

National Action Plan for Salinity and Water Quality

Social and Economic

State-level Investment Project SE03

Partnership-based social research for sustainable natural resource management in Queensland

A handbook summarising the outcomes of research supported by the
Queensland social research development and extension (SE03) activity
2004–2006

Compiled by James Whelan

August 2006



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Acronyms and abbreviations

ALMS	Australian Landcare Management System
BMRG	Burnett Mary Regional Group
BDT	Burdekin Dry Tropics
BDTB	Burdekin Dry Tropics Board
CHRRUP	Central Highlands Regional Resource Use Planning Project
CA	Condamine Catchment Natural Resource Management Corporation Ltd. trading as Condamine Alliance
CRRIQ	Centre for Rural and Regional Innovation
DCQ	Desert Channels Queensland
DU	Desert Uplands
DUBDSC	Desert Uplands Build-up and Development Strategy Committee
EMS	Environmental Management System
NAPSWQ	National Action Plan for Salinity and Water Quality
NHT	Natural Heritage Trust
NRM	Natural Resource Management
QNRMW	Queensland Department of Natural Resources, Mines and Water
RD&E	Research, Development and Extension
SENCC	Social and Economic National Coordination Committee
SE03	The Social Research, Development and Extension activity in the Social and Economic State Level Activities under the National Action Plan for Salinity and Water Quality
SEQC	South East Queensland Catchments
UQ	The University of Queensland
WCG	Western Catchments Group

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Introduction

The Social Research Development and Extension state level investment project (SE03) was one of a suite of five state-level social and economic projects funded under the National Action Plan for Salinity and Water Quality (the Action Plan). This project focused on regional natural resource management (NRM) bodies developing strong research partnerships with social research, development, and extension providers. The project was completed in June 2006.

Funds supported:

- communicating social research, development and extension concepts with regional bodies
- establishing the expressions of interest and research selection processes
- conducting priority research, development and extension projects within the regions
- disseminating the lessons learned among other regions.

The main aim of SE03 was to fund partnership-based research into social issues that are critical to regional implementation of the action plan. SE03 funded ten projects in two rounds of project calls.

The priorities of SE03 were developed through the Social Dimensions of Natural Resource Management Working Group, the first of several working groups established through the Consortium for Integrated Resource Management.¹ Priorities were developed initially for a position paper on the social dimensions of natural resource management, and were then further explored through workshops with regional communities and social science researchers.

A consistent priorities framework was established with project areas developed and implemented through several avenues, including PhD scholarships, Land & Water Australia funding, an Australian Research Council Linkage project, and SE03.

The findings of a number of these and related projects have been included in *Social innovations in natural resource management: a handbook of social research in natural resource management in Queensland*—a publication intended to be a useful resource for regional communities and researchers, and for further research and research partnerships.

The first expression of interest in SE03 funding was invited in August 2003. Over a dozen submissions were received, and the first round projects commenced in 2004. Expressions of interest in the second round were invited in 2004, and these projects commenced in 2005. Final reports of the projects are available online at <http://www.regionalnrm.qld.gov.au>.

Communicating learning

A symposium was held in June 2005, bringing together the participating researchers and regional NRM bodies. At the time, most first round projects had been completed and several of the second round projects had commenced. The research partners identified that coming together at the completion of all the projects, with an expanded audience, would be necessary to share lessons and assess implications for regional bodies and their businesses.

The process for the first symposium was designed to encourage dialogue, to share insights into the critical social issues examined and the experiences of the participants and the research partners. The interaction was greatly appreciated by the research partners, despite time constraints. The June 2005 symposium identified that the partnership-based research promoted in SE03 is not an easy option, as the imperatives of the key players do not always match those of the researchers; however it is an option that brings potential rewards. The symposium also recognised that the regional arrangements for the implementation of the National Action Plan

¹ The Consortium for Integrated Resource Management operates as a formal linkage network of key officers from four universities (The University of Queensland, Griffith University, Central Queensland University and James Cook University), CSIRO and three government departments (Natural Resources, Mines and Water; Primary Industries and Fisheries; and Environmental Protection Agency).





has been an evolving stage on which the SE03 projects have been conducted.

A second SE03 symposium was convened in April 2006 to:


- hear from SE03 project research teams about their findings, including how their projects have addressed regionally important questions about the social and economic dimensions of natural resource management, how these findings are to be applied, and how research partnerships of this nature can be fostered
- consider other opportunities for research, built on partnerships between regional NRM stakeholders, social scientists and other agencies
- facilitate dialogue between regional groups and researchers involved in regions where NRM is funded through the Natural Heritage Trust and the action plan
- identify other regional natural resource management challenges and opportunities that may be researched through similar partnership arrangements.

The symposium attracted researchers, regional body board members, staff, and stakeholders involved in the eight SE03 partnerships. As the final communication event for the research scheme, the symposium was a valuable opportunity to showcase the insights and tools that regional bodies and researchers considered of relevance in other regions and interstate. A full report of both symposiums is available on the SE03 website.

This handbook presents edited summaries of the eight projects that were submitted in May 2006 by regional body staff, board members, and project researchers. The participating regional NRM bodies and researchers are identified for each project. The following legend explains the icons that are used to draw attention to useful information.

	Project partners		Contact details
	Tools		Reports and publications

Building healthy social networks for sustainable natural resource management

	Queensland Murray-Darling Committee Condamine Alliance University of Southern Queensland - Dr David Grasby (Project Manager), Professor Charlie Zammit, Associate Professor Grace Pretty, Associate Professor Paul Bramston
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Overview

It is theorised, in the context of natural resource management (NRM) in the Queensland Murray-Darling Basin, that by building or improving social networks among NRM-related organisations in the Murray-Darling Basin—such as Landcare, catchment and sub-catchment groups—a greater degree of community involvement in NRM activities is likely to result. Previous research indicates that an increased level of community involvement in NRM groups and activities is likely to lead to the adoption of sustainable land-use practices on a broader scale.

The research and methodology of this study sought to address the problem of how to engage community members in network building to achieve more sustainable forms of natural resource management. The ‘community-readiness model’ has been used to assess the extent to which NRM groups and organisations are prepared to engage in, or improve the level of, networking or network –building.

Specifically, the model was used to examine the extent to which NRM groups in the Queensland Murray–Darling Basin and Condamine Catchment are prepared to build or enhance their social networks as a means of engaging with other NRM-related organisations, government departments and the wider community. The study determined the degree to which the ‘health’ of social networks contributes to the effectiveness of Landcare, catchment and sub-catchment groups.

Introduction

Increasing involvement in NRM groups and activities is important for adopting sustainable land-use practices in the Queensland Murray-Darling Basin. Building or improving social networks among NRM-related organisations—such as Landcare, catchment and sub-catchment groups—is one way to generate greater community involvement in NRM activities. This is integral to the process by which information flows occur, ideas about sustainable NRM practices are transmitted and innovative practices flourish (White 2002).

The research and methodology of this study sought to address the problem of how to engage community members in network building to achieve more sustainable forms of natural resource management. For the purpose of this study, the need to engage community members in more sustainable forms of natural resource management was conceptualised as the ‘problem’ which the research and methodology has sought to address.

The ‘community readiness model’ (Jumper-Thurman et al. 1997; Beebe et al. 2001) has been used to assess the extent to which NRM groups in the Queensland Murray–Darling Basin and Condamine Catchment are prepared to build or enhance their social networks as a means of engaging with other NRM-related organisations, government departments, and the wider community.

In addition to examining the types of networks that NRM groups access, the form and content of those social networks must be considered. For this study, information about the kinds of social networks accessed for NRM purposes was gleaned from qualitative data acquired through focus group sessions and one-on-one interviews with key informants. Qualitative data were also

gained from responses to open-ended questions in the survey questionnaire.

Arising from this study has been the development of a 'Community Readiness for Networking, Self-Assessment Toolkit'. The toolkit will be made available through the websites of the regional NRM bodies in the Queensland Murray-Darling Basin (the Queensland Murray-Darling Committee and Condamine Alliance) for other NRM groups and organisations to examine their own level of readiness to engage in networking or network building.

Research problem

For the purpose of this study, the networks that form natural resource management systems in the Queensland Murray-Darling Basin were taken to be a 'community', which is defined by Jumper-Thurman et al. (1997) as 'a collection of organisations connected by a common purpose, where members exercise some influence over their processes for the mutual satisfaction of achieving set goals'. Within any such community, each organisation is not necessarily engaged in the same process, or at similar levels of capability, for achieving policy changes to affect community behaviour.

One reason for these differences is that the processes of an organisation are partly determined by its stage of development, or readiness, for accepting and implementing change. This readiness is thought to be a major factor in firstly determining whether an initiative is sufficiently supported and effectively implemented by an organisation, and secondly whether organisations within the one community are positioned to cooperate with each other to provide mutual support and engagement.

The lack of universal outcomes—those that depend on cooperative networks of organisations—can therefore be understood in terms of the balance between the processes implied by any policy or program initiative, and the state of readiness of each organisation in the network to engage in such processes. Assessing the stage of readiness of NRM groups within the Queensland Murray-Darling Basin to engage in networking, or to build effective networks, is the problem that the research and methodology attempted to resolve.

Conceptual foundations: the Community Readiness Model

The Community Readiness Model provides a practical research tool that has been developed by researchers at Colorado State University as a way of helping communities understand their strengths and vulnerabilities to manage and instigate change (Jumper-Thurman, et al. 1997). The methodology has proved highly effective in developing the capacity for multiple levels of community agencies to cooperate on policy and program development to affect, for example, alcohol and drug use and domestic violence.

The community readiness model is based on underlying premises that:

- organisations within a community are at particular stages of readiness to deal with any given problem, and may be at one stage on one issue and at another stage on a different issue.
- the stage of readiness can be adequately assessed.
- groups can progress through the stages of readiness with appropriate intervention strategies, such as training.
- it is critical to identify the current stage of readiness and to be at a stage suitable for managing program development that implicitly requires change.

Research indicates that there are nine stages of readiness, listed below in Table 1.

Table 1. Stages of organisational and community readiness²

Stage	Description
1. No awareness, or tolerance	Issue not recognised, or community norms actively tolerate the behaviour.
2. Denial	Recognition of issues, but no awareness of relevance to a local problem or that local solutions can be effective.
3. Vague awareness	Recognition of the local issue but no motivation or leadership.
4. Pre-planning	Understanding of the problem and solutions tend to be stereotyped and leaders and committee are incapacitated in real planning.
5. Preparation	Active and energetic leadership and trial programs begun.
6. Initiation	Program may be starting or still on trial. Enthusiasm still exists because limitation and problems have not been experienced.
7. Institutionalisation, stabilisation	Established funding with administrative support, no sense of the need for change or expansion though limitations may be recognised.
8. Confirmation, expansion	Funds for new programs being sought or committed, programs viewed as valuable and authorities support expansion through new programs or outreach of current programs.
9. Professionalisation, collaboration, synthesis	Highly trained staff running the programs, supportive authorities and community involvement; and effective evaluation leads to detailed and sophisticated knowledge of the related issues, which is used to test and modify programs.

Research design

For this study, an assessment of the readiness to engage in networking was applied to two NRM regional organisations in the Queensland Murray-Darling Basin, one local government body, and a number of Landcare and catchment groups. Prior to the development of the questionnaire, a number of focus group sessions were held to gain an appreciation of the range and quality of the networks that people engaged in NRM are involved.

The assessment followed a process whereby key informants were interviewed and asked a series of questions based upon a standardised, semi-structured interview schedule. In addition, the questionnaire (described earlier) was administered to a number of people within the NRM group or organisation. The organisations were chosen on the basis of their position within, and between, layers of a network of groups and organisations that perform an NRM role in the Queensland Murray-Darling Basin. Intervention strategies that have been demonstrated as effective in moving organisations to a common stage necessary for cooperative ventures have been adapted to suit the purposes of network building in the Queensland Murray-Darling Basin NRM context.

Questionnaire design

The design of the questionnaire was based on a model used and made freely available for the purpose by the Tri-Ethnic Centre for Prevention Research, which is attached to Colorado State University in the United States.

The proforma questionnaire, which consists of a range of demographic questions followed by questions specific to the community readiness methodology, was retrieved from the Tri-Ethnic Centre website and modified to suit the specific requirements of the 'building healthier networks

² From Edwards et al. (2000)

for NRM in the QMDB' research project.

The extent to which communities are ready to engage in networking was assessed on the basis of answers that related to five dimensions of readiness. The dimensions are outlined below in Table 2.

Table 2. Five dimensions of community readiness³

Dimension	Description
1. Community awareness	Examines the extent to which the community is aware that the problem or issue exists.
2. Community climate	Examines the willingness of the community to deal with the issue or problems in general.
3. Community knowledge	Examines the level of community knowledge about the issue and ways to deal with it.
4. Community leadership	Examines the extent to which community leaders are aware of the issue and willing to deal with it by making resources available.
5. Resources available to deal	Examines the extent to which resources have been made available to deal with the problem.

The community readiness component of the questionnaire consisted of a series of questions that conformed to the five dimensions of readiness, and from which respondents were able to choose from four responses on a Likert scale:

- not at all true
- slightly true
- moderately true
- very true

Answers to the questions formed the basis of the community readiness evaluation, which is described in more detail below.

Methodology

In consultation with the two regional bodies in the Queensland Murray–Darling Basin (Condamine Alliance and the Queensland Murray–Darling Basin Committee), key informants from a range of NRM groups and organisations were selected for a one-on-one interview and to complete the community readiness questionnaire.

The community readiness model was applied to the following groups in the study area:

- Border Rivers Catchment Management Authority
- Chinchilla District Landcare Group
- Condamine Alliance.
- Condamine Landcare Group
- Crows Nest Catchment Group
- Crows Nest Shire Council
- Department of Primary Industries and Fisheries (staff members engaged in NRM activities)
- Inglewood Shire Landcare Group

³ Adapted from Edwards et al. (2000)

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- Maranoa-Balonne Catchment Management Authority
- North East Downs Landcare Group
- Queensland Murray-Darling Committee Inc.
- Tara Landcare Group
- Warwick Landcare Group.

Following an assessment of readiness, intervention strategies were suggested as a way of motivating the group or organisation towards a heightened level of readiness to engage in networking or network building for NRM-related purposes.

The first stage of the assessment process was an individual interview with key members of the group or organisation. The interviews usually ran for about one hour and covered such issues as the networking efforts currently being undertaken by the group, knowledge of other organisations and sources of information, leadership, knowledge of issues, funding and general community support, and general questions relating to what the respondent derives from belonging to, or being involved in, an NRM network. The purpose of the interview was to stimulate issues that would arise later in the survey, and to provide qualitative data that could be used to provide additional information and illuminate the data collected through the questionnaire.

Following the interview, the questionnaire was left with the interviewee to complete in their own time and return to the researcher. Attempts were made to ensure that at least two or three members of each group or organisation were interviewed and administered a questionnaire, although this was not always possible.

In addition to interviews and the questionnaire, a number of focus group sessions were held to gain further insights into social networks and network building in the study area.

Data analysis and evaluation of readiness

For each group reviewed as part of the research process, an assessment was made of the readiness of the organisation to engage in networking or network building. The intention was for comparisons to be made between organisations that operate at similar levels within a conceptualised hierarchical structure, focusing on organisations at regional, catchment and sub-catchment (local) levels. In this way, conclusions about the strengths and deficiencies of groups within the network and their capacity for cooperative engagement could be ascertained.

The information from the questionnaires was first entered into SPSS (statistical analysis software) to simplify the extraction of demographic data in descriptive form. From there, the data were imported into a suitable spreadsheet program (Microsoft Excel) to perform computations that are not available in SPSS.

To enable assessment to take place, questions were grouped according to the five dimensions of readiness, described above in Table 2. Responses to questions that related to each dimension were summed and divided by the number of questions in the dimension to produce a mean score. Thus, the mean score for each dimension was used to identify the stage of readiness for that dimension.

Finally, the mean scores for the dimensions were summed and then divided by five (i.e. the number of dimensions) to produce an overall readiness score. The overall readiness score was then used as a basis for determining appropriate intervention strategies to motivate the group or organisation to a heightened stage of readiness to engage in network building. The intervention strategies, which included briefing sessions and training courses, were modified according to the estimated stage of readiness for each group.

Attention will now be directed towards explaining the intervention strategies that the readiness model has identified.

Strategies to increase the level of readiness

The researchers responsible for developing the community readiness model (Edwards et al. 2000) have devised appropriate strategies for advancing communities and organisations toward higher stages of readiness.

The strategies consist of defined goals for each level of readiness, which, as with other aspects of the community readiness model, may be adapted to suit particular research purposes and local circumstances. Some examples of intervention strategies that have been applied in previous research (Edwards et al. 2000) include:

- using the media to increase awareness
- conducting focus groups to prepare plans that address particular local issues
- developing and sharing ideas or information with other communities and groups.

'Generic' training packages have been developed for the current study. These can be used to build the capacity of NRM groups to engage in network building, by varying the content and strategies according to the needs or particular local circumstances of the groups being reviewed.

Training can therefore be tailored to specific requirements of the group or organisation under review. Organisations involved in the assessment may accordingly receive training appropriate to their current level of readiness, with the aim of establishing a uniform stage of readiness between organisations and network layers within the Queensland Murray–Darling Basin NRM network. In this way, a contribution can be made towards building the capacity of groups and organisations to engage in networking and network building.

Conclusion

Engaging community members in more sustainable natural resource management (NRM) activities is an important element of environmental and social sustainability in the Queensland Murray-Darling Basin.

One means by which this can be achieved is to extend the existing networks of people engaged in NRM activities. Previous research indicates that ideas for innovative solutions to environmental problems are more easily transmitted through social relationships. Furthermore, (as the literature referred to earlier in this paper indicates), effective social networks are essential ingredients of healthy and sustainable rural communities (Cuthill 2003; Devine-Wright, et al. 2001; Field 2003; Forrest & Kearns 2001).

The Community Readiness Model has proved to be an effective way of examining the degree of preparedness of groups and organisations to engage in network building and a means by which communities and organisations can progress toward higher stages of network building readiness.

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	<ul style="list-style-type: none"> • Community Readiness for Networking Self-Assessment Toolkit. Available from the websites of the Queensland Murray–Darling Committee and Condamine Alliance • Focus group script • Standardised, semi-structured interview schedule • Generic training packages
	<p>Grasby, D, Zammit, C, Pretty, G & Bramston, P 2005, <i>Building healthier social networks for sustainable natural resource management in the Queensland Murray–Darling Basin</i>, Final report on the SEO3 project University of Southern Queensland.</p>
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Understanding communities: strategies to support interaction of social and natural systems in the Condamine Catchment

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Overview

Condamine Alliance, as the peak body on the eastern Darling Downs for generating action under the regional approach to natural resource management (NRM), identified a need for engagement with its whole community in order to achieve effective NRM. This SE03 collaborative project between Condamine Alliance and The University of Queensland was developed to help Condamine Alliance understand the communities within its region.

The principal objectives were to understand rural communities as social systems interacting with natural systems, and provide a basis for the community to develop strategies for sustainability, integrating natural resource management with economic and social considerations. The project also aimed to develop a process by which other regional bodies can explore directions for sustainability.

The approach combined research with community development. Through two case studies (Pittsworth and Warwick) researchers facilitated a process to identify the structure and networks of each community, and to explore trends that impact on each community's sustainability. After identifying the wide range of service, social care, sporting, industry, educational, youth, religious and environmental groups in the community, researchers invited representatives from selected organisations to take part in a community forum.

The forum identified networks, trends in social context, and community goals that might be strengthened through new alliances on activities, with particular emphasis on actions that benefit natural resource management. Analysis was followed by a report-back session at which key issues and suggested collaborative actions were discussed.

A literature review examined community sustainability, social network analysis, social context analysis, and recent social and economic studies relating to Pittsworth and Warwick. Community profiles were also prepared for both Pittsworth and Warwick, covering historical background, political and social resources, culture and attitudes, socioeconomic situation, and relations with the biophysical environment.

Researchers found that both communities have many organisations and levels of voluntary activity, but very little of this connects with the environment. NRM bodies are on the periphery of the networks of community organisations. Trends and their implications include the pending impacts of rural subdivision on cultures, behaviours, and natural resources; and pressures on water resources.

To Condamine Alliance, the project has highlighted that NRM is a low concern in public thinking. There is a need to recognise, and work towards changing this. The issue is with small towns, not necessarily with the farming community. Condamine Alliance has found the analysis valuable for understanding the diversity of the communities it needs to work with, and in identifying the reasons for particular challenges it has been experiencing. The project has opened up multiple opportunities for action on NRM, involving various possible partners. These are documented in the team's full report.

Conceptual and theoretical foundations

Condamine Alliance identified a need to engage its whole community in order to achieve effective NRM. It understood that a whole-of-community response to NRM is required to ensure that management of catchment resources inspires changes in resource use that can be sustainable for the future, and also impact on the social and economic drivers of the community. While diverse voluntary and agency activities are supporting NRM in the region, the scale of change required to meet the major environmental challenges suggests that landholders and entire communities need support to sustainably address these to ensure the viability of farms and communities.

This need for engagement required far greater understanding of the communities in the catchment, particularly those not directly involved in NRM activities. This collaborative project explored an innovative process to understand Darling Downs communities, and how they are connected with natural resources. The project recognised the need to explore the potential for communities to achieve improved sustainability through enrichment of their internal social capital. It also recognised that the best strategies for NRM can only be designed through understanding the communities concerned, and their aspirations, and working in partnership with them.

The project aimed to:

- understand rural communities as social systems interacting with natural systems.
- identify the roles and influence of women in rural communities, and opportunities to enhance these.
- provide a basis for the community to develop strategies for sustainability, integrating NRM with economic and social considerations.
- provide a process by which other regional bodies can explore directions for sustainability.

Our underlying premise was that applying Granovetter's (1973) 'strength of weak ties' theory to relationships among organisations could mobilise latent enthusiasm within apparently over-committed communities.

Granovetter argued that while strong social links provide needed social support, drawing on weaker ties proved more valuable for certain social purposes, such as locating employment. He exposed the often 'root bound' nature of strong dependency linkages; with limited awareness of, and resources to make use of, opportunities outside a narrow network domain. Bringing this theory to the NRM domain suggests that strengthening weak linkages might open up new ways of approaching NRM and create opportunities for new alliances.

To identify common points of community concern as a reason to establish better links, researchers modified a social context analysis approach advocated by Earle and Fopp (1999) so that it could be used to stimulate community participation. Social context analysis enables community members to take a holistic overview of trends and their implications in the various structures or institutions ('shapers') that make up a community. The implications lead to resolve for community action. The modified process was named STIR (Shaper, Trends, Implications, Resolve).

Methodology

The approach to this study combined research with community development. Through two case study local government areas (Warwick in the upper catchment, and Pittsworth at mid-catchment) researchers facilitated a process to firstly identify the structure and networks of each community, then explore trends that impact on the sustainability of each community, in order to find common interests for linked action towards sustainability.

The approach for each case study was to:

- form a working group comprising the researchers, representatives of key organisations, and other stakeholders who can identify community networks and personnel.

- conduct community mapping to identify social organisations, identify key people in each organisation, and understand the overall social context.
- invite representatives from each organisation to take part in a community workshop aiming to identify networks, trends in social context, and organisational goals that might be strengthened through alliances on activities that benefit natural resource management.
- carry out additional interviews as necessary to record the views of organisation leaders who were not at the workshop and who were considered key links in the network.
- identify, from the social network analysis, strong and weak linkage patterns and provide feedback to the community on opportunities for alliances.
- support community follow-up on ideas for cooperative natural resource management actions.

For each study area, a list of organisations covering wide community interests was compiled and then used to prepare invitations for a workshop. There were two main parts to the workshop process:

Identification of linkages between organisations

This was done in two ways: qualitatively by having participants show links to other organisations on a large sheet of paper spread on a table, using felt pens of different thicknesses and colours to represent the strength of linkage; and quantitatively by asking participants to rate (on a 1 to 4 scale) the frequency, importance, and mutuality of contacts with other organisations.

Social context analysis(in its modified version developed as a community participation tool—STIR)

Participants were asked to work in small groups to select some of the ‘shapers’ of concern and discuss trends, implications and resolve (i.e. what can be done by a community). Participants, working in small groups, completed STIR sheets for population, natural assets and then some of the other options of their choice—economy and local industry, technology, education, family, religion, social class, beliefs and attitudes, and leisure. The small group reports were discussed in a plenary session and common themes sought.

A summary and conclusions by the research team then drew together thoughts on what could or needed to be done. This process allowed for the community to move in directions they thought needed attention for sustainability—social, economic, or environmental—without confining the agenda to environmental issues.

Participants received a record of the workshop output soon after their workshop.

Cluster analysis, carried out on the quantitative linkage data using the Win-PATN software, produced tree diagrams (dendograms) and three-dimensional maps of separation between groups (ordination). The dendograms were the primary source of interpretation of strong and weak linkages among organisations; with the ordinations, felt-marker maps, and discussion with key community members used to qualify these interpretations.

Based on the social context analysis and consideration of current and potential linkages, several projects were identified that would work best through linking a number of community organisations. These were proposed to participants at a report-back workshop where they were shown the analysis of information from the workshop, and discussed potential ways forward. This information, together with comments about the connectedness of various community sectors, was later conveyed via a short report to leaders of all organisations that had been invited to participate.

Partnership-based research

Condamine Alliance has learnt, through a combination of its research projects (including state-level investment projects, and especially SE03), that social and economic sciences are very

specialised. Regional bodies tend to have staff trained in biophysical sciences, but do not usually employ specialist social and extension scientists. They have now recognised the extent of difficulty involved in making good social science decisions. The challenge is to improve the status of the social sciences to match their significance to the biophysical sciences NRM planning.

Condamine Alliance also observed that SE03 has been somewhat separate, with teams even in the same towns not necessarily in communication. The next logical research step is to have social sciences involved more directly in what is happening in the catchment, whether by collaborating in research involving other disciplines, or being involved more directly with management actions.

The project confirmed for Condamine Alliance why it had been experiencing certain types of challenge with the two areas studied (see below). The research was very useful in explaining a complex situation. It has enabled Condamine Alliance to consider their community engagement strategies with far more sophistication.

Both research partners believe that the process ran smoothly. The Condamine Alliance staff who initiated the idea were planners, and hence may have had a greater awareness of their social information needs. According to the researchers, strong relationships were developed from the beginning, despite the rapidity of the first application process, and maintained throughout. Researchers felt that the staff turnover within Condamine Alliance had no noticeable effect on the project, and communication was maintained equally at head office and field level within Condamine Alliance. Reporting requirements were handled smoothly on both sides.

This project led to a relationship with The University of Queensland Gatton, which both parties value. So far, two fourth-year team research projects have been conducted for Condamine Alliance, and Condamine Alliance is implementing the first of these. It has led to the industry placement of two students, both producing excellent reports, and one has been employed part-time by Condamine Alliance. Both parties expect to continue to develop the relationship. The discussion to prepare this document expanded into a discussion of new mutual research possibilities, including repeating parts of this project at three-yearly intervals, since the information provides an excellent baseline against which to evaluate Condamine Alliance's progress with communities.

The project team's discussion centred on expanding from this project, rather than providing feedback to the designers of SE03. The key opportunity is to expand the research more directly into the catchment and its activities, and into wider partnerships. The conclusion for SE03 design is that the partnership model works well.

Applying project findings

Researchers reached the following conclusions about the process:

- Workshop participants generally found the workshop process interesting and worthwhile.
- More groundwork through personal contact rather than written communication appears to be needed to encourage commitment to workshop participation. (Complete participation in a workshop is rare, but this limitation is offset by the benefits of personal interaction in workshops).
- A single workshop event seems unlikely to generate community action; more intense follow-up than that provided in this project design, budget, and timeframe appears to be needed, over a longer period. This will require either explicit facilitation, or internal champions for ideas to emerge within the community. Condamine Alliance is now using the project results to reconsider its ways of engaging with these communities.

Researchers drew the following conclusions about the social systems and natural systems:

- Both Pittsworth and Warwick have many organisations and high levels of voluntary activity, but very little of this connects with the environment. NRM bodies are on the

periphery of the networks of community organisations and thus have few other community resources to ally with. This suggests the NRM bodies do not make a strong contribution to community identity; perhaps this contribution can be explored through developing a regional 'sense of place'.

- Trends and their implications related to natural assets include the pending impacts of rural subdivision on cultures, behaviours, and natural resources; and pressures on water resources.
- Many saw individual people as being connected, rather than organisations. This questions the basic premise of the study—that community action for natural resource management can be greatly enhanced by strengthening weak linkages between organisations. One way forward is for processes to work on both levels, using connections between individuals to open connections between organisations, which can turn interest into larger-scale activity.

This project has enabled Condamine Alliance to understand the context it is working in. As a result of this study, it has recognised a need to review its strategies in working with these communities to overcome some challenges that have arisen in implementing key plan issues in these places. Local government was shown to be important within social networks in both main communities, confirming the importance of working on this relationship. Condamine Alliance observed that the local governments are comfortable in their roles, but not comfortable with NRM.

The project has provided invaluable baseline information, and could be repeated at intervals of, say, three years to enable evaluation of progress. Condamine Alliance would also consider using the methods as a galvanising process in communities that seem ready.

Condamine Alliance recognises it does not have the skills to conduct social research of this nature, and, under its business model, seeks assistance with research rather than attempting to conduct its own.

Regional implications

To Condamine Alliance, the project highlighted that NRM is of minor concern in public thinking. There is a need to recognise and change this. Condamine Alliance found the analysis valuable in understanding the diversity of the communities it needs to work with, and in identifying the reasons for particular challenges it has been experiencing.

The project has highlighted multiple opportunities for action on NRM, involving various possible partners. These are documented in our full report.

Condamine Alliance and at least one shire council have a strong interest in pursuing the environmental implications of the peri-urban population phenomenon, which this project shows to be affecting land ownership and management and social integration, while bringing some economic benefits. Community engagement is vital, but difficult, with this group. The role of local government is important, for instance, in approving future subdivisions. Strategies need to be developed with care; in one community, there is resistance to supporting the peri-urban population, suggesting a need to explore perceptions further.

One challenge is that community organisational activity is rich, possibly saturating the available capacity, but very little of it is directed towards NRM. Strengthening the capacity for community-based activity in NRM is highly important, through greater levels of direct support and support for building alliances with other organisations.

Both direct engagement processes with landholders, and engagement, support and influence through organisations such as Landcare, are important to achieve NRM plan activities. Without these, on-ground environmental improvements cannot occur.

Tools

1. Felt marker exercise

The felt marker exercise is easy to set up and interpret, was enjoyable for workshop participants, and was a useful for starting consideration of inter-organisational links. However, it did have problems for researchers: all groups need to be at the workshop for an accurate picture of their connections; it can get very messy; and there is strong chance that some people will mark a linkage because of personal connections rather than organisational connections.

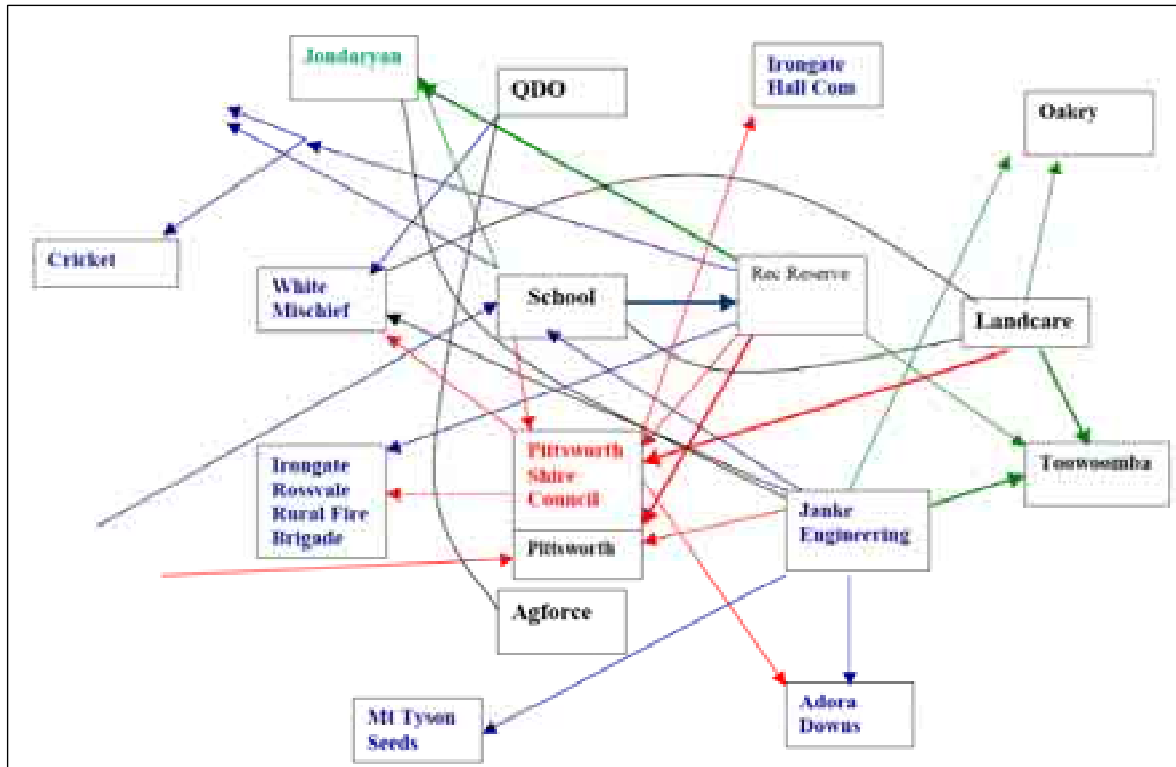


Figure 1. Community network diagram (Keith and Ross 2005, p. 73)

2. Quantitative analysis of contact between organisations

This analysis was based on rating sheets for the frequency, importance, and mutuality of contact between organisations, combined with quantitative cluster analysis using Win-PATN (a multi-dimensional scaling software program).

The dendograms (tree diagrams) produced by the program show degrees of closeness or distance among organisations. This method offers more scope for interpretation than the first, and is intuitively more meaningful, as the rating sheet may have looked rather formidable and there was some variation in the effort put into completing the ratings for all linked organisations. The dendograms provided valuable visual information that could be used to discuss opportunities to strengthen linkages or to speculate on why things did not appear as expected.

However the accuracy of the interpretation cannot yet be guaranteed. (There were flaws in trying to collect the ratings data during a somewhat rushed workshop, but attempting to redress this through individual interviews with those missing created inconsistencies with the level of information collected at the workshop.) Further research is worth pursuing, but is perhaps less likely to be applied by regional facilitators.

3. Shaper, trends, implications, resolve (STIR) community participation tool

The social context analysis featured a new approach to community engagement to set goals for cooperative community action (the STIR process). The process allows a community to choose to deal with social issues such as health, youth employment, aged care, or economic development issues, as well as natural resources. That is, the process is about community sustainability rather than just natural asset sustainability. It encourages all community organisations to participate in solutions even though the issue may initially appear to be only loosely linked to their core objectives.

The STIR process appeared to operate successfully at the workshops, but did not generate enthusiastic community action (which may have been too much to expect from a single event). Perhaps more key community leaders needed to be approached personally before the workshop to generate enthusiasm for further action, or perhaps more stimulus than a single workshop was needed.


During the debriefing between the parties in preparation for the May 2006 SE03 forum, Condamine Alliance suggested that these processes could work better in communities that were under greater pressure to solve problems (both case study communities were experiencing modest growth), and in communities with different social structures and needs. Both methods had served Condamine Alliance's needs very well, by showing why this regional body was experiencing challenges in working with each of the two main case study communities.


4. Community profiles


These profiles were developed for three communities within the regional body's jurisdiction—Mt Tyson, Pittsworth and Warwick. They provide a useful template for community profiling elsewhere.

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	<ul style="list-style-type: none"> • Felt marker exercise to map community networks • Quantitative analysis of contact between organisations • Shaper, Trends, Implications, Resolve (STIR) community participation tool • Community profiles
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Regional partnership agreements on prioritised investment strategies for the Burnett-Mary Region

	Burnett Mary Regional Group - Glenda George, Deborah Scott The University of Queensland School of Natural and Rural Systems Management - Professor Helen Ross (Project Manager), Ken Keith, Associate Professor Janelle Allison Centre for Rural and Regional Innovation
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Overview

The Burnett–Mary region is typical of the diversity of natural resource management (NRM) stakeholder groups. These include 27 local government authorities, catchment bodies, Landcare groups, conservation groups, coastal management, traditional owners, primary, secondary and tertiary industries, infrastructure corporations, research and development bodies and educational institutions.

SE03 funds were provided for a collaborative project between the Burnett Mary Regional Group (BMRG) and The University of Queensland. The project aimed to establish processes for creating negotiated partnerships to achieve the ‘targeted’ investment required in an investment strategy for the regional NRM plan. The project was conducted in two stages—a scoping project in 2004, which then paved the way for more detailed work in 2005 in association with the Centre for Rural and Regional Innovation.

The objectives for the first year were to:

- establish the partnership
- clarify stakeholder perspectives
- identify methods of negotiating partnership agreements that were likely to suit different stakeholder groups
- apply for funding to test alternatives in 2005.

Objectives for the second stage were to:

- continue interviews with sector members to understand their perspectives
- test methods of negotiating and formalising agreed contributions
- identify, design and pilot-test capacity-building activities for the sectors studied in 2004 (including building trust and strengthening internal and external relationships).

Interviews used Strategic Perspectives Analysis, a process that allowed exploration of opportunities for shared goal attainment. Researchers interviewed representatives of the local government, Landcare, catchment group and conservation sectors in the first stage, at a range of localities across the region.

In the second stage, researchers continued interviews with the coastal, secondary and tertiary industry sectors, while assisting BMRG where possible with partnership development. An Indigenous team member assisted the BMRG Indigenous Liaison Officer with partnering for this group. The researchers also assisted BMRG with activities towards cross-sector partnering for water quality monitoring, and for business development.

The successful Round 2 SE03 submission gave the research partnership confidence to apply the research to existing and planned processes for key stakeholders in the region. This approach has proven to be productive and effective for both BMRG and the researchers. However, due to unforeseen circumstances with some of the sectors (e.g. postponement of meetings and forums), research outcomes were affected.

The project has applied partnership formation principles from the business management sector to the partnering challenges facing regional bodies—suggesting different forms of partnering apply for different partners.

Readiness to form partnerships varies both within and between sectors. The issues identified by sectors and BMRG's approach to implementing targeted actions indicate that there are opportunities for multilateral partnerships. Relationship formation and capacity building are needed to prepare some sectors for this. Meanwhile, researchers have gained an understanding of the features and conditions for partnership formation, and a process or model for facilitating appropriate partnerships within and between community groups, or between community groups and business.

Conceptual and theoretical foundations

NRM stakeholders of the Burnett–Mary region are diverse. The region is represented by:

- 27 local governments
- over 40 Integrated Catchment Management (ICM), Landcare, and Conservation groups
- a wide range of groups across primary, secondary and tertiary industry
- up to ten traditional owner claimant groups,
- other key stakeholders including educational institutions and private sector organisations.

This diversity poses challenges in building a cohesive sense of 'belonging to the region', and to BMRG developing partnerships committed to targeted sustainable investment.

At inception, the perceived benefits of undertaking this research were that it provides:

- a clearer understanding of key stakeholder roles and responsibilities, including acceptance and willingness to operate in an integrated manner
- a coordinated investment strategy supported by key partners
- additional funding through private and philanthropic sectors flowing on from demonstrated stakeholder commitments.

The newly formed regional bodies share the challenge of making the model of stakeholder-based collaborative planning (Healey 1997; Gray 1989) work in practice, by building the necessary local ownership and strong horizontal and vertical linkages towards shared goals among NRM stakeholders.

Bellamy (2002) identifies the need for collaborative, multi-stakeholder catchment management approaches (such as National Action Plan for Salinity and Water Quality regional bodies) to develop strong horizontal linkages (among stakeholders at either local or regional scales) and vertical linkages (between local and the regional scales) among its sectoral and local constituents.

The essence of this project was to enable BMRG to understand its constituents and the opportunities for building linkages within and between sectors towards a solid and enduring investment plan, including the opportunity to build capacity.

Establishing readiness to partner was based on the Strategic Perspectives Analysis (Dale and Lane 1994) approach of identifying commonalities and opportunities for shared goal attainment. The approach taken to formation of partnership agreements largely follows the theoretical groundwork provided by Felkins (2002), who emphasises prior conditions of relationships and trust formation before entering into agreements, and the need for flexibility and dialogue. Felkins argues that because agreements must be made in an environment of continuous change, they require flexibility and opportunities for feedback and renegotiation, responsiveness, understanding and accountability, and attention to needs, roles, results, relationship and culture.

Felkins (2002) summarised characteristics for effective community agreements as:

- foundation in shared values and mutual beliefs
- consensus on social rules that define relationships
- commitment to common goals and mutual interests
- responsiveness to individual needs and concerns
- flexibility and openness to renegotiation
- emphasis on trust and longer-term relationships
- reinforcement of social action and accountability.

The main aims of the Phase 1 study in 2004 were to clarify stakeholder perspectives on opportunities and constraints for contribution to regional plans, and identify methods of negotiating agreed contributions that are likely to suit different stakeholder groups.

For the Phase 2 study (2005–06), the aims were to continue interviews and agreement processes with stakeholders in sectors not covered in Phase 1; identify, design and pilot-test capacity-building activities for the sectors studied in 2004 and 2005; and explore opportunities for cross-sector partnerships.

Methodology

Phase 1 information collection methods included observation of board and stakeholder meetings; interviews with a sample of members from four sectors (catchment groups, Landcare groups, local government, and conservation groups); and requests to other regional bodies for examples of their partnership-forming processes. Researchers also reviewed literature on partnership formation, covering approaches to partnership formation in the social and business domains as well as the natural resource management or environmental domain.

For the stakeholder analysis used to select interviewees, researchers followed the lead set by BMRG in classifying individual and organisation members into sector (stakeholder) categories such as catchment bodies, Landcare groups, conservation groups, traditional owners, local government, primary, secondary and tertiary industry.

Stakeholders were then also categorised by locality: upper, middle, and lower Mary; north, central, south and lower Burnett; and Baffle Creek.

Interviews were based on the Strategic Perspectives Analysis (Dale and Lane 1994) with a structure exploring objectives, strengths, weaknesses, opportunities and threats. For these interviews, it was decided to work towards objectives from familiar ground by discussing issues that were at the time subject to consultation between BMRG and the sectors.

When interviews for each sector were completed, researchers developed a 'readiness to partner' profile based on questions provided by Felkins (2002) regarding need, roles, relationships and culture; and also identified where sectors and organisations belonged within a spectrum of stages of partnership developed as part of this project.

Phase 2 consisted of two stages. Stage 1 was to identify and test opportunities for partnership formation using interviews and group workshops (some of this was covered for some sectors in Phase 1). Stage 2 was to identify capacity-building needs and test approaches to raise capacity for partnership development.

After identifying 'readiness to partner', the intention was to undertake activities (e.g. meetings) as needed to build intra-sector relationships and then conduct a sector workshop aiming for collaborative sector-based partnership with BMRG. The desired outcomes of this process were:

- in-principle agreement about partnering and contractual arrangements between BMRG and that sector
- a communication strategy that meets the needs of that sector for effective two-way communication with all sector members and BMRG.

These workshops would also identify capacity needs, leading to design and pilot testing of capacity-building activities that build intra-sector and inter-sector relationships and equip sector groups to design, manage, monitor and evaluate projects.

A cross-sector conference was to be held to explore opportunities for multi-party investment activities (and agreements), using the concept of 'negotiation space', while also carrying out some of the capacity-building pilot testing. The process was to incorporate (after Felkins 2002) narratives that laid out the cultural background and visions of each sector.

Partnership-based research

BMRG identified the need to assess stakeholder capacity and willingness to partner as a research project concept during the early days of the NRM plan development processes. This research was deemed paramount in the preparation of regional investment strategy implementation approaches and successful partnership development. The University of Queensland's School of Natural and Rural Systems Management was identified as an ideal research partner to assist with the development of this proposal. The opportunity for implementation was provided through SE03 and considered by the research partners to be an innovative approach to social research in NRM.

The initial submission under Round 1 of SE03 was only supported as a pilot project. This was considered a disappointing outcome, as the results of a broader study approach would have been invaluable for informing the regional investment strategy implementation preparation phase. In fact, as a result of reduced investment, partnership development approaches were being trialled and progressed with only minimum input from the researchers. This was recognised by all parties as a weakness. However, it is important to note that the researchers committed far greater effort than the limited investment allowed for; the findings did provide direction for improving partnership approaches with sectors engaged in the research to date.

The Round 2 submission was successful in leveraging the full investment required to implement the study methodology. This gave the research partnership confidence to commence the alignment of research methods with existing and planned processes for key stakeholders in the region. This approach has proven to be productive and effective for both BMRG and the researchers. However, unforeseen circumstances involving some of the sectors (e.g. postponement of meetings and forums), impacted on research outcomes.

A significant strength of the research partnership has been the preparedness of both partners to adapt and modify approaches to ensure ongoing success of the research. This has produced a research partnership that is likely to be enduring and sustainable post-SE03 investment. However, given the innovative nature of the SE03 state-level investment project, commitment to fostering research partnerships would have been preferred for a minimum of three years. This would have ensured unquestionable longevity of the research and provided an even greater opportunity for extension of learning and methodological improvement at a broader scale.

Applying project findings

An improved understanding of the diverse needs and concerns facing each of the sectors under the regional arrangements has been one of the key findings derived from the research. This has assisted the BMRG to rethink some approaches to key stakeholder groups and, in particular, design an NRM plan implementation process that supports stakeholder diversity.

Another key finding is the time it takes to build relationships and partnerships. The advent of the regional arrangements has presented a range of challenges in managing stakeholder expectations. This research has provided invaluable insights into what is required to build lasting and meaningful relationships and partnerships. However, application of these findings continues to be an ongoing challenge to BMRG due to time constraints.

BMRG has applied and integrated key learnings from the research in a number of ways; specifically:

- developing a regional partnership approach to the Landcare sector under memoranda of understanding in order to foster intra-sector capacity-building activities
- targeting longer-term partnership arrangements with local governments to ensure ownership of NRM issues and implementation activities and identify the level of resources required to lead our regional community
- committing the time it takes to build awareness and capacity, and improve the engagement and participation of the Indigenous sector in 'caring for country'
- developing a range of partnership agreement templates to support the diversity in NRM plan activities and stakeholder expectations.

Barriers to application and integration

The single biggest barrier to application and integration of key learnings from the research project is time. The need for ongoing testing, trialling, and evaluation is paramount to the key findings being embedded in organisational processes. The BMRG are constantly pressured by the need to meet contractual obligations and milestones and, as such, the opportunity to apply and integrate key findings has been diminished.

Another barrier experienced by the research partnership has been the ongoing trade-off between running distinct project processes and aligning with existing or planned processes by BMRG. This has mostly been out of the control of the project, but has at times impacted on the ability of the research to follow desired work plan activity. Subsequently, full application of the research methods has not been possible with all sectors. However, where this has been identified, alternate approaches have been adopted to ensure the achievement of project outcomes.

Regional implications

The key findings, and their application to, and integration with, regional planning and implementation processes, imply the ongoing need to test, trial, and evaluate the methods with sectors only partially explored to date. Other implications include:

- a need to revisit those sectors already engaged to determine if partnership arrangements can be improved or adapted
- pursuance of the most appropriate partnership arrangement with those sectors (i.e. secondary/tertiary industry) who have only been interviewed with the aim to improve engagement and participation levels
- overall evaluation of the project methodology to refine research approaches with sectors at varying stages of partnership formation with BMRG.

Tools

1. **Strategic Perspectives Analysis** to identify readiness to partner (based on Felkin's questions about needs, roles, relationships, and culture).
2. A proposed process for **partnership formation**:

1. Identify issues and objectives of the sector or organisation
2. Identify themes within the NRM plan that match objectives
3. Assess readiness to partner by answering the questions related to needs, roles, relationships, and culture
4. Identify the type of agreement that best suits the level of readiness
5. Establish a climate that progressively develops responsiveness and shared understanding

6. Formalise the type of contract for accountability that best suits the situation
7. Use a checklist of common characteristics of successful linked communities to monitor progress towards formation of linked communities

3. A classification of **stages of partnership formation** that might foster efforts to achieve truly collaborative partnerships:

1. Competitive tender
2. Triple bottom line tender
3. Institutional alliance
4. Collaborative project contract
5. Sector-based collaborative partnership
6. Sector based collaborative partnership (cross-sector)

4. A **divergence-convergence-divergence** process for profitable dialogue between cross-sector groups and regional bodies, towards forming partnerships to achieve natural resource management goals (issues and solutions discussion, general aims, sector modifications of aims, sector proposed contributions, support needed, rejected roles, philosophies and values to be recognised in developing action programs). The divergence-convergence step involves expressing differences, then meshing different aspirations and roles to form an agreed pathway to achieving the aim. The convergence-divergence step is about allocating tasks to sectors willing to undertake various parts of the overall effort needed to achieve the aim.
5. A process for staff to identify **capacity needs for each sector** by applying ratings (on a scale of one to five) to a list of questions refined from the capacity assessment tool described by Cavaye (2005).

1. What is the extent of networks and contact between groups?
2. How much do they share what they know?
3. How well do they trust and cooperate?
4. How clear are roles and responsibilities?
5. How well do they participate in NRM activities?
6. How well do they operate in partnership planning, decision-making, implementation, reporting
7. How adequate is in-kind investment for partnership activities?
8. Is time *not* perceived as an obstruction?




6. A schema for future negotiation and capacity building with traditional owners, covering:

- negotiation on fees, voting rights, resources and representation of traditional owners
- maintenance training regarding delegate selection and increased active participation
- team building
- governance development (communications, committee structure, legitimisation, protocols, MOU)
- establishment of code of ethics (regarding respect for roles, commitment to ongoing consultation, method of feedback).



7. Identification and development of **alternative partnership agreement templates** for NRM plan implementation activities (i.e. contracts, memoranda of understanding, service level agreements, shared responsibility agreements).

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Partnerships for Desert Uplands agreements and Desert Uplands oral history

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Overview

Social research in the Desert Uplands region has produced tentative results for understanding landholder decision making about natural resources and the interplay of factors that influence decisions. This project consisted of two stages:

- Stage 1 (pilot) from March 2005 to January 2006. Oral history and visual research methodologies as participatory tools to understand and integrate local and technical knowledge for natural resource management in the Desert Uplands.
- Stage 2 from January 2006 to April 2006. Desert Uplands social research for understanding and integrating local and technical knowledge for natural resource management

The findings of the Stage 1 pilot project represent a pragmatic approach to exploration of decision making by local land managers in the Desert Uplands to expand understanding of links between land managers' practical and technical knowledge, changes that take place in the landscape, and the decisions made about natural resources.

The Stage 1 pilot project used a participatory approach with the 14 members in the collaborative research group drawn from professional, technical, landholder and grazier groups. Oral history interviews were conducted with eleven landholders in the Desert Uplands region about their background, local knowledge, personal circumstances, decision-making experiences and the relationships between landscape changes, social and economic pressures and natural resource management practices. Initial results demonstrated that landholder decisions about natural resources in the Desert Uplands are very complex, affected by internal and external factors, and also influenced by the personal circumstances and worldviews of individuals.

Stage 2 of the project tested the emerging understanding of decision making in the Desert Uplands in relation to natural resources. It also expanded the focus from a single landowner to include the outside figures of influence evident in Stage One, (such as financiers, stock and station agents, extension officers, policy writers, and funding organisations).

Future project aims intend to address social influences on land management decisions and therefore has the potential to address all of the assets relevant to the Desert Uplands region, such as land, soils and agriculture, biodiversity, surface water and groundwater.

Benefits will come to the regional group through having a framework for designing action

strategies based on understanding how natural resource managers respond to the interplay of factors that influence their decisions. Benefits will also come through strategies which account for the influence of the worldviews of land managers and others, when planning programs and projects.

Conceptual and theoretical foundations

The Desert Uplands is a unique bioregion in central Queensland bordered roughly by Barcaldine, Alpha, Charters Towers, and Prairie; and falling within the Burdekin Dry Tropics and Desert Channels Queensland regional natural resource areas.

Currently there is often recognition, by Desert Uplands pastoralists, of management practices acknowledged as well-matched (best management practice) for natural resources of the bioregion's grazing enterprises.

There is a disparity between recognition and use of best practice. The gap, which is similar to other bioregions, has been recognised for some years; however, there has been little serious study of the reasons behind the disparity.

Exploring the reasons the gap exists was a starting point for research activity with the long-term aim of improved management of natural resource assets of the bioregion.

The first stage of the project used oral histories to understand and integrate local and technical knowledge of Natural Resource Management in the Desert Uplands. Graziers' stories were used to gain an understanding of the relationships between local knowledge, landscape change, social, economic and regulatory pressures, and NRM practices.

The project used a participatory action research design, a research partnership between local landholders and other stakeholders in the Desert Uplands community, together with researchers who brought particular skills. The Desert Uplands community members were actively involved in all phases of the research project – defining the problem, designing the research methodology, collecting data and analysing and disseminating results.

This mutual discovery process allowed understanding of the basis of common management practices for the Desert Uplands natural resources from a landholder point of view. From this understanding the opportunity is emerging to identify and implement innovative management practices for the Desert Uplands.

Based on results from the pilot study, the second stage of the project sought to validate pilot research findings with a larger range of Desert Uplands landholders, through telephone interviews about natural resource management influences and decision making. Interviews explored landholders' views about natural resources; their experiences in managing natural resources; perceptions of their level of control over their own land and level of income; how and where information for decisions is obtained and the weighting (value) of each information source; levels of record keeping past and present; and, decision-making paths for general and natural resource situations (including decision making paths for choosing not to act or delaying action).

Additionally, a number of external parties (financiers, extension officers, government policy writers, and stock and station agents) who were identified in the pilot as having an influence on natural resource management, were interviewed in order to understand more about their perception of the level of influence that they exert.

Results of the project will contribute to Desert Uplands Build-up and Development Strategy Committee planning and management to increase NRM practice uptake. The outcomes will also address a number of issues described in the BDTB Natural Resource Management Plan (May 2000) relating to land, soils and agriculture, biodiversity, surface water and groundwater.

Emerging from this research are potential avenues for Desert Uplands Build-up and Development Strategy Committee action, opportunities to expand current understanding through future research, and an outline of research processes. Additionally an ongoing communication strategy assists in widely conveying research findings to Desert Uplands

Partnership-based social research for sustainable natural resource management in Queensland

stakeholders.

Methodology

Participatory Action Research provided the theoretical basis for this project, suggesting that stakeholders hold considerable data relevant to the understanding of complex situations, and that stakeholder involvement in data interpretation is fundamental to producing change.

Comprising a number of methodologies, action research aims to yield change (the action) and understanding (the research, which contributes to the theories of action) at the same time. Collaboration plays a key role in this approach, enabling mutual understanding and consensus, democratic decision-making, and common action.

The project included three main action phases:

1. research plan finalisation workshop
2. data collection in the Desert Uplands
3. data interpretation and report drafting workshop.

Two main reflective phases ran concurrent to, and following, the action phases. These included:

1. assessment of the implications of research outcomes for the Desert Uplands and for neighbouring regions interested in conducting similar research
2. collaborative monitoring and evaluation throughout the research process.

Stage 1

The data collection phase combined oral history and visual research methodologies to document local knowledge of landscape change, and to explore landholder decision-making in regards to natural resource management. Basic themes for the research were established within an overall framework of following a chronological timeline for each interview. Interviews started with general questions which let interviewees develop their own narrative about how changes occurred, and then probed for depth, detail, and specifics.

Interpretation was integrated with data collection, creating smaller action research cycles within the overall project cycle. A grounded theory approach was used, coding interviews to twelve themes. These were then summarised into one to three pages per interview, and sent to interviewees for validation. Summaries were reviewed by the research group, and used during Phase 3 (Workshop 2) to understand:

- key themes explaining why decisions were made in regards to natural resource management—what the data were and weren't telling us
- correlations between different themes—the network of factors that affects decision making
- individual and collective worldviews about natural resource management
- key themes to take to the Desert Uplands Build-up and Development Strategy Committee for possible action
- gaps in the data to assist in developing future applications for the project.

As part of the project a 'metascan' of natural resource management and rural futures literature in Australia was developed to assist with interpretation. Environmental scanning (which 'metascanning' is a subset of) is a well-known method in business and consulting circles, although scanning in a learning circle environment is less well known.

'Meta' modifies the scanning to examine subjective (consciousness and psychology) and inter-subjective (ideology and worldview, culture) dimensions as part of the scanning process, without losing sight of more structural and societal changes (i.e. politics, ecology, policy, economics, technology).

This process encouraged the research group to look at individual mental models and filters during the interpretation process.

Stage 2

The second stage of this research was developed to assess findings from the pilot stage of this research on a larger scale of Desert Uplands landholders. In order to reach a larger percentage of these landholders, the research collaborative group chose to conduct shorter telephone interviews with 20% of Desert Uplands landholders to test findings about decision making processes and influences from Stage 1.

Telephone interviews were designed to take approximately forty-five minutes and questions were both closed and open-ended. Members of the collaborative research group undertook to conduct the telephone interviews. Due to the shorter timeframe for the second stage of the project, an external market research group was employed for analysis of the landholder interviews and also contributed to questionnaire design.

The research collaborative interviewers report that participating landholders, on the whole, enjoyed the telephone interviews and similarly, the collaborative research group members who conducted the interviews found the interviewing process a rewarding one and also found interpretation of the interviews easier after being immersed in the data collection process. Many telephone interviews went longer than the intended 45 minutes, with a number lasting for a couple of hours.

Additionally, this stage of the project was expanded to include interviewing external influencers identified from the pilot, such as financiers, extension staff, government policy writers, and stock and station agents. These interviews were conducted with five members of each 'influence group'; members of the research collaborative group designed and analysed these interviews.

External interview participants were approached on the basis of reaching a range of people within each field. The majority of these interviews were conducted by telephone, however in some circumstances, face-to-face interviews were possible. External interviews were also conducted in an anonymous and confidential manner and interview transcripts and notes were returned to the interview participants for validation before analysis.

Interpretations of analysed landholder data and external interview raw data were based on similar themes to Stage 1.

Partnership-based research

A major conclusion reached was that the pilot project was a very worthy exercise particularly in terms of its collaborative nature. This project was designed by the Desert Uplands community, for the Desert Uplands community and the research group included a number of local landholders and local technical and extension staff.

In order to make any change within a system, it is necessary to understand the system first. This project aimed to increase understanding in order to recommend possible courses for action to the Desert Uplands Build-up and Development Strategy Committee to improve natural resource management and to this end, has made valuable contributions to this understanding. Research collaborators are in agreement that this type of research holds value for understanding complex situations, such as landholder decision-making processes.

Survey results show extension agents who develop rapport with Desert Uplands landholders are recognised as valuable sources of decision-making. The Desert Uplands Build-up and Development Strategy Committee, as the representative of regional bodies Burdekin Dry Tropics and Desert Channels Queensland, provides some extension services to Desert Uplands landholders and these agents are well supported by landholder clients. This has again been the case with this project.

Emerging strategies, processes, and tools

There is significant potential for flow-on of research findings to the regional bodies Burdekin Dry Tropics, Desert Channels Queensland, and Desert Uplands Build-up and Development Strategy

Committee. The project took place in an area of extensive grazing, which is the major land use in the Burdekin region. It is hoped the processes and results will have implications for other such areas within the Burdekin region.

General recommendations include:

1. There's a lot to be learnt from listening: participative and collaborative projects as useful tools for change. Oral histories are a method that enables understanding to inform action.
2. Seeking one aspect of natural resource management to improve is a limited perspective, as it is the complexity of factors that affect natural resource management decision-making.
3. This project has currency for improving understanding of decision-making processes with respect to natural resource management, and will have implications for future extension techniques. The emergent nature of the participatory action research framework caters for ongoing cycles of plan, act, observe, and review.
4. Understanding personality: the value in understanding personality and the influence it has on landholder decision-making is valuable. It may be appropriate to examine personality from a regional or district perspective. Case-by-case application requires input from a professional consultant on an individual basis, a factor which may be problematic in relation to regular extension.

Applying project findings

Interpretation of Stage 2 survey data from landholders, bankers, policy writers, extension agents, and stock and station agents has expanded our understanding of contributions made to decision making about natural resources in the Desert Uplands.

Risk management

Desert Uplands landholders' decisions regarding when to remove stock in dry or drought situations are judgements that can adversely affect natural resources. While graziers are aware of their responsibilities towards the protection of the natural resources in the Desert Uplands area, they recognise the choice on occasion is between taking the best action for their resources or their incomes. The main time of conflict is during drought, which is seen as the main natural resource issue in the region.

It appears landholders wish to know the outcome before taking the action and lack of certainty prompts many to put off taking the action. They appear to be continually waiting for a better option. This accords with behavioural economics principles which suggest that people will go out of their way to avoid losses, however do not expend the same effort or risk to make a gain. This may in part explain why landholders take a significant risk in not reducing stock numbers in the face of impending dry conditions. It is not that individuals either do or don't take risks as rational economics suggests, rather it is a tendency towards loss-averse behaviour.

The role of DUBDSC may be to link risk management to Desert Uplands circumstances and create models for behaviour that accord with landholders' personal experiences. A focus may be to generate models of risk management that match the Desert Uplands context, and are delivered in ways matching Desert Uplands landholder profiles. Additionally, these models could embrace realistic expectations of climate—a factor supported by input from extension agents' surveys.

Financial incentives

Financial incentives have proven successful in influencing some Desert Uplands landholders to adopt particular natural resource use recommendations (e.g. riparian fencing). There is strong and widespread recognition and acceptance of using financial incentives to change natural resource use practices. Desert Uplands landholders have used such funding in the past, and a majority report they will apply in future situations. While acceptance is not total, it is strong

enough that DUBDSC can confidently continue, and even expand, its role in implementing projects that deliver financial support for recommended natural resource use changes.

Feedback loops

Feedback is not readily available to the landholders following decisions that have an impact on natural resources.

An example is the lack of feedback on daily loss of condition by cattle and the effects on pasture that will lead to long-term loss of productive capacity. This makes it difficult for landholders to associate the outcome with their decision, thus masking the impact of their decision on natural resources.

An avenue for DUBDSC action may be to support the development of timely and practical feedback processes for landholders that relate to their own experience, (which the survey data indicates is a source of information for their decision making). Methods such as demonstrating fence line effects on soil fertility are examples of how to do this.

Decision making

Personal experience, other graziers, family, and government extension officers (as opposed to regulatory officers) are highly influential on decisions made about natural resource use. Eight in ten landholders meet socially with other graziers at least sometimes, and given the positive influence they have, this is a common method of information and experience sharing on natural resource issues.

Specific attention to broad scale social mapping, relationship building, and networking could underpin programs the DUBDSC committee could pursue to bring together the significant influences of peers, family, and government for natural resource use decision making.

These influences represent opportunities for supporting landholders to make positive decisions about their natural resource use.

DU landholders acknowledge their responsibility to care for the region's natural resources. A major factor that may impede application of these results is the lack of access to funds for staff to work with landholders, using the information obtained in Stages 1 and 2 of the project.

Although the targets and paths to change are evident in the results, landholder's worldviews will limit the capacity of these applications to achieve change⁴.

Regional implications


The project addresses a number of assets described in the BDTB Natural Resource Management Plan (May 2000). The project aims to address social influences on land management decisions and therefore has the potential to address all of the assets relevant to the Desert Uplands region, such as land, soils & agriculture, biodiversity, surface water and groundwater.


Benefits will come to the regional group through having a framework for designing action strategies based on understanding how natural resource managers respond to the interplay of factors that influence their decisions. Benefits will also come through strategies which account for the influence of the worldviews of land managers and others, when planning programs and projects

In terms of evaluating performance, outcomes, and change over time, as outlined in the BDTB Natural Resource Management Plan (May 2005), it could be particularly difficult to monitor the flow-on effects of this project. However, it should be noted, particularly in terms of Regional body planning and management, that this research should allow for strategies of action that come from a position of understanding the factors within the system. Such understanding


⁴ Note: at the time of publication, these findings are yet to be interpreted and communicated to the DUBDSC and its over-arching regional groups BDT and DCQ. The findings are yet to be incorporated into regional plans

should benefit any projects undertaken by BDTB, DUBDSC, and the community, as they can better target possible approaches to change.

	<p>Desert Uplands Build-Up and Development Strategy Committee 2005, <i>Scoping the collaborative roles and responsibilities for researchers to action research the use or non-use of natural resource management practices recognised as sound by pastoralists and others, for the eastern Desert Uplands</i>, Final Report prepared for the Burdekin Dry Tropics Board.</p>
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Catchment scorecard: developing effective monitoring and evaluation frameworks for natural resource management

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Overview

Quality monitoring and evaluation is about more than auditing outcomes: it is about genuine engagement with stakeholders to build capacity and foster continuous improvement in NRM methodologies, for long-term improvement. This is the Catchment Scorecard approach.

CSIRO and Greening Australia joined their capacities for scientific and community engagement to deliver quality natural resource management monitoring and evaluation services that meet regional needs. The scope of the work established a framework for assessing biophysical, economic, social, and community capacity building strategies and investments.

The framework was based on the joint Greening Australia and CSIRO Catchment Scorecard process. It was critical to partner and work proactively with the Condamine Alliance and agency representatives to ensure the framework was tailored to the need of regional communities.

The project:

- designed a framework consistent with the Commonwealth and State monitoring and evaluation frameworks, and the indicators developed by the Monitoring and Evaluation Working Group
- reviewed the Investment Strategy and developed a monitoring and evaluation strategy that effectively links actions to NRM targets
- provided direct feedback and input from regional stakeholders and project managers
- provided training to regional staff and stakeholders
- linked regional stakeholders to leading researchers.

All work was undertaken through a participatory and inclusive process that included all stakeholders. These include the State Government, regional and project staff, and land managers and community members. The Catchment Scorecard was designed as a continuing service relationship, with four major components:

1. Tailoring the scorecard

All regional needs were identified for monitoring and evaluation by working in close partnership with the region. The partnership ensures capacity is built, research support is given, and the catchment scorecard framework is matched to local catchment goals.

2. Building capacity

Working with regional and project staff to build the capacity of the community to successfully devise, implement, and monitor projects targeted to regional priorities.

3. Robust monitoring

Putting in place a robust monitoring strategy that works with the community to measure, verify, and record project results in a web-based data management system allowing full community access.

4. Feedback and reporting


Evaluation of the effectiveness of projects against regional objectives and targets in ways that fully meet the needs of major funding agencies; including regular, tailored feedback throughout

the project cycle.

Evaluation, feedback, and reporting at the operational, project, and strategic levels were intended to answer the following questions:

- Are we meeting our commitments?
- Will projects deliver on-site project level outcomes?
- Do projects contribute to catchment goals?
- Are catchment goals and supporting programs realistic and appropriate?

	Catchment Scorecard
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Uptake of ALMS Environmental Management Systems by Queensland Murray–Darling farmers: benchmarking socio-economic drivers



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Commonwealth Scientific and Industrial Research Organisation: Dr Toni Darbas, Dr Emma Jakku, Lisa Brennan

Overview

This project aimed to build shared socio-economic and environmental perspectives resulting in practical on-ground cooperation between agricultural property owners and natural resource management authorities.

The Queensland Murray–Darling Basin Commission (QMDC) is developing environmental management systems (EMS) as a key mechanism to achieved improved natural resource management by landholders. QMDC plans to support landholders to develop environmental management systems via sub-catchment planning groups.

Quantitative research undertaken for QMDC indicates that age, property size, debt levels, and off-farm income have no causal links to the uptake of NRM practices. A healthy on-farm income was found to be a necessary but not sufficient condition for the uptake of NRM practices.

The research findings suggest that the drivers of NRM uptake are social in nature, including values, confidence in NRM practices, and participation in property planning and Landcare groups. The environmental management systems uptake project aimed to build on these insights by probing the influence of social networks on the adoption of NRM practices.

‘An environmental management system (EMS) is an ongoing cycle of planning, implementing, reviewing and improving the actions that a business undertakes to meet both its own desired and externally regulated environmental obligations and aspirations.’ (Carruthers, 2005).

Conceptual and theoretical foundations

This study took as its starting point a Bureau of Rural Sciences survey of the influence of socio-economic characteristics on the uptake of NRM practices by agricultural landholders in the Queensland Murray–Darling Catchment (Byron, Curtis, and MacKay, 2004).

This research indicated that age, property size, debt levels and off-farm income have no causal links to the uptake of NRM practises. The data suggest that the drivers of NRM uptake are social in nature, and include landholders’ values, their confidence in the effectiveness and practicality of NRM practices, and participation in property planning, Landcare, and other environmental programs (Byron, Curtis and MacKay 2004). This quantitative research thus pointed to (but did not characterise) the strong influence of social networks on the adoption and diffusion of environmental practices.

This SE03 project was underpinned by adoption and diffusion theory as extended by Vanclay and Lawrence (1995) to include social infrastructure and farming subcultures and styles, as well as complexity, divisibility, congruence, flexibility, economics, implementation costs, and relative advantage (Rogers, 1995).

The question was: how do the attributes of Environmental Management Systems condition the likely adoption and diffusion of this farm enterprise management approach?

The project drew on the developing debate on the ability of environmental management

systems to reconcile agricultural production with ecological goals (Mech, Lowe and Cole, 2003; National Conferences on EMS in Agriculture, 2003 and 2005; Ridley, Paramore and Seymour, 2003).

More generally, the research drew on and contributed to the emergent literature on environmental governance. The uptake and diffusion of NRM practises raises questions regarding how regional administrative arrangements for furthering NRM goals can best be embedded into a dynamic regulatory and socio-economic environment (Lee, 2004).

Methodology

In-depth interviews were conducted with the six contracted Queensland Murray–Darling Basin Commission Landcare officers to analyse their insights concerning the drivers and barriers to EMS uptake. A follow-up email questionnaire surveyed eight Landcare officers to benchmark the number, composition, and dynamics of QMDC farmer groups.

Within the farmer groups, semi-structured interviews were conducted with ten landholders already using an environmental management system,, and nineteen landholders who are not currently using one,.

Of the ten EMS interviewees, three were members of the Traprock Woolgrowers Group and were using a customised environmental management system (called the Traprock Integrated Management System or TIMS), and seven were undertaking the Australian Land Management EMS in a Queensland Murray–Darling Basin Commission funded pilot group. This information was collected to inform the third stage of research, a survey of the members of the fifty QMDC farmer groups regarding environmental management systems.

These data are available as a benchmark for the Queensland Murray–Darling Basin Commission’s reference in the evaluation of the effectiveness of its programs and incentive schemes. The methodologies developed: interview protocols, email questionnaire and landholder survey instrument are available to refine and re-use in longitudinal studies.

Project findings and implications

Stage 1: Landcare coordinator interviews

Landcare coordinators fulfil a mediating role between QMDC and the farming communities in the catchment. The NRM plan targets, sub-catchment planning, and coordinator positions are well integrated.

The extensive use of QMDC technical staff is successful, allowing Landcare coordinators to facilitate the integration of scientific ecological knowledge with local farming knowledge. However, the temporary appointment of Landcare coordinator staff creates difficulties in maintaining knowledge regarding farmer groups.

The farmer groups are highly varied and the group formation process is complex. The diversity of these groups makes the local knowledge of the Landcare coordinators crucial to fitting QMDC policy objectives with the needs and interests of particular groups.

The coordinators’ experience of landholder perceptions of environmental management systems agrees with the Australian EMS literature; that regulatory pressure is a strong motivation for adoption of environmental management systems. They support systems that are targeted at industry sectors, and streamlined using existing industry reporting practices. They comment that there is poor understanding of environmental management systems in the region, and that more information is needed.

Stage 2: EMS and non-EMS landholder interviews

Most interviewees (26) acknowledged the importance of sustainable natural resource management for the achievement of production goals; prioritising water retention, soil health,

erosion control, increasing fencing and watering points, and fencing for pasture management. The main factors nominated by the respondents as barriers to achieving their production and NRM aspirations were:

- regulation of vegetation and water by the Queensland Government (14)
- drought (12)
- limited finances (9)
- labour shortages and rural decline (7).

Coercive natural resource protection legislation has clearly alienated landholders. Economic realities limit NRM aspirations for properties, in the short term. Telling statements made by some interviewees indicated that these barriers are stressful and impact upon their ability to respond in a proactive manner to change.

However, four interviewees had found farm development opportunities through strategic, forward-looking investment and management decisions. Some indication of the reasons why only a minority of respondents reported successful use of opportunities may be found in their employment of formal planning processes.

Although nineteen interviewees discussed, seventeen interviewees had thought about, and six informants had a broad plan in mind, only one interviewee had implemented part of a succession strategy. However, of the nineteen interviewees who discussed property planning, thirteen had a property plan, as a result of QMDC sub-catchment planning.

Twenty-eight interviewees had internet access and used a computer as a routine part of running their enterprise. However, there is a range in the comfort of use and the majority utilise slow dial-up access. Some interviewees indicated gender was a significant variable in computer use.

All of the interviewees were approached on the basis of their membership in QMDC farmer groups. The significance of group membership, in terms of landholder capacity to deal with change, is that twelve of the twenty-nine interviewees nominated and spoke at length about the importance of learning through group processes.

The advantages of group processes were nominated as:

- sharing knowledge
- accessing information and expertise
- excellent facilitation
- networking with people with a common interest in NRM
- accessing subsidies for NRM works
- comparing, benchmarking and learning from 'looking beyond the farm boundary'.

Twenty-three interviewees were aware of both the existence of QMDC and had some knowledge of their role as an NRM regional body. Sixteen interviewees were supportive of QMDC and their role as an NRM regional body, while eleven informants commented that QMDC is 'top heavy' bureaucratic, indicating that landholder attitudes towards QMDC are ambivalent.

Two interviewees had 'no knowledge of EMS' and seven interviewees stated that they had 'limited knowledge of EMS'. Twenty interviewees had heard about EMS through Landcare or QMDC.

Nine respondents made comments about the complex nature of EMS, auditing requirements, the paper work, and the time associated with implementing an EMS.

Twenty respondents expressed concerns about a range of costs that would be incurred through adopting EMS. The major concerns related to costs associated with recording keeping, the time required to develop and implement an EMS, auditing requirements, and capital expenditure.

However, the three landholders involved in the development of the Traprock Integrated

Management System (TIMS—an environmental system developed by the Traprock Wool Association for its members) believed that development of a local EMS lessened its complexity. Traprock Wool Association (TWA) members highlighted the level of control they had maintained over an EMS process through the development of TIMS.

Five respondents suggested that an EMS was incompatible with their enterprises, nine respondents highlighted ways in which EMS could be implemented, and five saw EMS as both compatible and incompatible with their enterprises. Eight respondents were unconvinced there was any economic benefits from adoption of EMS, five of whom were implementing EMS. Six interviewees believed landholders in general will not invest in EMS until a premium results. Four interviewees believe EMS is a worthwhile means of constructing a market niche. Four interviewees pointed out that there is currently no way of communicating a producer's NRM ethic to consumers, and no proposed methodology for doing so.

The major advantage of EMS, identified by six respondents, is that it can improve management and business efficiency. Equally important as a potential advantage was the ability of EMS to help with demonstrating environmental credentials to governments. Seven respondents identified the ability for EMS to be integrated with catchment priorities as a potential advantage; and the integration of production and biodiversity, and the achievement of environmental outcomes as advantages. Two comments were made that leaseholders would be better motivated than freeholders to undertake an EMS, because of concern about lease renewal.

Four Australian Landcare Management System pilot group respondents highlighted the significance of having one-on-one support and training through Landcare and the sub-catchment groups for EMS adopters. The major sources of support for the TWA members included: TWA, QMDC, Landcare, the NSW Department of Agriculture, and funding from Farmbiz.



Of the eleven comments made in response to the question of whether and what kind of incentives they thought would assist the uptake of EMS, three informants nominated facilitated group work as the most useful form of incentive. A TIMS informant nominated government assistance in marketing products produced in an environmentally responsible manner as the most helpful form of incentive. Five interviewees were in favour of incentives to promote the uptake of EMS. However, two interviewees were concerned that monetary help could turn into a 'Trojan horse' for more government interference in how landholders run their properties.

These data suggest that there is considerable resistance to the notion of EMS among Queensland Murray–Darling landholders, despite the fact that it may form a valuable management tool for agricultural enterprises. There are, however, several attractions QMDC could reinforce; including the use of EMS to reduce regulatory pressure, group support for EMS implementation, and QMDC support to use EMS to badge commodities.



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Monitoring and evaluating the performance of regional NRM bodies in Queensland: applying a capacity model to the performance of regional groups

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	Advisory group: Queensland Natural Resources and Mines National Land and Water Resources Audit Commonwealth Department of Environment and Heritage, Land & Water Australia

Overview

The aim of this project was to implement a theoretical and methodological framework to monitor change in the capacity and performance of NAPSWQ regional bodies in Queensland. Based on a systems model of organisational capacity and performance, and using both qualitative and quantitative indicators, the objective of the project was to further operationalise existing indicators and collect indicator data on the capacity and performance of regional bodies.

The data that were collected enable:

1. a comparison of retrospective and current trends in indicators
2. comparative assessments amongst all regional groups
3. baseline indicator information for future performance and capacity monitoring of regional bodies.

Conceptual and theoretical foundations

The aim of this project was to develop and implement indicators to monitor change in the capacity and performance of NAPSWQ regional bodies in Queensland. It was intended that the information collected through this assessment would be used by regional bodies in evaluating their current performance, and provide a basis for the ongoing monitoring of the performance of regional bodies into the future.

The findings of a recent national pilot study informed the methodology and indicators for the current project. The study sought to refine indicators and a methodology to assess the social and institutional foundations of regional NRM programs.

The indicators and the methodology were developed in the national pilot study through workshops with Australian and State Government and regional body representatives in each State and through pilot testing with three regional bodies in Queensland, Victoria, and Western Australia.

In total, thirty-six indicators were used to assess the performance of regional bodies in relation to their management and program capacity and environmental controls.

The **management capacity** of regional bodies refers to the degree to which systems and processes are in place to maintain the function of the regional body, and includes, for example:

- skills and abilities in financial management and human resources
- staff training and development
- the quality of decision making processes
- organisational cohesion and leadership within the regional body.

Program capacity focuses on the delivery of NRM outcomes, including the development and implementation of regional NRM plans, investment strategies and on-ground actions. Indicators of program capacity include:

- the use and availability of NRM knowledge and technical skills
- the use of expert advisory panels
- the use of and access to NRM information
- the effectiveness of local NRM facilitator networks.

While the performance of regional bodies is dependent upon management and program capacity, it is also recognised that performance is influenced by processes external to regional bodies, including their interaction with external organisations such as Government, community groups and the general community.

Based on earlier research associated with the development of indicator frameworks, these indicators are referred to as '**environmental controls**'. Examples of these indicators include:

- the development and implementation of a community engagement strategy
- providing opportunities for engagement
- the level and quality of NRM engagement
- the inclusiveness of decision-making within the regional body.

Table 3. Indicators of regional body capacity (sample from total thirty-six indicators)

Management capacity	<ul style="list-style-type: none"> • Skills and abilities in financial management and human resources • Staff training and development • The quality of decision making processes • Organisational cohesion • Leadership
Program capacity	<ul style="list-style-type: none"> • Use and availability of NRM knowledge and technical skills • Use of expert advisory panels • Use of and access to NRM information • Effectiveness of local NRM facilitator networks
Environmental controls	<ul style="list-style-type: none"> • Development and implementation of a community engagement strategy • Level and quality of NRM engagement • Inclusiveness of decision making within the regional body

Methodology

The project included all six NAPSWQ regional bodies in Queensland and was based on structured telephone interviews with the Chair, CEO, and two senior staff members nominated by the regional body. All six regional bodies participated in the project; however in the case of one regional body, only one staff member participated, resulting in a total of twenty-three participants.

The CEO of the regional body was contacted first, and the project was described, and the requirements for participation in the project outlined. All regional bodies were informed that while a summary report of the project (the State report) would be developed, the identity of each regional body would remain confidential. Regional bodies were informed they would be provided with confidential individual reports of the project findings which were specific to their regional body.

Interviews with regional bodies were undertaken in January 2006. The interview schedule, (which identified seventy-two questions and the associated scoring rubrics), was forwarded to

each participant immediately prior to the interview. This permitted each participant to review and consider the questions prior to the interview, and also enabled the interview to be undertaken more efficiently. Each participant was informed that the information they provided would be confidential and that they should avoid discussing the questions or the project with others in the regional body.

The questions were based on the current situation within the regional body (limited to within the last twelve months). Retrospective questions (asking what the situation would have been two years ago) were also asked for several of the core indicators; to have collected this information for all indicators would have increased the interview time considerably.

The analysis of indicator data was based on the same data analysis procedures as used in psychometric assessments and psychological testing, and included reliabilities analyses, tests of internal consistency, and the development of composite indicators using the theoretical framework for capacity and performance that had been developed.

An analysis was undertaken in the aggregate across all regional bodies to show the relative distribution of scores on each of the indicators across the State, and provided to the project manager (Burdekin Dry Tropics NRM) and research partner (National Land and Water Resources Audit). In addition, specific analyses were also undertaken for each of the six regional bodies and reported to the regional body as a confidential report.

Research findings and interpretation

Interpretation of the indicator summary tables presented in the State report should be undertaken within the context of the overall situation of each regional body. Each regional body will have a different history of development, may be at different stages of NRM planning and delivery of on-ground investments, and be embedded in very different community and organisational contexts.

Clearly these situational characteristics should be considered by each regional body when interpreting the indicator summary tables, and their relative position in relation to each of the indicators.

In addition to interpreting indicators in the context of each regional body's situation, it is also important to review the technical and statistical information presented in each indicator summary table, in order to better understand the validity and reliability of each indicator.

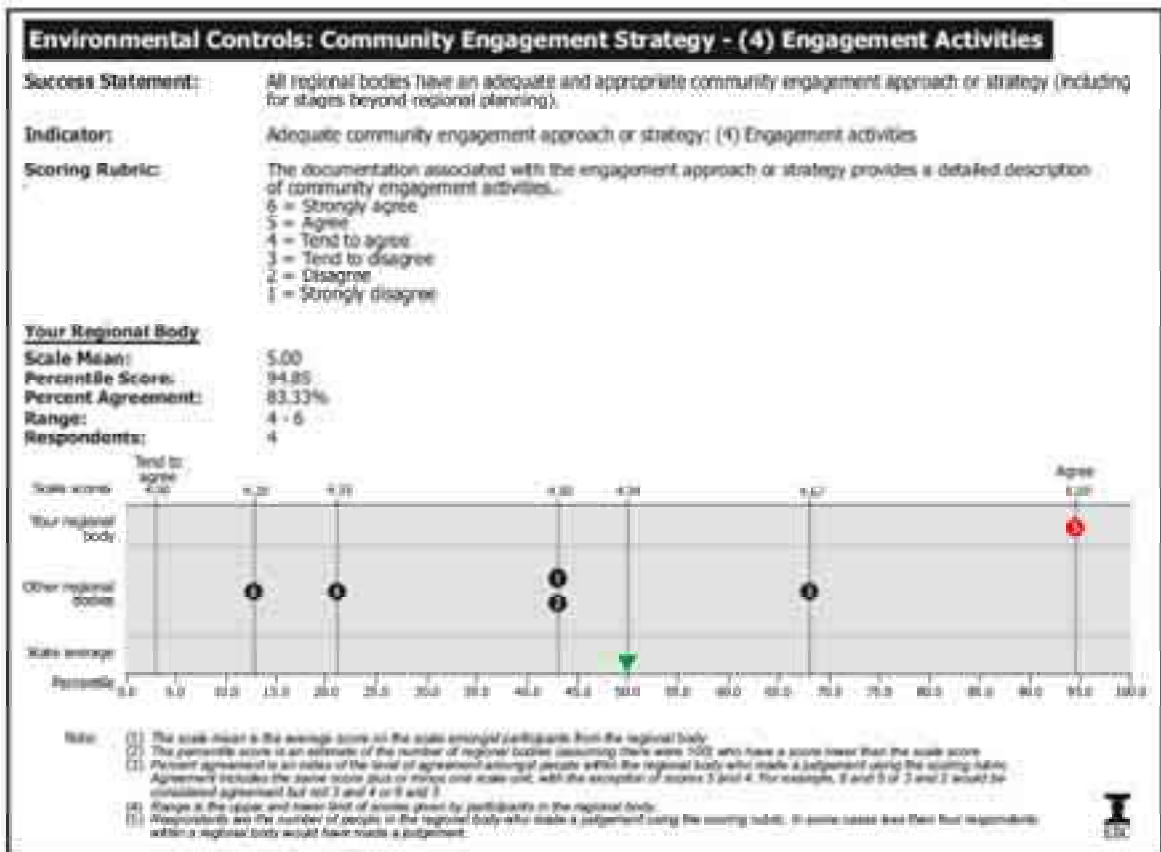


Figure 2. Example of indicator assessment⁵

Without identifying specific regional bodies, and independently of any of the contextual information in which each regional body would interpret the indicator summary tables, there are nevertheless several key findings associated with the analysis of the indicator data:

- When State averages are examined across all indicators, they suggest a positive outcome in relation to the indicators underpinning the performance of NAPSWQ regional bodies. As an example, State averages suggest regional bodies believe that decision-making processes are working well, job satisfaction and leadership competency is high, local facilitator networks are effective and that there are adequate and effective community engagement strategies and processes being implemented.
- The relative variation amongst regional bodies is generally always within a positive range, with the scores for regional bodies being relatively high, positive scores or relatively low positive scores. It needs to be recognised that while a regional body may score relatively low on a specific indicator, it is often a low score within a positive range.
- The findings from the analysis of retrospective questions for many indicators also suggest that respondents believe there has been significant improvement in the performance of regional bodies over the last two years. While the overall trend is generally positive, some caution is required in the use and interpretation of retrospective questions used in this context, as they are based on beliefs about change within the last two years, relative to the current period, and require individuals to recall and judge past events, which may be open to some bias.
- An important characteristic of the indicators and scoring rubrics used in the current study was that most indicators had the capacity to discriminate amongst regional bodies. There was always some variation in the scores amongst regional bodies, rather than all regional bodies having the same score. If indicators and scoring rubrics were unable to discriminate amongst regional bodies in relation to their performance they would be of limited value.

⁵ Fenton & Rickert 2006, p. 8.

- There were also reasonably high levels of internal consistency evident in the data, which suggests that the indicator data may be reasonably reliable.
- Although not reported in the summary indicator tables, it was found that in relation to the majority of indicators, the Chair and the CEO of the regional body scored indicators more positively than the two staff members who generally reported consistently lower scores. It is not unexpected that the Chair and CEO may have a positive bias given their responsibilities in the organisation; however in deriving a final indicator score, the use of two staff members may have somewhat tempered the positive bias.

Regional implications and application

This research has significant benefits for all participating NAPSWQ regional bodies in Queensland as it provides them with comparative and retrospective information through which these bodies may understand and monitor their performance and capacity to deliver NRM outcomes.

Regional bodies are responsible for the delivery of NRM outcomes, but currently have no ability to monitor and evaluate their performance in delivering these outcomes. While the research will allow regional bodies to monitor and evaluate their performance, it will also identify those areas in which the capacity of regional bodies needs to be improved. The research will provide regional bodies with important information on those dimensions of capacity and performance which need to be addressed by the regional body.

The data that was collected:

1. enables a comparison of retrospective and current indicator trends
2. enables comparative assessments amongst all regional groups
3. provides baseline indicator information for future performance and capacity monitoring of regional bodies.

While the research was undertaken in relation to NAPSWQ regional bodies in Queensland, the theoretical and methodological framework on which the research is based has been developed as part of the Australian Government monitoring and evaluation program for all regional bodies in Australia. The application of the methodology in Queensland will also have important implications in its future national application. Therefore it is important that further use of the indicators is not initiated until protocols for their use are developed.

It is expected that the indicators used in the current project will be discussed with and recommended for use by the Social and Economic National Coordination Committee (SENCC).




The sponsors of SENCC, the National Land and Water Resources Audit, will then ask the Audit Advisory Council to endorse the indicators and protocols for implementation and use at the National, State, Territory, and regional levels to underpin the evaluation of current NRM initiatives under the Natural Heritage Trust and the National Action Plan for Salinity and Water Quality.

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⁶ The methodology and indicators used in this project were based on Fenton & Rickert's recent national pilot study of indicators for monitoring and evaluating the social and institutional foundations of regional NRM programs. The initial conceptual and methodological approach on which this study is based is described in Fenton's two earlier research papers.

Partnership-based social research for sustainable natural resource management in Queensland

Linking the social with the environmental: identifying community capacity in the South East Queensland Western Catchments Region



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Overview

This project drew on social capital theory and sense-of-place theory in order to understand the complexity and diversity of local communities and their links to environmental actions in particular spatial domains.

Put simply, social capital develops when individuals and groups within a social system interact for mutual benefit in a variety of ways over a period of time. However, in the context of natural resource management, social systems interact with the geospatial environment in complex ways. Research on social capital has not been concerned with the strength and nature of human-environment relationships. By understanding social capital and environmental action within a context of spatially demarcated boundaries, linkages across communities and community groups can be better targeted and supported in practice.

This research was undertaken in the Bremer catchment, which comprises a diversity of communities and environments (e.g., rural, urban, peri-urban, etc.). The study employed both purposive and snowball sampling within the Raceview and Churchill region; around Purga and Peak Crossing; and in the Warrill View area. By conducting semi-structured interviews and workshops with key stakeholders, this research identified stakeholders' NRM priorities, existing and potential stakeholder partnerships, and the spatial limits of stakeholders' environmental actions and responsibilities. This information contributed to an understanding of the stakeholder relationships and the achievement of NRM objectives at the local and regional levels. It sought to build on the local environmental knowledge and awareness brought by individuals and groups embedded within specific spatial communities.

Conceptual and theoretical foundations

This research study explored the relationship between participation, social capital and stakeholder partnerships in achieving NRM objectives. It drew on both social capital theory and sense of place theory in order to develop understandings of how environmental change can occur across local regions, by engaging rural, peri-urban and urban communities across part of the Bremer Catchment. The specific aims and objectives of the project were:

1. to map the social capacity of stakeholder groups within the South East Queensland Western Catchments Group (SEQWCG) communities (rural, urban and peri-urban) for contribution to local NRM targets
2. to explore the linkages between different stakeholder groups and their impact on local community capacity given potentially varying spatial domains of responsibility
3. to explore ways to address potential impediments to the development of trust and collective action.

The study operated within the context of the following statement from the enabling program within SEQWCG's *Healthy Land Our Future* plan : The natural resource asset targets will not be met unless there are well informed and empowered communities supported by effective and efficient institutional systems across the region. Enabling programs address the threats to the 'people assets' of the region.

The term 'social capital' has become convenient for talking about a cluster of values, norms, and behaviours central to community health or well being, sustainable economic development, and effective environmental management..

Social capital is seen as shorthand to encompass the social elements that encourage and support individuals coming together, taking committed action toward an agreed upon goal. Trust, cooperation, and social networks are paramount in this concept. The emphasis may be on the efficacy of what has been called 'bonding social capital and capacity', as in the *Healthy Land Our Future* definition:

'...the way in which the social networks, relationships and processes of a community support individuals and communities to exercise their capabilities. Voluntary cooperation is easier in a community that has inherited a substantial stock of social capital. Social capital, unlike conventional capital, is a public good rather than a private good.'

Some see social capital as necessary, but not sufficient, for effective civic engagement and add to the discussion the importance of structural characteristics of access to institutional governance networks and access to resources which enable continued involvement. Both intra-community ties or networks between groups and organisations, as well as inter-community (and regional), may be included in discussions of effective engagement for meeting collective goals.

Most of the studies reviewed found that social and financial resources (such as effective coordinators, facilitators, and adequate funding for them) to support and lead the partnerships was critical, and participants needed to be in networks, be committed, and trust the other members of the partnership.

The concept of social capital can be problematic in general, and within Natural Resource Management frameworks designed to meet targets of strategic regional plans, in particular. The importance and centrality of social capital in community engagement to articulate environmental issues and to commit to implementing the necessary changes indicates the importance of addressing these potential difficulties. This research, in linking the social with environmental practice, seeks to identify useful ways of talking about social capital in relation to issues within the catchment area, and to indicate the ways in which it may be operating within the spatial dimensions of the study area.

In the context of natural resource management, social systems interact with the geo-spatial environment in complex ways. For example, local action and community membership has been found to have a geographic component as made explicit in the concept of 'sense of place'.

Moreover, environmental responsibility for pro-environmental, voluntary behaviours has been found to have geographic limits. There also is a need to recognise the diversity of communities in the region (e.g. rural, urban, peri-urban) and the consequences of increasing pressures on communities of different types. The framework or perspective is important within an NRM context to address diverse stakeholders and issues.

Methodology

The research was designed to explore local community-based solutions to environmental problems in five stages.

Stage 1 involved discussions between the partners about prior work conducted by SEQWCG aimed at capacity building, as well as an extensive literature review. Based on this, three communities (rural, urban and peri-urban) were targeted as sites for the research. Within these communities, social networks and key local stakeholders were identified, and used as a starting point to attract additional stakeholders through a process of 'snowball sampling'.

Stage 2 comprised key informer interviews to determine major local environmental issues and issues around the capacity of the local communities to respond. Specifically, this interview process identified stakeholder perceptions with respect to NRM responsibilities, opportunities, facilitating and impeding factors, and investment options. These interviews were then used as a

foundation on which to plan and implement workshops.

Stage 3 involved a series of locally based workshops in each of the three study communities. These community forums served to identify critical local NRM issues and their impacts within the community, as well as linkages across networks within the relevant social and spatial contexts. Participants were also requested to map perceived geo-spatial domains of responsibility for action and explore their capacity to undertake collective action given perceptions of efficacy, trust, and responsibility. Opportunities for alliances were discussed as were the perceived barriers or impediments to the effective formation and implementation of partnerships.

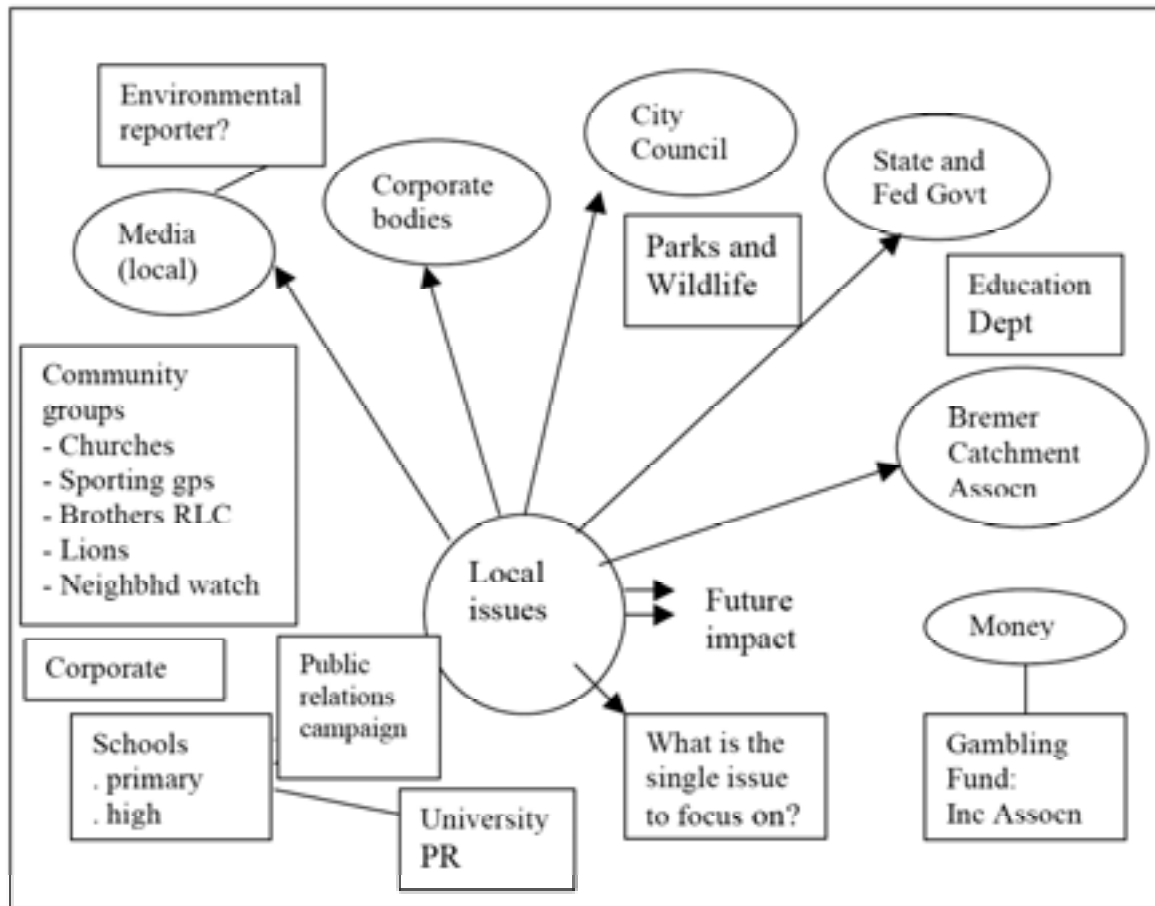


Figure 3. Community capacity mapping⁷

Stage 4 involved follow-up phone calls with participants and key stakeholders in order to determine outcomes from the project workshops.

Stage 5 comprised an analysis of the data generated from the workshops and personal or telephone interviews. Themes relating to both social capital development and the spatial dimension were identified in order to explore the linkages between stakeholder groups and their impact on local community capacity. Outcomes from the project workshops, together with the analysis, formed the basis for a summary of findings, and guidelines for the support of social capital development for even more effective NRM in the region.

Partnership-based research

Regional bodies aim to facilitate, support and resource strategic partnerships to meet locally and regionally determined NRM goals. Research has shown that local conditions of resources

⁷ Rickson, Warburton and Keith 2006, p. 61

and allocations as well as community and partnership dynamics are such that it is useful to site discussions of social capital, capacity building, engagement, effective networks, etc., in the relevant social and political context. Communities selected for this research (rural, peri urban and urban) exhibit the diversity and complexities within and between communities on the dimensions of particular concern to community involvement in identifying, articulating and overcoming barriers to meet major NRM issues. Researchers explored linkages between different stakeholder groups and their impact on local community capacity, given potentially varying spatial domains of responsibility; mapped the social capacity of stakeholder groups within selected communities for contribution to local NRM targets; and explored ways to address potential impediments to the development of trust and collective action.

This SE03 project has gone some way towards achieving RD&E goals. According to the partners:

'It has certainly helped to make more people aware of natural resource management projects, assets and funding opportunities even though there has not been as much inter-active community communication as desired so far.'

The key findings, therefore, supported the importance of linking the social with the environmental in order to facilitate and support the development and expansion of social capital—with networks of trust, cooperation and confidence—to reduce the impediments to effective action, and to accept the challenges of effective Natural Resource Management in communities, between communities, and beyond to the region.

Relatively effective arrangements were created, given the massive changes in governance structures over the last eighteen months; including both personnel and priorities. There were sixteen personnel changes at each level of agency-partnership connection directly impacting on the implementation of this study. Changes were also reflected in the changing roles and resulting uncertainties related to the catchments, communities, and groups.

Monitoring arrangements that were beneficial during the project included:

- meetings between partners and within subgroups
- feedback at each stage
- discussions and consultations among stakeholders, including the SE03 symposia and the Coastal CRC's Citizen Science seminars.

Monitoring continues to assess and to capitalise on the findings, processes, and tools of this project. The partnership discussions suggest that it is too early to evaluate the results of this project. They support the findings of the study that social capital takes time to develop; and projects that involve volunteers, community groups, and individual property owners often take a considerable amount of time. Some of the workshops and consultations in this project have helped build the regional body's credibility.

Key findings

By documenting the comments made and barriers identified into categories that reflect social capital, governance and communication, we were able to intuit key learnings and then suggest guidelines for improvements that would generate the social capital, governance and penetration needed to engage healthy community partnerships for *Healthy Land Our Future*. Some of the learnings make sense by comparing differences between rural, peri-urban and urban; some apply to all three community-types, though in varying degrees. A sample of key learnings with some of the guidelines to SEQ Catchments staff is summarised in the following table.⁸

The application of the findings from this project will be facilitated by further dialogue with regional management and adaptation to future regional community engagement. Factors impeding the immediate application of these social capacity learnings include shortage of

⁸ Note that guidelines were also developed for communities. How to apply these is another issue.

resources for these initiatives in a climate of demand for short-term demonstration of on-ground work and a wish by the regional body to integrate these findings with outputs from other social and economic research still to be completed.

Table 4. Themes, findings, and guidelines

Theme	Key finding	Guidelines for regional body personnel
Social capital	Cooperation and networks: there are more connections between organisations in rural areas than urban, but often the connections are non-productive.	<ul style="list-style-type: none"> Establish a wide network within a rural community yourself, then look for opportunities to connect groups. Generate interest in possible symbiotic outcomes through new connections. Provide incentives for certain types of partnerships that you wish to encourage.
	Trust: there is little trust of state government over NRM, and caution when government offers money; as well as lack of rural-urban trust and even trust that other groups within the community will be able to carry out commitments	<ul style="list-style-type: none"> Work at building long-term trust through consistent behaviour and high levels of involvement; for example, attendance at community events;. Maintain extension support for people and groups who commence a funded activity, so that projects reach successful outcomes
Governance	Leadership is left to a very few, who often lead for too long, with few young people moving into leadership roles	<ul style="list-style-type: none"> Develop skills in nurturing leadership; then do it. Inspire interested people to take leadership roles; then connect new leaders to others who can advise.
	Power: rural people feel they have lost their political voice and suffer from urban misconceptions; many find it too hard to work through the bureaucracy to get things done.	<ul style="list-style-type: none"> Adopt an 'empowerment' approach to providing support and funds by treating organisations as equal partners in NRM Plan activities. Provide funding for 'nuts and bolts' assistance (e.g. administration) that will make the difference between people being willing to take on a project and seeing it as too hard.
Communication strategies	Awareness: there is a considerable lack of awareness in peri-urban and urban localities about helpful, available material.	<ul style="list-style-type: none"> Identify cases of potential duplication of effort in information material, and facilitate coordinated use or adoption of materials and methods used elsewhere

Regional implications

As part of a broader suite of projects exploring the importance of social science in natural resource management, this study found that:

- Community type and location make a difference in almost all aspects of social capital as do other spatial dimensions of sense of place; and that the environmental issues, their proposed solutions, and the barriers to implementation of successful planning also vary.
- Social capacity, effective and extensive networks and networking, commitment to leadership and responsibility have changed, and continue to change, in response to external pressures on the region; as well as individual and community changes in life stage, lifestyle, and new environmental challenges

- Social capacity, knowledge, awareness and support need to be further enhanced and strengthened, often around SEQWCG's small project strategy. These findings led to the development of suggested guidelines to address impediments or barriers to social capital facilitation, network building, cooperative risk taking and responsibility. It is important, for example, to draw together and coordinate the dissemination of information relevant to these communities that has already been prepared by councils, government, environmental groups and industry groups in South East Queensland.

Specific implications indicated by the partners include the need for wide recognition of the diversity of land use activities, and diversity of views and awareness by landholders of the roles of the different levels of Government.

Planners and community engagement agencies need to be aware of the differences among landholders and users: their attitudes to natural resource management; time constraints; financial constraints; age constraints; and their relative sense of urgency when dealing with degraded land, in which they may have a considerable capital investment. In addition, value-adding implies that there needs to be further integration of the findings of this project with others, and with the projected roundtables and workshops within SEQ Catchments.

By understanding social capital and environmental action within a context of spatially demarcated boundaries, linkages across communities and community groups can be better targeted and supported in practice. One of the main implications is to retain the commitment to linking the social with the environmental:

'It is important that policy makers and practitioners continue to seek ways to support processes that help local people play a proactive and positive role [in biodiversity conservation], however complex and uncertain this may be.'⁹

Tools

1. Workshops to establish community partnerships

The study process appears to be an efficient way of forming foundations for community partnership with the regional body. The process involved interviewing a sample of district residents to gain data and generate interest, followed by a two to three hour workshop (with appropriate pre-promotion to organisation leaders and community members) in which issues were identified and prioritised, then responsibilities and general actions for priority issues were discussed.

The process could be used by community liaison officers in this region, or others. It is important, however, for the process to allow the community to set the priorities. This will often mean that issues discussed do not match regional NRM plan priorities. It is important for the facilitator to work through options for action even if they will not ultimately involve the regional body. Feedback to the participants, groups and organizations becomes important in this process, as does support to nurture potential local leadership.

2. Processes to identifying barriers

The process of systematically classifying policy, social, and financial barriers, and reflecting on findings, (followed by development of guidelines for regional strategies to alleviate barriers and to progress NRM objectives), could be applied wherever the workshop process is used. This provides relevant local data for the design of capacity enhancing activities for communities.

3. Mapping NRM problems and potential partners

Although researchers have not yet developed a tool for spatial engagement mapping and planning, we believe there is value in pursuing a process that will focus communities on spatial mapping of both their NRM problems and potential partners for solutions to those problems.

The amalgamation of the indicators used (spheres of influence, networks, etc.) is important, but

⁹ Pretty and Smith 2004, p.637

it is difficult to rely on verbal or written comments that determine the boundaries of 'my neighbourhood' or 'their problem over the river'.



Benefits of the process, noted by a SEQWCG staff member, were that it:

- updated and expanded a list of SEQ Catchment key contacts (both individuals and community groups) in the Bremer and its sub-catchments
- identified that people need one-to-one contact to engage in natural resource management activities
- identified the need to start locally, as a lot of people are only interested in their own property, or perhaps their immediate neighbourhood
- identified the necessity to identify and target key community or organisational leaders (not necessarily elected government representatives) to engage their support to help increase information flow to the wider community
- identified the lack of a single form of contact mechanism for landholders: multiple forms of communication are needed to capture their interest and engagement
- identified there are benefits for local case studies to be widely promoted, to enhance the community's sense of identity. The benefits include improved pride in self and community, and helping to reinforce the role local communities play in regional issues.

Processes used in this project are yet to be adapted to assist the future community engagement activities of the regional body, including planned roundtables.

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