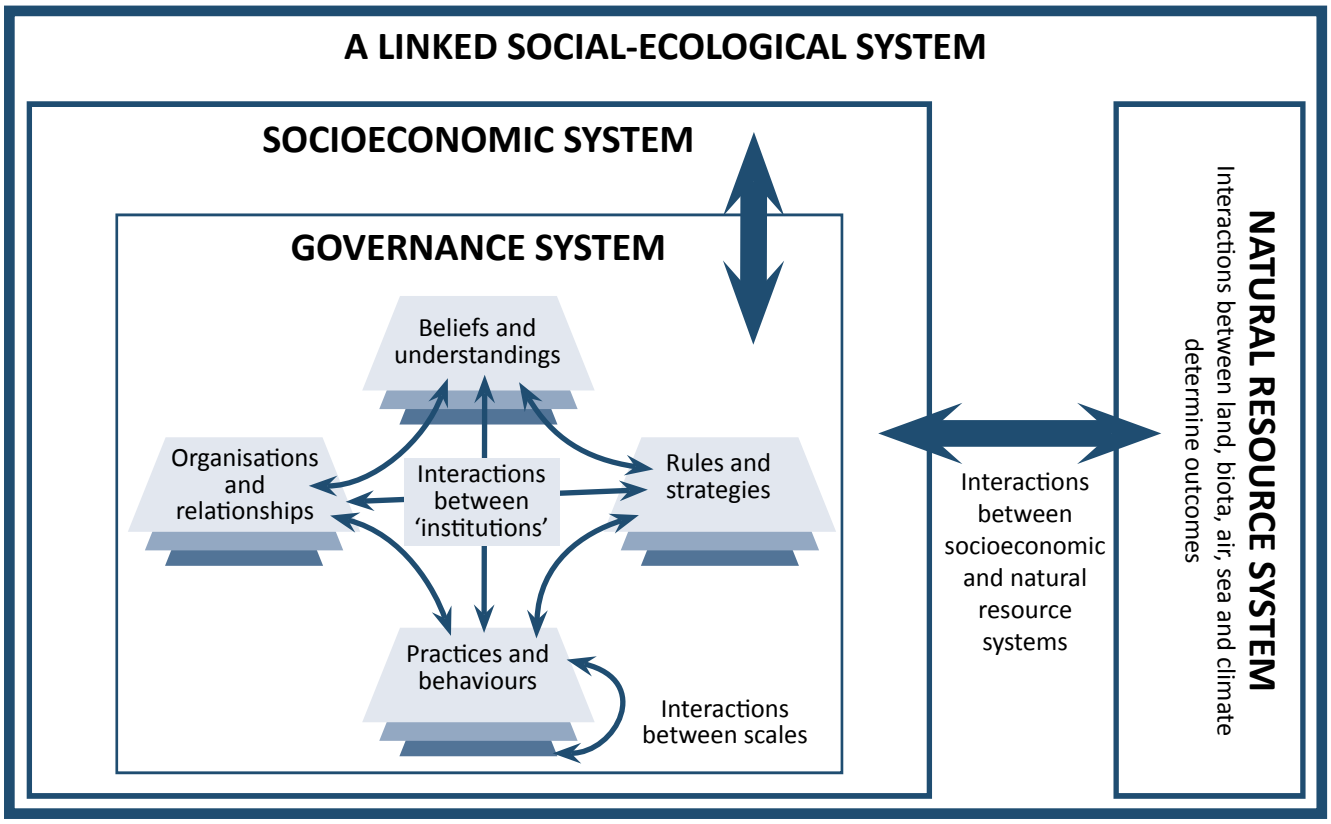
'Institutions' in this framework are:

- **Organisations and relationships** – how people and groups of people arrange themselves and their mechanisms for interacting. Organisations include government departments, Landcare groups, environmental NGOs and national peak groups. Relationships may be formal (e.g. the NRM Ministerial Council) or informal (e.g. networks such as the NRM Chairs Forum).
- **Rules and strategies** – mechanisms of 'control'. Rules and strategies span a spectrum from legal laws and regulations, through mandates, policies, strategies, plans and other agreements. They can belong to anyone in the governance system (e.g. a National Farmers Federation policy is an 'institution' with informal influence over NRM strategies).
- **Practices and behaviour** – the 'action' arena. Actions may be formal (e.g. those that follow from the formal functions of organisations or a codified set of standards that govern environmental management) or informal including the regular practices that are not codified (e.g. government practice of consultation and seeking feedback on NRM programs).
- **Beliefs and understandings** – include individuals' informal mechanisms of experiential learning and the development of mental models about how the NRM world works, and the more formal mechanisms for developing and codifying knowledge, the technical basis for understanding.

This framework is also a reminder that the goals of an NRM governance system lie in the outcomes from the natural resource system. In organisational governance, 'good' is judged more on the basis of the degree to which appropriate internal governance procedures have been followed than on outcomes. A 'good' NRM governance system ought to be judged by its natural resource outcomes.

Key Point 15. The NRM governance system has characteristics of a complex system in which the interactions between components, both formal and informal, have a major influence on NRM outcomes.

Figure 3. A framework for analysing the institutional components of governance (adapted from Woodhill 2008) and interaction with the wider socioeconomic system and with natural resource systems.



3.5 EVOLUTION OF NRM GOVERNANCE IN AUSTRALIA OVER THE LAST 40 YEARS

Understanding how the current NRM governance system has developed provides a good base for analysing the current system and designing future change. Australian environmental 'institutions' have changed considerably over the last 30 years (see Table 2). Issues for system design include identifying those 'institutions' that are path dependent (Heinmiller 2009) and the growth in system complexity over time.

Path dependency occurs where prior investment in certain 'institutions' is later difficult to change or adapt. Examples of path dependency include:

- the establishment of water allocation rules for irrigation early in the development of the Murray-Darling Basin, well before the idea of environmental allocations was born.
- the Australian Constitution and the division of powers over natural resources.

Whether an 'institution' is path dependent and difficult to abandon or reform depends on whether there have been strong positive feedbacks in the system. Feedbacks that can make reform difficult can include:

- vested interests of those who benefit from the prior 'institution'
- network effects that hardwire the prior 'institution' into other arrangements
- sunk costs or stranded assets and
- the formal and informal contracts associated with the prior 'institution'.

NRM arrangements have grown in complexity over the last forty years (Table 2). In the 1970s, NRM issues were dominated by state arrangements largely working independently of each other. Since then complexity has been added 'upwards' with the growth in coordinated national arrangements, 'downwards' with Landcare and then regional bodies, and 'sideways' with the development of an active environmental NGO sector. This complexity has grown out of the synergistic effects of recognising the breadth, scale and complexity of environmental challenges faced, and the willingness of a broad range of people, from farmers to urban dwellers, to contribute their own resources to achieving healthier landscapes and seascapes.

While this complexity has provided advantages, continued growth in complexity could see the net benefit decline as transaction costs rise, accountability blurs and the system becomes 'gridlocked' and ineffectual. In extreme degree, such systems tend to disintegrate and have to be built again from scratch – a difficult and costly process, although it also offers opportunities for innovation and for overcoming strong path dependencies (see Section 3.3 for a description of the cycle of adaptive governance).

Key Point 16. Australia's NRM governance system is showing a trend of increasing complexity. While complex systems need sophisticated governance, an overly complicated governance system risks gridlock.

Key Point 17. Periodic review of the governance system is critical for detecting unwanted trends.

Table 2. Evolution of some major aspects of NRM governance in recent decades in Australia. From Gunningham (2009) and official organisational websites.

Era	Beliefs & understanding	Rules & strategies	Practices & behaviours	Organisations & relationships	Dominant natural resource issue
1970s	▪ Governments favour regulation to control environmental problems like pollution ▪ Technocratic approach to planning ▪ Public bodies govern public resources	▪ State Soil Conservation Acts	▪ On-farm soil conservation ▪ Public agric. extension services	▪ Regional offices of state Govts ▪ First state Environment Protection Agency (WA) 1972	▪ Erosion ▪ Point source pollution
1980s	▪ Governments favour neo-liberalism, markets, voluntary instruments, economic instruments, industry self-regulation ▪ Local empowerment ▪ Market deregulation	▪ Removal of agricultural subsidies ▪ National Soil Conservation Program ▪ First state native vegetation clearance legislation (SA) 1983	▪ Landcare ▪ Private agric. extension services	▪ First World Heritage Place (Kakadu) 1981 ▪ National Farmers Federation and ACF partnerships ▪ Landcare network	▪ Declining land, biodiversity condition ▪ Franklin Dam
1990s	▪ Governments favour regulatory flexibility, collaboration, search for win-wins ▪ Manage whole catchments (integrated catchment management) ▪ Participative approach to planning ▪ Science of biodiversity and conservation planning	▪ National Landcare Program 1992 ▪ National Forest Policy 1992 ▪ National Strategy for the Conservation of Biodiversity 1996 ▪ Natural Heritage Trust 1997 ▪ Regional Forest Agreements 1997-2001 ▪ National Environment Protection Measures (Implementation) Act 1998 ▪ Environmental Protection and Biodiversity Conservation Act 1999 ▪ Native vegetation clearing legislation in all states by 1999	▪ Indigenous co-management ▪ Agro-forestry ▪ Whole property planning ▪ First state SoE report (WA) 1992 ▪ First national SoE report 1996	▪ Council of Australian Governments and Ministerial Councils 1992 ▪ First statutory catchment management authorities (VIC) 1994 ▪ Growth in coastcare, parkcare groups ▪ Growth in private conservation organisations	▪ Salinity ▪ Water ecosystem degradation due to overallocation of irrigation water ▪ Forest protection
2000s	▪ Regional knowledge, integration	▪ Natural Heritage Trust 2 ▪ National Action Plan for Salinity and Water Quality 2000 ▪ National Water Initiative 2004 ▪ Integrated regional NRM plans ▪ Water Act 2007 ▪ Water sharing plans	▪ On-farm biodiversity conservation via incentives ▪ On-farm environment management systems	▪ Formation of 56 regional bodies under bilateral agreements (2001-2006) ▪ National Water Commission 2004 ▪ New MDB organisation 2008	▪ Drought ▪ Climate change

4 Australian NRM governance system

4.1 INDIVIDUALS AND ORGANISATIONS: THE DECISION MAKERS

It is important to have a clear understanding of who makes decisions about natural resources. Distribution of land use points to one of the governance challenges: some 62% of Australia's land area is used for agriculture. Engagement with the agriculture sector is therefore critical for achieving a national goal of turning around the deterioration in natural resources. The remaining 38% is public land; practically all of which requires ongoing maintenance as well as interventions from time to time to repair or prevent the impacts of past or new disturbances. The people managing country are not necessarily the 'owners' of that land – private, community and government sectors may be working together on lands of any type of ownership. Interactions between land use and marine environments, and the management of marine resources themselves, adds further challenges.

The number of people either singly or in groups who make or influence decisions about NRM in Australia is therefore large. They may be individual, local, regional, state or national, and from private, community or government sectors (see Table 3). There are few formal relationships between all the different groups and levels; the governance challenge is big. Collaborative, or at least synergistic, effort is required for the system to deliver NRM outcomes that take the priorities at cascading scales into account.

A more comprehensive picture of the NRM governance system would include the 'knowledge sector' – an important part of the system (within the 'beliefs and understandings' category in our governance framework). This has been omitted from this discussion to retain simplicity.

4.1.1 The private sector

Farmers and pastoralists are the largest single group of land managers whose decisions impact directly on natural resources. Managing the natural resources on their land is important for the sustainability of their own production, as well as for the state of natural resources off-farm, both from production and conservation perspectives. Indigenous land managers, particularly in the Northern Territory, also have some large landholdings and rely on country for wellbeing and increasingly for economic opportunities. Owners of lifestyle properties, the fishing industry and mining companies are other private sector resource users growing in importance as natural resource managers.

Farmers have reported a lack of financial resources, lack of time, lack of government incentives, age and/or ill health, and conflicting or insufficient information as barriers to improving NRM (ABS 2008).

Key Point 18. Government incentives and better information for farmers would improve their capacity to better manage natural resources.

Table 3. Actors in the current NRM governance system. Approximate number of people or groups in each category in brackets. The dotted lines indicate that the boundaries in this categorisation are not rigid.

Scale	Sector		
	Private	Community	Government
Individual	Farmers (140 000) Fishermen Lifestylers	Volunteers (60 000) Donors Philanthropists	
Local	Indigenous-owned or co-managed places Irrigation companies Mining companies	Landcare, parkcare, coastcare etc. groups (>4500)	Local councils (~600)
Regional	Landcare networks, farm business groups, Indigenous Land Councils	NRM regional bodies (QLD, WA and NT) (~20)	NRM regional bodies (states/territories other than QLD, WA and NT) (~35) Other statutory bodies (e.g. water boards)
State/territory	State/territory farmer & industry groups	State/territory conservation councils State/territory-based alliances (e.g. Victoria Naturally Alliance)	State/territory governments (8) State/territory-relevant government departments (~25) Other state/territory statutory bodies (e.g. NSW Natural Resources Commission, SoE commissions) State/territory local government associations (8)
National	National farmer & industry groups (e.g. NFF)	NGOs and philanthropic trusts (e.g. World Wildlife Fund, Australian Conservation Foundation, Birds Australia, Bush Heritage, Wentworth Group, Conservation Volunteers Aust., North Australia Indigenous Land and Sea Management Alliance). (~480)	Australian Government (1) Relevant government departments (2) Murray-Darling Authority (1), National Water Commission (1) Australian Local Government Association (1) Statutory bodies

4.1.2 The community sector

Involvement of the community sector in environmental issues has grown substantially in recent decades. People are involved in various ways: from donating their own time, resources, effort and specialised skills to donating funds to organisations to progress action, whether focused on policy (e.g. the Australian Conservation Foundation), or on on-ground work (e.g. Landcare, Greening Australia), or on a mix of both (e.g. WWF). The area of land owned and/or

managed by not-for-profit organisations such as Bush Heritage and the Australian Landscape Trust is also increasing. Funds come partly from donors and partly from governments.

In our 'institutional' framework, landcare has facets of being a (networked) organisation, a program and a set of behaviours. A review of landcare in Victoria (Curtis and Cooke 2006) found declining membership, concern about relationships with the new catchment management authorities, low engagement with industry and low capacity for managing their groups without added support. On the positive side the review found that existing members were highly committed to landcare and had positive views about their effectiveness. They also attributed a high value to networking amongst landcare groups. The lack of strategic attention to landcare and the poorly articulated relationship with regional bodies has been noted (e.g. Campbell 2009b).

The Australian Government has recently re-committed to the Landcare program and the landcare community is engaged in developing a vision for its own future. However, its proposed arrangement as an independent program within the Department of Agriculture, Fisheries and Forestry, without clear expression of its place in relation to other actors in the NRM system, risks continuation of existing problems and criticisms. A national landcare framework is being developed with the landcare community to help address these concerns.

Key Point 19. The role of landcare needs to be better articulated and integrated with others' roles in the NRM governance system.

Some 480 'direct giving recipient' environment organisations were registered with the Australian Taxation Office in Australia in 2009. Of those, 251 had status for tax deductions by donors and the remainder received tax benefits as registered charities (Productivity Commission 2009). There are thousands more unincorporated groups (e.g. park care and coast care groups) that function under the umbrella of larger incorporated bodies. Groups of scientists have also emerged recently as formal groups (e.g. Wentworth Group) or informal groups such as the Limestone Plains Group. The number of private foundations is also growing as a result of taxation incentives and increasing individual wealth. Some 200 000 Australians have liquid assets of over $1m (Beeton *et al.* 2006). Some of these fund environmental activities, including research.

The Productivity Commission recently reviewed the whole not-for-profit (NFP) sector in Australia (Productivity Commission 2009). They summarised the current pressures facing the sector as:

- increasing calls for accountability and demonstrating impact
- purchasing arrangements for services putting pressure on government-NFP relations

- shortages in the paid workforce and a changing environment for volunteers
- outdated tax arrangements for philanthropy and
- cross-jurisdictional differences and complexities imposing unnecessary regulatory burdens.

The Commission recommended an integrated approach to future NFP capacity (Box 4). Environment organisations are a relatively small proportion of this whole, but the similarity in issues and call for better integration reverberate with the NRM context of this paper.

BOX 4. An integrated approach to build the capacity of the not-for-profit sector in Australia (Productivity Commission 2009). It refers to the whole not-for-profit sector.

Building on the existing systems and reform programs, the Commission proposes an integrated approach for reform to reduce duplication, improve clarity, lower unnecessary compliance burdens, increase worthwhile transparency and build the capacities of the sector to improve its efficiency and effectiveness. This has five main elements:

1. *knowledge systems that support understanding of the sector by itself, government and business as well as building an evidence base for learning about effective social intervention and public policy measures to facilitate the sector*
2. *clearer governance and accountability via a consolidated regulatory framework that provides a simple one-stop-shop for Commonwealth registration and tax endorsement for NFPs. The principles of proportionality and 'report once, use often' should underpin all reporting requirements. Further, regulation at state and territory level could be more consistent and appropriate*
3. *improving arrangements for more effective sector development to build skills in governance, operational planning and evaluation and to promote workforce sustainability and access to capital*
4. *stimulus for social innovation*
5. *relationship building to strengthen collaboration and effective engagement including in the delivery of government funded services.*

A study of environmental volunteering in Australia (Measham and Barnett 2008) suggests that volunteers have six main motivations:

- contributing to community
- social interaction
- personal development
- learning about the environment
- general ethic of care for the environment and
- attachment to a particular place.

They noted that education and income are consistent predictors of volunteer activity with the lowest rates of volunteering being found among the unemployed. Opportunities to grow this sector include better shaping of volunteer activities and better targeting the market based on such understandings. The community sector and its contribution to NRM in Australia have been little studied compared to the contributions of governments, landcare and the regional organisations.

Key Point 20. Build relationships to strengthen collaboration in delivery by NGOs.

Key Point 21. Improve knowledge, skills and innovation within the NGO sector and of the sector as a whole.

4.1.3 The government sector

Organisations in the government sector include the Australian, state/territory and local governments; plus all the semi-government organisations created by those governments (e.g. MDBA, the catchment management authorities, independent commissions and other statutory bodies).

An issue for NRM governance is that 'institutions' affecting natural resources are rarely the province of a single department within one government. In the Australian Government, two departments have a large direct influence over NRM: the Department of Environment, Water, Heritage and the Arts and the Department of Agriculture, Fisheries and Forestry. Future policies and programs of the Department of Climate Change and Energy Efficiency also have high potential to impact on land use. Treasury and the Department of Finance are close behind in influence because their investment analyses and advice are not required to evaluate policies for integrated landscape impact or to value ecosystem services. Similar divisions exist in most state governments, and as well and crucially for NRM, the decisions of planning departments have a substantial impact on natural resources. Mechanisms for coordinating NRM policy and programs across government departments are of variable effectiveness across Australia (Ross and Dovers 2008).

The same picture applies within states/territories: each has multiple organisations at state/territory and regional level that influence NRM (see Appendix 2 for an example from Victoria). Victoria has eighteen types of organisation that represent at least 50 separate bodies. Even coordination between groups at one level is a challenge. Coordination across state/territory borders is even more difficult.

Local governments are an important component of NRM governance due to their ownership and management of considerable areas of public land, and their strong community links. Local government spends more than $2.6 billion per annum (2002/03) on environmental management of which $1.9 billion is on NRM. However, their history has created a path dependency (see Section 3.5) that has made it a challenge for local governments to see broader-scale NRM as one of their responsibilities. The 2006 SoE report (Beeton *et al.* 2006) noted the expectations on local governments to take up NRM initiatives but that their capacity to do so is limited. Working with regional bodies is a challenge for local governments because their boundaries rarely coincide and local governments are not well funded for managing these relationships or activities. Establishing sound long-term relationships has been difficult because of uncertain futures for the regional bodies and unclear roles relative to local government.

Key Point 22. Relative roles of regional bodies and local government in relation to the environment and natural resource management need clarification.

4.1.4 Regional NRM bodies

The regional NRM bodies straddle the government and community sector: although all are governed by members of the community, some are established by government and some by the community. Some but not all of those established by government have statutory responsibilities.

In an assessment of internal governance performance of regional bodies, performance against eight principles was assessed as generally sound with the 'integration' principle most poorly performed (Lockwood *et al.* 2007). Integration is the principle against which bodies have least control. The assessment suggested that *... significant advances are required in aspects of system and regional level governance*. The 2006 SoE report also noted *... the role of institutions [organisations] in Australia's environmental governance is a crucial one, but it receives little public analysis* (Beeton *et al.* 2006).

In an audit of the implementation of catchment plans in 13 NSW catchment management authorities (CMAs) for implementation of their catchment action plans, seven were effectively implementing their plans (NSW Natural Resources Commission 2008). Improvements were recommended in:

- prioritisation processes
- access to quality resource condition information
- clarification of roles and responsibilities and
- alignment of state and national policies and plans.

New arrangements for Victorian CMAs respond to recent consultations and a review of current arrangements (Victoria Department of Sustainability and Environment 2009). Reforms are targetted to:

- improve priority setting
- better align regional and state priorities
- reduce confusion about roles and responsibilities
- integrate natural resource management with the planning system and
- build on the strengths of the community-driven model.

The similarities with the NSW review suggest that these mostly 'system' issues are likely to be issues in other jurisdictions too.

A recent evaluation of regional NRM against social science knowledge systems (Lane *et al.* 2009a) identified future governance challenges to include:

- clarifying the policy intent of regional NRM
- improving data and reporting systems
- using a more sophisticated mix of policy instruments and
- enhancing the legitimacy of regional bodies (Morrison 2009).

Key Point 23. Regional NRM, in a systems context, would be strengthened by clarification of roles, better alignment of plans across scales, better integration with the land planning system, and improved data and prioritisation.

4.2 RELATIONSHIPS

The formal and informal relationships between organisations within and across sectors and levels (see Table 3) are critical in the NRM governance system, given that few NRM goals can be achieved by single organisations working alone. Relationships are much harder to specify and control than organisations and despite their importance in achieving goals receive little formal attention or funding. *It is more attractive to fund the boxes and not the arrows* (Campbell 2009a). Organisations have performance targets and specific accountabilities, relationships often do not. People focus their attention on what will make their job and their organisation successful.

Individual effort and influence is concentrated in the private sector (top left of Table 3), financial resources for public good activity are concentrated in the national and government sectors (bottom right of the table). What type of governance system best marries these, and all the efforts in between, to achieve the outcomes desired? The same diagonal also describes the bundling of 'institutions' that occurs as decisions come closer to the scale of on-ground action. A plethora of unconnected 'institutions' flow from government actions (bottom right) towards landscapes and seascapes (upper left) where the action happens. Integrating those 'institutions' at landscape or seascape scale is critical for ensuring that on-ground actions are synergistic not counter-productive.

Key Point 24. Relationships are critical to the collaborations required across sectors and scales to achieve NRM outcomes.

4.2.1 Vertical (cross-scale) relationships

Australian, state/territory and local governments are not related in a strict hierarchy, something that is poorly understood by many Australians. The relationship between the Australian and state/territory governments is instrumentally shaped by the Australian Constitution; the relationship between state/territory and local governments is shaped independently by the individual state/territory governments. The Constitution gives different powers to state/territory and Australian governments and has no specific mechanism for how interests in common are pursued.

The Council of Australian Governments (COAG) (which includes the Australian Local Government Association [ALGA] as a representative of local government) was formed in 1992 to work around this issue. It functions as a federated executive but does not have direct political accountability so that its agreements are not subject to the same political scrutiny as agreements made in constituent governments. Power relationships between governments at COAG are highly influenced by the financial resources of the Australian Government, based on taxation revenue, and by the interplay of political party relationships. COAG decision making is by consensus.

The design of government service delivery to regions within the evolving federal system in Australia is debated in wider than NRM circles. Head *et al.* (2007) recommend taking a

> *... practical approach to 'good governance' [that] would thus require continuing along the path of negotiating national agreements, taking subsidiarity more seriously, further clarifying roles in improved service delivery, and allowing greater flexibility and capacity for innovation at the sub-national levels.*

COAG's work is developed by a cascade of inter-government committees of Ministerial Councils and their working subcommittees. In the environment and natural resource areas, the NRM Ministerial Council is the main body, but the Primary Industries Ministerial Council, the Environment Protection and Heritage Council, the Local Government and Planning Ministers' Council, and the Regional Development Council have clear connections to NRM, as does the Ministerial Council on Energy and Ministerial Council on Mineral and Petroleum Resources.

Local governments relate to state governments through state/territory-based legislation that establishes and governs them but they do not have a strict hierarchical relationship. Local governments are elected locally and are therefore accountable locally. A major part of their funding comes from competitive state/territory and Commonwealth funds and they are influenced by, and accountable

to, governments at both scales for those funds. Local government has only one representative on COAG.

In other sectors, formal vertical relationships have also been formed by the aggregation of bodies from lower scales. Some examples are:

- The National Farmers Federation (NFF) is both a vertical and a cross-industry national organisation, with representatives of state/territory farmer organisations and national industry bodies on its members' council. The NFF mission is to

  ... influence the Australian Government, Parliament and the broader community to achieve a strong, progressive and sustainable farming sector in Australia, through national and international representation and advocacy; and to provide collective strength and leadership.

- In a more formal vertical arrangement, the Australian Local Government Association (ALGA) is a federation of state and territory local government associations that in turn represent their individual local governments.
- Greening Australia is one of the more formally vertically linked NGOs. It has a federated national organisation formed by separate state and territory Greening Australia members.

Examples of less formal vertical relationships include:

- The Environmental Defenders Offices in each state and territory have a national network but no national organisation.
- Conservation Councils link from the local up to the state/territory level. They act as umbrella organisations for a spectrum of NGOs with environmental interests. Even the ACT Conservation Council has 33 members with a wide range of specialised interests (see Box 5). There is no federated national Conservation Council, although it has been discussed and members have formed a network, the Australian Environment Network, to improve information exchange amongst the individual conservation councils.

BOX 5. Members of the Conservation Council of the ACT Region. From their website.

ACT Herpetological Association
ANU Food Co-operative
ANU Students' Association – Enviroment Collective
Australian Association for Environmental Education (ACT Chapter)
Australian Conservation Foundation (Canberra Branch)
The Australian Native Plants Society, Canberra Region Inc.
Australian & New Zealand Solar Energy Society (ACT Branch)
Canberra Bushwalking Club
Canberra Indian Myna Action Group
Canberra Ornithologists Group
Canberra Region Anti Nuclear Campaign
The Coastwatchers Association Inc
Environment Defender's Office (ACT)
Environment Institute of Australia and New Zealand
Field Naturalists Association of Canberra
Friends of the Aranda Bushland
Friends of Grasslands
Friends of Tidbinbilla
Ginninderra Catchment Group
Goulburn Field Naturalists Society
Kosciusko Huts Association
Molonglo Catchment Group
National Parks Association ACT
Nature and Society Forum
Pedal Power
Red Hill Regenerators
Society for Sustainability & Environmental Engineering (ACT and Region Chapter)
Sullivans Creek Catchment Group
Sustainable Population Australia
Southern ACT Catchment Groups
Southern Tablelands Ecosystems Park
Vegetarian Society ACT
Wilderness Society ACT Branch

Networks and alliances also exist at state/territory level. For example, the Victorian Naturally Alliance is an alliance of eight organisations, themselves a mix of national and state NGOs, formed to work with government and local community groups on the state's biodiversity issues.

Environment NGOs also form relationships around specific issues. The recent 'Boobook Declaration' represents the agreed view of 40 environment NGOs on the actions the Australian Government should take to better protect biodiversity in 2010 – the International Year of Biodiversity.

The Australian Conservation Foundation (ACF) is a national organisation formed directly from members across Australia. Depending on the issue in question, they lobby and work with Australian, state/territory and local governments, other NGOs and the private sector.

The variety in arrangements in the NGO sector is not surprising. Many were started by small groups of people with a common interest and a focus on issues anywhere from the very local to the international. The variety and autonomy in this sector carry more hallmarks of polycentricity than do most government or semi-government arrangements.

Key Point 25. Coalitions of organisations with common interests and that cross scales are already a strong emergent (self-generated) property of Australia's NRM governance system. This social capital is of great value and should be sustained and drawn on in governance design.

4.2.2 Horizontal (cross-sector) relationships

Formal cross-sector relationships are much less common than formal vertical relationships – a reflection of the sectoral approach Australia has taken to its landscapes and seascapes in the past and the still-to-mature conversations about what Australia wants from its lands and seas (Section 2.4). Inevitably these are difficult conversations because not all sectors can have everything they want and acceptable tradeoffs have to be reached. Some of this occurs through the political system, but this is not fine-grained enough to deal with specific landscapes and seascapes.

One formal relationship is that between the South Australian Government and NGOs in South Australia who have recently pioneered making formal relationships through signing memoranda of understanding (MOU); one MOU involves all partners, and individual subsidiary MOUs are signed with individual NGOs.

Informally, the NFF and the ACF have a history of working together on issues of national importance. Their joint position in their 2000 paper 'Repairing the Country' was a very powerful statement about the need for landscape and seascape repair and how it can be achieved by farming and environmental sectors working together. Building on this theme, the new NRM Roundtable reflects a broader cross-sectoral relationship. With membership from ALGA, NFF, WWF, ACF and the NRM regional bodies it aims to agree on options for NRM action nationally that accommodate the interests of all Roundtable members.

Informally, and at multiple scales, many advisory groups and boards, including those of the regional bodies, draw their membership from multiple sectors in order to access a broad range of perspectives about NRM. However, membership is generally skills based rather than formally representative of sectoral organisations. Learning about the perspectives of other sectors is a key ingredient for reaching better joint decisions about shared resources. Several studies have demonstrated that the places that are most highly contested across sectors may occupy only a fraction of the total area or size of the resource being considered and that many acceptable tradeoffs can be devised in the remainder of the area (e.g. Abel and Langston 2001).

Key Point 26. Cross-sectoral relationships are relatively weak but critical in a good NRM governance design in order to better resolve decisions about integrated resource use.

4.3 RULES AND STRATEGIES

Rules and strategies span a range of formal and less formal mechanisms, but it is important to recognise that they are often closely related. For example, a formal inter-government agreement or strategy might require legislation in one or more governments to give it regulatory powers, and governments may then develop less formal funding programs and/or specific plans to give further effect to their objectives.

Even when legislation is in place, enforcement depends on government will and some laws have been notoriously unenforced for long periods of time in the past (e.g. meeting the cap on water allocations under MDBC agreements or applying penalties under land clearing legislation).

4.3.1 Formal agreements

Agreements made jointly by the Australian and state/territory governments could be expected to have a large influence in the NRM governance system. These agreements often, but not always, result in new legislation at either

the Commonwealth or the state/territory level, or jointly at both levels. One of Australia's key NRM agreements is the 1990 Intergovernmental Agreement on the Environment (Box 6 – see next page). Also predating COAG was the National Strategy for Ecologically Sustainable Development <www.environment.gov.au/about/esd/publications/strategy/index.html>, adopted in 1992.

Other agreements at COAG level include:

- Environment Protection and Heritage Council (2001), incorporating the National Environment Protection Council (NEPC)
- National Action Plan for Salinity and Water Quality (2000; ceased 2008)
- Intergovernmental Agreement on a National Water Initiative (2004)
- Murray-Darling Basin Intergovernmental Agreement (2008).

Even when there is a shared agreement between governments about the direction in which governance arrangements for natural resources should change, the pace of reform has often been slow. The National Water Commission reported recently that reform under the National Water Initiative (NWI) has been slow or inadequate in some areas (although some good progress has been made in other areas) (National Water Commission 2009). In particular the commission assessed that the NWI Agreement that aimed to have made substantial progress by 2010 in returning overallocated systems to environmentally sustainable levels of extraction will not be met. Sanctions (one of the Ostrom NRM governance design principles) are rarely applied.

4.3.2 Legislation

Core to the ways in which NRM laws are made in Australia is the agreement made at Federation in 1901 that states would retain their colonial rights to govern their own natural resources. Evolution of Commonwealth–state/territory relationships since then has seen progressively more collaborative approaches, but the states/territories still independently enact most of the legislation that influences natural resources. The Australian Government has power to make laws for the protection of the environmental on issues of national and international environmental significance. The *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* (Cwlth) is the current legislation that does this but it can only be applied to places that involve:

- world heritage sites
- national heritage places
- wetlands of international importance ('Ramsar' sites)

BOX 6. The Intergovernmental Agreement on the Environment 1990 – a key NRM governance agreement

On 31 October 1990, Heads of Government of the Commonwealth, States and Territories of Australia, and representatives of Local Government in Australia, meeting at a Special Premiers' Conference held in Brisbane, agreed to develop and conclude an Intergovernmental Agreement on the Environment to provide a mechanism by which to facilitate:

- *a cooperative national approach to the environment;*
- *a better definition of the roles of the respective governments;*
- *a reduction in the number of disputes between the Commonwealth and the States and Territories on environment issues;*
- *greater certainty of Government and business decision making; and*
- *better environment protection;*

AND WHEREAS the Parties to this Agreement

ACKNOWLEDGE the important role of the Commonwealth and the States in relation to the environment and the contribution the States can make in the development of national and international policies for which the Commonwealth has responsibilities;

RECOGNISE that environmental concerns and impacts respect neither physical nor political boundaries and are increasingly taking on interjurisdictional, international and global significance in a way that was not contemplated by those who framed the Australian Constitution;

RECOGNISE that the concept of ecologically sustainable development including proper resource accounting provides potential for the integration of environmental and economic considerations in decision making and for balancing the interests of current and future generations;

RECOGNISE that it is vital to develop and continue land use programs and co-operative arrangements to achieve sustainable land use and to conserve and improve Australia's biota, and soil and water resources which are basic to the maintenance of essential ecological processes and the production of food, fibre and shelter;

ACKNOWLEDGE that the efficiency and effectiveness of administrative and political processes and systems for the development and implementation of environmental policy in a Federal system will be a direct function of:-

i. the extent to which roles and responsibilities of the different levels of Government can be clearly and unambiguously defined;

ii. the extent to which duplication of functions between different levels of Government can be avoided;

iii. the extent to which the total benefits and costs of decisions to the community are explicit and transparent;

iv. the extent to which effective processes are established for co-operation between governments on environmental issues; and

v. the extent to which responsible Governments are clearly accountable to the electorate for the development and implementation of policy; and

ACKNOWLEDGE that in the development and implementation of environmental policy it is necessary to accommodate the regional environmental differences which occur within Australia;

- nationally threatened species and ecological communities
- migratory species
- Commonwealth marine areas and
- nuclear actions.

State/territory governments and/or other arrangements still regulate other environmental aspects of the same places. Consequences of such poorly integrated approaches include, for example, failure to maintain the condition of the Coorong and Lower Lakes of the Murray, a requirement of the Ramsar Convention, because they depend on flows of water governed by a different arrangement (Murray-Darling Basin Commission/Authority).

An independent review of the EPBC Act in 2009 (Hawke 2009) made 66 recommendations for reforming the Act (Box 7). Specifically in terms of governance design, the report suggests that the Australian Government focus its role more on coordination, setting standards and monitoring others rather than carrying out independent projects themselves. Specifically the report suggests an Australian Government focus on:

- harmonising with state and territory regimes and practices
- accrediting state and territory processes that meet requisite Commonwealth standards
- standardising regulatory systems so they are uniform across the Commonwealth, states and territories
- simplifying environmental impact assessment (EIA) processes and
- oversighting the performance of accredited systems.

BOX 7. The core elements of suggested reforms of the EPBC Act (Hawke 2009).

The Review proposes a package of reforms that build on the current Act and are directed at better placing the Australian Government in managing the environmental challenges of the future. The core elements of the reform package are to:

- *redraft the Act to better reflect the Australian Government's role, streamline its arrangements and rename it the Australian Environment Act;*
- *establish an independent Environment Commission to advise the government on project approvals, strategic assessments, bioregional plans and other statutory decisions;*
- *invest in the building blocks of a better regulatory system such as national environmental accounts, skills development, policy guidance, and acquisition of critical spatial information;*
- *streamline approvals through earlier engagement in planning processes and provide for more effective use and greater reliance on strategic assessments, bioregional planning and approvals bilateral agreements;*
- *set up an Environment Reparation Fund and national 'biobanking' scheme;*
- *provide for environmental performance audits and inquiries;*
- *create a new matter of national environmental significance for 'ecosystems of national significance' and introduce an interim greenhouse trigger;*
- *improve transparency in decision-making and provide greater access to the courts for public interest litigation; and*
- *mandate the development of foresight reports to help government manage emerging environmental threats.*

A focus on these roles is very consistent with recommendations about the best role of central governments (see Section 2.3).

Although 'developments' (usually at single sites) are assessed for environmental impact under state/territory legislation or under the EPBC Act if the impact is in an area of state/territory or national importance, policies and programs are rarely similarly assessed (Ross and Dovers 2008). This may result in lack of evidence to support funding and actions for environmental policies and programs. Lack of these assessments also risks policies producing perverse outcomes (see also Section 4.3.4). Site-by-site analysis of environmental impact also fails to pick up issues of habitat fragmentation or the accumulative decline in habitat for species that are not listed.

The lists of other Commonwealth and state/territory legislation influencing natural resources are long (see Appendix 2 for the major relevant legislation for the Commonwealth and a sample state, Victoria). The complexity at even the level of the state is apparent, as is the complexity of organisations with sometimes multiple organisations legally connected to the same legislation (although this could represent a sensible division of responsibilities, as long as the respective roles are clear).

4.3.3 Policies and strategies

To help support the goals of legislation, and to further NRM outcomes that are not appropriately dealt with by legislation, governments use mixes of other instruments to achieve NRM outcomes. Some of the relevant strategies that have been agreed nationally by the NRM Ministerial Council and the Primary Industries Ministerial Council include:

- the **National Strategy for the Conservation of Australia's Biological Diversity (1996)** – endorsed by COAG, it has recently been reviewed by the Natural Resource Management Ministerial Council and a new draft strategy was released for comment in 2009. The draft strategy was publicly criticised for, among other things, its lack of specificity about goals and actions. The final strategy is expected in 2010.
- **National Weeds Strategy (1997)** – currently being reviewed, revised and will be renamed the Australian Weed Strategy.
- **National Framework for the Management and Monitoring of Australia's Vegetation (1999)** – currently being reviewed to *... bring it into line with the latest thinking on: climate change; habitat connectivity; and ecosystem function; and also to ensure its alignment with the key directions in the draft revised National Biodiversity Strategy.*
- **Australian Pest Animal Strategy (2007)**
- **Australia's Strategy for the National Reserve System (2009–30)** – recently reviewed and updated.

A recent benchmarking of the administrative performance of the Australian Public Sector (APS) against selected other OECD countries found that while the APS rated well in some respects, attributes that are particularly important to the bundle of attributes called 'policy capability' rated lower than most countries Australia would benchmark itself against (Table 4) (KPMG 2009).

Table 4. Policy capability of the Australian Public Service benchmarked against OECD countries. From KPMG (2009).

Selected questions	Rating (out of 10)							
	AUS	CAN	DEN	FR	NL	NZ	UK	USA
How much influence does strategic planning have on government decision making?	**6**	9	9	5	8	7	8	8
How influential are non-governmental academic experts in decision making?	**5**	8	6	4	9	7	7	7
How effectively do line ministry civil servants coordinate policy proposals?	7	7	9	9	9	9	9	3
How important is regulatory impact assessment in the policy-making process?	**7**	7	8	4	8	9	10	10
Does the government consult with unions, business, religious, social and environmental interest groups?	**6**	7	9	4	9	8	6	9
To what extent does the government implement a coherent communication policy?	**9**	9	8	8	7	8	9	10
Averaged rating (equally weighted)	**7.3**	8.4	8.3	6.8	8.5	8	8.2	8.4

Ex-Prime Minister Rudd has publicly stated that the APS should ... *aspire to be the best public service in the world.* This assessment is not specific to NRM policy, but the complexity of NRM issues and its governance would suggest these attributes are particularly important for NRM policy. The KPMG report <http://pmrudd.archive.dpmc.gov.au/node/6341> recommended that the APS has an opportunity to improve its relative performance by strengthening

> ... *its capability for coordinated, informed and strategic policy; its tools, methods and institutions for integrating external expertise and the views of citizens into the policy development and service design process; and its understanding of government priorities through the development of an overarching framework.*

Key Point 27. 'Rules and strategies' are crucial in a governance system for capturing and communicating agreements about objectives and accountabilities. The current set of 'rules and strategies' is vast, unsystematic and largely organised by divisions made by society that do not reflect landscape and seascape function. No mechanisms exist to ensure alignment across scales from the national to the local.

Key Point 28. The role of the Australian Government in an NRM governance system should be more focused on coordination, setting standards and monitoring others rather than on carrying out independent projects itself. Investments in building a better regulatory system are needed (e.g. national environmental accounts, skills development, policy guidance, and acquisition of critical spatial information).

Key Point 29. A focus on building greater use of strategic planning, academic experts and consultation into policy development in the APS will strengthen policy capability.

4.3.4 Integrated policy

Integrated approaches to intervening in landscapes and seascapes are essential. Water, land, the atmosphere and biota interact to provide ecosystem services and a policy that addresses one component has knock-on effects on other components and the ecosystem services delivered. Failure to take more integrated approaches risks perverse outcomes. For example:

- The focus on carbon alone in the proposed Emissions Trading Scheme, in which forestry is included but not agriculture, is likely to lead to perverse outcomes for biodiversity and water.
- The focus on water and water plans for the Murray-Darling Basin in the new Water Act (2007), in a planning framework disassociated from the planning framework for other NRM issues, risks perverse outcomes when the uncoordinated plans collide at landscape and seascape level.
- Water sharing plans developed across Australia are being developed in isolation from regional catchment plans.

At a broader level, interaction with policies not immediately directed to the environment also needs to be considered. Socioeconomic policies can impact on rural capability to achieve more sustainable practices; land development decisions often favour socioeconomic benefits whatever the environmental costs. Conversely natural resource management can have multiple positive social, health and economic outcomes, and these can make investment in NRM even more worthwhile.

Australian Government effectiveness at coordinating policy proposals has been rated moderately well, but below the Organisation for Economic Co-operation and Development (OECD) average (Table 4). An evaluation of the structures and processes used to coordinate environmental policy at both Australian and state/territory government levels found that they are fragmented and of variable effectiveness (Ross and Dovers 2008). Success is more likely when there is a legislative mandate for integration and strong structural and capability support. A number of commentators have remarked on the failure of ESD (ecologically sustainable development) principles to become incorporated into practice in Australia.

Integrated strategies tend to be adopted only when the long-term layering of incremental changes in existing policies becomes impossibly disorganised and new integrated policies seem the only solution (Rayner and Howlett 2009) – an adaptive governance process (see Section 3.3).

Australian states and territories all have mixes of strategies and plans that integrate the implementation of national agreements with their own policies, strategies and plans. The South Australian Policy Framework for Managing the Water Resources of Plantation Forests is an illustration of the complex context for policy making for states/territories within the federal system (Table 5).

Table 5. Integrating national and state policies and plans. An example from the South Australian policy framework for managing the water resources of plantation forests (Department of Land Water and Biodiversity Conservation 2009).

National or cross border	State	Regions
▪ National Water Initiative Intergovernmental Agreement 2004 ▪ Environment Protection and Biodiversity Conservation Act 1999 ▪ National Forest Policy Statement ▪ Plantations 2020: The 2020 Vision ▪ Groundwater (Border Agreement) Act 1985 (parallel legislation in South Australia and Victoria) and ▪ Border Groundwaters Agreement	▪ South Australia's Strategic Plan ▪ Natural Resources Management Act 2004 ▪ State Natural Resources Management Plan 2006 ▪ Development Act 1993 ▪ No Species Loss: A nature conservation strategy for South Australia 2007–2017 ▪ Climate Change and Greenhouse Emissions Reduction Act 2007	▪ 8 regional NRM plans

Key Point 30. Develop more systematic approaches to policy integration.

4.3.5 Programs and plans

The major Australian Government program currently implementing its natural resource investments is Caring for our Country. It encompasses a number of subprograms (e.g. the Environmental Stewardship Program, the Landcare Program, Working on Country) and focuses on six national priorities:

- the National Reserve System
- biodiversity and natural icons
- coastal environments and critical aquatic habitats
- sustainable farm practices
- natural resource management in northern and remote Australia and
- community skills, knowledge and engagement.

Other relevant but separate programs include the Australian Pest Animal Management Program and Weeds of National Significance. It is notable though that all these sit in a separate portfolio from water and climate change. The separation of these portfolios has seriously disaggregated policy work and funding for NRM activity.

An evaluation of the arrangements for regional delivery under the NHT2 program, (Keogh *et al.* 2006) found widespread and consistent support for arrangements that were largely based on the development of partnerships

between the Australian Government, state/territory governments and regional bodies; and investment in NRM made through regional bodies on the basis of accredited regional plans, as the best ways to achieving integrated natural resource outcomes at a landscape and seascape scale. Overall the review was very positive and improvement actions were seen as evolutionary, rather than revolutionary. The main area for improvement was engagement with key land managers in primary industry and local government. The need for reasonable continuity in programs was also noted as this had been a major difficulty in some previous programs.

The Australian National Audit Office (ANAO) (2008) assessment of regional delivery of NHT2 and National Action Plan for Salinity and Water Quality (NAPSWQ) found that there was insufficient information to be able to judge the effectiveness of the programs in terms of environmental outcomes – a finding of concern in previous audits. The regional delivery model was seen to be reasonable *... given the scale of the NRM challenge across Australia and past experiences.* This assessment also drew on ten prior evaluations of the regional delivery model.

The impossibility of measuring long-term outcomes within short time frames is obvious, even when good environmental monitoring programs are in place. An alternative approach is to better draw on existing knowledge of environmental processes to construct quantitative hypotheses about the links between actions and outcomes. However regional bodies have been restricted in their capacity to access or fund technical studies and the omission of a requirement to better articulate the technical foundations of actions chosen was a shortcoming of initial program design (Pannell 2009). This argument can also be extended to understanding the socioeconomics of adoption – some investment actions have been ineffective because the wrong delivery mechanism was used.

Expectations about what can be achieved with Australian Government NRM investments have been high. However the perceived failure of this investment to substantially improve Australia's environments may be due more to an inadequate level of investment for the size of the challenge (e.g. Box 8), than to inadequate program design. Better technical evaluation of programs in their design phase would enable better matching of the resources available to what can realistically be achieved (the new Caring for our Country program is doing this

BOX 8. Inadequate investments for size of the environmental task. From an evaluation of coastal, estuarine and marine outcomes of regional investment (SMEC 2006).

... there was a view that [NHT] investment is not yet at a level to effectively manage or reverse the perceived continual decline in coastal, estuarine and marine values over the long term. This comes from a widespread view that the rate of decline in coastal, estuarine and marine values caused by rapid population growth and resource exploitation is faster than any rate of improvement effected through regional investment.

better than previous programs) and would also provide a better evidence base to underpin the business case for growing the investment (Ross and Dovers 2008).

A more evidence-based business case also provides a firmer basis for ANAO evaluations. Rather than focusing the assessment on a governance issue – the social need to account for the outcomes of expenditure – the evaluation could focus more on the nature of the natural resource challenge and how well the challenge was being addressed. Ideally all investments – public, private and NGO sectors – would be considered in such an evaluation.

Key Point 31. Develop a better evidence base for investment in NRM, based on a better understanding of the condition of natural resources, the investments required to maintain or improve them, and the resources available from other contributors.

A Senate enquiry into NRM and conservation challenges (Senate Standing Committee on Rural & Regional Affairs & Transport 2010) has endorsed a regional delivery model for NRM, identifying that a key strength is in the effectiveness of identifying regional NRM issues and practical initiatives to address them – *Consultation with and cooperation between stakeholders at all levels is vital to the successful long-term delivery of NRM projects* (see Appendix 4 for recommendations provided in abbreviated form and categorised according to the governance framework).

The Chairs of the 56 regional bodies identified government policies and changes in program arrangements as having the single largest impact on NRM outcomes (Forum in 2009). Identified impacts included: short-term planning, planning in silos, unintended or perverse outcomes, high staff and project turnover, loss of capacity and loss of community confidence.

Developing integrated NRM plans at regional level was a core requirement of the NHT – all regions in Australia now have such plans in place. They remain a core requirement only in states that have statutory regional bodies, although their review and continuation should underpin good governance for all regional bodies. The lack of such a formal requirement was presented as a concern to the Planning Institute of Australia in their submission to the Senate enquiry into NRM (Box 9).

BOX 9. Importance of jointly accredited regional plans. From the Planning Institute of Australia's submission to the Senate Enquiry into NRM. <www.aph.gov.au/SENATE/committee/rrat_ctte/natural_resource/submissions/sub30.pdf>

Under the previous bilateral agreements … the regional NRM plans provide a strategic framework through which regional communities identify natural resource management issues in their region, assess the social, economic and biophysical drivers, develop regional natural resource condition targets, and identify and prioritise actions to achieve these targets. A regional plan is in effect the blueprint for identifying and achieving the region's natural resource management targets and improved outcomes. The attendant investment strategy is in effect then the business prospectus for attracting investments from government and from external sources. In all jurisdictions Ministers from both governments have accredited these plans. This is a robust model.

Another consequence of the Australian Government setting its own priorities independently of state/territory Governments and regional bodies is that it has made the job of aligning priorities across scales, and managing concurrent programs more complex and therefore more costly for regional bodies.

Many many plans exist for managing places, landscapes and seascapes below the regional scale. Apart from farm management plans, most result from statutory requirements and reflect individual pieces of legislation. The result is that some landscapes and seascapes are subject to multiple independent plans. For example, a count in 2006 of the number of plans managing separate aspects of the Barmah floodplain (one ecosystem) revealed 16, administered by at least six different organisations (Abel *et al.* 2006). Other significant places have no management plan because cross- tenure or cross-sectoral agreement has not been reached. Plans may be in place but are not always monitored or complied with, or are inadequately resourced or are out of date. There is great scope for improving the efficiency of governance by re-thinking the nature of place-based plans. Like the regional NRM plans, the more that place-based plans reflect the integration of ecosystem processes and the integration of delivery organisations in that place together, the more effective they will be.

Key Point 32. Integrated NRM plans at regional scale, and at smaller scales for places that are co-managed, are the best basis for planning effective interventions at that scale.

4.3.6 Assessing environmental condition across Australia – a seemingly intractable national challenge

A common theme in many of these reviews is the lack of a coherent approach to monitoring environmental condition across Australia. From the Keogh report to Audit and SoE reports and the Senate Enquiry, the lack of a nationally consistent framework means it is not possible to know with any certainty whether condition is improving or not across the nation – or whether interventions are having an impact – or even where the greatest need for investment really is. This issue has been on the work program of the NRM Ministerial Council for many years without completion. The National Land and Water Audit has been discontinued. Meanwhile the Wentworth Group has proposed an approach based on accumulating simple regional catchment health assessments up to the national level (Wentworth Group 2008) but it has not found formal acceptance in government at this stage. The review of the EPBC Act (Hawke 2009) also addressed this issue in its recommendation:

> *... invest in the building blocks of a better regulatory system such as national environmental accounts, skills development, policy guidance, and acquisition of critical spatial information. This is a crucial issue for good NRM governance.*

Some countries have progressed further than Australia on this issue (see Box 10).

Key Point 33. To know if a governance *system* is working, it must be able to assess its *collective* impact and then collectively improve its performance from the lessons learned. This is a larger question than assessing the effectiveness of individual 'institutions'.

4.4 BELIEFS AND UNDERSTANDINGS, BEHAVIOURS AND ACTIONS

Beliefs and understandings, behaviours and actions (Figure 3) are a reminder that formalisation of organisations and rules in a governance design is not all that is required for governance to be effective. The choice of the more formal mechanisms is shaped by the community's beliefs and understandings because they influence the acceptability of new 'institutions'; in turn some NRM governance objectives use strategies designed to change beliefs and behaviours in order to achieve an on-ground NRM change. In general, Australia has a strong preference for not using legislation to control farmer decisions about land management on their properties, but not much innovation has been used for developing alternative approaches. The use of market-based instruments is growing but there is potential to be more sophisticated about the selection of mechanisms that best brings about behavioural change (Pannell 2008).

BOX 10. National environmental accounting in Norway.

Norway provides an excellent example of a policy transformation that originated in a central agency (the Finance Department), is integrated into long-term national financial planning and has been maintained and refined through multiple changes of government over nearly three decades. Norway's environmental accounting and sustainable development indicator projects were initiated by the Ministry of Finance and were delegated to Statistics Norway in recognition of the need for quantitative information to support long term financial planning. Natural resource accounting had begun in the 1980s, had progressed through discussions on the usefulness of a 'green GDP', and culminated in efforts to develop sustainable development indicators.

'Understandings' encompasses formal knowledge developed through research and academic study, as well as the experiential knowledge developed by NRM decision makers and the cultural knowledge of Indigenous people. The importance of innovation has already been raised several times (e.g. Section 2.3, Section 3.1).

The Australian NRM knowledge system was recently reviewed by Campbell (2005). His conclusion was that although many individual pockets of knowledge development are good, there is also

> *... chronic inadequacy in linkage and coordination mechanisms, there is an almost total lack of cohesion or ability to direct the system as a whole, there is little capacity for learning across the whole system and it is very difficult for anyone to find out what is happening (or has happened) where and what lessons emerged. There is a lack of*

long-term memory in the system, exacerbated by the purchaser-provider model and the tendency to short-term contract employment in major funding programs.

This analysis echoes the picture developing in this paper of the shape of the whole NRM governance system; not a surprise as the same cultural history has shaped them both, they frequently interact and therefore respond to each other's characteristics.

Key Point 34. Build in more innovation in socioeconomic sciences and the use of more sophisticated mixes of methods for influencing behaviour and actions

Key Point 35. The NRM knowledge system is an integral part of the NRM governance system and faces similar design challenges.

5 NRM Governance systems overseas

5.1 GLOBAL TRENDS

As in Australia, NRM governance systems in other countries have developed and evolved in a largely unplanned fashion, responding to issues when there is strong pressure to act and using mechanisms that reflect national culture and governmental arrangements. As a result arrangements around the world are very diverse. Nevertheless, some global trends are evident including:

- an increasing emphasis on civic participation
- more decentralisation to regional scales and
- a shift from govern*ment* to govern*ance* (Lane *et al.* 2009b).

Some countries have developed new national 'institutions' to try and deal with the wider question of improving national sustainability performance. They recognise the need for more national conversations about what sustainability is, the goals to be chosen and mechanisms to achieve it (see Section 2.4). A model for a national organisation that can lead such multi-stakeholder discussions was endorsed at the 2002 World Summit on Sustainable Development and has been implemented in some 70 countries (Connor and Dovers 2004) (see Box 11). Effectiveness of these national organisations varies, but those countries that have had them longer and remain committed to them have evolved the strongest institutions. Australia does not have such a body.

Some countries have also implemented a government process to assess the integrated impact of policies, plans and programs. Known collectively as strategic environmental assessment (SEA), the process is designed to overcome the shortcomings of project-based environmental impact assessment (Connor and Dovers 2004), and is intended to apply to all policies, not just environmental ones. The European Union has placed more importance on this as a mechanism for addressing sustainability than most other countries and it is a Directive of the Union that members comply. Performance is regularly reviewed and reported.

BOX 11. Examples of national councils for sustainable development (from individual organisation websites)

Belgium	Federal Council for Sustainable Development
Canada	National Round Table on the Environment and the Economy
Ireland	National Sustainable Development Partnership
Korea	Presidential Commission on Sustainable Development
Mexico	National Consultative Council for Sustainable Development
UK	Sustainable Development Commission

5.2 CANADA: A CASE STUDY FOR COMPARISON

Canada is a large country, a constitutional monarchy, a federal parliamentary democracy and a former British colony. It therefore makes a good case study for comparison with Australia. The following descriptions and analysis are taken from Robins (2007) and Robins and de Loë (2009).

5.2.1 Organisations

Canada has a similar governmental structure to Australia with a national Government of Canada, Provincial and Territorial Governments, and municipal governments. In relation to NRM however, the role of the Canadian Government in the provinces is limited and possibly shrinking, and in the territories it is largely confined to the establishment of co-management arrangements with First Nations peoples. The lack of national direction in NRM means more variability in NRM governance arrangements exists between provinces and territories and there is good scope for learning from this diversity of 'experiments'.

- In the provinces (British Columbia, Alberta, Manitoba, Ontario, Quebec), NRM arrangements are more decentralised and are more mature in the higher-populated south. Boundaries are mainly based on or aligned with catchment areas, and are mostly of small scale although variable in area (500 – 240 000 km^2). The functions of the decentralised organisations vary significantly between provinces. Most are not-for-profit, non-government organisations; some are incorporated bodies; some have charitable status or are associated with a charitable foundation.
- In the territories (Northwest Territories, Nunavut, Yukon), decentralised organisations have arisen from land claims agreements and associated legislation. Some are regulatory authorities, some are advisory bodies, and most are quite new. Their jurisdictional area is regional to supra-regional in scale (16 000 – 1 994 000 km^2), reflecting both land claim areas and sparse populations (31 000 – 42 600).

At the scale of province and territory, Canada has many organisations comparable to Australia's statutory authorities (e.g. Alberta Water Council, Conservation Districts Commission, Yukon Land Use Planning Council) and NGOs comparable to ours that provide coordination and advocacy at a higher scale (e.g. Manitoba Conservation Districts Association, Conservation Ontario, Regroupement des Organisations de Bassin Versant du Québec). As in Australia, organisations with a coordination and advocacy role are especially useful in providing smaller entities with a political voice.

Relationships between municipalities (local governments) and NRM bodies are variable and exhibit some tensions. Arrangements in Ontario, Manitoba and Québec have stronger connections to municipalities.

At the regional and local level, Canada's decentralised NRM organisations face a number of challenges:

- difficulties in cultivating and retaining competent Board members and staff, especially in remote settings, noting that workloads and remunerations differ greatly between and often within jurisdictions.
- variation in and inadequate resourcing (e.g. Québec's Watershed Organizations receive base funding of only about $CA65 000 /yr) within and between the provinces – Canadian governments are reluctant to invest in overheads and ongoing costs, and NRM resourcing tends to be short-term and project-based
- trying to fulfill the rhetoric of governments about devolution and empowerment of local/regional communities with inadequate transfer of power and resources
- lack of development of internal governance systems, particularly in smaller organisations that has contributed to a lack of implementation of watershed plans (e.g. de Loë and Kreutzwiser 2007) – Governments in Canada generally expect NRM organisations to achieve comparable standards of planning, implementation, monitoring, reporting and evaluation despite their significant contextual and capacity differences.
- highly variable processes and terms for Board composition and appointment, including the scope for political intervention
- identifying where collaboration across organisations could reduce duplication
- integrating and accessing science and knowledge to inform decision making, including the recognition and inclusion of local and Indigenous knowledge.

Some regional and local organisations raise substantial funds, including through levies. In Ontario, for example, the 31 conservation authorities (non-profit organisations, whose board members are appointed by local municipalities) manage $CA250m /yr:

- 42% from self generated revenues
- 33% from municipal levies
- 23% from provincial grants and special projects and
- 2% from federal contracts.

Most have formed foundations that are registered charities and legally independent from their own Board structures. These foundations raise funds and community awareness, organise volunteers and administer specific projects,

including land acquisitions. Donations or bequests of money, real or personal property may be made to the conservation authority through the foundation. The donor is eligible for tax credits.

5.2.2 Relationships

As in Australia, decentralised NRM organisations in Canada are dependent on good working relationships with governments and other stakeholders to realise their management goals. Some strong stakeholder engagement processes, responsibilities and accountabilities, including relationships with government agencies (as key players in the NRM system) are embedded in legislative foundations:

- the boards of Ontario's conservation authorities must comprise municipally appointed members, 75% of whom are elected municipal politicians
- Québec legislation provides detailed direction on board membership composition for watershed organisations, including municipalities, industries and environmental groups.

Such membership on an organisational or elected basis contrasts with the stronger skills-based approach generally found in regional body boards in Australia.

Less formal mechanisms (e.g. MOUs) for framing ongoing collaborative arrangements also exist:

- the Grand River Conservation Authority in Ontario has a protocol agreement with Six Nations of the Grand River to provide notification of any proposed developments within unsettled land claim areas abutting the Grand River
- it also has a MOU with three universities within its boundaries providing them with a list of research priorities, and an annual research forum enables university researchers to communicate findings
- the Fraser Basin Council (British Columbia) and Grand River Conservation Authority have a twinning cross-border agreement that includes convening joint Board meetings.

Canadian governments have only a limited recognition of the scope for and benefits of developing active networks of decentralised entities.

5.2.3 Rules and strategies, plans and programs

Canada does not have a national NRM framework or goals. Some provinces have strategic plans that provide a context for more decentralised organisations.

For example, the Québec Water Policy provides strategic direction for the development of watershed plans prepared by watershed organisations, and then the Québec Government requires that its agencies environment, health, planning, infrastructure etc.) sign off on those plans and align and report their work against those plans.

5.2.4 Beliefs and understanding, behaviours and actions

The quasi-independent status of the decentralised NRM organisations in Canada enables them to position themselves as trusted knowledge brokers, to advance environmental agenda and to present different perspectives on issues. However, cross-organisational sharing and learning is limited, particularly across provincial borders. A recent initiative in Manitoba demonstrated a bottom-up approach to address this issue: the Manitoba Conservation Districts Association conducted the 2006 Learning Experience Tour to connect managers and board members from 34 conservation districts with South Nation Conservation Authority of Ontario and Conservation Ontario initiatives.

While the Canadian Government does not show strong leadership in driving and guiding decentralised NRM organisations, some examples of supportive national initiatives exist:

- the Canadian Government supports a cross-sectoral policy research initiative with related knowledge management and capacity-building elements
- the Stewardship Canada website was created to provide a national clearinghouse for groups involved in stewardship in Canada to share information and resources.

5.3 THE INTEGRATED SYSTEM

Compared to the Australian NRM governance system, the Canadian system appears somewhat less systematic, principally because the Canadian Government is much less engaged. Its lack of engagement and policy direction has been a significant barrier to achieving integrated governance for NRM nationally, including the building of social capital (Shrubsole and Draper 2007). Without the definitional guidance of a central government (Key Point 6) greater variability in arrangements has arisen. While potentially a source of learnings for others, the cross-linkages and sharing between organisations are not strong, especially across jurisdictions, and this limits the value of the variability as experiment. In general, the challenges faced by smaller NRM organisations in Canada are very similar to those in Australia.

The greater mix of funding sources that some decentralised NRM organisations have developed in Canada have potential value in Australia. In those cases, and with the clear support of government and municipality legislation and regulation, non-statutory catchment-like organisations use funding from levies and foundations to achieve a larger funding base and one that helps buffer them against stop-start government funding.

In terms of integration across NRM issues, there is little evidence of strategic integration across land, water and biodiversity objectives. Canada's watershed organisations are closest to Australia's regional bodies (e.g. CMAs) but their focus is restricted to integrated water management. The Canadian National Round Table on the Environment and the Economy works to integrate NRM into sustainability objectives. Canada also has a Strategic Environmental Assessment process at the national level, but it applies only to policies, plans and programs within the mandate of the national government and this does not generally include NRM.

Canadian organisations have also sometimes looked to Australia for NRM models, for example:

- Australia's Landcare model has been adopted in Niagara, Ontario
- the Gordon Water Group of Concerned Scientists and Citizens was modelled on the Wentworth Group of Concerned Scientists and its series of 'blueprints'
- Manitoba and South Australia signed an MOU in 2009 to work together and share expertise on reducing flood hazards, developing strategies to cope with long-term droughts, and community capacity building and ecological goods and services programming to provide resilience to future climate change challenges.

6 Distilling principles for good governance design

Agreed principles that apply across the NRM governance system will provide an enduring foundation for change, regardless of where that change occurs in the system, who is doing it or what type of 'institution' is being changed. No single group 'owns' the whole NRM system or is singly responsible for its well-being. No collaboration has yet developed the essential rules for its good design.

Principles of governance design need to be specific enough for people and organisations to recognise their applicability, but broad enough to allow for the democratic process through elected governments to shape the system according to their values. The principles may endure for the next 20 years – through changes in government at federal, state/territory and local levels, and through the changes in population, demand for ecosystem services and climate that can already be foreseen.

The principles developed here build strongly on the larger systems view of NRM governance. They assimilate many of the developed by the National Natural Resource Management Taskforce (National Natural Resource Management Taskforce 1999, see Appendix 3) but cast them within a systems framework, and in the light of experiences and changes in the last decade, produce different insights and emphases.

6.1 SUMMARY OF KEY POINTS

Key Point 1. Australia does not have the information to be confident that its NRM governance arrangements and investments are maintaining or improving their condition.

Key Point 2. Natural resource challenges will always be present and will change over time. A good governance system needs continuity and in-built mechanisms for responding to new NRM challenges.

Key Point 3. It is the aggregated and integrated impact of governance arrangements that influences natural resource outcomes at any one place.

Key Point 4. Australia's natural resources are highly variable – across space and time. Complex natural resource and social systems need sophisticated governance systems.

Key Point 5. Understanding the strengths of and clearly defining the different roles of organisations at multiple scales is critical. Functions (powers and resources) can then be decentralised to the lowest level with the capacity to conduct them satisfactorily.

Key Point 6. Governments have key roles in providing definition, incentives, standards and sanctions.

Key Point 7. Participation of local resource users who also have a stake in successful management can bring many benefits.

Key Point 8. Shared governance with a consistent approach over time is more likely to result in good outcomes.

Key Point 9. A learning approach that searches for innovation in governance and builds adaptive capacity has long-term benefits.

Key Point 10. Improving the design of Australia's NRM governance system requires more clarity about NRM goals – at all scales – so there are clear and agreed objectives for the system design.

Key Point 11. The governance system needs to support building ecological systems understanding at regional or ecosystem scale.

Key Point 12. A good understanding of the key controlling variables in an ecosystem – particularly those that will work in concert with natural processes – is key to designing effective interventions.

Key Point 13. Understanding when variables are approaching thresholds and intervening before they approach danger levels provides an approach to managing ecosystems for resilience.

Key Point 14. Understanding where the Australian NRM governance system is in the adaptive cycle is important. Different responses are required in different phases of the cycle.

Key Point 15. The NRM governance system has characteristics of a complex system in which the interactions between components, both formal and informal, have a major influence on NRM outcomes.

Key Point 16. Australia's NRM governance system is showing a trend of increasing complexity. While complex systems need sophisticated governance, an overly complicated governance system risks gridlock.

Key Point 17. Periodic review of the governance system is critical for detecting unwanted trends.

Key Point 18. Government incentives and better information for farmers would improve their capacity to better manage natural resources.

Key Point 19. The role of landcare needs to be better articulated and integrated with others' roles in the NRM governance system.

Key Point 20. Build relationships to strengthen collaboration in delivery by NGOs.

Key Point 21. Improve knowledge, skills and innovation within the NGO sector and of the sector as a whole.

Key Point 22. Relative roles of regional bodies and local government in relation to the environment and natural resource management need clarification.

Key Point 23. Regional NRM, in a systems context, would be strengthened by clarification of roles, better alignment of plans across scales, better integration with the land planning system, and improved data and prioritisation.

Key Point 24. Relationships are critical to the collaborations required across sectors and scales to achieve NRM outcomes.

Key Point 25. Coalitions of organisations with common interests and that cross scales are already a strong emergent (self-generated) property of Australia's NRM governance system. This social capital is of great value and should be sustained and drawn on in governance design.

Key Point 26. Cross-sectoral relationships are relatively weak but critical in a good NRM governance design in order to better resolve decisions about integrated resource use.

Key Point 27. 'Rules and strategies' are crucial in a governance system for capturing and communicating agreements about objectives and accountabilities. The current set of 'rules and strategies' is vast, unsystematic and largely organised by divisions made by society that do not reflect landscape and seascape function. No mechanisms exist to ensure alignment across scales from the national to the local.

Key Point 28. The role of the Australian Government in an NRM governance system should be more focused on coordination, setting standards and monitoring others rather than on carrying out independent projects itself. Investments in building a better regulatory system are needed (e.g. national environmental accounts, skills development, policy guidance, and acquisition of critical spatial information).

Key Point 29. A focus on building greater use of strategic planning, academic experts and consultation into policy development in the APS will strengthen policy capability.

Key Point 30. Develop more systematic approaches to policy integration.

Key Point 31. Develop a better evidence base for investment in NRM, based on a better understanding of the condition of natural resources, the investments required to maintain or improve them, and the resources available from other contributors.

Key Point 32. Integrated NRM plans at regional scale, and at smaller scales for places that are co-managed, are the best basis for planning effective interventions at that scale.

Key Point 33. To know if a governance *system* is working, it must be able to assess its *collective* impact and then collectively improve its performance from the lessons learned. This is a larger question than assessing the effectiveness of individual 'institutions'.

Key Point 34. Build in more innovation in socioeconomic sciences and the use of more sophisticated mixes of methods for influencing behaviour and actions

Key Point 35. The NRM knowledge system is an integral part of the NRM governance system and faces similar design challenges.

6.2 PROPOSED PRINCIPLES

1. **Continuity: for Australia to be sustainable, it needs an enduring, country-wide NRM delivery infrastructure**

   Maintaining healthy ecosystems needs an enduring NRM delivery infrastructure, one that can respond as NRM challenges change over time, but is based on skills and social capital maintained locally. The governance system needs structures and processes – from local to national, private to public – that are linked and stable in the medium term, but are also able to change and adapt in the longer term (see Principle 10).

2. **Subsidiarity: devolve decision making to the lowest capable level**

   For best engagement of people's skills and effort, decision making needs to be devolved to the lowest capable level. However, because there is public benefit in looking after every piece of land well, governance design needs to recognise that governments have a legitimate interest in influencing local decisions. Their influence is better exerted through providing direction, standards, guidelines, incentives and sanctions, than through direct decision making at local level. All devolved decision makers need to be accountable for their decisions.

3. **Integrated goal setting: base investments and governance mechanisms on coherent, nested and integrated goals**

   Clear and shared direction is crucial for good governance of any system. Goals must be linked across scales; and take account of the interactions in ecosystem processes, and tradeoffs between ecosystem services. Integrated goals will result in better targeted actions.

4. **Holism: plan to address whole systems**

   All organisations and activities that impact on natural resources need to be considered. Within government, planning departments and planning decisions should be more included in NRM governance; water plans and agencies need to be better integrated with land management plans and agencies. At the local scale, landscapes must be better managed across tenures. Amongst investors, more inclusion of the community and private sector in governance design could result in mechanisms that would increase their investment.

5. **Systems approach: match governance mechanisms to the nature of the linked social-ecological system**

   In 'complex' ecosystems, system behaviour emerges from interactions within the system and outcomes from interventions are not easily predictable. Experiments can probe for the interventions that work best and then be scaled up. Mixes of policy and delivery instruments can be used. A single 'institution' should only be used when the evidence is clear that this will address the issue and not produce perverse outcomes. Arrangements in remote areas need to be tailored to suit remote communities. Complex, contested and connected issues need to be dealt with thoughtfully and slowly so that rates of change are matched to the time scale of social capacity building.

6. **Relationship orientation: recognise that relationships are as important as organisations**

   Connectivity across the governance system is crucial for integration across sectoral interests and between organisations at different levels. Responsibility and accountability for effective relationships need to be built into organisational objectives. Investment in relationships is crucial for the system to work as a whole and best captures the synergies within it.

7. **Resilience: manage for resilience of ecosystems and communities**

   We need to draw on the developing knowledge and practice of ecosystem resilience for better targeting investments. A resilience approach aims to keep the slow controlling variables of ecosystems away from undesirable thresholds, or to take them over thresholds to a more desirable state. This approach needs ecosystem function to be relatively well understood (Principle 8) or an active adaptive management approach (Principle 10) to be taken.

8. **Knowledge and innovation: equip the governance system with skills, capacity and knowledge, and encourage innovation**

   A strategic approach needs to be taken for developing the skills, capacity and knowledge that supports the governance system. Encouraging innovation – both in NRM governance and in ecosystem intervention – is crucial to development of healthier ecosystems. More connections need to be made within and between monitoring data, information and knowledge.

9. **Accountability: base the case for investment and accountability on sound systems data and knowledge**

   Cases for government NRM investment and the choice of mechanisms need to be transparent and better quantified in order to compete with other demands on the public purse. They need to draw on good data and ecosystem understanding (from Principle 8) and where possible, be targeted using a resilience approach (Principle 7).

10. **Responsiveness and adaptability: regularly review and adapt the whole Australian NRM governance system**

    Good corporate governance requires regular, strategic assessments of performance and achievements. Accordingly Australia's NRM governance system should be periodically and collaboratively reviewed. The review should recognise the effects of past decisions and investments, and apply an adaptive management approach, searching for innovation in governance mechanisms and testing and experimenting using case studies. It should recognise where the system is in the adaptive governance cycle (rapid growth, conservation, release or reorganisation) and formulate appropriate responses. Changes in governance mechanisms need to be collaborative and take account of the whole NRM governance system (Principles 4 and 6) in order to avoid perverse impacts and to retain productive relationships.

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Appendix 1.
Main points from interviews

NRM GOVERNANCE

- No common understanding of the term 'NRM governance' as we are using it (and as it is used in the literature). A few interviewees thought that it specifically refers to the regional management of natural assets and a few took it to mean corporate governance. But others did use the broader definition and tied it to the processes of decision making about NRM. The implication is that the discussion paper has to explicitly address the definition and scope.
- Need to separate out governance of the funding itself (subject to financial audit) and governance of its use to achieve NRM outcomes
- Governance is about collective action – but have to first agree that the issue and solution require collective action.
- Governance is about agreeing on goals, putting structures and processes in place to achieve it, then monitoring results and adapting as required. It's about organising to get what we want.

VISION, OBJECTIVES AND PHILOSOPHY

- Beyond a set of principles, we need a change in vision. Principles will be implemented in the old ways. Need to challenge the deeper thinking.
- A big gap is that there is no overarching Australian NRM plan or policy.
- Federal Government setting of its own priorities independently of state Governments and regional bodies has made the job of aligning priorities across scales, and managing concurrent programs more complex for regional bodies.
- A more adaptive philosophy (testing, learning and responding) clashes with the current managerialism philosophy (we believe we have full control and we're not going to get things wrong).
- A resilience approach would suggest that rather than 'picking winners' in landscapes, managers should be trying to avoid the worst problems – staying away from thresholds that are difficult to return from if crossed.
- Need to govern for change, not for stability. Need to govern for a future where payments for ecosystem services will increase.
- 'Good governance' by today's standards sometimes has to be broken in order to innovate (i.e. today's ideas about good governance in NRM and focus on accountability leave little scope for innovation).

STRUCTURE, ORGANISATIONS AND ROLES

- Landholders do most of the land management – they MUST be involved in decisions. 'Need landholders to get NRM outcomes'.
- Subsidiarity should prevail, but planning should be done at regional level (local level is too emotional, central level is too remote). Some water and vegetation issues also require planning across catchments. But regional plans must funnel up into and down from state/territory and federal priorities and processes.
- States/territories have always recognised the need for regional organisations (government or semi-government) but the Federal Government equivocates.
- There is inadequate sharing of the perspectives of priorities across scales. Priorities are not always expressed in language accessible across scales. Local groups need to be supported to grow their understanding of where they fit.
- There will always be tension across scales – recognise and address it.
- There is no clear articulation of who is responsible for what in our NRM governance system – everyone has their own perspective. Arguments sometimes consume energy that would be better spent on working together on common objectives. Confusion over roles leads to suspicion about accountability, duplication and inefficiency.
- Landcare hasn't learnt to be both an advocate and a delivery agent for government. Advocacy is good for governance.
- Vigilance on the part of community partners is an important component of good governance.
- Role of local councils in NRM governance is not done well yet. Regional bodies could conceivably carry out some of the strategic roles of councils.
- There is not enough recognition of the different dynamics of community groups compared with governments (which are focused on policy delivery in the short term and therefore must have a very structured approach; also very risk averse). Community groups tend to make longer-term commitments to the places and issues that are important to them; and value capability more.
- The inequity between funding for regional bodies is an issue – funding does not always match expectations about their responsibilities.
- 'Boundaries' came up often as an issue in NRM governance – non-matching catchment, land use and jurisdictional boundaries; difficulties in working across boundaries. Catchment boundaries not always the best to work with in large flat landscapes.

- Frequent government restructures is counter-productive to good governance. One analysis showed it took 18 months for a new government department to start performing.
- Local authorities are too easily captured by local interests. Ministerial accountability is very powerful.
- The link between NRM planning and planning done by planning departments is crucial but currently very weak. Many planning decisions are NRM decisions but they're conceived only as decisions to meet socioeconomic goals.
- Regional bodies need to practice good business principles. For good governance they need a clear separation between the roles of boards and staff, good and transparent priority setting and good financial management.
- There is enormous variation in the internal processes and the capabilities and effectiveness of regional bodies. Allowing for some innovation is good, but sometimes it is simply independent re-invention of what is available elsewhere.

RELATIONSHIPS

- The monopoly power of the centre is an issue. There is always a temptation for it to be used to further the immediate interests of the centre. (There are strict rules about monopoly powers in the private sector but not in the public sector.) Groups getting together help balance this power. Community groups generally have not got together to market what they can do – they have allowed themselves to be too hooked into government resources. Release from co-dependence would give them a capacity to speak more independently. More contestability about where the community sources its public services from would be consistent with a more polycentric approach.
- The biggest barrier to transformation is the fiscal dominance of governments. It would be best countered by strengthening the financial independence of lower levels in the system.
- Top-down thinking has limited the development of a more collaborative vision of building a more community-based way of governing natural resources. We are still tinkering with changes at the margins instead of taking a transformative approach to adaptive governance. Want ecosystems that can recover. Need to draw on the self-organising capacities of ecosystems and people. 'Intransigent' governance won't do it. In an uncertain world, down-scaling is a better strategy (but don't want chaos either).
- Triangular (independent) relationships between federal and state/territory governments and the regional bodies do not make for the most productive

three-way partnerships. Two points of the triangle sometimes get together and undermine the third.

- State/territory and federal governments don't always collaborate well. Independent election mandates have to be fulfilled, little effort put into engagement across levels.
- Differential value is placed on different stakeholder perspectives. Squeaky wheels get more attention. Needs active intervention to seek engagement with other stakeholders.
- Trust and appreciation of the value of organisations and groups across the scales is needed.
- How much linking up and down scales is there (e.g. from the same person sitting on committees across scales)?
- Implicit rules and relationships often dominate the formal rules and relationships – there is a rhetoric and a reality.
- Personal relationships are really important in networking and collaborative action – working out how to help each other. Rapid change is counter to their value – NRM investments need long time frames, not short ones.
- Relationships with statutory planners needs to be improved, also relationships with water authorities.
- Relationships across regional bodies nationally are good.

POLICIES AND PROGRAMS

- Assumptions behind government policy are not always enunciated or tested. Nor do we do much impact analysis (of NRM on other NRM and on socioeconomic outcomes, and vice versa).
- Unnecessary distinctions between government programs and their rules that don't make sense when issues are being addressed on the ground (e.g. applying a biodiversity program to salt-affected land).
- NRM should receive core funding just as other sectors of society do, rather than try and maintain natural infrastructure through competitive grants. Like health and hospitals, NRM needs a service delivery mechanism close to where action is required.
- Government programs sometimes have unrealistic expectations.
- The 'rules' that come with government funding are very important in shaping the behaviour of recipients. Under NHT the incentive to develop a regional plan was strong and it stimulated new strategic thinking about

natural resources at the regional level. That incentive has gone. Nor have there been sufficient incentives to focus on outcomes rather than outputs, and to draw in the technical knowledge to support the case for outcome-focused projects.

- Transaction costs are very high. Extreme risk aversion and compliance and accountability requirements contribute to high costs.
- So much churn in the system does not support an integrated approach to NRM.
- Sometimes we are doing things too quickly and not investing the time in more deliberative and analytical approaches. NRM issues are long term, and cannot be properly addressed in short-term programs. The basic policies and underlying goals don't change, but programs are endlessly re-invented. Development of landcare facilitators is an issue when on perpetual short-term contracts ('A landcare coordinator is not a short-term project!').
- Selecting the best and most cost-effective actions for the targets is not being well done – or selecting the best delivery mechanisms. The more technical the criteria for selecting investments, the less opportunity decision makers have for injecting political influence.

LEGISLATION

- The plethora of legislation is complex and it is too easy for no-one to take responsibility. The volume is growing annually as the condition of the environment worsens. Becoming grid-locked. There is a need for law reform.
- Incompatible or conflicting legislation across states/territories and Federal government and across scales.
- Need some safe arenas for experimentation – perhaps outside what is permitted in current legislation.
- Native vegetation legislation and planning legislation do not work well together.

KNOWLEDGE AND INFORMATION

- The information infrastructure is not working well. Different social and NRM boundaries make integration of data difficult. Lack of multi-attribute, long-term monitoring sites. We monitor what is important today, they may not be the long-term controlling variables of the state of the ecosystem.
- Need a knowledge system to support a more decentralised system.

- State/territory governments are the only level in the system with sufficient technical capacity and commitment of resources to do reasonable jobs of technical analyses.
- Monitoring has been captured by technical people, it do not communicate to local communities.
- We spend more time arguing about a national monitoring system than doing it.
- There are inadequate ways of defining and measuring accountability of NRM investments – across biophysical and social outcomes. And ways of explaining the value of NRM investments and comparing them across different outcomes.
- Lack of common ways of valuing management actions and assets and assessing their condition and relative priorities.
- Inadequate evaluation of landcare – what did we learn from it?
- The mixed models in regional management make good experiments, but this characteristic is only valuable if we collect and share information about it.
- Bringing together scientists, policy makers and managers is not being well done. They have different languages, cultures and purposes.

PRINCIPLES

- NRM is fundamentally based on an integrated catchment management approach.
- It must involve working with landholders and with communities.
- Need regional bodies that are involved in managing investments AND regional decision making.
- Roles and responsibilities must be clear.
- There must be good accountability for expenditure of public funds.
- The same issues that apply to good governance within an organisation apply across organisations when a program is being delivered collaboratively: transparency, accountability, prioritisation, facilitation, stakeholder involvement.
- Similar principles to good governance within an organisation might apply to the system as a whole but perhaps with different emphasis. Legitimacy, transparency, accountability, inclusiveness, fairness, integration, capability, adaptability were the principles elicited as important for good corporate governance of regional bodies. Connectivity is really important at the

system level. A principle around reflexivity might be added – taking stock and reacting – important in terms of adapting to change. This paper would be an example of reflexivity at the whole-system level. A principle around transformability might be added – how to move to another system if the natural resource base of internal societal pressure demands it.

- Need a long-term approach. Focus on outcomes, not outputs. Allow time for good analysis, planning and decision making.
- Design program 'rules' or incentives to encourage better decision making.
- Apply subsidiarity principle.
- Get better natural resource accounting.

Appendix 2.

Examples of Commonwealth and state NRM legislation

a) List of major pieces of Australian Government environmental and NRM legislation. From <www.environment.gov.au/about/legislation.html> and <www.dpmc.gov.au/parliamentary/docs/aao_july_2008.rtf>

DEPARTMENT OF ENVIRONMENT, WATER AND HERITAGE

Aboriginal and Torres Strait Islander Heritage Protection Act 1984

Environment Protection (Alligator Rivers Region) Act 1978

Environment Protection and Biodiversity Conservation Act 1999

Environment Protection (Sea Dumping) Act 1981

Fuel Quality Standards Act 2000

Great Barrier Reef Marine Park Acts

- *Great Barrier Reef Marine Park Act 1975*
- *Great Barrier Reef Marine Park (Environmental Management Charge-Excise) Act 1993*
- *Great Barrier Reef Marine Park (Environmental Management Charge-General) Act 1993*

Hazardous Waste (Regulation of Exports and Imports) Act 1989

Lake Eyre Basin Intergovernmental Agreement Act 2001

Murray-Darling Basin Act 1993

National Environment Protection Council Act 1994

National Environment Protection Measures (Implementation) Act 1998

National Water Commission Act 2004

Natural Heritage Trust of Australia Act 1997

Ozone protection and synthetic greenhouse gas acts

- *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989*
- *Ozone Protection and Synthetic Greenhouse Gas (Import Levy) Act 1995*
- *Ozone Protection and Synthetic Greenhouse Gas (Manufacture Levy) Act 1995*

Product Stewardship (Oil) Act 2000

Sea Installations Act 1987

Sea Installations Levy Act 1987

Sewerage Agreements Act 1973

Sewerage Agreements Act 1974

State Grants (Water Resources Measurement) Act 1970

Water Act 2007

Water Efficiency Labelling and Standards Act 2005

Wet Tropics of Queensland World Heritage Area Conservation Act 1994

DEPARTMENT OF AGRICULTURE, FISHERIES AND FORESTRY

Fisheries (Validation of Plans of Management) Act 2004

Natural Resources Management (Financial Assistance) Act 1992

Regional Forest Agreements Act 2002
and many others with a primary production focus

b) Key organisations and relationships to legislation in Victoria

These organisations and relationships are current arrangements and changes are planned (Victoria Department of Sustainability and Environment 2009).

Organisation	Key legislation
Alpine Resorts Coordinating Council	*Alpine Resorts Management Act 1997*
Catchment management authorities	*Catchment and Land Protection Act 1994*
Commissioner for Environmental Sustainability Victoria	*Commissioner for Environmental Sustainability Act 2003*
Committees of management	*Crown Land (Reserves) Act 1978*
Department of Planning and Community Development	*Planning and Environment Act 1987*
Department of Primary Industries	*Greenhouse Gas Geological Sequestration Act 2008* *Domestic (Feral and Nuisance) Animals Act 1994* *Fisheries Act 1995* *Biological Control Act 1986*
Department of Sustainability and Environment	*Alpine Resorts (Management) Act 1997* *Catchment and Land Protection Act 1994* *Coastal Management Act 1995* *Flora and Fauna Guarantee Act 1988* *Forests Act 1958* *Land Act 1958* *Parks Victoria Act 1998* *Victorian Environment Assessment Council Act 2001* *Water Act 1989* *Wildlife Act 1975*
Environment Protection Authority	*Environment Protection Act 1970*
Local government authorities	*Constitution Act 1975* *Local Government Act 1969* *Planning and Environment Act 1987*
Murray-Darling Basin Authority	*Water Act 2007 (Cwlth)* *Murray Darling Basin Act 1993*
Melbourne Water	*Water Act 1989* *Water Industry Act 1994* *Corporations Act 2001*

Parks Victoria	*National Parks Act 1975* *Parks Victoria Act 1998*
Regional Coastal Boards	*Coastal Management Act 1995*
VicForests	*Sustainable Forests (Timber) Act 2004* *Forests Act 1958* *Forestry Rights Act 1996*
Victorian Catchment Management Council	*Catchment and Land Protection Act 1994*
Victorian Coastal Council	*Coastal Management Act 1995*
Victorian Environmental Assessment Council	*Victorian Environmental Assessment Council Act 2001*
Water authorities	*Water Act 1989* *Water Industry Act 1994* *Corporations Act 2001*

Appendix 3.
Articulated principles underpinning the design of NHT2

From National Natural Resource Management Taskforce (1999) commonly referred to as the Blue Book. Key phrases are highlighted.

The principles that should guide the future management of our natural resources are as follows.

- *Ecologically sustainable development*—which involves maintaining and enhancing healthy ecosystems and biodiversity and using resources soundly for continuing wealth creation to meet social aspirations—is the framework for managing our natural resources, now and in the future.
- Industry, landholders, individuals and communities—including Indigenous and urban communities—all derive *benefit* from the use and management of natural resources and share *responsibility* for managing those resources sustainably.
- Natural resource management requires a *partnership* between all parties—government, communities, industry, landholders and individuals—with *clear and agreed roles* and responsibilities.
- The rights, responsibilities and knowledge of *Indigenous Australians* and their connection with the landscape are to be recognised in natural resource management planning.
- Sustainable management and use of our natural resources should involve *integrated management within regions and catchments*, recognising ecosystem processes and the influences of social and economic factors on decision making.
- *A mix of policy and delivery instruments*—voluntary, market-based and regulatory—is required to achieve optimal natural resource management outcomes.
- Relative contributions to investments in natural resource management are to reflect the long-term *private and public costs and benefits* involved.
- Policies, plans and programs are to be *consistent and aligned* within and between all levels of government, to provide clear signals to natural resource managers, with decision making being *devolved* to the appropriate level.
- Natural resource management actions are to be ordered according to *priority* and based on the *best available science, experience and information* and the principle of continuous improvement. If natural resource management is to improve, a continued investment in science and innovation is essential.

Appendix 4.

Recommendations of the Senate Enquiry into Natural Resource Management and Conservation Challenges (2010)

Organisations and relationships

Recommendation 2 ... the Commonwealth Government continue to pursue bilateral agreements with state and territory governments to ensure greater investment in natural resource management and the continuation of natural resource management reform.

Recommendation 3 ... the role of regional NRM organisations under Caring for our Country be more clearly defined and that a review be undertaken to assess the adequacy of [their] support.

Recommendation 4 ...clearer requirements and incentives to stakeholders to collaborate ...on long-term landscape scale strategic planning and action.

Rules and strategies

Recommendation 1 ... a more rigorous and comprehensive approach is taken to the identification of national priorities for inclusion in the Caring for our Country Business Plan. ... include engaging regional and local expertise to ensure that targets established in the Business Plan are relevant at the regional and local level.

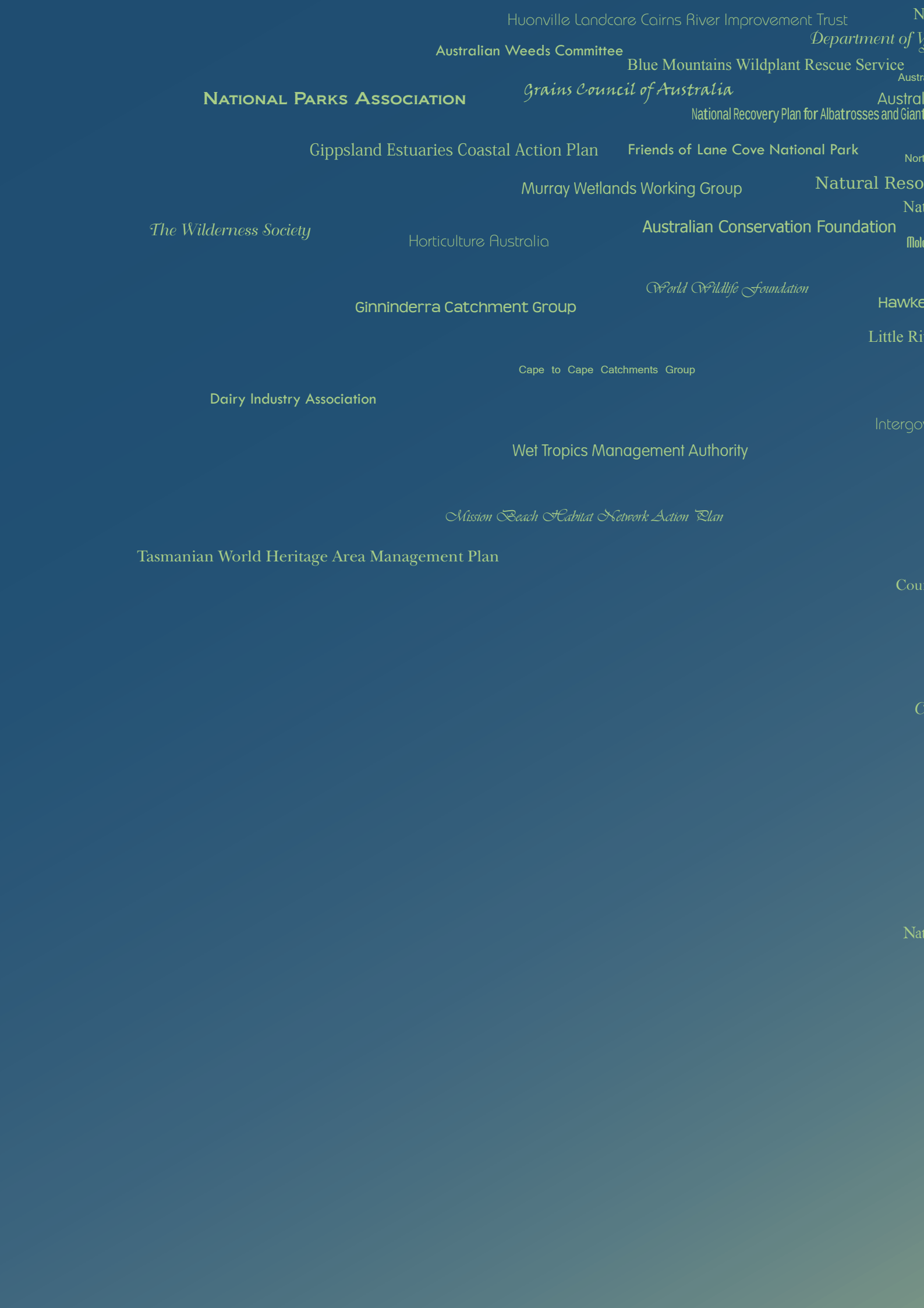
Recommendation 5 ... the evaluation method for competitive bid applications be modified to give greater consideration to the likelihood of projects achieving defined and measurable environmental outcomes.

Recommendation 6 ... the funding model for Caring for our Country be reviewed and consideration be given to increasing the level of overall funding.

Recommendation 7 ... the application process be reviewed and that avenues for reducing the costs involved in submitting applications be considered.

Recommendation 8 ... that a framework be established to provide consistent support and feedback to all applicants for funding under Caring for our Country.

Recommendation 9 ... the NRM Ministerial Council ... develop a framework and generic criteria which would form the basis for an ongoing process of audit of the condition of Australia's natural resources. The development of the framework and criteria must involve close liaison with [all organisations] involved in natural resource management.


Huonville Landcare
Cairns River Improvement Trust
Australian Weeds Committee
Blue Mountains Wildplant Rescue Service
National Parks Association
Grains Council of Australia
National Recovery Plan for Albatrosses and Giant
Gippsland Estuaries Coastal Action Plan
Friends of Lane Cove National Park
Murray Wetlands Working Group
Natural Reso
The Wilderness Society
Horticulture Australia
Australian Conservation Foundation
World Wildlife Foundation
Ginninderra Catchment Group
Hawke
Little Ri
Cape to Cape Catchments Group
Dairy Industry Association
Wet Tropics Management Authority
Mission Beach Habitat Network Action Plan
Tasmanian World Heritage Area Management Plan