Systems Approaches Enable Improved Collaboration in Two Regional Australian Natural Resource Governance Situations

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ABSTRACT

Natural Resource Management (NRM) in Australia is socially and ecologically complex, uncertain and contested. Government and non-government stakeholders act and collaborate in regionally-based, multi-scale NRM governance situations, but imbalances in power and breakdowns in trust constrain transparency and equity. Here, we report on an action research project exploring the potential of social learning to contribute to systemic change in multi-governance situations. We sought to understand practices and institutional arrangements in two regional NRM governance case studies in southern Victoria, Australia. Drawing on this research, we explore how social learning, with its foundation of systems thinking, has enabled improved collaborative processes and adaptive governance to emerge.

Keywords: *Civil Participation, Multi-Governance, Multi-Scale Governance, Rhetoric-Practice Gap, Social Learning*

INTRODUCTION

Local knowledge and civil actor agency in natural resource management (NRM) planning and action can provide a counterbalance to State dominated decision making (Lane, 2003).

Ostrom (2000) shows that self-determination and self-regulation enhance citizens' motivation to contribute to common good environmental outcomes, and that citizen's intrinsic motivation and trust declines when government instruments such as regulation and incentives

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are felt to be too controlling, or to be devaluing local knowledge. Localised control of planning and decision making may be more functional than State control, and can be more just and equitable (Ribot, 2002). Indeed a number of authors suggest that co- operative, adaptive governance is more likely to lead to improved environmental quality because decisions are better informed and there is broader agreement on NRM outcomes (Allan & Wilson, 2009; Collins & Ison, 2009b; Head, 2007).

The current interest in, and opportunities for, civil participation in NRM have been inspired by a number of global trends. Firstly, reconnection with civil participation emerged from growing dissatisfaction with the limitations of democratic electoral processes to engage citizens in ongoing dialogue and deliberation (Head, 2007), particularly for under-represented minorities (Arnstein, 1969). Secondly, there has been renewed interest in decentralising aspects of governing, with the regional or 'meso' scale envisaged as an intermediary between local and state scales (Jennings & Moore, 2000). At regional scale, social connections and landscape identity have begun to underpin governance approaches attuned to ecosystems (Lane, Robinson, & Taylor, 2009). Thirdly there has been renewed interest in social democracy, known as 'The Third Way' (Giddens, 1998). This has a focus on blending social democracy with economic efficiency (Martell, 2004) and was given carriage in politics initially by social democratic parties in Europe and North America. This new democracy responds to the high cost of state sponsored planning processes and dissatisfaction with the neo-liberalists free-market philosophy and intends to achieve a compromise between these seemingly antithetic approaches (Ryan et al, 2010). From these three key influences has emerged more networked, multi-actor governance approaches to environmental management that have the capacity to modify regulatory control and top-down decision- making.

One key benefit of governance approaches that enable civil participation is that multiple actors can contribute both knowledge and resources to understanding and tackling NRM issues. The importance of this is recognised when considering the scale of response required to tackle resource depletion, landscape fragmentation and climate change (Bellamy et al, 2002; Yaffee & Wondolleck, 2003). Inclusive practices can reduce adversarial behaviours, increase opportunities for sharing responsibility and negotiating effective strategies for mutual benefit (Innes & Booher, 1999a; Yaffee & Wondolleck, 2003). However, governments have often failed to decentralise in ways that empower local and regional actors through genuinely inclusive practices (Taylor, 2009; (D r yz e k, 2009). Partnerships tend to operate as 'vague entities' where there is no genuine power- sharing collaboration (Head, 2009). This may be because there is insufficient institutional, social and human capacity within regional planning bodies and communities (Farrelly & Conacher, 2007), failure to discuss paradigms and assumptions openly (Poncelet, 2001) and/ or reticence to reflect on institutionalised ways of operating (Allan & Wilson, 2009). As a result many state sponsored collaborative partnerships fall short of exploring and managing equitably the complexity inherent in NRM governance (Moore & Rockloff, 2006).

This shortfall is particularly noticeable for cross-scale communication and planning (Marshall, 2008). Single 'state' or 'market' actors remain dominate in these situations (Lemos & Agrawal, 2006) and planning processes preference institutionalised ways of knowing and doing (Eversole, 2011). Citizens are relegated to being implementers of on-ground action, rather than participants in the full spectrum of NRM governance processes (Colliver, 2011). Thus, although community participation may be called for by NRM governance frameworks it is still frequently framed by state policy and action and not by local knowledge and ways of knowing (Lane & McDonald, 2005).

When the rhetoric of collaboration and partnerships obscures power imbalances (Moore, 2005) and preferences for institutionalised ways of thinking and doing (Head, 2009), trust is the casualty, and motivation of citizens

to contribute to these non-inclusive institutional arrangements declines (Ostrom, 2000). Community members may treat invitations to partnerships with some scepticism. On whose terms do partnerships operate? Governments' pursuit of collaboration to reduce conflict and broaden responsibility in jurisdictionally complex situations often fails to address these questions and or to value and integrate the deliberative capacity of non- government actors in governance networks (Dryzek, 2009). At issue here is what Dryzek (2009) refers to as deliberative capacity, that is "*the extent to which a political* [governance] *system possesses structures to host deliberation that is authentic, inclusive and consequential"*.

Political systems that minimise or control individuals' abilities to reflect on and contribute their preferences through deliberative capacity are considered undemocratic (Dryzek, 2009). Social learning is facilitated interaction between stakeholders to create shared understanding of each other's perspectives on a range of issues and is proposed as a way to support participation (Collins & Ison, 2009a). This includes understanding the interdependencies of their actions and impacts on, for example catchments; creation of new knowledge and joint evaluation of diverse sources of knowledge to make collective decisions leading to concerted action; and the use of cycles of continuous improvement in the tradition of adaptive governance (SLIM, 2004; Steyaert & Jiggins, 2007). Focus on social learning to create systemic change has emerged from fields of community development (Eversole, 2011), resilience (Westley et al., 2011), systems practice (Ison, 2010) and adaptive management (Allan & Stankey, 2009). The key elements and associated activities of a design heuristic for social learning that enable transformation in complex situations are described in Collins and Ison (2009b) and are shown in Table 1.

THE AUSTRALIAN NRM CONTEXT

Civil participation in Australian NRM has been strengthened by decentralisation of powers from the State to regional decision making bodies (Head, 2007). Regional governance had little formal role in planning and administration in NRM until 2002, when 57 NRM regions and governing bodies were created to co-ordinate NRM activities across Australia's terrestrial landscapes. Most NRM regional bodies were established through State and Territory legislation and Commonwealth policies, a process of regionalisation; some were formed through a

Table 1. Key elements and associated activities supportive of social learning following the social learning heuristic developed through the SLIM Project (Collins & Ison, 2009b)

Key Elements of the SLIM Framework	Associated Activities of the Elements of SLIM Framework
Context	Appreciate past causes of current understanding and practices
Institutions and policies	Develop conducive policies
	Develop conducive institutions
Stakeholding	Identify stakeholders
	Build stakeholding through joint responsibility
Facilitation	Identify facilitation needs
	Provide necessary facilitation
Epistemological constraints	Co-produce knowledge in action
	Jointly produce what constitutes an improvement

process of regionalism, with the body initiated by communities in the region rather than by government (Jennings & Moore, 2000). The institutional framework associated with this devolved governance is known as the regional delivery model (Jennings & Moore, 2000).

In Victoria, 10 Catchment Management Authorities (CMAs) were enacted under the Catchment and Land Protection (CaLP) Act 1994, to (among other purposes): set up a framework for the integrated management and protection of catchments; and, to encourage community participation in the management of land and water resources (Victoria, 2006).

In Victoria, State government policies prescribe that a Regional Catchment Strategy (RCS) be created through broad stakeholder consultation and implemented through co-ordination of funded programs and projects. The CMAs have the responsibility for co-ordinating their RCSs, reporting on catchment condition, and ensuring the participation of landholders, resource managers and other community members in catchment management and land protection. There may be sub-strategies which provide greater detail on specific issues and actions, for example Regional Native Vegetation Plans, Regional River Health Plans and Landcare Support Strategies. Objectives and strategic actions set out how protection and improvement in the condition of catchments will occur.

The advent of a regional layer of bureaucracy to manage NRM in Australia has had mixed responses. While the model assumes the regional scale to be appropriate for engaging stakeholders and setting priorities, criticism has been levelled at State and federal governments for failing to establish complementary institutional arrangements and practices at other scales to achieve the 'joined-up' government ideal (Lane, et al., 2009). Australian regional NRM bodies, including the Victorian CMAs, have in many cases become implementers of programs and projects that do not clearly relate to or intersect with other scales of government and associated planning and development processes.

An assumption exists with the regional governance model in Australia that institutional arrangements and practices are inclusive and empowering of civil participation. Yet various management paradigms embedded in governance bodies, such as asset prioritisation, multiple goals, along with the design and implementation of programs, combine to constrain effective participation. For example many government agencies frame ecological and resource degradation issues as only knowable through science and expert opinion, managed through technical-rational approaches. This ignores the complexity and uncertainty of these issues and how communities experience them (Collins & Ison, 2009b). The command-and-control paradigm, or what is called "scientific management" (Brunner & Steelman, 2005), sidesteps the complexity and uncertainty of social-ecological systems and the presence of contested interests (Collins & Ison, 2009a). The regional governance model also has difficulties operating at multiple scales and communicating between governance jurisdictions and regimes (Marshall, 2008).

Scientific management, and its associated institutional arrangements and practices, is implicated, therefore, in weak civil participation in NRM governance on four counts: the preferencing of scientific knowledge and technical opinion (Collins & Ison, 2009b); inadequate processes for managing integration across scales (Marshall, 2008); difficulties integrating hierarchical and networked governance approaches (Bellamy, et al., 2002); and a failure to cultivate innovation in governance itself (Healey, 2006).

An important question for current approaches to NRM then is "how can civil participation be cultivated so trust and motivation are enhanced and practices become genuinely authentic, inclusive and consequential?"

In the next section of the paper we address this question by reporting on an action research project that is exploring the potential of social learning to contribute to systemic change in multi-governance situations in two regional NRM governance case studies in southern

Victoria, Australia. The paper draws on this research, to explore how social learning, with its foundation of systems thinking, can enable improved collaborative processes that support deliberative capacity and adaptive governance to emerge.

THE RESEARCH

The following section presents findings from a research project that explored how social learning supported improvements in collaboration and innovations in regional NRM governance. Action research with two case studies enabled reflection on practices that constrain civil participation. Through reflective practice, groups in the two cases have initiated systemic inquiries into their systems of governance, allowing social learning praxis to emerge through the process. In this paper we focus on identifying circumstances and practices that open up opportunities for systems thinking and social learning in multi-scale NRM governance situations. We apply the SLIM social learning heuristic (See Table 1) to assess the emergent social learning praxis in the two cases.

Action Research Methodology

Action Research (AR) is a methodology suited to complex situations involving people and multiple social factors. AR involves cycles of planning, action, reflecting (Denzin & Lincoln, 2008) and is thus congruent with the aims of adaptive governance (Dick, 2002), and the action- oriented research of social learning (Ison, Röling, & Watson, 2007a).

Author Mackay facilitated the AR in each case with the aim of developing knowledge and practice concurrently in situations where the problems were unclear and issues fuzzy (Dobson, 2002). Case participants were also invited to read peer reviewed papers, suggested by the facilitator as relevant to issues as they arose during AR sessions. Participants in each case study explored opportunities and constraints on stakeholder participation in NRM governance specific to their situations and identified actions that might enhance opportunities or reduce constraints. Action by participants between sessions tested these ideas and provided a starting point for the next session. Participants were encouraged to listen to each other's perspectives, reflect on the range of views and reach agreement on concerted action. In the process, they identified and challenged assumptions and their theories of action (Dick, 2002). Author Mackay observed and recorded the ways cycles of planning, action and reflection supported social learning and impacted on governance practice.

The **ORID** framework (Stanfield, 2000) provided structure to conversations. **O**bservation and **R**eflection (positive and negative) drew out experience and found patterns and insights; **I**nterpretation and **D**ecision making developed implications and action. Discussion during observation and reflection was typically 'free-ranging', becoming more disciplined during interpretation and decision making on action. The facilitator wrote summary notes on white- boards toward the end of each session and re-phrased until agreement on priority issues and planned action was reached by all participants. Electronic copies of these notes were later circulated to all for further consideration and reference as action was taken.

A sequence of systems tools based on Armson (2011) was created to initiate systemic inquiries with both cases and take them through the early stages of inquiry. The tools included rich pictures, drawing out themes from the pictures, listing issues relevant to each theme and facilitated conversations on the implications of this new understanding (Armson, 2011). Rich pictures were used to create or deepen understanding of each participant's perspective of the situation, to take some time to reflect on the situation and the issues and problems involved.

Case One: Development of a Regional Catchment Strategy

A robust belief existed within staff at this Victorian Catchment Management Authority (CMA) that collaborative alliances built on shared

decision making, co-planning and management represented the desired approach for creating and implementing the next Regional Catchment Strategy (RCS). They had past experience with sub-regional alliances working effectively in this manner in their region, for example the Living Links Project (Scanlon, 2011).

Author Mackay facilitated sessions with two CMA staff teams as they prepared the RCS; the Environment & Strategy Team (EST) responsible for co-ordinating and writing the strategy and the Landcare and Outreach Team (LCOT) responsible for facilitating sub-regional networks of community-based environment groups and agency staff, named Catchment Action Round Tables (CARTs). These networks were created to add value to the relationships that existed between sub-regional actors by supporting bi-annual planning and reflecting on action. The CMA's intention was to recognise and capture the contribution made by these actors to RCS outcomes and to facilitate collaborative environmental project planning and resourcing.

The region is centred on a major city, is ecologically diverse, with intensive and broad-acre agricultural areas. The CMA had decided to develop a web-based Strategy able to be updated and changed annually, and to create an alliance of partners from state agencies and local government with responsibility or resourcing capacity for catchment and land protection. The aim was for the Alliance to develop to the point where it would facilitate and co-ordinate the Strategy into the future. The CMA's value proposition was that the Alliance would 'make working together more attractive than working alone'. Decisions have yet to be made on what power the CMA Board (which has statutory responsibility) will relinquish to the Alliance.

The approach described above is a major break with past RCSs. Sessions with the staff teams identified challenges to success: creating a Strategy with shared purpose and meaning across a diverse range of stakeholders; setting resource condition targets for complex ecosystems where the science was incomplete and uncertain; engaging those who would ultimately put targets into action; and building feedback loops between targets and implementation.

With endorsement from senior management and the CMA Board, the EST chose to give this RCS a strategic focus on the co-ordination of environmental improvement across the region, and to follow principles of ecological integrity and resilience, a departure from previous policyof a "triple bottom line" approach. The intention was to provide unambiguous environmental information to local and regional planners, who would link their social and economic information and opinion to produce well-informed judgements on targets and strategies.

Early action research sessions with the LCOT began with clarifying the role of CARTs, with their focus on integration of community and agency action at local and sub-regional scale. LCOT members planned, took action and reflected on action through several cycles as they set up and facilitated the CARTs. Identification of participants' theories of action and testing of these theories through each cycle yielded important insights into what was enabling and constraining collaboration and the formation of the Alliance. The two teams came together in action research sessions when the LCOT approached the EST to plan how CARTs might be best engaged with the RCS and what role they might have in the Alliance.

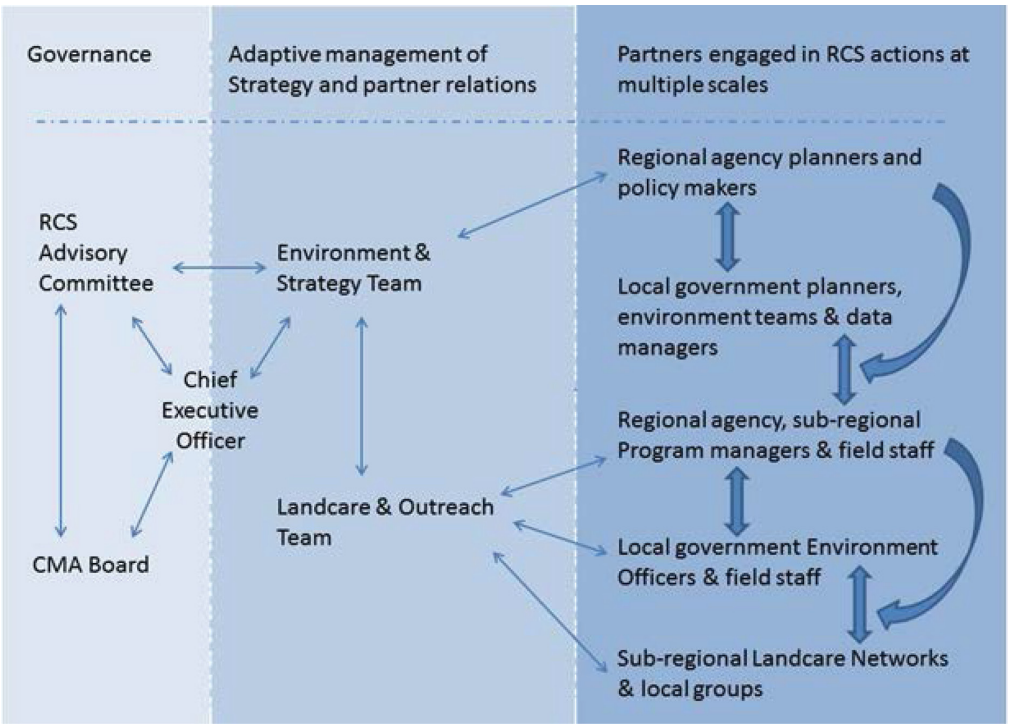
After six months of action research sessions (12 sessions for Case One) it was evident that the teams wanted to think systemically and that they had a commitment to broad stakeholder participation in NRM decision making. Both teams undertook a stakeholder analysis to identify stakeholders and enablers and constraints on their capacity to be involved in and commit to adaptive NRM governance. They began to observe differences between perceptions and ways of working between stakeholders; they identified that people see things in terms of the scale most relevant to their role or interest—local/district, sub-regional and region wide. Although interconnections between scales were seen as functional and important, they were not always explicitly understood or co-ordinated

by those involved or by those charged with facilitating processes in support of planning. Exploring how to do this became the main focus of action research sessions for both the EST and LCOT (See Figure 1).

Case Two: Development of a Community-Based Stewardship Program

A collective of community-based Networks (the CBS group) grew from participation in a Landcare Stewardship Replication Trial. The stewardship trial was a government funded project that ran from 2010-2011, and involved members of a Landcare Network, an Agro- forestry Network and their partners in the NRM region. During the trial participants identified enablers and constraints on the development of community-based stewardship (CBS) systems, six elements of an holistically designed and delivered Stewardship Framework and documented an Action Plan, which described actions to implement a CBS system in their region (Mackay, Colliver, Sharpley, & Earl, 2012). Involvement in this new research work expanded the original two Networks to five neighbouring Networks, and this became the Community-Based Stewardship (CBS) Group of Case Two. Their goal was to explore options for innovation in regional NRM governance that would support initiatives, such as the CBS System, beyond the life of a funded project. In

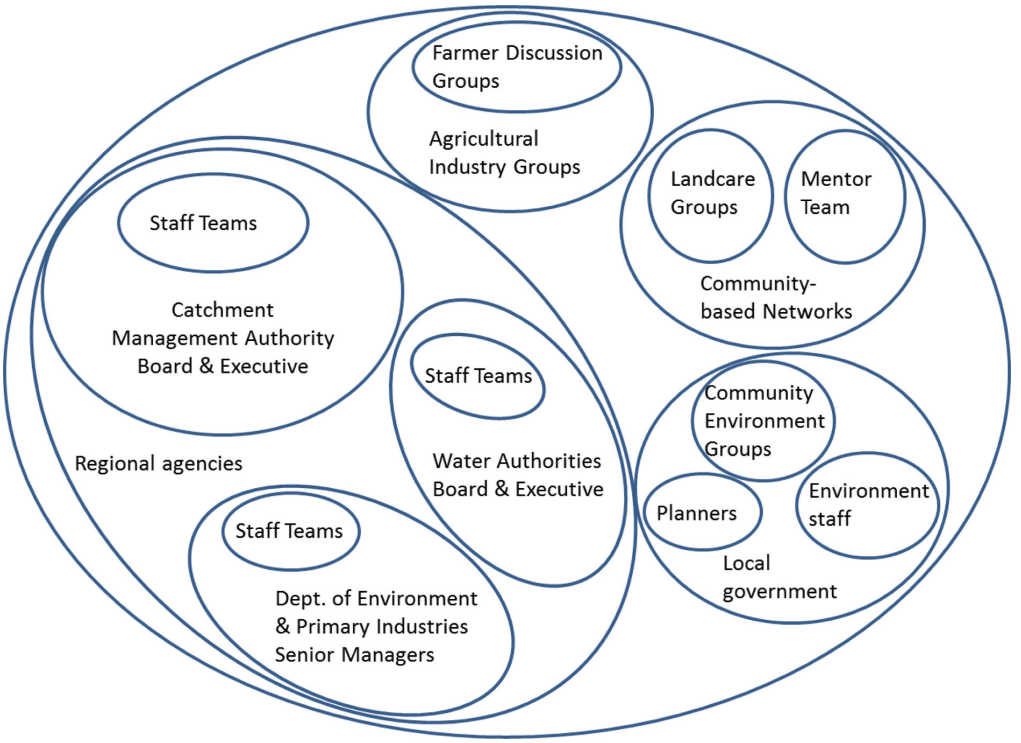
Figure 1. A diagram showing direct relationships between the PPWCMA Board, RCS Board sub- committee, staff teams and partner organisations involved in governance, adaptive management and undertaking actions of the Regional Catchment Strategy, illustrated by narrow, linear arrows. The block arrows between partners in column three represent relationships that contribute to RCS outcomes, not directed by this strategy but by the partners own strategies and collaborative activities.



doing so they provided another setting to test the application of social learning through the action research process. A system map of regional NRM governance is illustrated in Figure 2 showing these networks in relationship to other governance actors as sub-systems representing different governance scales.

Circumstances that led to Case Two opportunities for social learning were previous experience of CBS groups with social learning in Landcare – a community of practice approach described by Colliver (2011) and the benefits it had to offer to learning through action and integrating multiple sources of knowing and knowledge. Added to this was a desire to contest regional governance arrangements beyond episodes of innovation, previously developed through projects but not integrated into institutional arrangements and practices of regional governance. Concurrent with development of a community-based stewardship system, a series of action research sessions were facilitated with the CBS group, identifying enablers and constraints on civil participation in NRM governance. Having presented the situations and contexts of the two cases, we now go on to describe how social learning and systemic inquiry assisted exploration of these two complex situations, enabled collaboration between stakeholders and is supporting the transition to adaptive governance.

Figure 2. A system map of regionally-based NRM governance showing the sub-systems of regional agencies, Agricultural Industry Groups, Community-based Networks and Local Government and each of their sub-systems that contribute to NRM governance at regional, sub-regional and local scales.



FROM REFLECTION ON PRACTICE TO SYSTEMIC INQUIRY

After six months of action research with the two case groups it was suggested by the facilitator that undertaking a systemic inquiry may help them make sense of the complexity of their situations and provide tools to diagnose and plan improvements systemically. That systemic thinking existed in both groups was indicated by their frequent use of words such as 'relationships', 'partnerships' and 'collaboration', reflecting their focus on the interconnections between people and organisations, and their commitment to involving a broad range of stakeholders in all aspects of governance. They described their situations as complex and messy, but in each case were uncertain where they could start to influence these situations, or what improvement would look like.

There are often numerous pathways and no agreed starting points to unravel messy situation such as regional NRM governance and to making improvements. Systemic inquiries enable exploration of the interconnections between people, organisations and programs operating at and across various parts of the situation. Systemic inquiry is an integrated process of thinking and acting systemically in complex and messy situations and engaging with situations through the systematic application of systems tools and practices (Ison, 2010). Such tools and practices correspond to stages of inquiry, for example, rich pictures act as mediating objects for engaging initially with messy situations and sharing differing perspectives between stakeholders; multiple-cause diagrams aid in diagnosing messes by exploring intended and unintended consequences of actions taken; human activity systems can support negotiating improvements, planning actions to achieve improvement and monitoring results (Armson, 2011). Applying these tools and engaging in consistent practice of planning, acting and reflecting enables diverse stakeholder perspectives on issues to be presented and a deeper understanding of the issues and possible improvements to emerge. Building on this emergent knowledge and by facilitating focussed conversations, such inquiries can aid negotiation and agreement on otherwise contentious issues.

In Case One the focus of systemic inquiry for both the EST and LCOT became how to understand the interrelationships between actors at different scales, and across public and private land, in order to better facilitate improvements in communication, planning and action between scales and across land tenures.

Case Two participants wanted community-based networks to have more influence in regional NRM governance, but where and how to contest the current situation eluded them. They noted some promising shifts in practice, but felt these had not produced significant change in the key areas of consultation for the RCS and partnering in NRM programs and projects. They felt largely excluded from regional decision making and disenfranchised by allocation of the majority of CMA funding through market-based instruments. Trust and motivation to participate in regional governance was declining. They wanted decisions on regional priorities and resource allocation to be more equitable, informed, inclusive and transparent; they understood trust and motivation as being integral to ownership of NRM activities and outcomes by community members. The focus of systemic enquiry for Case Two became the system of NRM governance. They began to observe and articulate differences in perceptions and ways of working between participants in NRM governance, and began looking for opportunities to deliberate on NRM governance with a broader range of stakeholders.

RESULTS FROM CASE ONE

At the outset of action research, Case One participants chose to work with government sector partners, involving them in 'alliance building'

activities, on the assumption that organisations with legal responsibility and resourcing capability have the obligation and capacity to act.

They worked with partners in regional agencies and local government in large stakeholder forums, facilitated professionally by an external facilitator and in sub-regional clusters facilitated by EST members. Each of the sessions was planned during the facilitated AR sessions and subsequent planning amongst team members. Early in the AR sessions, the EST decided they could simultaneously develop a basic draft of the RCS with regional partners and sub-regional clusters and build collaboration through social learning. Leaving the 'basic' draft RCS incomplete would provide a 'way in' for partners to engage with the RCS and to create opportunities for social learning, demonstrating their commitment to adaptive management.

Members of sub-regional clusters had been pre-determined by the CMA as convenient groupings for reporting purposes. Early into the cluster meetings the EST reflected on comments from these cluster members that they would be more comfortable in different cluster configurations. The EST empowered these clusters to self-select and found their preferences were based on existing relationships with neighbouring Councils based on common landscapes or common issues and ways of working. The cluster groupings also sometimes changed, depending on the issues being dealt with. For example, a shared waterway might provide connections for a cluster of rural and urban councils, whereas the same rural councils would join other rural councils to work on issues of agricultural land.

Feedback, to the EST from Councils, on this adaptive approach to sub-regional clusters has been positive. Early cluster sessions on protecting and improving native vegetation and rural land showed they valued the opportunity to give their views, explore how neighbouring councils thought about the issues and hear how they managed these. Councils also expressed how refreshing it was to be asked by the CMA to contribute data to the RCS and to see it presented in the web format where it could be aggregated with neighbours' data and accessed for planning and monitoring purposes. The value of working in cluster groupings began to be appreciated by some Council participants, and with that, the potential of an adaptively managed RCS.

At this point, the theory of action being pursued by the EST had two elements: to build partnerships with organisations with responsibility and capacity to act, and to work with them in clusters appropriate to the NRM issues at hand. However, it became evident to the team that this approach was producing a predominant focus on public land, leaving targets and outcomes for private land as a significant gap in a strategy seeking ecological integrity and resilience across landscapes. It was at this stage that the two CMA teams (EST and LCOT) began joint action research sessions to explore how they could work more effectively together to facilitate or stimulate planning and action across both public and private land.

Sessions were held with both teams to draw rich pictures and identify themes. Examples of rich pictures from these joint sessions are given in Figures 3 and 4. Figure 3 shows the complexity and the messiness of the situation where members of the LCOT were facilitating multiple NRM outcomes on behalf of several programs and with multiple partners, from government and community sectors, under significant time pressures and not systemically organised or appreciated. Figure 4 illustrates the predominant influence of policy that focussed the CMA on management-level decisions and their lack of focus on and appreciation of the contribution to NRM outcomes made by the community sector.

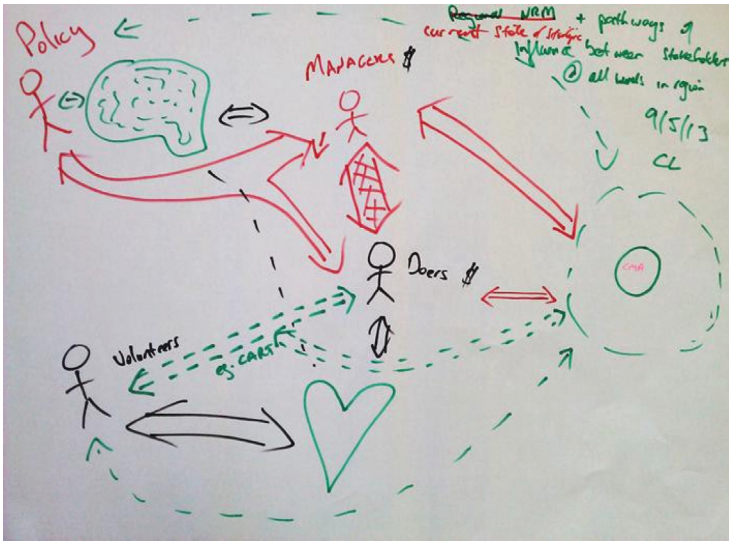
Exploring each other's pictures and conversing over the themes raised the possibility of working with CARTs to bring forward community-based perspectives and interests relevant to public and private land at local and sub-regional scale. EST and LCOT began planning opportunities to strengthen facilitation of social learning with CARTs and through that, explore opportunities to better integrate planning and action across private and public land. A new goal emerged from this planning; "*An RCS that is relevant to and meaning-*

Figure 3. A rich picture, drawn by members of the LCOT, representing complex issues related to working on NRM issues at sub-regional scale and the messiness inherent in having to juggle multiple programs on behalf of and with multiple partners

fully supports action on private land". The accompanying theory of action became that by engaging CART members in a series of forums to explore the RCS that connections between it and their work would emerge. Then it was hoped, that as these connections were revealed CART members would have a clearer sense of the RCS purpose, how they could influence it, navigate it and use it to support their decision making. A round of CART meetings was held in May 2013 where members of the EST and LCOT jointly facilitated the presentation and exploration of the RCS. Evidence to support the theory of action are illustrated by two examples given below:

1. CART members identified the benefit of accessing up-to-date native vegetation mapping provided by the web-based RCS, as supporting local, collaborative planning within the catchments they operate in and in the context of landscape connectivity across the region;
2. Additionally, the potential of a data layer that mapped all CART revegetation and remnant vegetation protection project sites (past, present and planned) was felt to be an opportunity to showcase achievements, encourage participation and integrate these sites into planning.

Figure 4. A rich picture drawn by a member of the EST representing the predominant influence of policy on NRM in the region, how this dominates the CMA focus of attention and the lesser influence and appreciation of the community sector's contribution to NRM



Under pressure from a State Government demand that all CMAs submit an RCS by June 2013, the dual focus of the EST on RCS writing and alliance building drifted; writing the RCS became the imperative. The CMA also put a value proposition out to a sample of potential Alliance partners, asking if they would pay for Alliance services. The responses were that no, they would not pay for services they believed to be the core responsibility of the CMA. An anticipated but underestimated cascade of change was prompted by the move to adaptive governance. While Council partners have largely welcomed an adaptive management approach, the responses required from within levels of Council for them to engage with the process, build organisational commitment and adjust to new ways of doing NRM is taking some time.

The EST took this as indicating a lack of appreciation of what collaboration and social learning could bring to regional NRM, and it led to a revision of their theory of action. Rather than aiming immediately to create a regional Alliance, the EST decided to strengthen existing alliances, work with cluster groups and CARTs, facilitating social learning to improve environmental management relating to cross-scale and cross land tenure planning and management; issues previously left in the 'too hard basket'. Their new theory of action became that through social learning direct experience of the benefits of collaboration would emerge and lay the foundations for a regional Alliance and the benefits it may bring.

RESULTS FROM CASE TWO

Case Two research participants had found that despite the rhetoric of their CMA and wider NRM policy on collaborative partnerships, opportunities to participate in planning and decision making had been limited. Consultation had a vague agenda not focused on collaboration and therefore provided few opportunities to participate in CMA program design and delivery. As one community-based stakeholder stated:

I think it's really important [improving collaboration],... we've tried to work, for a long time and without much success [with some staff from the CMA],.... the kind of died in the wool purist and biodiversity type people...[who won't consider] productive Landcare...

This statement, by a community-based NRM stakeholder, reflects how differing perspectives of how to understand and do NRM have not been resolved or appreciated and therefore undermined collaborative efforts between community and government sectors. Adding to this, another stakeholder felt a lack of appreciation and understanding of the role and contribution of community-based networks in regional NRM further undermined collaboration between government and community sectors:

The problem as we see it is the underutilisation of Landcare.

Despite disappointment in previous arrangements, the CBS networks sought opportunities to engage in deliberation with the CMA and the wider NRM system. One motivator was their desire to explore the assumption, prevalent currently in the CMA, that market-based instruments are the most efficient and effective mechanisms to achieve environmental outcomes, and with this, the allocation of significant resources to these instruments. Based on their experience in their communities, the CBS groups believed that landholders' intrinsic motivation to adopt conservation practices generates greater environmental outcomes sustained over the long term; and that intrinsic motivation is fostered through processes such as support for landholder goal setting and decision making, such as peer learning, mentoring and Landcare Group activities. They also believed that a balanced appraisal of the impacts of MBIs as used by CMAs has not been undertaken, and that CMA decisions were being made on ideological grounds, i.e. market-based instruments are a more efficient mechanism for purchasing ecosystem services than community-based action. One stakeholder from the CBS group voiced their desire to contest these views held within the CMA when they stated:

That's a paradigm shift though that has to happen within that institution, it's imperative.

The CBS group began contesting the assumption that the CMA and other agencies would on their own deliver on the rhetoric of partnership and collaboration. They saw the need to create fora that could challenge current arrangements, in particular, the rhetoric-practice gap and its impact on community action, the impact of programs on intrinsic motivation, and ignorance of the epistemologies of community-based NRM.

The CBS group theory of action became the role of community-based networks would become clearer and more deeply appreciated through working on a collaboratively designed and managed project with the CMA. Strong interest emerged in learning together through action and in coupling research with adaptive management of a project well designed and adequately resourced. The group initiated a conversation with senior CMA managers regarding this interest. CMA managers were receptive, and suggested opportunities where these ideas could be tested.

One outcome has been the development of a joint project and submission for funding for a sub-regional community-based stewardship program. The five community-based networks, the CMA, local government, indigenous groups and other regional partners will collaborate in delivery and adaptive management of the program. The design includes social learning that fosters epistemological awareness and broadens stakeholder knowledge and ways of knowing, and reflection on practice that informs project governance, planning and action. The CBS Groups' extensive experience of social learning practice in action informed design of this project.

The CBS group also initiated a systemic inquiry into regional NRM governance, through

which they explored perspectives and assumptions related to regional governance and how to improve collaborative practices at all scales of governance, beyond an episode of innovation. Prior to commencement of the systemic inquiry one community-based stakeholder stated their hope for improving collaboration with partners in NRM governance in this way:

At the end of the day it will be a process that we will all grow from, no doubt about that, and if we're successful we might be influential in changing some of our disappointments or realizing some more of our opportunities.

Conducive policies, such as the region's new RCS and Landcare Support Plan call for improved integration and partnerships between organisations and greater input of stakeholder knowledge to the CMA Board. Senior managers in the CMA emerged as champions of this systemic inquiry, agreeing to help build commitment amongst regional stakeholders to participate. There was explicit understanding by CMA management that it would take time to garner support and commitment, that there was a need to align with other processes happening regionally. They committed to joint planning and allocation of resources to co-ordinating the inquiry and proceeded with a stakeholder analysis and subsequent invitations, both written and verbal, to the stakeholders identified.

The systemic inquiry became a space for coupling the science and practice of change in the governance system, to allow a situation based praxis to emerge as per Ison (2010). It was presented to the broader group of stakeholders as a way to make sense of what causes what, for what purpose within the complex interconnections in NRM governance, and to avoid well-intentioned attempts at improvement that could have unintended negative consequences. Further, the invitation proposed that systemic inquiry could support people looking at the relationships around contentious aspects of governance, designing a better way to do things, and learning as they put new ideas into practice. The assumption of the facilitators and CBS group extending from this was stated as:

First solutions often reproduce a problem. You won't shift a pattern until you change the habits, assumptions and structural arrangements that hold the pattern in place. Real change requires digging down to challenge those forces.

Two workshops were held, engaging over 50 stakeholders from across the region in the application of various systems tools, as described by Armson (2011), to explore regional NRM governance through the lens of a multi-scale system of governance. Authors Mackay, Colliver and Allan facilitated the application of these systems tools with rigour and the intention to develop systemic inquiry practice that could be applied in other governance situations.

Individual stakeholders drew rich pictures (See Figure 5) to explore issues and then through conversation in groups to share insights and identify themes; Interest based groups were formed around parts of the governance system, named 'snappy systems', who then created systems maps to further share understanding of parts of the system as they were experienced; Multiple-cause diagrams were then applied to diagnosing past actions, their intended and unintended consequences and the patterns that hold current arrangements in place; finally systems definitions were created as initial steps toward designing systemic improvement to parts of regional governance.

The stakeholder group that developed Figure 6 went on to create the following system definition to clarify the purpose of collaborative partnerships and how and why they are initiated:

A system to facilitate partnerships, by means of collaborating and sharing ownership on identified matters of need, in order to improve relationships, increase resourcing and support, and accelerate outcomes.

Figure 5. A rich picture drawn by a community-sector stakeholder representing the complexity and scales of relationships between farmers, volunteers, Landcare groups and networks and agency and corporate partners and the multitude of NRM projects and programs in which they are engaged

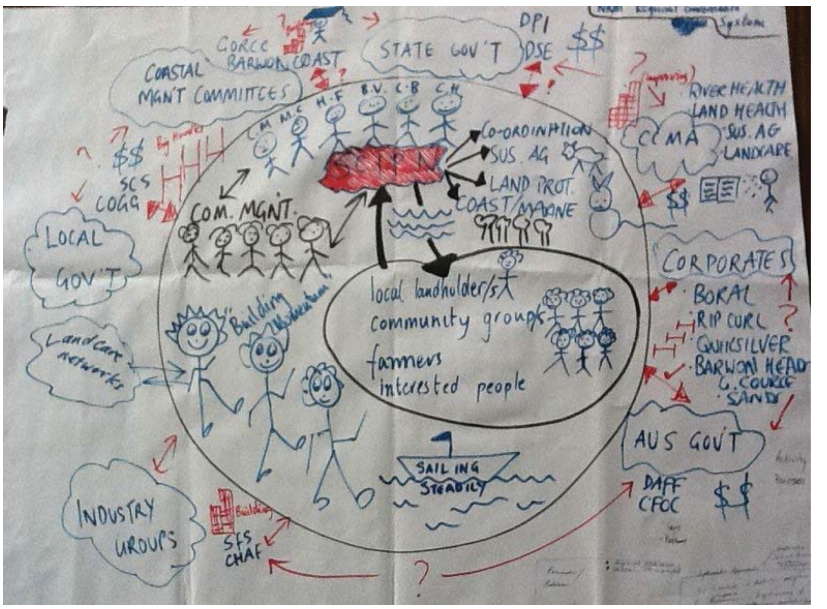
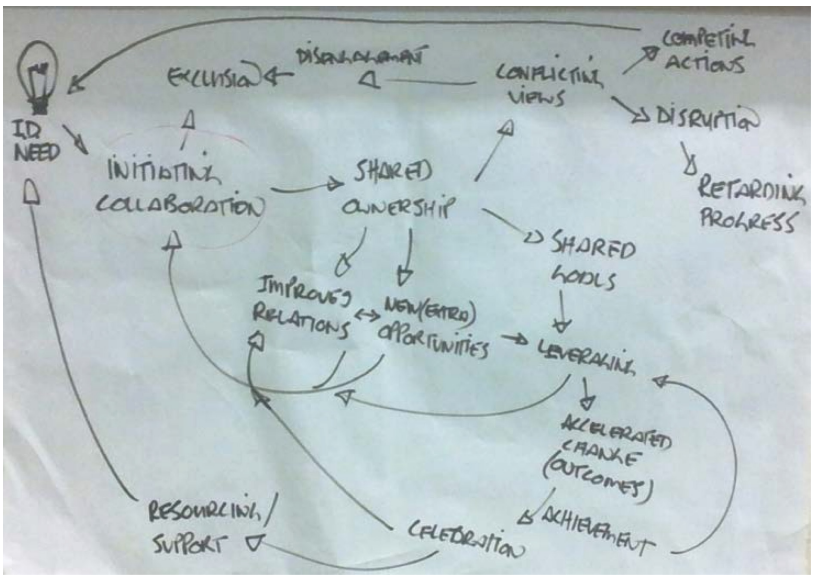


Figure 6. A multiple-cause diagram drawn by one group to aid diagnosis of past collaboration between government and community sector stakeholders. This diagram revealed intended and unintended consequences of past collaborative efforts and helped identify the influence of how collaboration is initiated as leading to negative or positive outcomes.



A third workshop in the systemic inquiry is planned for early 2014 to develop human-activity systems as action plans with each work group, to support their shifting from current governance arrangements to realisation of the improvements as articulated in their new systems definitions. Monitoring mechanisms will accompany the human-activity systems to aid evaluation of the effectiveness, efficiency and efficacy of actions taken to improve arrangements and sustain the changes (Armson, 2011).

Feedback on the systemic inquiry process has been mixed so far. Some stakeholders were relieved to participate in a process where differing perspectives could be shared, using the mediating objects of the systems tools; others wanted to move to action more quickly, finding the workshops slow in taking them where they wanted to go; others were clearly comfortable thinking holistically about governance and analysing opportunities to improve through the lens of a system; and still others found this new way of thinking and myriad of new language daunting and vague, as illustrated by the following quote:

It's all a bit 'out-there' for me. I need to know where we are going so I know what to do to get there.

Keeping stakeholders engaged in the systemic inquiry process proved challenging in the crowded and resource limited environment characteristic of NRM. Time spent thinking, reflecting and planning was not felt by some to be a productive use of time when pressures on producing outcomes in ever degrading landscapes were great. Other challenges included facilitating a systemic inquiry with stakeholders where the range of capacity to think and act systemically about complex and uncertain situations was large. Communication with stakeholders increased between workshops to focus on creating meaning and trust in the inquiry. Focus of these communications centred on building stakeholder motivation to participate in the process whilst avoiding pre-empting outcomes that needed to emerge from their deliberation.

The results of workshop three will attest to the effectiveness of these communications.

DISCUSSION

This preliminary examination of two cases of deliberate systems practice through social learning and systemic inquiry suggests that a self-aware, well-resourced social learning process can lead to improved collaboration. It also confirms that conducive policies and institutional arrangements can open up opportunities to contest paradigms and precipitate shifts in practice.

We noted earlier four limitations in NRM governance in the Australian context: the preferencing of scientific knowledge and technical opinion; inadequate processes for managing integration across scales of governance; difficulties integrating hierarchical and networked governance approaches; and a failure to cultivate innovation in governance itself. While it is too early to comment on long-term change, the processes and tools reported here provide a picture of how to put in place a platform for improving NRM governance, and have enabled participants to begin to contest current governance arrangements.

The social learning heuristic of the SLIM Project (Collins & Ison, 2009b) provides a useful framework for reflecting on the activities that have built this platform. Table 2 presents actions from each case against the elements and activities of the SLIM Framework and are now discussed.

AR sessions with all groups began with thinking about and exploring *past governance arrangements*. The EST (Case One) reviewed past RCSs, how they were written by the CMA with actions prescribed for partners and then reflected on how the centralised nature of the relationship between the CMA and their partners diminished ownership and made delivery of RCS outcomes more difficult. The LCOT reviewed the role and contribution of past iterations of CARTs, that were named Advisory Committees, but which had little influence over

Table 2. Activities reflecting social learning evident in each of the cases using the social learning heuristic developed through the SLIM Project (Collins & Ison, 2009b)

Key Elements of the SLIM Framework	Associated Activities of the SLIM Framework	Case One	Case Two
Context	*Appreciate past causes of current understanding and practices*	Reflection on past RCS processes and outcomes Papers read on the rhetoric practice gap in collaboration	Reflection on experiences of consultation and partnerships Recognised need to adapt social learning practices to regional governance scale
Institutions and policies	*Develop conducive policies*	CMA committed to devolve power to the Alliance to enable adaptive governance of the RCS	RCS and Landcare Support Strategy included objectives conducive to improving collaboration
	Develop conducive institutions	CMA creating a collaborative alliance of partners	CBS initiated systemic inquiry into regional governance with goal of changes persisting beyond episode of innovation
Stakeholding	*Identify stakeholders*	CMA base alliance forming activities on a stakeholder analysis, adapting approaches based on stakeholder capacity	CBS and CMA jointly undertook a stakeholder analysis in preparation for the systemic inquiry into regional NRM governance
	Build stakeholding through joint responsibility	CMA provided social learning fora for networking and collaborative planning through Council clusters and CARTs	Stakeholder Reference Group included in the adaptive governance of CBS project along with methods to engage broadly with stakeholders across the landscape in stewardship practices
Facilitation	*Identify facilitation needs*	Through AR, LCOT explored facilitation needs for supporting CARTs EST explored facilitation needs of council clusters	CBS groups discussed facilitation needs of stewardship program and facilitation needs for systemic inquiry with CMA
	Provide necessary facilitation	Teams provided facilitation of CARTs, cluster groups and existing alliances	CBS and CMA committed to resourcing co-ordination and facilitation of systemic inquiry
Epistemological constraints	*Co-produce knowledge in action*	EST and LCOT reflected on partnership rhetoric- practice gap in AR Cluster groups and CART members work through data needs of RCS and share learning from action	CBS groups co-produced knowledge through action through community of practice approach of Landcare
	Jointly produce what constitutes an improvement	EST and LCOT joint AR focussed on improvements in governance and committed to facilitating existing alliances	CBS initiated systemic inquiry into regional governance to work with broad stakeholder group on improving regional governance

NRM outcomes and RCS targets and actions. The CBS (Case Two) reflected on the lack of opportunity that allowed for deliberation on regional governance, where assumptions could be contested and new ways of working collaboratively could emerge. They reflected on how this deliberation occurred in community-based groups.

In both cases *conducive policies and institutions* opened the way to explore opportunities for improving civil participation in NRM governance and created legitimacy for the plans and actions that followed. In Case One this included a commitment to adaptive governance of the RCS through a collaborative Alliance of NRM partners and to devolving power from the CMA to the Alliance over time, as capacity to collectively govern is built. In Case Two conducive policies included RCS and Landcare Support Strategy objectives

that gave legitimacy to efforts to improve collaboration and integration across governance scales. Conducive institutions included the community-based stewardship framework and program, and the systemic inquiry to develop co-governance arrangements through action.

Stakeholding was investigated through stakeholder analysis. Both cases reviewed who their stakeholders were and their stake in the governance system and developed an approach to working with the stakeholders based on their capacities to engage in a new governance approach – in Case One, development of the Alliance and web-based RCS; in Case Two, systemic inquiry to improve collaboration.

Consistent, quality facilitation was recognised by both groups as essential to supporting the lengthy change process they considered necessary. The LCOT spent three of their six AR sessions planning for the CART forums, to ensure good quality facilitation was provided; EST worked with a professional facilitator to plan and facilitate a gathering of Alliance partners; and the systemic inquiry was facilitated jointly by authors Mackay, Colliver and Allan, applying systems tools with rigour. Regular, facilitated AR sessions enabled participants to systematically reflect on their situations, their assumptions and theories of action and how effectively action taken brought about the changes they hoped for. Regular reflective practice and reading of relevant papers aided insight into *epistemological constraints.* Reflection on the assumptions implicit in action revealed the rhetoric-practice gap around collaboration, and the epistemological dimensions of a move from top-down, scientific management to facilitation of social learning. Access to relevant literature deepened participants' understanding of assumptions embedded in governance practices.

Deliberation between participants enabled articulation of beliefs and the questioning of assumptions.

The early stages of systemic inquiry generated by these activities have had several tangible outcomes. First, participants have shifted from viewing their situations as problematic because of seemingly irresolvable differences between agency and community ways of working, to perceiving NRM governance as a system that can be collectively explored and improved.

Second, the systemic inquiry has given stakeholders tools and practices to contest current governance arrangements and explore opportunities for improvement through authentic, inclusive and consequential deliberation (Dryzek, 2009), where no such opportunities existed before. Some matters previously considered too hard have been investigated, and shared learning initiated to generate new ways of perceiving and improving governance practice.

What might support systemic inquiry beyond the period in these case studies? An evaluation framework for assessing social learning and systems inquiry in the regional NRM governance would be useful. Evaluation against a framework that specified behaviours against a framework like the SLIM heuristic might provide valuable insights for others seeking to stimulate similar changes in NRM governance. It would also add to the body of knowledge about key elements and activities that open up opportunities for adaptive governance praxis to emerge and persist.

However, it is clear that the groups in the two case studies are in the early stages of change. How they each overcome constraints in the broader policy environment, and meet the demands of ongoing reflective practice and facilitation of social learning, will determine the medium- to long-term cohesion of the groups and their impact on regional NRM planning and governance. Whether the systemic inquiry persists beyond the episodes of innovation documented here remains an open question.

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