Social and Community Dimensions of Natural Resource Management

Report on a position paper prepared for partners in the Consortium for Integrated Resource Management

by Lyn Aitken

2001

A review of issues and related research

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Queensland Government
Natural Resources and Mines
Department of Primary Industries
Environmental Protection Agency

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Compiled and written by the Project Team and Steering Committee below, with Lyn Aitken as lead author, on behalf of the Consortium for Integrated Resources Management (CIRM)

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1. Our regional workshop (SE Queensland), teleconference (SW Queensland) and focus group (Central Queensland), who represented environmental interest groups such as the World Wide Fund for Nature, community-based natural resource management groups such as Landcare, Catchment Coordinating Committees and the Fitzroy Basin Association as well as regional agency staff. These participants provided knowledge from their direct experience of critical social issues in natural resource management.
2. Our central workshop, which had representation from the partners in CIRM. The workshop represented a more formal knowledge base of the social dimensions of natural resource management.
3. A reference panel of executive level consultees, including designated CIRM Coordinators, from the agencies and institutions in the CIRM consortium, who commented on an early draft of this position paper and whose comments and suggestions contributed to the final version of this paper.

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BACKGROUND – WHO AND WHAT IS CIRM?

The Consortium for Integrated Resource Management (CIRM) operates as a formal linkage mechanism through a network of key officers from its six partner organisations – three Queensland government departments (Natural Resources and Mines, Primary Industries, and the Environmental Protection Agency), two universities (University of Queensland and Griffith University) and CSIRO. It was formed in 1993 and has evolved as a mechanism for facilitating the planning and coordination of collaborative research initiatives. It has links to the community through its partners and through an association with the Landcare and Catchment Management Council. The CIRM Board acts as a reference group for CIRM's activities, and is composed of the CEOs of each of the partner organisations.

The benefits of implementing such a process include:

- facilitating the coordination and integration of natural resource management research among partner organisations and providing an efficient means of assisting project innovators to move new collaborative proposals forward
- minimising the start-up or 'transaction' costs of joint projects
- minimising the duplication of effort and resources
- access to established communication linkages
- developing and strengthening research partnerships, both with CIRM partners and beyond, ncluding the community.

It is now universally acknowledged that resource management issues extend far beyond the scope of any single agency or organisation – that they are the responsibility of us all and they need to be dealt with in an integrated, holistic way. This means that CIRM's charter is even more relevant today than it was in its beginnings.

Because it is a *process* rather than an entity in its own right, CIRM does not undertake the activities of a centre or other formalised institutional structure. Nor should it be seen as in any way competing with, or usurping the role of, individual partners or their key staff. Rather, its aims are collaboration, brokerage, communication and a shared approach to common issues.

Examples of CIRM-facilitated activities include ARC-SPIRT (now ARC-Linkage) projects worth many millions of dollars, successful establishment of the Cooperative Research Centre for Coastal Zone, Estuary and Waterway Management, several major wastewater renewal and use programs, an international watershed project, and earlier workshopping of social issues associated with sustainable natural resource management.

More recently, CIRM has concentrated on the following four major priority areas for which it is preparing scoping papers:

- social and community dimensions of natural resource management
- management of aquatic ecosystems
- dryland salinity risk assessment
- water renewal.

This report on the social and community dimensions of natural resource management is the first position paper developed around those focus areas for the CIRM partners.

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Executive Summary

This document is written for all concerned with natural resource management in Queensland. The original position paper on which it is based was prepared in recognition of the need to identify key issues in relation to the social dimensions of natural resource management, and specifically to assist with the development of related research priorities for the Consortium for Integrated Resource Management (CIRM)[1] partners.

A steering committee with executive representation from each of the CIRM partners provided direction for the development of the paper. The work provides an overview of existing relevant research and activity, establishes a framework for addressing the social and community issues, and identifies areas where further investigation can make an important contribution to the sustainable management of natural resources.

Process

1. Four recent reviews on social and community matters of relevance to integrated natural resource management were analysed to establish the national context. These reviews were conducted on behalf of Land and Water Australia [one with regard to development of their Social and Institutional Research (SIRP) program and one for rangelands resource use planning], the Rural Industries Research and Development Corporation, and a recent consortium of national funding bodies and industry associations.

2. Three major initiatives in the Australian natural resource management arena (SIRP, the National Action Plan for Salinity and Water Quality, and Landcare) were examined to compare similarities in their focus and to ascertain the issues and questions that receive less emphasis. The current social and community focus of work done within CIRM partner organisations and in other Queensland Government agencies was then identified for comparison.

3. A series of participatory and consultative activities was undertaken with stakeholders in integrated resource management to identify local priority issues and research needs. These included focus groups in three regions, a central workshop, informal discussions with regional and central staff from several CIRM agencies, and consultation with a reference panel of executive officers and other interested people.

4. The outcome of this process was the formulation of a framework for social and community issues in natural resource management (described below). The framework was validated by cross-matching it against the findings of the national reviews and major initiatives analysed in activities 1 and 2 above.

5. Based on the findings of this study, the project Steering Committee submitted its recommendations to the CIRM Board for their approval and endorsement.

[1] See earlier background statement for a description of CIRM's nature, history and activities.

Outcomes

The issues identified through the mechanisms employed in this study reflect the varying scales – from national to local scales – and therefore present at different levels, with some general, some focused on particulars. Clearly identifiable similarities and themes emerged however and these were clustered into six broad groups:

Cluster 1: Understanding communities as a basis for achieving sustainable natural resource management outcomes

Cluster 2: Structuring and supporting partnerships

Cluster 3: Institutional arrangements for natural resource management

Cluster 4: Supporting community and institutional capacity for natural resource management

Cluster 5: Addressing the social impacts of resource use and change

Cluster 6: Awareness and action to facilitate social change.

This framework of clusters has become known as the CIRM 'social and community 6–pack' and is described in detail in Section 7 of this paper. It is proposed that the framework form the basis of a three-year social research agenda to be promoted by the CIRM group.

Rationale for further action

The paper finds that greater understanding of the social and community dimensions of natural resource management is essential:

- for successful implementation of natural resource management initiatives
- for involving and supporting communities in natural resource management decision-making, strategy development, preparation and implementation of plans
- to ensure that development of policy, legislation and institutional structures to support natural resource management takes place with a better knowledge of the social context
- as a basis for structuring partnerships to address natural resource management issues
- to ensure that "the triple bottom line" is being addressed.

Implications

The implications are that there is a need for:

- a shift in research focus from predominantly biophysical, where social research if included is an added-on component, to a more holistic contextual approach where social research has an equally significant focus
- institutional and resource support for this shift
- a more defined social research effort across CIRM.

This paper aids in following up these implications, by contributing to the increased effort in defining and shifting the focus for natural resource management research. It also provides a framework for engendering institutional and resource support for this change, both within and beyond CIRM agencies.

Recommendations

The following Steering Committee recommendations were submitted to the CIRM Board and endorsed in June 2001.

1. That CIRM as a consortium of partners should play a continuing strategic leadership role in identifying gaps and opportunities and ensuring full integration of social considerations in natural resource management research, through:
   - an ongoing facilitative resource, eg project brokerage and partner representation
   - CIRM partners having access to relevant social and community expertise
   - involvement of other agencies and institutions as appropriate
   - establishment of an agreed working group to implement the recommendations.
2. That CIRM partners present a collective Queensland position on the future social research agenda to key R&D funding bodies, eg Land and Water Australia, Rural Industries Research and Development Corporation, Murray–Darling Basin Commission, other R&D corporations and relevant federal agencies including Agriculture, Fisheries and Forestry Australia, and Transport and Regional Services.
3. That CIRM partners pursue a program of social research as a key initiative to underpin the implementation of the National Action Plan for Salinity and Water Quality and funded through the Queensland Government Service Enhancement Proposal [now Strategic Investment Proposal].
4. That the CIRM partners, through the working group, establish a framework for a three-year social research agenda based on the 'social and community 6–pack' clusters. The intended outcome is the development, by CIRM partners, of six collaborative projects.

Future directions

A working group with representation from all six CIRM partners has commenced implementation of the above recommendations. Their activities will operate at two levels:

(i) raising the level of awareness that CIRM is looking at a holistic approach to social and community science and linking this with biophysical science

(ii) establishing priorities for social and community research and identifying the most opportune prospects.

Future actions include:

- collaborative applications to research funding bodies
- involving and engaging interested colleagues both within and external to CIRM partner organisations in a range of collaborative and information-sharing activities
- re-examining priorities and utilising input from NAP sectoral groups to help determine how to use available funding to best effect in progressing the 6–pack
- establishing links and exploring collaborations with major established initiatives, including Land and Water Australia and the Rural Industries Research and Development Corporation, and new initiatives such as the National Action Plan, Sustainable Regions and the successor to the Natural Heritage Trust initiative.

1.0 Introduction

1.1 Purpose

This paper has been developed in consultation with a steering committee representing agency and institutional members of the Consortium for Integrated Resource Management (CIRM). It provides an overview of issues and related research in the social and community dimensions of natural resource management, and identifies key issues requiring further research and attention. The findings will be used to facilitate the coordinated development of research priorities by CIRM members, and contribute to the sustainable management of natural resources. The paper also provides a basis for consideration for all concerned with natural resource management in Queensland.

1.2 Social and community issues and natural resource management

Defining natural resource management

The steering committee agreed on the following working definition:

> *Natural resource management is the process of influencing the interactions between people and the ecosystems on which they depend.*

Within the framework of this definition, the process can be broken down into the following aspects:

- ***Reciprocity:*** This aspect addresses interactions between humans and their enviroment, each influencing the other's behaviour and condition.
- ***Communication:*** This aspect addresses collaboration and conflict between individuals, groups and institutions from the local level through to catchment and regional levels, the number of players increasing with scale.
- ***Integration:*** This aspect focuses on ensuring that interactions between the dynamic social context and the dynamic environmental context are aimed toward the goal of sustaiability (environmental and social), for example, integrating production and conservation activities in all sectors.
- ***Relevant knowledge:*** This aspect addresses the understanding needed to achieve integration and sustainability goals in both the environmental and the social context.

1.3 The importance of the social dimensions of natural resource management

We need to understand the social dimensions of natural resource management because they are integral to the causes and resolutions of natural resource management problems such as salinity, water quality and vegetation management. Social and community issues such as

community/agency partnerships, collaboration, representation and social impact analysis are therefore closely tied with critical natural resource management questions. Two examples presented below demonstrate this point.

Example 1: Managing salinity

It is recognised in the National Action Plan for Salinity and Water Quality (NAPSWQ or often simply NAP) that involving the community and improving the capacity of people is of critical importance to managing salinity (Environment Australia 2001).

Research into salinity management therefore requires an integration of the social and environmental dimensions. One approach would be to begin by considering an environmental indicator – for example, depth of the watertable. In this context, management to achieve sustainable watertable levels has social as well as biophysical dimensions, as the 'ideal' depth and/or level of salt present in the watertable is contestable and varies across regions and locations within regions. Programs devised to maintain or achieve ideal measures must take the social context into account, where important questions arise, such as, from one perspective:

– What are the local skills and knowledge regarding the issue: what social capital does the community or region have to bring to the problem? … then

– What are the community objectives, capacities and needs relative to the issue?

Behind these questions are more detailed questions such as:

– How do we ensure interests are adequately represented? … and

– How can we negotiate between interests to reach fair decisions on natural resource management strategies?

Other perspectives based on the range of theories and methodologies from social sciences also raise important questions, including, from a sociological perspective:

– How do the social dimension and biophysical resource base influence, support and constrain each other?

Example 2: Recognising the importance of local knowledge including indigenous knowledge

As the benefits of community involvement for research outcomes are increasingly recognised, so too is the valuable contribution local and indigenous knowledge makes to the knowledge base for natural resource management (for example, Black et al. 1999, Irwin 1999, Hinchcliffe et al. 1995). There are a number of questions under this topic that can be integrated with biophysical questions, to achieve outcomes that are increasingly critical: for example, how to conduct participatory and collaborative research that involves local communities and indigenous people in appropriate ways. Sub-issues for indigenous knowledge include cultural resource management at the landscape scale (pers. comm. Professor John Bradley and Dr Annie Ross, Anthropology Department, University of Queensland). There is a good deal of literature in this area, with a recently published book by Baker, Davies and Young (2001) likely to prove a useful resource.

2.0 Overview of reviews

A brief selection of reviews and overviews from the literature demonstrates the broad range of natural resource management contexts, with accompanying issues and questions from the social dimension. Some reviews are focused on developing national programs; other overviews are focused on a specific arena such as rangelands, or on a particular level of activity, such as community-based natural resource management at the local level. The following reviews have been undertaken to identify important issues in the social dimensions of natural resource management to aid national research and development bodies in developing programs for support:

- Mobbs and Dovers (1999) and Dovers and Roughley (1999) conducted reviews and commissioned contributions to their reviews to aid Land and Water Australia (LWA) in developing the Social and Institutional Research Program (SIRP).
- Black et al. (1999) conducted a review of rural community issues to aid the Rural Industries Research and Development Corporation (RIRDC) in developing a program to include funding for rural community issue questions.
- Dale and Bellamy (1998) reviewed resource use planning for the rangelands of Australia.
- A number of funding bodies are developing a joint initiative on the basis of a commissioned but unattributed review (RIRDC 2001).

2.1 Social and institutional issues for Land and Water Australia

Mobbs and Dovers (1999) comment that our changing perceptions of natural resource management are reflected in changing activities and approaches: management focus now incorporates activities and concepts such as integrated catchment management, integrated environmental management, ecosystem integrity, ecosystem health and adaptive management. The authors argue that the core similarities across these entities are "… integrating disciplines, integrating management and policy across landscapes and catchments" (Mobbs & Dovers 1999, p 4).

In many cases, they comment, practice has preceded theory, with community-based projects and catchment management arrangements being established before consideration has been given to those activities and arrangements that may be most workable.

In their review for Land and Water Australia (LWA), Mobbs and Dovers state the problem for analysis:

> Research directed to social, economic, policy, institutional, legal and economic factors influencing resource management is important but has been neglected and this neglect is hindering our efforts to manage resources consistent with the philosophy of ecologically sustainable development (Mobbs & Dovers 1999, p 5).

In her commissioned contribution for the Mobbs and Dovers review, Helen Ross identifies important issues for social science research, commenting on her identification of the social dimensions of land–water–vegetation management issues:

> There is a bewildering array of potential for social research in LWA's sphere of interest. The following selection is somewhat biased toward the author's experience in psychology and anthropology.
>
> 1. Perceptions, values, attitudes, beliefs, knowledge (values as forms of cognition – how they relate to people's priorities, guide behaviour, how they develop in each person and therefore provide guidance to influences on perspectives, how they may be useful in assessing policy options people will accept or reject).
> 2. Communication and learning
> 3. Gender and ethnicity
> 4. The nature of individual decision-making
> 5. Collaborative planning and decision-making techniques.
>
> (Mobbs & Dovers 1999, p 28).

Ross comments on the 'linkages among social, economic and legal research fields':

> There is a rich field in the intersection between social processes and institutional arrangements, well informed by existing research in the social sciences though not necessarily with environmental studies applications (eg stakeholder analysis).
>
> (Mobbs & Dovers 1999, p 31)

Other examples of important issues include native title questions in the legal field, along with other questions of rights. An example question provided is "What new approaches to environmental management (such as regional agreements) can evolve from a mixed set of stakeholders' rights in land?"

Consensus on important research areas, in the context of LWA interests

In a further report for LWA's Social and Institutional Research Program planning, Dovers and Roughley (1999) comment that public participation was the most commonly occurring theme identified for further research by agencies (both government and non-government). More details on these identified research needs are provided in Appendix 1. Dovers and Roughley develop a set of research directions from stakeholder workshops. They comment on the areas in which there is agreement that research should be undertaken:

> These initial foci for research and development reflect the logic and aims of the Program, stakeholder consultation undertaken in establishing the Program, and evident common interest and thus likelihood of partnership arrangements.
>
> 1. Delivery of ESD/natural resource management objectives at the regional scale
> 2. Comparative policy and institutional analysis
> 3. Structures, processes and information for community participation

4. Law-in-context and explication of statutory settings
5. Institutional change and reform
6. Innovative valuation approaches
7. Arrangements for coordination of the ESD/natural resource management field
8. Interdisciplinary and participatory R&D: theory and practice
9. Methodological reviews. (Dovers & Roughley 1999, p 12)

These topics were developed into research questions for consultancy tender in 2000, through LWA's initiative, the Social and Institutional Research Program (SIRP). A list of these projects against SIRP's four major objectives appears in Appendix 2.

2.2 Rural community issues for RIRDC

Professor Allan Black of Edith Cowan University, Western Australia led a 1999 review of rural social and community research priorities for the Rural Industries Research and Development Corporation (RIRDC). Although most of the review is devoted to issues other than natural resource management, Black does have a section specifically for the topic, and he also develops a synthesis between major concepts for sustainable communities and natural resource management.

One of the major concepts Black addresses is "social capital". He considers it has great importance for natural resource management, as a focus on this topic may provide a means for integrating the ecological, economic and social dimensions of rural communities through the creation of networks to deal with underlying problems (Black et al. 1999). Social capital is gaining increasing popularity with governments and tertiary institutions for work with communities on issues ranging from health and welfare to natural resource management.

In defining social capital it is important to briefly revisit its theoretical origins as there are major divergences in definitions that have implications for how social capital is measured and used in policy interventions (Pope, 2001). Under the first definition developed by Bourdieu (1985) social capital refers to the resources that are available to participants in durable networks. This capital incorporates both the social relationships and the resources; and the social processes involved are constrained by underlying economic organisation. The second definition originates with Coleman (1988) who does not see economic constraint as a factor, and who instead considers social capital as the outcome of individuals building networks to further self-interest. It is a form of social contract relying on trust that others will reciprocate their actions.

Under the Bordieu definition, it is necessary to consider underlying conditions and the social context, whereas with the Coleman definition it is only necessary to look to individual motivation. This paper identifies areas for research that go far beyond individual motivation, and places an importance on understanding both social context and the social processes involved in natural resource management. For that reason, despite the seemingly greater leaning toward the Coleman perspective in some natural resource management writings, this paper takes the position that social capital resides both in social relationships and the resources available through those networks – resources that will differ in quality through underlying contexts (that are not solely economic).

Black, too, discusses the importance of taking a balanced approach to a number of dimensions important to social capital in natural resource management:

> The relative importance accorded to each of the (ecological, economic and social) dimensions will influence policymaking. Where economic goals take priority, it is more likely that competitive individualism will guide the allocation of resources in rural communities, whereas a greater prominence given to environmental goals is more likely to build community networks. Rural policies may increase or diminish levels of social capital, depending on the extent to which they encourage trust and cooperation on the one hand, or work against them on the other. (Black et al. 1999, p 33)

Portes (1998) comments that consensus is growing in the literature that "social capital stands for the ability of actors to secure benefits by virtue of membership in social networks or other social structures" (Portes 1998, p 6), although the uses found for the concept vary greatly. In summary, the concept is important and the debate over what social capital is, how it can be measured and how the concept is used is critical. It is critical because, as Pope (2001) argues, it will determine whether policy interventions focus on change at the individual level, or at the underlying social contextual level (including socio-economic conditions).

Important research areas from Black's review

Black provides a number of recommendations for research directions, based on identification of issues, gaps and the potential of the research to inform policy-making. These recommendations are shown below.

- Research should be conducted to:
  - develop indicators of social capital
  - identify conditions under which social capital grows or declines in rural communities, and
  - analyse the significance of such growth or decline in relation to economic perfomance and social wellbeing.
- Action research that equips communities to initiate local responses to global changes should complement other forms of research. In particular:
  - current research into community development needs to be supported and extended, and
  - research is needed to identify the conditions required for vibrant rural communities able to support satisfying lives for a growing diversity of people.
- There is a need for research on the integration of social, environmental and economic dimensions of sustainability at farm, catchment, local community and regional levels.
- There is a need for research on strategies that support rural producers' efforts to pursue sustainable practices despite economic pressures that impede them.

  (Black et al. 1999, p 34).

The first two recommendations fit with the community development model of natural resource management that utilises concepts such as social capital as a bridge between sustainable communities and sustainable natural resource management. It should be noted that because of the nature of the RIRDC review, Black refers to natural resource management issues primarily as a context for considering rural community issues.

2.3 Resource planning issues for Australian rangelands

In a focus on resource use planning for rangelands, Dale and Bellamy (1998) refer to the interplay between cultural and resource use changes, and the necessity to consider both in future planning. They comment that while recognition increases of the interconnections between social, economic and environmental factors, understanding of the linkages between them is poor. They write:

> While there is a substantial literature in the agricultural extension field regarding the adoption of production-oriented innovations, there is far less understanding of the overall role of social factors in the development of sustainable natural resource management systems at the farm, catchment and regional level.
> (Dale & Bellamy 1998, p 2)

Research priorities and key research issues for rangeland planning

The research priorities and key research issues for Australian rangelands planning identified by Dale and Bellamy are shown in Table 1 below.

Table 1: Future research priorities and key research issues for Australian rangelands

Research priority	Key research issues
Improved understanding of socioeconomic processes operating within rangelands	Improving our understanding of social/psychological values, perceptions, needs and expectations
	Improving the decision supports for rangeland managers and communication channels between managers
	Exploring and improving the effectiveness of education and extension
	Understanding the nature of intra-regional social linkages
	Examining effective community education and development processes in rangeland communities
Improved techniques and tools for assessing social needs and developing appropriate human service delivery mechanisms	Developing effective benchmarks that can be applied to regional service delivery planning and within impact assessment processes
	Exploring and developing more effective systems for linking human services planning and provision to the land-use planning and impact assessment system
	Exploring and developing more appropriate service delivery models for rural communities undergoing social and economic stress
Improved integration of cultural heritage considerations within regional planning	Exploring and developing ways to support indigenous bodies to undertake their own cultural heritage assessment work as a basis for negotiation of resource use issues
	Exploring methods to more directly involve communities in identifying and preserving the culturally and socially important places and traditions within the region
Improved integration of social considerations within regional resource use planning	Exploring ways to translate social goals in regional plans into implementable strategies
	Developing clear performance criteria that can be written into regional plans in ways that will influence land-use decisions
	Better understanding the relationship between human service delivery, economic productivity and the adoption of sustainable management practices

(from Dale & Bellamy 1998, p 122)

2.4 Funding bodies joint venture initiative

A number of funding bodies are in the process of investigating the development of a cooperative venture – a research and development program "to innovate and develop human capacity in rural industries" (RIRDC 2001). Partners include Rural Industries, Grains, Horticulture, and Dairy Research and Development Corporations, Meat and Livestock Australia and The Woolmark Company. The partners have provided initial investments, and the venture is calling for more investment.

Participants at a meeting in March 2001 to discuss the venture included representatives of Land and Water Australia, Grape and Wine Research and Development Corporation, FarmBis and Landcare Policy and Programs (Agriculture, Fisheries and Forestry Australia), National Farmers Federation, Queensland Department of Primary Industries, University of Newcastle and Synapse Consulting.

Research and development priorities

An unattributed review commissioned by the partners sought to identify major issues for further research. With a primary focus on adoption and extension, the issues identified included: learning and change processes, lack of demonstrable benefits from learning and change, inter- and intra-organisational arrangements and professional development of extension professionals. They resulted in the formulation of the following research and development priorities for the joint venture initiative:

1. Approaches to facilitate enhanced learning and change processes
2. Approaches for accelerating demand for learning and change
3. Strategies for creating inter- and intra-organisational arrangements to support learning and change
4. Strategies for the education and processional development of rural service providers.

Comment

Each of the reviews cited in this section discusses the necessity to support change through greater understanding of the social context, to support innovations such as partnerships, and to support improved service delivery. The reviews have different breadths of focus and different areas of concern, but collectively they indicate areas and issues that need to be taken into account when considering the social dimensions of natural resource management.

3.0 Analysis of selected major initiatives

In this section, the social dimensions of major initiatives in the Australian natural resource management arena are examined to compare similarities in their focus and to ascertain the issues and questions that receive less emphasis. An extensive list of initiatives with a significant social dimension identified by participants at one of the forums held to inform this report appears in Appendix 3. The three initiatives chosen for closer examination are:

1. Land and Water Australia's Social and Institutional Research Program
2. The National Action Plan for Salinity and Water Quality, and
3. Landcare.

These initiatives were selected because, as with the reviews examined in the previous section, they demonstrate the breadth of social focus possible in natural resource management and show similarities and differences of interest in issues and research directions.

3.1 Social and Institutional Research Program (LWA)

In early 2000, the Land and Water Resources Research and Development Corporation (LWRRDC), now known as Land and Water Australia (LWA), initiated a program concerned with social, institutional, economic, commercial and legal aspects of natural resource management called the Social and Institutional Research Program (SIRP). The program addresses a gap that LWA saw as the most powerful constraint to sustainable natural resource management, namely the lack of focus on the social dimensions of natural resource management.

The program has four main objectives, and aims to develop:

1. A high quality knowledge base of the social and institutional dimensions of natural resource management
2. Best practice research products and services that integrate biophysical, social and institutional dimensions of natural resource management and facilitate adoption
3. Critical mass in awareness of the social and institutional dimensions of natural resource management
4. Enhanced and demand-driven R&D capacity in the social and institutional dimesions of natural resource management.

   (Social and Institutional Research Program, www.sirp.gov.au)

3.2 The National Action Plan for Salinity and Water Quality

The National Action Plan for Salinity and Water Quality (NAPSWQ, commonly referred to as the NAP) builds on work established under the Natural Heritage Trust, the Murray–Darling Basin Commission, State and Territory strategies and the Council of Australian Governments (COAG) Water Agreement. It aims to implement:

1. Targets and standards for natural resource management (particularly for salinity and water quality, associated water flows and stream and terrestrial biodiversity)
2. Integrated catchment/regional management plans. (A number of highly salinity-affected catchments and regions across Australia have been identified as 'focus catchments'. Using community-developed strategies as a base, the governments will negotiate with the communities involved to agree on targets and outcomes, and the resulting management plans will be accredited for strategic content, proposed targets and outcomes, accountability, performance monitoring and reporting mechanisms.)
3. Capacity building for communities and landholders (to assist in the development and implementation of integrated catchment/regional plans)
4. An improved governance framework to secure government investments and community action in the long term, including property rights, pricing, regulatory reforms for water and land use
5. Clearly articulated roles for the Commonwealth, State and Territory and local government agencies and the community, to provide an effective and coherent framework for implementation of the Action Plan
6. A public communication program to support understanding of the National Action Plan, and to promote behavioural change and community support.

   (from www.affa.gov.au/docs/nrm/actionplan/index.html#3)

The clearly outlined focus on community involvement highlights the importance of the social dimension of the National Action Plan for Salinity and Water Quality.

3.3 Landcare

At the local level, where there is great diversity across geographical areas, important issues will vary according to the context and to other important initiatives and events that have influence on local areas. Two sources of identified issues are cited here.

1) A Bureau of Rural Science report by Cary and Webb (2000), which states:

   Community landcare has contributed to … community development and social capital building by increasing awareness, extending skills and knowledge and developing networks that are conducive to

the acceptance of sustainable farming practices. However, the direct causal relationship between the transformation of this social capital into the adoption of sustainable farming practices is less clear. In particular the links between pro-environmental values and attitudes, as furthered through community landcare and the landcare movement, and pro-environmental behaviour is tenuous.

Cary & Webb, 2000, p 2)

2. A Report to the UN Commission on Sustainable Development on the outcomes of the International Landcare 2000 Conference. This report notes that the five major themes which shaped the conference provide a summary of the important issues:

   a. Sustainable agriculture and greenhouse

   b. Structures, partnerships and planning in natural resource management

   c. Community participation in natural resource management, including indigenous approaches

   d. Scientific, technical and educational approaches to natural resource management

   e. Managing for biodiversity.

The report makes it clear that strengthening partnerships for greater inclusiveness and participation is a primary issue for Landcare partners, with groups not uniformly satisfied with their levels of participation through devolved authority and empowerment:

> The conference emphasised that while government and business have embraced the participatory approach, the level of devolved authority and empowerment to communities has not satisfied all Landcare groups, which are at varying stages of development. However, all partners in Landcare recognise the need to continue the process of strengthening partnerships and increasing the resources available. The strong emphases on building, facilitating and maintaining community and stakeholder ownership of programs suggest that a continuous exchange of information on similar international initiatives would be worthwhile. (UN Commission on Sustainable Development 2000, p 11)

The conference identified a number of challenges needing to be addressed and developed through research and activities. Speakers and delegates expressed these challenges as questions:

- What are the rights, responsibilities and roles of all stakeholders in partnerships?
- What are the structures and processes of communication necessary to strengthen the relationship between policy, science and communities?
- How can we recognise and invest in social capital?
- Recognising that interactive research processes must be consistently based on mutual respect for science and local knowledge, what are the changing demographics of rural communities and ecosystems at the local and regional levels?

  (UN Commission on Sustainable Development 2000, p 11)

Comment

These initiatives prioritise particular aspects of the social dimension of natural resource management. The SIRP initiative and the National Action Plan have strong interests in institutional issues and arrangements, while Landcare adds to those interests a strong focus on the social context. Similarities, differences and the way they fit with the clusters of issues identified for the current study are examined in Section 7 of this report.

4.0 Summary of current agency and institutional work by members of the CIRM group

A good deal of work has been undertaken by CIRM partners[2] to address social and community issues in natural resource management. The work constitutes a valuable resource of refined concepts and essential knowledge for addressing identified themes and issues.

4.1 Databases of information

A database has been compiled of the documented work on the social dimensions of natural resource management that is currently and has recently been conducted by the agencies and institutions in CIRM. Information on an extensive table of research and activities compiled from the database is available from the author.

Other agencies outside CIRM have of course also undertaken related projects and activities. There are databases of literature that have been compiled for programs and projects that are also available for reference, with some qualification.

1. One database has been compiled for the CRC for Coastal Zone, Estuary and Waterway Management. It provides a range of literature on community participation, primarily in the context of coastal issues.
2. A promising database is under construction under the auspices of Land and Water Australia's SIRP program, and a collaboration is currently being sought with the Bureau of Rural Sciences' Social Science Program to provide for its completion and ongoing maintenance. It currently holds 600 entries, with an estimated 600 more to be added.
3. Literature reviews for other SIRP projects, when they are released, will also provide useful compilations of published work on aspects of the social and community dimensions of natural resource management.

It should be noted that in some cases the databases and reviews might be focused on a particular set of environmental parameters or research questions. Moreover, all databases and literature compilations reflect the authors' and/or team's perspectives on the breadth and depth of the social dimensions of natural resource management, here as in other contexts.

4.2 Partners in the CIRM consortium

This section considers the focus taken on social and community issues in natural resource management by agencies in the CIRM group, to identify areas of expertise as potential resources. For example, Griffith University has a strong positive impetus toward integrated

[2] CIRM partners are: three Queenslsnd Government agencies (Department of Natural Resources and Mines, Department of Primary Industries and the Environmental Protection Agency); two tertiary institutions (University of Queensland and Griffith University); and the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

studies, with a concerted effort made to integrate social and environmental sciences. Knowledge developed through research completed and in progress provides a valuable resource for this topic, as well as considerable expertise for collaborative work.

4.2.1 CSIRO

CSIRO's strengths in the area are related to particular researchers, such as Dr Geoff Syme and his work in CSIRO Land and Water, as well as in the newly formed division, CSIRO Sustainable Ecosystems.

CSIRO Sustainable Ecosystems (CSE) was formed in October 2000 to increase CSIRO's efforts in research and development (R&D) focussed on sustainable management of Australia's natural resources, with an emphasis on ecological knowledge and its integration with the social and economic arms of sustainability. CSE brings experience in the ecological sphere together with social and economic capacity in order to help solve the challenging problems in rural and regional development and natural resource management. Its mission is to deliver benefits by applying scientific skills in partnership with the people who influence, use and manage Australian ecosystems.

In his address to a forum on 'Celebrating 10 years: LWRRDC to Land and Water Australia' in November 2000, the Chief of the new division, Steve Morton, commented:

> People and institutions are now emerging as major foci in the R&D agenda for ecosystem sustainability. This long overdue development will take us into the challenging arena of 'triple bottom line'[3] sustainability.
>
> In the year 2000, the biophysical landscape in too many parts of Australia is still in decline. The social landscape too is suffering decline in many regions. Despite these negative trends, R&D is in a far stronger position to help create solutions than at any time in the past.
>
> (From the forum: "Celebrating 10 years" – LWRRDC to Land and Water Australia. The Natural Resource Management Workshop, 29 November 2000)

The CSE division consists of ten programs, two of which are concerned with social, institutional and community research:

- *Integrated Resource Use and Management* – focuses on applying a case-study approach to the regional management of natural resources, which involves working with government, industry and community groups to build capacity and networks within and between these groups (see http://irum.tag.csiro.au).

- *Resource Futures* – developing and testing future population development–environment scenarios for the use and management of Australia's environment and natural resources.

Two other programs, Sustainable Grazing Systems and National Rangelands, include a strong social research component.

[3] Triple bottom line is a term currently used to refer to the addressing of economic, social and environmental objectives when considering issues and actions.

The Australian Research Centre for Water in Society based within CSIRO Land and Water (Perth) but operating in most states of Australia, also has a strong social science research focus. It works in close collaboration with stakeholders in the Australian water industry and with natural resource management agencies.

4.2.2 Griffith University

There is considerable interest in community research and environmental management across the schools in Griffith University's Faculty of Environmental Science as well as in other faculties such as the Faculty of Arts. Major organising interests across these groups are industry/ community relationships in environmental management; community participation in environmental policy setting and enforcement; and environmental values, attitudes and knowledge (cognition) as expressed by the general public and local communities facing environmental problems. Further interests in distributive justice (how the economic and social costs of environmental management are shared) and environmental justice (who and what groups are most at risk from environmental degradation) are subjects guiding a number of research projects.

Research concentrates on Australian problems, but there is a large and continuing interest in comparative and international research. Research is funded by the Australian Research Council, Land and Water Australia and several different Cooperative Research Centres (CRCs). The CRCs include Coastal Zone, Estuary and Waterway Management; Catchment Hydrology; Freshwater Ecology; and Sustainable Production Forestry. Social scientists are involved in the Tropical Rainforest and Water Quality and Treatment CRCs to a lesser extent.

The Australian School of Environmental Studies, the largest School in the Faculty of Environmental Sciences, is Griffith University's leading research school in terms of research

output, funding and postgraduate education. Selected research topics by PhD students in the social sciences include 'Community–industry relationships in critical environmental issues', 'Sustainability and the resource extraction sector in Australia', 'Social and environmental impacts of eco-tourism', 'Boundary-work in the Brisbane river dredging dispute: the social construction of the science–politics border', 'Volunteering – linking social capital, learning and environmental care', and 'Environmental education and communication in park management'.

4.2.3 The University of Queensland

The University of Queensland (UQ) has a number of researchers with a particular interest in social and community issues in natural resource management in several faculties, including Social and Behavioural Sciences; Engineering, Physical Science and Architecture; and Natural Resources, Agriculture and Veterinary Science. A number of researchers have strong interest in indigenous issues in relation to natural resource management.

The University of Queensland and the University of Melbourne jointly initiated a Centre for Rural and Regional Innovation (CRRI), through the Gatton Campus in Queensland and regional campuses in Victoria. The primary focus is on capacity building (particularly of human as opposed to institutional systems in education) to achieve economic, social and environmental outcomes for regional communities. CRRI has developed a network of partners and courses in community development and related areas, and the two founding universities remain core partners in the initiative.

Research is also being conducted at the Rural Extension Centre at Gatton, with its strong regional focus and close involvement in CRRI. The Rural Extension Centre is a partnership between UQ and the Department of Primary Industries.

UQ has created two new Chairs in the School of Natural and Rural Systems Management at Gatton campus. The position of Professor in Rural Community Development brings the social dimensions of natural resource management to the fore, and integrates them with biophysical sciences through a companion Professorship in Natural Systems. They will work closely with the existing Professor of Agribusiness to integrate with economic dimensions, as well as other senior academics throughout the University. This Chair is one of the most senior Australian positions yet created for the social sciences in natural resource management.

At the Ipswich campus the developing Community Service and Research Centre is an integral part of UQ's community engagement strategy, with a focus on building just and sustainable partnerships between the University and the community. While not focusing on natural resource management as a priority issue, the Centre addresses a number of community topics of great relevance to sustainable natural resource management.

Anthropologists in the Social and Behavioural Sciences faculty have a strong interest in indigenous issues, with an important topic in a natural resource management context being recognition of the value of indigenous knowledge. Other social scientists conduct research of value in a natural resource management approach that draws together sustainable communities and sustainable environments: several projects in the School of Social Work and Social Policy contribute to a greater understanding of what is needed to make a community sustainable.

Government agencies in the CIRM Consortium

There are considerable resources to be found in the government departments involved in CIRM.

Natural Resources and Mines (NR&M), Primary Industries (DPI) and the Environmental Protection Agency (EPA) have a different focus from that of the teaching and research institutions. A significant amount of work is undertaken by these agencies as natural resource management is often seen in social terms, with particularly critical questions revolving around community involvement in management and decision-making processes.

4.2.4 Department of Natural Resources and Mines

In the Department of Natural Resources and Mines, for example, social and community issues feature as important aspects of most departmental work such as vegetation management, Regional Forest Agreements, Water Allocation and Management Plans and the National Action Plan for Salinity and Water Quality, all of which contribute to one or more of NR&M's eight key policy priorities for this financial year:

- Planning and regulatory frameworks for natural resource management
- Water reform
- Regional and catchment approaches for planning and delivering natural resource management
- Sustainability indicators for resource condition and trend
- Resource Atlas
- Greenhouse issues
- Service delivery approaches – Access Queensland
- Market-based approaches to natural resource management.

Stephen Dovers, in his consultancy report to Land and Water Australia in 1999 observed that, in his research:

> The Queensland Department of Natural Resources [now Natural Resources and Mines] was the only agency encountered, other than LWRRDC [now Land and Water Australia] that has attempted to develop a coherent broader view of the social and institutional area. (Dovers & Roughley 1999, p 28)

In relation to community-based natural resource management, NR&M actively supports the catchment planning process. The agency provides coordinators, technical support and data to regional strategy groups who themselves develop regional natural resource management plans. The planning projects aim to address all the main issues important to natural resource management.

A number of projects and programs in NR&M have a specific focus on community-based natural resource management. Two examples are the Community-based Natural Resource Management (CBNRM) project and Waterwatch. The CBNRM project followed an extensive consultation and dialogue process, producing the publication 'Strengthening Natural Resource Management in Queensland', to report on the outcomes and propose strategies for

strengthening arrangements for CBNRM. The project recognises the importance, as a recurring theme, of ensuring arrangements are flexible, in order to suit local communities and their natural resource issues in rural, regional and urban Queensland (Department of Natural Resources 2000).

The burgeoning interest in community participation and involvement in natural resource management is also seen in initiatives such as Waterwatch, Saltwatch and Pasturewatch, which involve community monitoring of natural resources. These and other opportunities for community involvement are gaining increasing importance, and are reflected in programs such as the Citizen Science Program at the CRC for Coastal Zone Estuary and Waterway Management in which NR&M is a major partner. The following extract describes the social dimension of this program:

> … in keeping with the participatory approach becoming the dominant policy paradigm in Australia (Cary & Webb 2000). At the national level Waterwatch contributes significantly to meeting the community involvement aspects of the National Water Quality Management Strategy and associated action plans (Environment Australia 2000). At the catchment, regional and state levels, outcomes include community representation on management committees, and community data are incorporated into State of Environment reporting and state and regional natural resource management initiatives and strategies. At the local level, community data are being incorporated into local catchment management and planning processes.
>
> These outcomes illustrate an increasing acknowledgement over time that community-driven, participatory approaches are essential to sustainable natural resource management. In itself this acknowledgement is one of the most significant indicators of social change. (Dwyer & Gowland 2001)

4.2.5 Department of Primary Industries

The Department of Primary Industries (DPI) is a major partner in the sustainable development of Queensland's food and fibre systems and rural communities. One of its key strategies is to increase the capacity of rural communities to take up development opportunities. Through discovery and innovation, education and regulation, DPI builds capacity for better decision making within the food and fibre sector and rural communities.

In addressing rural community development, DPI focuses on building the capacity of rural communities to manage economic, social and environmental issues in holistic, innovative ways through the development of leadership skills and the ability to adapt to change. In this way, rural Queenslanders are empowered to take ownership of their communities and to maximise emerging opportunities for further sustainable economic and social development. Part of the focus involves the provision of increased access to government services and information that will enhance individual, industry and community decision making on social, economic and environmental sustainability issues.

DPI has a number of programs aimed at strengthening the overall capacity of people in rural and regional areas. Natural resource management issues are part of the consideration of these programs, which include:

- Future*profit*, which focuses on holistic farm management systems and develops skills such as strategic thinking and goal setting, knowledge and resources for individuals in a group context

- Rural Partnerships program which encourages the sharing of information and knowledge, and industry and community group action
- Building Rural Leaders program which provides leadership development for individuals and a focus on planning for a sustainable future
- Farmbis program which provides training subsidies for producers and landholders to undertake learning activities to assist in farm business decision making.

In addition, the Office of Rural Communities, a small but key group in DPI, provides an important link between Queensland's diverse rural and remote communities and the State Government, promoting better access to government services and information in addition to taking a coordinating and advisory role on policy affecting rural Queensland.

4.2.6 Environmental Protection Agency

The Queensland Parks and Wildlife Services division of the Environmental Protection Agency (EPA) has greatest involvement in the social and community dimensions of natural resource management through its range of programs, particularly the Community Nature Conservation activities designed to help landholders balance production with conservation of nature. Some of these programs include Bushcare, Naturesearch, Nature Refuges and Land for Wildlife. Additionally, nature conservation case studies are undertaken through a Natural Heritage Trust project. There are a number of related social and community issues that are important to the Agency, given this focus and activity.

4.3 Other government agencies

There are several other State Government departments not involved in the CIRM consortium who have a strong focus on social and community issues with some relevance to natural resource management concerns. It is obvious that coordination between the agencies and divisions would mobilise the individual departments' resources and strengthen strategies for integrated resource management, with a focus on the social dimensions. Some of these interests are listed below.

4.3.1 Department of Premier and Cabinet

Community Engagement Division: This unit is a recent initiative of the Department of Premier and Cabinet, intended to foster effective community contribution to the development of policies and programs and offer opportunities to strengthen partnerships with a diverse range of community stakeholders. A key section of the new division will be Regional Communities, providing residents in the State's major provincial areas with input to State Government policy and decision-making processes. (Gardiner, 2001).

4.3.2 Department of Aboriginal and Torres Strait Islander Policy

The agency's 10-year plan has eight key areas, one of which is Land, Heritage and Natural Resources. The area is currently conducting a major case study with the Fitzroy Basin Elders' Committee.

The goal of the study is greater involvement of Aboriginal and Torres Strait Islander (ATSI) peoples in all aspects of land, marine and aquatic environments, including planning and decision-making, management, ownership and access. Recent activities include helping

indigenous owners gain access to some traditional lands and to work in partnership with other government agencies and community groups in the region. There are also some existing partnerships such as joint management of national parks.

These aims and activities indicate that a major question for the agency is how to achieve greater involvement of indigenous peoples in natural resource management partnerships. Such a question would incorporate issues such as the prerequisites for strong partnerships between ATSI peoples and government, and necessary understanding of the social and cultural contexts as well as developing acceptable forums for decision-making.

4.3.3 Department of Health

This agency has a major focus on improving consumer participation in District Health Services for planning, delivery, monitoring and evaluation, and for access to information.

The Multipurpose Health Service maintains a Community Advisory Network as part of its attempt to improve consumer participation. The agency has direct relevance to any social and community focus on natural resource management, as it is a major contributor to a community's sustainability, and there is a clear link between sustainable communities and sustainable environments. Current networks should be shared for involvement in any sustainability activities.

4.3.4 Department of Housing

Housing is another major aspect of community sustainability, and the agency has some innovative programs that could accommodate a coordinated interdepartmental effort towards social and natural resource sustainability. The most important of these is the Community Renewal Program. The program works with people at the grassroots level to ensure planning takes local needs into account, brings together residents, businesses, and State and local government departments to tackle local issues and find long-term solutions. It also facilitates the development of community action plans – partnership agreements between the community, State government and local council outlining how they will combine resources and undertake renewal work.

4.3.5 Department of State Development

Regional development is an area where the agency seeks partnership with regional communities to progress economic development across the State. Regional services include facilitating a whole-of-government approach to regional development policy and integrated service delivery; assisting community empowerment; and strengthening the capacity of regional Queensland.

The focus for this agency is primarily on economic development, with government services as a resource for business. A more coordinated approach to developing partnerships with regional communities on development issues may facilitate a greater focus on sustainability issues, including economic, environmental and social considerations. This is important for natural resource management if State Development is "facilitating a whole-of-government approach", and a number of questions for research may be raised on this topic.

The Department houses the Office of Regional Communities, which is linked to the Department of Premier and Cabinet.

4.3.6 Department of Local Government and Planning

The agency coordinates regional planning projects such as Wide Bay 2020, Far North Queensland, Townsville–Thuringowa, Whitsunday, Hinterland and Mackay (WHAM) 2015, Central Queensland and Gulf Regional Development Plans.

The Department has a Planning Information and Development Unit which produces useful statistics for social and community research in natural resource management, such as demographic information and community profiles.

4.3.7 Department of Families

The Department of Families has a primary focus on communities, and seeks to be further involved in environmental issues, potentially through their Place Management program.

Comment

There is considerable scope for collaboration between departments, as well as between departments and other agencies or institutions, given the crossover in interests and the similarities of focus.

5.0 Differing extent of focus on social issues

The extent of social focus within projects and activities differs across institutions and agencies, and according to the extent to which social science research is included in institutional programs. It is apparent that much of the interest in community dimensions of natural resource management is in capacity building, gaining community involvement and considering institutional imperatives for community involvement that increase capacity for participation.

These interests are primarily found in government agencies, with their mandate to implement natural resource management at the community level. Tertiary institutions may include both applied and theoretical studies, which may or may not be related strongly to the natural resource management context. Biophysical projects may include some social data, especially as required by funding bodies.

Some means of differentiating the myriad of different forms of research into the social dimension of natural resource management is needed, to ensure that the required focus is being met.

5.1 The social science grid group

The grid-group diagram in Figure 1 provides a framework for identifying the differential extent of social focus, and will aid in developing priority programs for research into the social dimensions of natural resource management.

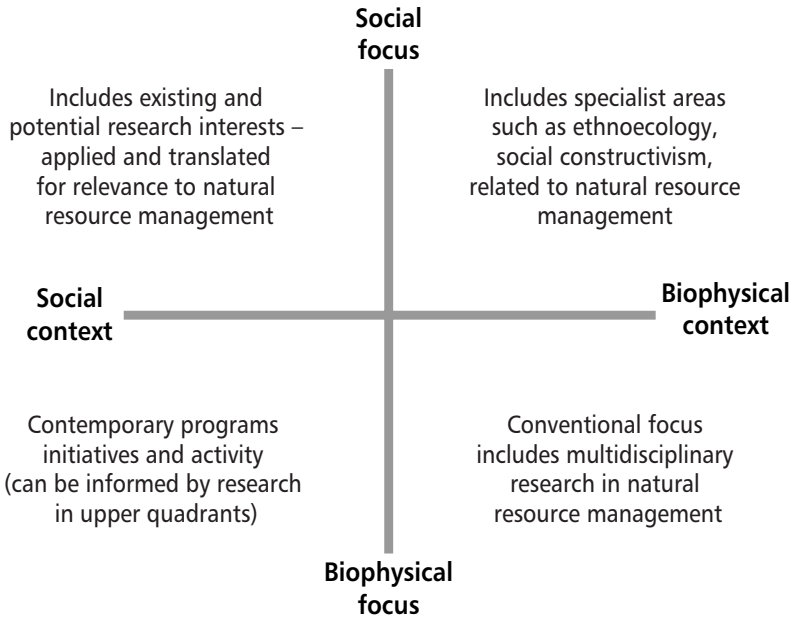

Figure 1: Grid group of social and biophysical focus and context in natural resource management research and activity

The grid-group methodology was first developed by anthropologist Professor Mary Douglas and her co-workers in 1978 to represent typologies of social relationships in their grid-group theory. The grid has also been used to model typologies of social relationships and rationalities to describe environmental perspectives on technology development (Schwarz & Thompson, 1990).

Using the grid group

Research projects and various activities, topics or themes of interest to natural resource management can be placed in any of the quadrants. The majority of multidisciplinary and interdisciplinary projects involving disciplines in the biological and physical sciences are located in the lower right quadrant.

Traditionally, the major focus in natural resource management for agencies has been on this lower right quadrant, with a shift toward the lower left quadrant as the importance of the social dimensions of natural resource management is increasingly appreciated. The majority of programs involving communities are found in that quadrant, with inquiry in the upper quadrants undertaken or called on to support that work. Arguably the least occupied quadrant is the upper right, a social focus in a biophysical context, where specialist disciplines are integrated in an interdisciplinary focus that does not include social data simply as an added-on component, but sees the social dimension as integral to addressing the natural resource management issue.

6.0 Participatory forums and consultation processes

A series of participatory and consultative mechanisms were used to identify those social and community issues related to natural resource management seen locally as requiring further investigation. These mechanisms included open forums with focus groups, a dedicated one-day workshop, informal discussions with multi-agency regional staff directly involved with natural resource management at the community level, and consultations with key executive officers of the CIRM partners. A brief description of these processes is presented here, along with a summary of the issues that formed the basis for the framework developed in Section 7 of this report.

6.1 Regional focus groups

Three regional focus groups and teleconferences were held with operational staff from the agencies, also involving – in the South East and Central Queensland regions – members of regional associations and natural resource management groups. The focus groups were convened to facilitate input from regional perspectives and experience. The outcomes from focus group discussions, in summary form, were presented at the subsequent workshop for incorporation in discussions..

Table 2 presents a summary of the issues arising out of focus group discussions.

Table 2: Issues identified by regional forums

Key themes (not ranked)	Issues	Regions* identified
Rural demographics and family farms	Generational conflict over natural resource management for farm Rural town decline Succession planning eg: -Ageing of rural population and producers -Decline in skills available to deal with changes, socially and biophysically, as younger generations leave the farm -Loss of services eg banks, medical, schools	SW, SE, CQ
Capacity building, social capital and empowerment (plus opposites eg loss of social capital)	Funding and resources Group processes Time Primary producers — adoption of improved practices, identification of barriers, options for viable enterprises Actual limits of natural resource management groups to achieve sustainable practices; lack of realistic expectations by participants Communication	SW, SE, CQ
Role of regional strategies in decision making	No mandate on major infrastructure projects to consider regional strategies Disempowerment issues	SW

* SW = south-west Queensland; SE = south-east Queensland; CQ = central Queensland

Table 2: (continued) Issues identified by regional forums

Key themes (not ranked)	Issues	Regions* identified
Information and decision making	Networking	SE, CQ
	Access to and use of information	
	Lack of decision-making frameworks and processes for regional planning	
	Basic communication of research results; finding similar language	
Relationships between government and communities Relationships	Capacity	SE, SW, CQ
	Communication	
	Understanding of contexts and systems	
	Slow but noticeable shift from technocratic to participatory processes	
	Issues multi-faceted eg: -ownership of water -conflict across departments -environmentalists vs cotton farmers -local to national levels capacity	
External market/resource economics issues	Global social and economic impacts on regions	CQ, SE, SW
	Resource decisions based on market, not resource base itself	
	Changes in agricultural commodities market	
	Real and perceived costs of new or more sustainable technologies	
	Balancing economics with eco-issues	
	Balancing long-term natural resource management with short-term economic needs	
Future roles of land managers	Potential need to earn off-farm income	SW, CQ
	Non-agricultural lifestyle choices	
Institutional and policy issues/ constraints	Devolution of power to community groups	SW, SE, CQ
	Long-term funding for long-term resource management problems (beyond political terms in office)	
	Withdrawal of traditional support staff (eg soil conservation officers)	
	Lack of community and corporate funds	
	Developing synergies between community members, local government and catchment plans and strategies for natural resource management	
Behaviour, attitudes and diversity	Not in my backyard	SW, SE, CQ
	Young not following farm-based careers	
	Appreciation of diversity and cultural differences	
	Community expectations from the environment and landholders	
	Recognition of diverse expertise and capacity for natural resource management	
Understanding and/or managing change	Fear of change	SE
	Questioning latest scientific research or alienation from research findings	
	Keeping to traditional or historical practices and memory	
Gaps and/or contradictions	Landcare and ICM — devolution and expectations vs actual resourcing	SW, SE, CQ
	In understanding by policy makers of those they set policy for	
	In understanding of relationship between long-term natural resource management and short-term economic needs	
	Between policies for development and environmental protection	

* SW = south-west Queensland; SE = south-east Queensland; CQ = central Queensland

6.2 Central workshop

A one-day workshop held in Brisbane after the regional forums was attended by 33 participants with expertise in social and community issues in natural resource management. They included representatives from all six partner agencies in CIRM as well as one representative from the University of Southern Queensland. Discipline areas represented in the group included social science, economics, resource management, geography, applied science, policy, management and administration.

A main objective of the workshop was to identify the major initiatives in natural resource management – both current and future – that require an understanding of social and community issues, and to examine their associated issues. More than 50 initiatives were identified. These included:

- National strategy for sustainable natural resource management
- National action plan for salinity and water quality
- Greenhouse initiative and carbon credits
- Environmental banking
- Cooperative research centres
- Networking the Nation
- Murray–Darling Basin strategy
- Landcare and integrated catchment management programs
- Waterwatch, Saltwatch and Pasturewatch
- Regional natural resource management strategies
- Rural Partnerships program
- Vegetation management
- Regional forest agreements
- Statewide landcover and trees study (SLATS)
- Water allocation and management plans (WAMPs)
- National Land and Water Resources Audit
- Regional Solutions program.

Once the associated issues were discussed and listed, workshop participants were presented with the issues identified in regional forums and asked to synthesise both sets of issues. Not surprisingly, participants found significant amounts of commonality between the two.

The aggregated issues were loosely grouped into broad categories and were then prioritised according to the following agreed criteria: ease of research; funding potential (ie fit with priorities of funding providers and policy makers); potential impact; urgency; community alignment; and sequence. Opportunities for potential collaboration were also noted during this process.

The clearly identifiable 'themes' or similarities that emerged were clustered into six broad groups as shown overleaf:

Cluster 1: Understanding communities as a basis for achieving sustainable natural resource management outcomes

Cluster 2: Structuring and supporting partnerships

Cluster 3: Institutional arrangements for natural resource management

Cluster 4: Supporting community and institutional capacity for natural resource management

Cluster 5: Addressing the social impacts of resource use and change

Cluster 6: Awareness and action to facilitate social change

These are discussed in detail in Section 7.

6.3 Informal discussions with on-ground regional staff

The development of clusters of issues and research directions in more formal settings is somewhat grounded – and perhaps given more reinforcement and urgency – through dialogue with regional people who have direct experience of the social dimension of natural resource management. Discussions were held with regional staff from the three state agencies that are partners in CIRM: Natural Resources and Mines, Primary Industries and the Environmental Protection Agency. The transcript below is representative of a quite frequently expressed viewpoint of issues at the regional level:

> While there is not a major philosophical resistance to the aims of the natural resource management reforms, that is, more sustainable use and management of our natural resources, there is a major resentment and anger about the costs of these reforms (both economic and social) and whether these costs are being shared equitably.
>
> I am regularly hearing from my community that the costs of implementing reforms such as COAG Water Reform, RFA, and Vegetation Management are too high for them to bear. They are deeply suspicious of the recently announced National Salinity and Water Quality initiative. We need to research the social and economic impacts of these reforms on landholders and the businesses in rural towns. We also need to establish face-to-face forums or dialogue in these communities between the communities and the policy makers in Brisbane and Canberra so that they can be exposed to the 'real' impacts of these reforms on the resource managers.
>
> We also need to research what social and economic support mechanisms are essential to achieve the necessary behavioural changes of land managers. Others often jump to the conclusion that these people are just after compensation for implementing natural resource management reforms. Rather, they need a range of support mechanisms that are currently not being contemplated.

The issues raised by this and other speakers fall mainly within clusters 1 and 5, that is, understanding communities as a basis for delivery and addressing the social impacts of resource use and change.

Some informal discussions with regional staff highlight the current interest in developing natural resource management at the community level through the concept of social capital. A number of regional staff approach the development of sustainable natural resource management through first focusing on building up social capital to ensure a platform of capacity exists: that is, sustainable environments and sustainable communities are linked.

Social capital indicates the capacity of a community to manage natural resources effectively; as discussed earlier, it includes confidence, esteem, trust, and belief in making a difference, as well as community cohesion and empowerment.

Other perspectives communicated on the social dimensions of natural resource management link values and natural resource management. In such perspectives, the focus is on change – on changing values, or bringing about attitudinal change through raising awareness of environmental values. It should be noted that theoretical work is continually being undertaken on the relationship between attitudinal and behavioural change and that the two are not necessarily linked.

6.4 Other consultation processes

Consultations with steering committee members, natural resource management practitioners and managerial staff in the partner institutions on an early draft of the paper generated a number of points to support these identified issues: They include:

- Consider alternatives to calling on the goodwill of communities and over-utilising them – find new business directions and other creative means of addressing natural resource management problems. Bring together issues such as farm forestry, biodiversity and salinity to achieve long-term conservation outcomes.
- Related to the first point – consider as a question the optimum areas for community involvement (for communities as well as agencies).
- There is enough research into why people do or do not become involved; the major question is how to get decision-makers to take on the theory (and other information) from social science studies.
- Other agencies (such as the Department of Families) have useful information from studies and their own initiatives that should be coordinated into a natural resource management focus.

- Develop a mechanism for canvassing whole departments on social issues, for example, get key managers together, ask them what (social) questions they would like answers to. What would their preferred list of projects be?
- The next stage should focus on canvassing stakeholders of the six institutions for a wish list of projects that can be prioritised.
- Less focus is needed on awareness raising – it promotes guilt if people are aware, but don't change their behaviour (lack of behavioural change may be for contextual reasons – for example, performance indicators for land managers may be in contradiction with soil conservation activities, so agency programs become reactive).
- Social impacts need to be couched not only in economic terms, but also in social terms, for example, what will be the effects on a community (eg cohesiveness of the community) as the result of an action (eg policy implementation).

Some suggested questions for research

- What are the social impacts of sustainable versus non-sustainable production?
- What are the implications of decisions, and of ignoring recommendations?
- How do we get decision-makers to take on the theory (and other information) from social science studies?
- What are the optimum areas for community involvement (for communities as well as agencies)? (Avoid over-utilising community goodwill, and seek creative solutions to natural resource management problems – consider how community is best involved in this framework).
- What projects would be priorities for various stakeholders/agencies?

Comment

A common element arising out of both formal and informal discussions was the agreement that social and community dimensions are critical to the achievement of ecologically sustainable development and are in need of immediate commitment of research resources.

7.0 A framework for social and community issues in natural resource management

7.1 The social and community 6-pack

The social and community issues identified through the participatory processes described in Section 6 were clustered under six broad categories referred to as "the social and community 6–pack". These are shown in Figure 2 and described in more detail below. It is important to note that the clusters are not separate – they are linked and overlap, yet are identifiable themes.

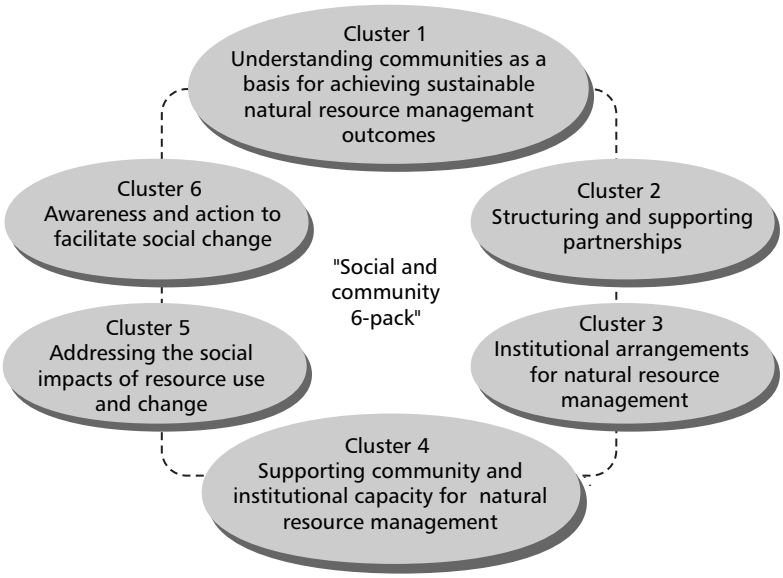

Figure 2: The "social and community 6–pack" clusters of identified issues

7.1.1 Elements identified within clusters

Examples of elements identified within the clusters of the 6–pack include:

Cluster 1: Understanding communities as a basis for achieving sustainable natural resource management outcomes

- Targeting interventions:
  - to fit individual or community's capacity to change
  - to include marginal members and those not in or not interested in groups
- Developing social scans (eg social indicators/demographics/community profiles)
- Understanding the social psychology of attitudes and behaviour
- Understanding the personality and values of resource managers and populations we are working with, and how they learn and make decisions

- Understanding/identification of regions and regionalism and impact on partnerships:
  - Social versus biophysical
  - Scale
  - Community identity
  - Strategy/plan development and credibility
  - Urban/rural divide
- Examining impact of market driven processes:
  - Implications of agribusiness arrangements
  - Contract farming
  - Landowner issues such as vegetation management and organic accreditation

Cluster 2: Structuring and supporting partnerships

- Processes for sustainable stakeholder negotiations and collaborations
- Processes for making mechanisms relevant through community dialogue
- Lack of mechanisms for establishing community objectives for natural resource management
- 2-way communication processes and methods, including sub-issues of:
  - Sharing information
  - Rural and urban differences and similarities
- Effective communication between researchers, community and policy makers
- Facilitate the process of transforming information into useful knowledge
- More understanding of collaborative processes involving all participants in natural resource management activities, eg:
  - Nature of process
  - Ways to measure outcomes
  - Individual, group and agency responsibilities
- Effective and collaborative participation in institutional and community decision-making
- Negotiating rights and responsibilities of participants in natural resource management collaboration
- Valuation of ecosystem services and social capital
- Managing the urban/rural interface

Cluster 3: Institutional arrangements for natural resource management

- Appropriate governance structures and mechanisms in relation to social management of natural resources, including mechanisms for professional development of institutional officers in engaging with the community and resource managers

- Research into institutional arrangements that support natural resource management 'on the ground'

Cluster 4: Supporting community and institutional capacity for natural resource management

- Community capacity – for fair, competent and informed natural resource management/ stewardship. This includes social justice issues such as:
  - Equality of access to resources for participatory decision-making
  - Representation processes and capacity in partnership
  - Involvement of women, indigenous, non-English speaking groups
  - Group process diversity
  - Cultural shift in responsibility for natural resource management
- Institutional capacity – of administrators to engage with the community and land managers

Cluster 5: Addressing the social impacts of resource use and change

- Dealing with social impacts of resource change
- Structural adjustments required for decisions to be made on the social as well as economic context (social value in long- and short-term just as important as economic)
- Appropriate compensation for taking away rights to resources

Cluster 6: Awareness and action to facilitate social change

- Making the shift from awareness to changing behaviour – understanding the drivers for change
- How are groups motivated to take action and evaluate and change?
- Increasing consumer understanding of natural resource management implications
- Community education for a sustainable society

7.2 Clusters cross-matched against aspects of natural resource management definition

The clusters in the social and community 6–pack were cross-matched against important aspects of the relationship between humans and the environment described in Section 1.2 (that is, reciprocity, communication, integration, relevant knowledge). Correlation revealed that the 6–pack meets all aspects of the definition of natural resource management adopted here. The clusters relate as follows:

Reciprocity:	Cluster 5
Communication:	Clusters 2, 3, and 4
Integration:	Cluster 6
Relevant knowledge:	Cluster 1

These linkages are demonstrated diagrammatically in Figure 3.

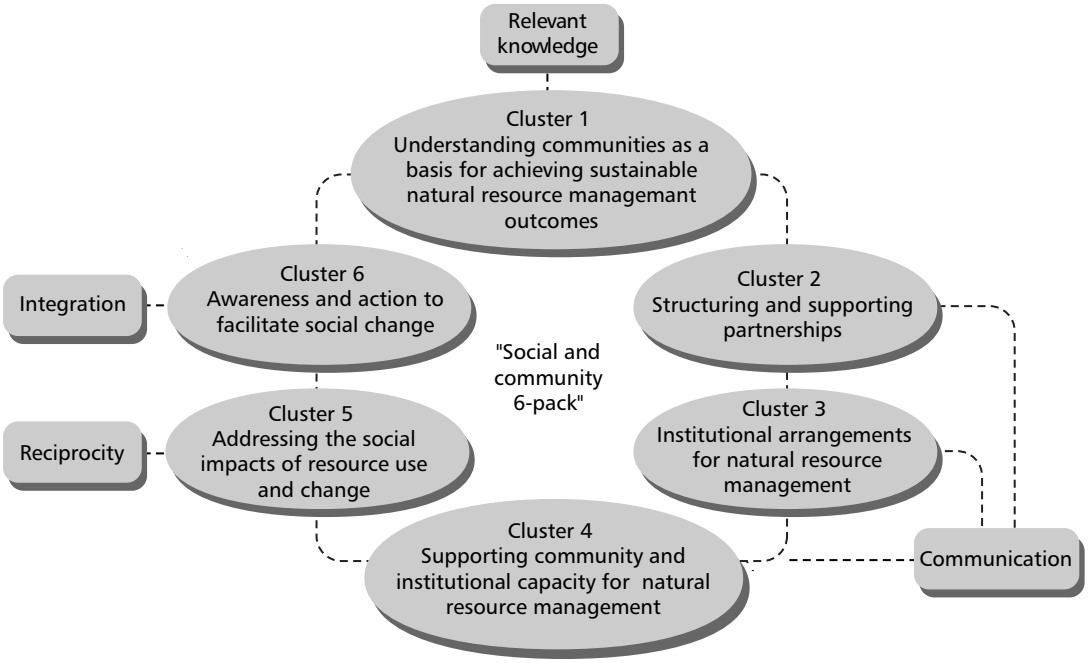

Figure 3: Elements of the human/environment relationship linked to the social and community 6–pack clusters

7.3 Clusters cross-matched against interests of major initiatives

The clusters in the social and community 6–pack were also cross-matched against the research interests of the three major initiatives analysed in Section 3: Land and Water Australia's SIRP program, the National Action Plan for Salinity and Water Quality, and the Landcare initiative. The aim was to identify common areas and differences, as well as to pinpoint areas in a broader context where further work is warranted.

7.3.1 Social and Institutional Research Program (SIRP)

The numbers of current projects funded under each of SIRP's four main objectives (see Section 3.1) are shown in Table 3. Details of the projects appear in Appendix 2.

Table 3: Number of current projects funded under each of SIRP's main objectives

Objective	No of projects
1. Knowledge base of social and institutional dimensions of natural resource management	7
2. Best practice research products and services that integrate biophysical, social and institutional dimensions and facilitate adoption	17
3. Critical mass in awareness of the social and institutional dimensions of natural resource management	0
4. Enhanced and demand-driven R&D capacity in the social and institutional dimensions of natural resource management	4

The weight of current research is clearly on best practice research products and services that integrate biophysical, social and institutional dimensions of natural resource management and facilitate adoption (objective 2).

A correlation of the social and community 6–pack clusters of issues against SIRP's objectives is shown in Table 4.

Table 4: Social and community 6-pack clusters correlated against SIRP objectives

SIRP objectives	*Social and community 6-pack clusters*
Objective 1: Knowledge base **Objective 2:** Best practice **Objective 4:** Enhanced capacity	**Cluster 3:** Institutional arrangements **Cluster 4:** Supporting community and institutional capacity
Objective 3: Critical mass in awareness	**Cluster 6:** Awareness and action to facilitate social change

Despite some overlap, there is a significant degree of correlation between SIRP's objectives and CIRM clusters 3, 4 and 6. On the other hand, clusters 1 (understanding communities), 2 (structuring and supporting partnerships) and 5 (social impacts of resource use and change) receive less emphasis. These clusters have less focus on the institutional base and more on the implementation aspects of natural resource management.

7.3.2 National Action Plan for Salinity and Water Quality

No framing device for developing issues should be prepared without consideration of such a major initiative as the National Action Plan for Salinity and Water Quality (NAP). The NAP heralds a new era in Australian natural resource research and management, with its clear goal being "to motivate and enable regional communities" to use coordinated and targeted action to ameliorate the salinity and water quality problems facing the nation. This emphasis on new and enhanced regional community roles makes the need for sound social research even more critical.

The NAP acknowledges the need to support community capacity if the plan's outcomes are to be achieved:

> Capturing the necessary knowledge, developing community capacity and ensuring adequate financial resources to use the knowledge and technologies underpin this Action Plan. Capacity building in communities requires:
>
> - **reorienting the facilitator and coordinator support network** to support integrated catchment/regional management planning and implementation
> - **developing management and technical skills of land managers and other stakeholders** to ensure wider adoption of sustainable land and water use and to enhance the capacity of communities to prepare, evaluate and monitor the progress of integrated catchment/regional management plans
> - **extending information to communities** so that they can effectively develop and implement their plans
> - **developing** (where they do not exist) **appropriate catchment/regional delivery bodies/arrangements** to implement the plans.
>
> (<www.affa.gov.au/docs/nrm/actionplan/index.html>)

It is apparent that a number of points in the Action Plan meet with the clusters of issues identified in this paper. It is also apparent that a number of important issues are not addressed, and these are primarily in the field of social context of activity, arrangements and decisions. Within the NAP these are significant areas to be addressed by social and community issues research. In common with the SIRP initiative, there is less emphasis on clusters of issues 1 and 5, that is, understanding communities as a basis for delivery and addressing the social impacts of resource use and change.

7.3.3 The Landcare initiative

The findings of a survey on the Landcare movement conducted by Nelson and Mues (1993) on behalf of the Australian Bureau of Agriculture and Resource Economics suggest Landcare functions as a conduit for disseminating extension advice and financial assistance for projects that aim to redress land degradation problems. In this way it is seen as improving the flow of information and government funds and enabling farmers to collectively address common land degradation problems.

In 1995 – beyond the middle of the 'Decade of Landcare' – Hinchcliffe et al. (1995) comment that Landcare is one of the most significant social movements in rural Australia, and that collective action has enabled the construction of fencing, drains and banks to protect remnant vegetation and control run-off and waterlogging, with substantial revegetation of degraded lands. As a counter to this, they observe:

> However the studies also showed that family farmers felt there was a danger of government seeing 'participation' as an opportunity to hand the responsibility for complex, conflict-ridden and costly problems to local people without adequate resources to make a significant difference. This 'responsibility without resources' dressed up and sold as empowerment is a trap they wish to avoid.
>
> (Hinchcliffe et al. 1995, p 10)

Current approaches to community-based programs consider the mixes of government, industry, private and community responsibility and the resources needed to achieve sustainable stewardship. They also take into account the capacity of communities to share responsibility for natural resource management, and the possibilities for building community capacity. This is compounded by the extent of degradation that has occurred, and the scale of resources needed to address degradation or achieve conditions for sustainability.

In 2000, the International Landcare Conference identified major challenges for research and activities as being partnerships, communication, social capital and the changing demographics at the local and regional level. These issues correlate most strongly with social and community 6–pack clusters 1, 2 and 4.

7.3.4 Summary of findings relating to comparison with major initiatives

Table 5 and Figure 4 demonstrate the aggregated findings from a comparison of the social and community 6–pack clusters with the research directions of SIRP, NAP and Landcare.

From this analysis, it appears that cluster 4 (supporting community and institutional capacity) is the subject of research focus across all three major initiatives analysed, with clusters 2, 3 and 6

Table 5: Social and community 6-pack clusters correlated against research directions of major initiatives

Initiative	*6-Pack clusters addressed*
Land and Water Australia's SIRP program	3, 4, 6
National Action Plan for Salinity and Water Quality	2, 3, 4, 6
Landcare	1, 2, 4

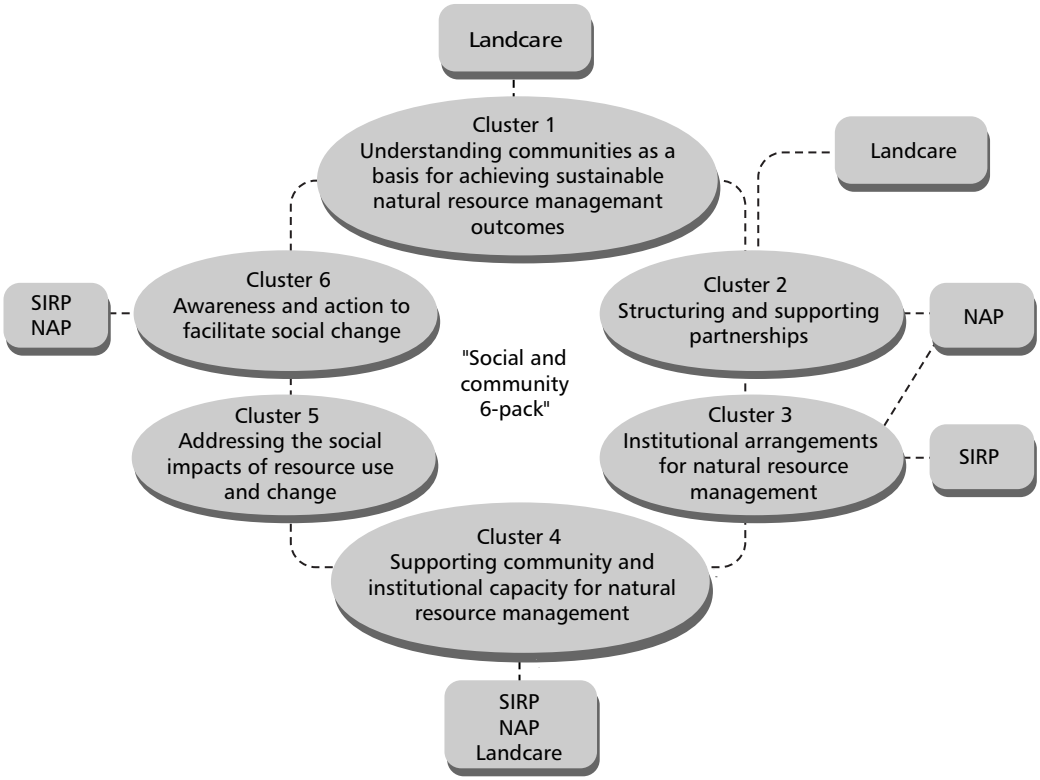

Figure 4: Research focus of social and community 6–pack against those of selected major initiatives

being addressed in two of the three initiatives, cluster 1 in only one initiative (Landcare) and cluster 5 (addressing the social impacts of resource use and change) receiving little research focus.

7.4 Discussion on key issues, concepts and research directions

Themes running throughout the issues identified across scale include:

- Enhancing knowledge of the social context, particularly of communities that will have greater responsibility for developing catchment level plans and implementing them, both to support and ensure principles of equity are upheld
- Developing partnerships and workable arrangements for managing natural resources sustainably
- Considering what changes institutions can make to their own functions to enable better community-based natural resource management.

In identifying key issues for research, it is noted that while work has been done on important aspects of social and institutional context, those studies in the main deliver refined concepts and essential information to apply to specific resource management questions, rather than ready answers to such questions.

For that reason, the existing body of work can be used as the nucleus of further implementation-based research – studies which take the findings and apply them in a variety of natural resource management contexts. In addition, the essential concepts will need to be modified over time to maintain their relevance.

Another recurring theme is the concept of social capital, discussed in Section 2.2, which featured significantly in almost all regional consultations for this paper. The differing interpretations and uses of the concept, however, related to the differing bodies of social science theory as well as to the situational perspectives of researchers and other commentators, mean that work on social capital may not be definitive across all natural resource management issues, but may be specific to particular topics or geographical locations.

Other studies such as social impact assessments are similarly applicable to specific areas and topics. Consequently, studies may need to be repeated for different areas and questions, building on prior work in other contexts.

The CIRM social and community 6–pack encompasses the conceptual themes discussed above and supplements them with practical, application-based research areas. In this way the 6–pack provides a complete framework for addressing the social and community dimensions of natural resource management through carefully targeted research across a range of scenarios.

8.0 Conclusions and recommendations

8.1 Conclusions

The concentration on developing new arrangements for natural resource management, both at national and regional levels, shows how difficult the problems have become. At the same time, rapid changes in programs can have the unwanted consequence of deadening community capacity to participate in new initiatives. The major issues identified in this paper reflect the need to review and consolidate approaches.

Issues have been identified through a number of participatory forums and consultations, and by referring to reviews undertaken for research and development bodies. The brief selection of reviews and overviews from the literature provides a range of natural resource management contexts – some reviews are focused on developing national programs, other overviews are focused on a specific arena such as rangelands, or on a particular level of activity, such as community-based natural resource management at the local level.

The issues therefore present at different levels, some general, some focused on particulars; yet there are identifiable commonalities throughout. These have been analysed and arranged within a framework referred to as the CIRM 'social and community 6–pack', with clusters of issues as follows:

Cluster 1: Understanding communities as a basis for achieving sustainable natural resource management outcomes

Cluster 2: Structuring and supporting partnerships

Cluster 3: Institutional arrangements for natural resource management

Cluster 4: Supporting community and institutional capacity for natural resource management

Cluster 5: Addressing the social impacts of resource use and change

Cluster 6: Awareness and action to facilitate social change

There are considerable resources and expertise to be found both within CIRM partner organisations and beyond. A number of State Government departments have a strong focus on social and community issues of some relevance to natural resource management issues. It is obvious that a coordinated, whole-of-government approach would develop synergies, mobilise the individual departments' resources and strengthen strategies for fully integrated natural resource management.

It has been noted that while a good deal of work has been done on refining concepts that can be applied to the 'social contextualisation' of sustainable natural resource management, there has been limited research into the application of those concepts.

Research and other activity in the social and community dimension of natural resource management is considered important because such knowledge is essential:

- for successful implementation of natural resource management initiatives (indeed, the success or failure of initiatives may well depend on whether the social context is adequately understood and addressed)
- for involving and supporting communities in natural resource management decision making, strategy development, activity and implementation of plans
- to ensure that development of policy, legislation and institutional structures to support natural resource management takes place with a knowledge of the social context
- as a basis for structuring partnerships to address natural resource management issues
- to ensure that "the triple bottom line" is being addressed.

8.2 Critical considerations for CIRM partners

The findings of this study resulted in four recommendations being submitted to the CIRM Board by the project's Steering Committee (see Section 8.3 which follows). A number of critical factors, derived from extensive participatory forums and consultations, support the final recommendations and demonstrate strong agreement on the following points.

8.2.1 The importance of regional integration

Reflected in the need to:

- ensure that the identified priority social and community issues reflect and address issues or themes from the regional focus group outcomes
- ensure that research consequent from this process doesn't just stay in south-east Queensland, and that the capacity of regional research institutions is improved to deliver this sort of research
- recognise that the research topics identified by the central workshop go across a number of issues relevant for the regional focus groups

8.2.2 The importance of collaboration and integration

Reflected in the need:

- to ensure that there is a strongly multidisciplinary, collaborative and holistic approach to addressing the identified priority issues through research. This would include:
  - utilising the existing CIRM network
  - involving non-CIRM researchers
  - involving biophysical, social and economic researchers
  - recognising and supporting links between CIRM partners and their specialisations (perhaps supported by a skills inventory database)
  - review of existing and proposed collaborative research models (eg FIRDEA model, Central Queensland, contact Pat Lyons NR&M; APSRU model, South-west Queensland, contact John Mullins, NR&M; informal CRC model, contact Roger Shaw, Coastal CRC)

- for more interaction with the full spectrum of participants representing all three elements of the triple bottom line
- to recognise inter-linking of clusters.

8.2.3 The importance of sequence

Reflected in the need to:

- give consideration to 'sequencing' (ie what must be addressed first):
  - between priorities
  - of subsets within priorities
- establish research programs that consider the timing of work needed, including scope for sequential and parallel activities
- look at research programs (ie suites of research activities) rather than individual projects, and recognise that some activities will be in sequence, some in parallel.

8.2.4 The importance of linking with larger initiatives and policy

Reflected in the need:

- for CIRM partners to develop a research package that can support the priority issues while linking with vehicles such as the National Action Plan for Salinity and Water Quality and with complementary initiatives such as the proposed Sustainable Bioregions program
- to demonstrate links between identified priority issues and research directions, and various organisational and agency policy goals for social agendas in natural resource management
- to demonstrate the benefits of proposed research priority outcomes to achieving policy targets
- to develop a framework from which research learnings can inform, influence and feed into the policy development of CIRM partners and beyond.

8.3 CIRM Steering Committee recommendations

The following recommendations were endorsed by the CIRM Board in June 2001.

1. That CIRM as a consortium of partners should play a continuing strategic leadership role in identifying gaps and opportunities and ensuring full integration of social considerations in natural resource management research, through:
   - an ongoing secretariat/facilitative resource, eg project brokerage and partner representation
   - CIRM partners having access to relevant social and community expertise
   - involvement of other agencies and institutions as appropriate
   - establishment of an agreed working group to implement the recommendations.
2. That CIRM partners present a collective Queensland position on the future social research agenda to key R&D funding bodies, eg Land and Water Australia, Rural Industries Research and Development Corporation, Murray–Darling Basin Commission, other research and development corporations and relevant federal agencies including Agriculture, Fisheries and Forestry Australia, and Transport and Regional Services.
3. That CIRM partners pursue a program of social research as a key initiative to underpin the implementation of the National Action Plan for Salinity and Water Quality and funded through the Queensland Government Service Enhancement Proposal [now Strategic Investment Proposal].
4. That the CIRM partners, through the working group, establish a framework for a three-year social research agenda based on the 'social and community 6–pack' clusters. The intended outcome is the development, by CIRM partners, of six collaborative projects.

In considering what action to recommend as a follow-up to the identification of issues and the development of recommendations, the central workshop also requested that the CIRM Board continue to support the CIRM Social and Community Research and Review Steering Committee in its efforts to translate the findings of this study into deliverable research and policy outcomes.

The possibility of generating research activity in areas with a specialist focus suggests that a number of reference groups could be attached to the proposed working group as required.

8.4 Planned future directions

A working group with representation from all six CIRM partners has begun implementation of the above recommendations. Their activities will operate at two levels:

(i) raising the level of awareness that CIRM is looking at a holistic approach to social and community science and linking this with biophysical science

(ii) establishing priorities for social and community research and identifying the most opportune prospects.

Future actions include:

- collaborative applications to research funding bodies
- involving and engaging interested colleagues both within and external to CIRM partner organisations in a range of collaborative and information-sharing activities
- re-examining priorities and utilising input from NAP sectoral groups to help determine how to use available funding to best effect in progressing the 6–pack
- establishing links and exploring collaborations with major established initiatives, including Land and Water Australia and the Rural Industries Research and Development Corporation, and new initiatives such as the National Action Plan, Sustainable Regions and the successor to the Natural Heritage Trust initiative.

Bibliography

The position paper is not primarily a literature review, so it does not cover all the available literature on the topic. Along with references from the paper, some useful material on social and community issues in natural resource management is also included here:

Agrawal, A. & Gibson, C.C. 1999, 'Enchantment and disenchantment: The role of community in natural resource conservation', *World Development*, 27(4): 629-649.

Baker, R. 1999, *Land is Life: From Bush to Town*, Allen & Unwin, Sydney.

Baker, R., Davies, J. & Young, E. (eds) 2001, *Working on Country: Contemporary Indigenous Management of Australia's Land and Coastal Regions*, Oxford University Press, London.

Bellamy, J. & Johnson, A. 2000, 'Integrated resource management: moving from rhetoric to practice in Australian agriculture', *Environmental Management*, 25(3): 265-80.

Bellamy, J.A. & Robinson, J.R. 2000, 'Breaking down the fences: engaging stakeholders in integrated catchment management', in *Management for Sustainable Ecosystems*, eds P. Hale, A. Petrie, D. Molony, & P. Satler, Centre for Conservation Biology, University of Queensland, Brisbane.

Berkes, F. 1999, *Sacred Ecology: Traditional Ecological Knowledge and Resource Management*, Taylor & Francis, Philadelphia, PA.

Berkes, F., Folke, C. & Colding, J. 1998, *Linking Social and Ecological Systems: Management Practices and Social Mechanisms for Building Resistance*, Cambridge University Press, Cambridge.

Black, A, Duff, J., Saggers, S. & Baines, P. 1999, Rural communities and rural social issues: priorities for research, draft discussion paper for RIRDC project, Centre for Social Research, Edith Cowan University, Perth.

Borrini-Feyerabend, G., Farvar, M.T., Nguinguiri, J.C. & Ndangang, V.A. 2000, *Co-management of Natural Resources: Organising, Negotiating and Learning-by-doing*, GTZ and IUCN, Kasparek Verlag, Heidelberg, Germany.

Bouman, O.T. & Brand, D.G. (eds) 1997, *Sustainable Forests: Global Challenges and Local Solutions*, Haworth Press, London.

Bourdieu, P. 1985, 'The forms of capital', in *Handbook of Theory and Research for the Sociology of Education*, ed. J.G Richardson, Greenwood Press, Connecticut.

Buchy, M. & Hoverman, S. 1999, *Understanding public participation in forest planning in Australia: how can we learn from each other?*, Australian National University Forestry Occasional Paper 99.2.

Burch, D. & Rickson, R.E. 2001, 'Industrialised agriculture: agribusiness, input-dependency and vertical integration', in *Rurality Bites: The Changes Sweeping Rural Australia and Dividing the Nation*, (eds) Stuart Lockie and Lisa Bourke, Sydney, Pluto Press.

Burch, D., Lawrence G., Goss, J. & Rickson R.E. (eds) 1999, 'Antipodean visions: the dynamics of contemporary agri-food restructuring in Australia and New Zealand', special edition of *Rural Sociology*, 63: 179-350.

Busenberg, G.J. 2000, 'Resources, political support and citizen participation in environmental policy: a reexamination of conventional wisdom', *Society and Natural Resources*, 13(6): 579-587.

Cary, J.W. & Webb, T. 2000, *Community Landcare, the National Landcare Program, and the Landcare Movement: The Social Dimensions of Landcare*. Bureau of Rural Sciences, Canberra.

Cavaye, J. 2000, *The Role of Government in Community Capacity Building*, Department of Primary Industries, Brisbane.

Cavaye, J. 2001, *Rural community development – new challenges and enduring dilemmmas,* Shaffer Symposium, Madison, Wisconsin, USA, March 30 2001.

Cavaye, J. n.d., *Social capital – the concept, the context*, available by personal request to Dr Jim Cavaye, Principal Rural Development Officer, Department of Primary Industries, PO Box 6014, Rockhampton, Qld, 4702.

Claridge, C. 1998, Social science research and development in integrated resource management workshop: feedback report March 1998*,* Centre for Integrated Resource Management, Brisbane.

Claridge, C. 1998, R&D interests and opportunities – collaboration in the social and economic disciplines to address sustainable resource use and environmental management issues: Feedback report November 1998, Centre for Integrated Resource Management, Brisbane.

Claridge, G. & Claridge, C.L. 1997, Australia's oceans policy: socio-cultural considerations. Issues Paper 5, Department of the Environment, Canberra.

Coakes, S. 1999, Commentary on Social R&D paper, in *Social, Economic, Legal, Policy and Institutional R&D for Natural Resource Management: Issues and Directions for LWRRDC*, eds C. Mobbs & S. Dovers, Occasional Paper No. 01/99, Land and Water Resources Research and Development Corporation, Canberra.

Coleman, J. 1988, 'Social capital in the creation of human capital', *American Journal of Sociology* (supplement), 94: 95-120.

Cortner, H.J., Shannon, M.A., Wallace, M.G., Burke, S. & Moote, M.A. 1996, Institutional barriers and incentives for ecosystem management: a problem analysis, General Technical Report PNW-GTR-354, US Department of Agriculture Forest Service, Pacific Northwest Research Station, Portland, Oregon.

Coughenour, C.M. 1993, 'Using local-level knowledge to improve agriculture and resource management', *Proceedings of the workshop on Social Science Research and the CRSPs, June 9-11, 1992, Carnahan Conference Centre, University of Kentucky, Lexington*, Kentucky, Intersormil, Lincoln, USA.

Curtis, A.L. 1997, 'Landcare, stewardship, and biodiversity conservation', in *Natural and Altered Landscapes: The rural perspective*, Elsevier Science Ltd, Oxford, UK.

Dale, A. & Bellamy, J. (eds) 1998*,* Regional resource use planning in rangelands: an Australian review, Occasional Paper 06/98, Land and Water Resources Research and Development Corporation, Canberra.

Dale, A., Bellamy, J. & Bischof, R. 1998, 'Regional resource use planning: towards a new paradigm in Queensland's Central Highlands', *Central Queensland Journal of Regional Development,* 5:4: 2-14.

Dale, A. & Lane, M. 1994, 'Strategic perspectives analysis: a procedure for participatory and political SIA', *Society and Natural Resources,* 7(3): 253-267.

Department of Natural Resources 2000, Strengthening community-based natural resource management in Queensland*,* report prepared by Community Program Development, Department of Natural Resources, Brisbane.

Dore, J. & Woodhill, J. 1999, Sustainable regional development, final report prepared for Greening Australia, February 1999, Canberra.

Dovers, S. & Roughley, A. 1999, Development of a prospectus for a research and development program on social and institutional arrangements in natural resource management, report to the Land and Water Resources Research and Development Corporation, Centre for Resource and Environment Studies, Australian National University, Canberra.

Dwyer, C. & Gowland, K. 2001, Environmental action through community monitoring: facilitating social change, paper presented to the National Environmental Education Conference 'The Future is here?,' Kamiaru, Melbourne.

Environment Australia 2000, *Waterwatch Australia – Environmental Action Through Community Monitoring*, Wetlands Unit, Environment Australia, Canberra.

Environment Australia 2001, The National Action Plan for Salinity and Water Quality, http://www.affa.gov.au/docs/nrm/actionplan/index.html.

Ewart, A.W. 1996, *Natural Resource Management: The Human Dimension*, Westview Press, Boulder, Colorado.

Ewing, S., Grayson, R.B. & Argent, R.M. 2000, 'Science, citizens and catchments: decision support for catchment planning in Australia', *Society and Natural Resources*, 14: 443-459.

Furze, B., De Lacy, T. & Birckhead, J. 1996, *Culture, Conservation and Biodiversity: The Social Dimensions of Linking Local Level Development and Conservation Through Protected Areas*, John Wiley & Sons, West Sussex.

Gardiner, J. (ed.) 2001, 'A bold approach to strengthen Queensland Government's connection with community', in *Sectorwide*, May 2001, Department of Premier and Cabinet, Queensland Government.

Gray, I. 1992, 'Power relations in rural communities: implications for environmental management', in *Agriculture, Environment and Society*, (eds) G. Lawrence, F. Vanclay & B. Furze, MacMillan Publishing, Melbourne.

Greider, T. & Garkovich, L. 1994, 'Landscapes: the social construction of nature and the environment', *Rural Sociology*, 59(1): 1-24.

Haila, Y. & Levins, R. 1992, *Ecology, Science and Society*. Pluto Press, London.

Harris, S. 1998, 'The environment', in *Challenges for the Social Sciences in Australia*, (ed.) Academy of the Social Sciences in Australia, Vol 2: 31-57, Academy of the Social Sciences, Canberra.

Hinchcliffe, F., Guijt, I., Pretty, J.N. & Shah, P. 1995, *The New Horizons Project: Participatory Watershed Development,* Gatekeeper Series, IIED.

Hollick, M. 1992, 'Why won't they do it? Problems of implementing integrated catchment management at the farm level', *Proceedings of the Fifth Annual Soil Conservation Conference, 1990*, Integrated Catchment Management Workshop, Adelaide, South Australia, 51-55.

Irwin, A. 1999, *Citizen Science*, Oxford University Press, Oxford.

Kellert, S.R., Mehta, J.N., Ebbin, S.A. & Lichtenfeld, L.L. 2000, 'Community natural resource management: promise, rhetoric, and reality', *Society and Natural Resources*, 13: 705-715.

Lawrence, G. 1998, 'Exploring holistic approaches to resource management and community empowerment: outline of activities 1999-2003', *Strategic Plan*, Institute for Sustainable Regional Development, Central Queensland University, Rockhampton.

Lime, D.W. 1996, 'Human dimensions and values in natural area management', *Natural Areas Journal,* 16(2): 87-88.

Lockie, S., Coakes, S. & Fenton, M. 1999, 'Capacity for change in the Fitzroy Basin: integrating the social in natural resource monitoring and planning', paper presented to 'Country Matters', Theme four workshop, Social Sciences for Sustainable Land and Water Management, Canberra, May.

Lubchenco, J. 1995, 'The relevance of ecology: the societal context and disciplinary implications of linkages across levels of ecological organisation', in *Linking Species and Ecosystems*, (eds) C.G. Jones & J.H. Lawton, Chapman & Hall, New York.

Lugg, A. 1997, 'Social impacts of a forest policy on a dependent rural community: bombshell or blessing?', *Australian Forestry*, 61 (3): 173-184.

McDonald, G.T., Bellamy, J.A., McDonald, K.J. & MacLeod, S. n.d., 'ICM in Queensland 1990-1999: an anthology', publication based on data and documentation provided with the permission of the Department of Natural Resources, Queensland [online], http://irum.tag.csiro.au/icm/publications.htm#chapters.

Miller, M.L., Gale, R.P. & Brown, P.J. (eds) 1987, 'Natural resource management systems', in *Social Science in Natural Resource Management Systems*, (eds) M.L. Miller, R.P. Gale & P.J. Brown, Westview Press, Boulder, Colorado.

Mobbs, C. & Dovers, S. (eds) 1999, Social, economic, legal, policy and institutional R&D for natural resource management: issues and directions for LWRRDC, Occasional Paper No. 01/99, Land and Water Resources Research and Development Corporation, Canberra.

Moock, J.L. & Rhoades, R.E. (eds) 1992, *Diversity, Farmer Knowledge and Sustainability*. Cornell University Press, Ithaca and London.

Morton, S. 2000, Address to the forum: "Celebrating 10 years" – LWRRDC to Land and Water Australia, Natural Resource Management Workshop, 29 November 2000.

Nelson, R. & Mues, C. 1993, Supplementary survey of landcare and drought management practices, report prepared by Land and Forestry Economics Section, ABARE, Canberra.

Panshin, D. 1992, 'Overcoming rural-urban polarization', *Journal of Extension*, Summer 1992, Volume 30 Number 2, http://www.joe.org/joe/1992summer/tp1.html.

Patterson, M.E. & Williams, D.R. 1998, 'Paradigms and problems: the practice of social science in natural resource management', *Society and Natural Resources*, 11: 279-295.

Pope, J. 2001, Social capital and social capital indicators, Public Health Information Unit, University of Adelaide, http://www.dhs.vic.gov.au/nphp/socap/index.htm.

Portes, A. 1998, 'Social capital: its origins and applications in modern sociology', *Annual Review of Sociology*, 24: 1-24.

Reeves, G., Fisher, M. & Barr, N. 1999, National Land and Water Resources Audit Theme 6 – Capacity of and opportunities for natural resource managers to implement change, Centre for International Economics, Canberra.

Regional Australia Summit 1999, www.dot.gov.au/regional/summit/index.htm.

Rickson, R., Hundloe, T. & Western, J. 1990, Impact assessment in conflict situations: world heritage listing of Queensland's northern tropical rainforests, *Impact Assessment Bulletin* 8(1/2): 185-193.

Rickson, R.E., Saffigna, P. & Sanders, R. 1999, 'Farm work satisfaction and acceptance of sustainability goals by Australian organic and conventional farmers', Antipodean visions: the dynamics of contemporary agri-food restructuring in Australia and New Zealand, *Rural Sociology*, 64(2): 266-283.

RIRDC 1998, *Program Prospectus 1999-2000: Shaping the Future*, Rural Industries Research and Development Corporation, Canberra.

RIRDC 2001, *Innovating and Developing Human Capacity In Rural Industries, A Cooperative Venture: Prospectus For Investors*, contact Dr Roslyn Prinsley, General Manager, RIRDC.

Roling, N. 1997, 'The soft side of land: socio-economic sustainability of land use systems', *ITC Journal*, 1997: 3-4.

Ross, H. 1999, 'Social R&D for sustainable natural resource management in rural Australia: issues for LWRRDC', in Social, economic, legal, policy and institutional R&D for natural resource management: issues and directions for LWRRDC, (eds) C. Mobbs & S. Dovers, Occasional Paper No. 01/99, Land and Water Resources Research and Development Corporation, Canberra.

Scarce, R. 1999, 'Who – or what – is in control here?', *Society and Natural Resources*, 12: 763-776.

Schwarz, M. & Thompson, M. 1990, *Divided We Stand: Redefining Politics, Technology and Social Choice*. Harvester, Wheatsheaf, London.

Scoones, I. & Thompson, J. (eds) 1994, *Beyond Farmer First*. Intermediate Technology Publications, London.

Shaw, R. & Yule, D. 1996, 'A proposal for management of science in DNR', report based on the outcomes of the research, development and extension workshop, February 1996, Centre for Integrated Resource Management, Brisbane.

Shrapnel, M. & Davie, J. 2000, 'The influence of personality in determining farmer responsiveness to risk', *Proceedings of International Workshop on Farm Management Decisions with Climatic Risk, 17-19 April 2000,* DPI, Toowoomba.

Social and Institutional Research Program, n.d., Land and Water Australia, Program Plan, http://www.sirp.gov.au/.

Solecki, W.D. 1998, 'Local attitudes on regional ecosystem management: a study of New Jersey pinelands residents', *Society and Natural Resources*, 11: 441-463.

State of the Environment Advisory Council 1996, *State of the Environment Australia,* CSIRO, Canberra.

Steins, N.A. & Edwards, V.M. 1999, 'Collective action in common-pool resource management: the contribution of a social constructivist perspective to existing theory', *Society and Natural Resources*, 12: 539-557.

Stocker, J. 1997, Priority matters: a report to the Minister for Science and Technology on arrangements for Commonwealth science and technology by the Chief Scientist, Australian Government Printing Service, Canberra.

Taylor, B., Lockie, S., Dale A, Bischof, R., Lawrence, G., Fenton, M. & Coakes, S. 2000, Capacity of farmers and other land managers to implement change, Technical Report, Theme 6 Fitzroy Implementation Project, National Land and Water Resources Audit, Canberra.

UN Commission on Sustainable Development 2000, Report on the outcomes of the International Landcare 2000 Conference: "Changing landscapes – changing futures", Melbourne, 3–5 March2000, Report to the UNCSD by the Australian Government, http://www.affa.gov.au/corporate_docs/publications/rtf/nrm/landcare/csdreport.rtf.

van der Ploeg, J.D. 1993, 'Rural sociology and the new agrarian question: a perspective from the Netherlands', *Sociologia Ruralis*, XXXIII(2), 240-260.

Weber, E.P. 2000, 'A new vanguard for the environment: grass-roots ecosystem management as a new environmental movement', *Society and Natural Resources*, 13:237-259.

Winklerprins, A.M.G.A. 1999, 'Local soil knowledge: a tool for sustainable land management', *Society and Natural Resources*, 12: 151-161.

Wynne, B.E. 1992, 'Uncertainty and environmental learning: reconceiving science and policy in the preventive paradigm', *Global Environmental Change*, 2: 137-154.

Zandstra, H. 1994, 'A case for setting common objectives for natural resource management', in *Opportunities, Use and Transfer of Systems Research Methods in Agriculture to Developing Countries,* (eds) P. Goldsworthy & F.W.T. Penning de Vries, Kluwer Academic Publishers, New York.

Appendix 1

Excerpt from Dovers and Roughley (1999) report to Land and Water Australia

Research themes most commonly identified by agencies (Dovers & Roughley, 1999)

The research themes most commonly identified in the agency survey as requiring research are discussed below in relation to the research currently being undertaken, the identified gaps, and in terms of potential project collaborators. The themes include public participation, methodologies and stakeholder skill assessment/development.

i) Public participation

While several agencies (including SRDC, CSIRO Tropical Agriculture, Dept Natural Resources and Environment Victoria, RIRDC, MDBC, Indigenous Land Corporation, Environment Australia, WWF, Qld Dept Natural Resources, and CSIRO Wildlife and Ecology) are conducting research aimed at increasing and/or improving specific forms of public participation (ie ICM) in natural resource management in particular contexts, none are involved in investigation that is likely to eventuate in broad development of knowledge about public participation per se; that is, development of a typology and evaluation of bases, potential and limitations of different types of public involvement. This theme is one that has been identified for research in LWRRDC's plan and will complement existing research.

The survey indicated that public participation was the most commonly occurring theme for identified research needs in the social and institutional aspects of NRM. In particular, agencies identified the following public participation information needs:

- ***CSIRO Tropical Agriculture:*** Ord-Bonaparte Project aimed at establishing inter-sectoral partnership arrangements.
- ***BRS:*** Assessment of institutional influences on community and farmer participation in sustainable land and water management initiative.
- ***MDBC:*** Establish current status of ICM with key stakeholders and external advisory group to test assumptions of ICM; Audit of available skills/training for catchment managers & development of education program for catchment rangers.
- ***WWF:*** Establish appropriate training and networks within relevant existing organisations to establish public participation as part of land use planning with indigenous communities.
- **Qld Dept Natural Resources**: Framework for Community & Agency engagement in NRM – an action-oriented process to develop efficient and effective stakeholder involvement; Community self-assessments to develop methodologies for assessing community readiness for increased NRM responsibility and to establish indicators for a range of capacity elements and strategies for achieving attitude change associated with increased community engagement.
- **Environment Conservation Council Victoria:** Improving involvement of local communities through the duration of lengthy (2 years+) government investigations.

Of these areas identified as requiring research, LWRRDC already has an interest in the project proposed by CSIRO Tropical Agriculture. Collaborative arrangements for research within the public participation theme are possible with BRS, MDBC, WWF (this is the only proposal to incorporate indigenous land use issues), Qld Dept of Natural Resources (although they appear to have established coherent State-based collaborative arrangements but proposals that may have national significance) and the Environment Conservation Council Victoria. The latter is particularly significant to the logic of LWRRDC's program.

ii) Methodologies

Three agencies identified NRM-related methodologies where additional understanding is deemed to be required. These include integrated regional management, risk management, environmental impact assessment of hazards and social impact assessment.

- ***CSIRO Tropical Agriculture:*** Integrated regional land-use and resource planning.
- ***Emergency Management Australia:*** Risk management methodologies for major risks; Environmental impact analysis of natural and technological hazards.
- ***Qld Dept Natural Resources:*** Identify & develop a standardised socio-economic methodology that can be applied to NRM planning/reform processes like WAMP in the Fitzroy Basin; Develop management options relating to the social and economic impacts on natural resource users and associated rural communities including financial, communication, measures, institutional arrangements; Social impacts of a number of NRM issues including use of recycled water in rural areas, forestry.

In relation to these methodologies requiring further research, LWRRDC already has an interest in a project being established with CSIRO Tropical Agriculture and others, and might consider the possibility of establishing collaborative arrangements with Qld Dept of Natural Resources. QDNR was the only agency encountered, other than LWRRDC, that has attempted to develop a coherent broader view of the social and institutional area. However, other potential partners in this research area are identified in the first Annual Research Plan proposed for the Program.

iii) Landholder skill assessment/development and attitude/values/perception assessment

Five agencies identified landholder skill assessment/development, and attitude/values/ perception assessment as areas requiring additional research:

- ***ACF:*** Audit of landholder knowledge and skills NRM processes and values - soils, water, hydrogeology, ecology, species diversity etc. This could form the basis of a marketing and education strategy; Market research on landholder information needs and how to achieve behavioural change.
- ***MDBC:*** Audit of available skills/training for catchment managers and subsequent development of MDBC education program for catchment rangers; Promoting transfer and adoption of strategic investigation and education product outcomes.
- ***BRS:*** Omnibus survey including attitudinal/perception items relevant to sustainable land and water management.
- ***Qld Dept Natural Resources:*** Community values of riverine systems; strategies for achieving attitude change associated with increased community engagement.
- ***Environment Conservation Council Victoria:*** Development of effective mechanisms to encourage businesses and communities to shift from declining to expanding industries.

The Social and Institutional Research Program Plan does not specifically incorporate landholder skill assessment/development, and attitude/values/perception assessment as a specific research theme. Therefore, proposals to LWRRDC for R&D funding on this theme, and the activities of other R&D funders, should be closely monitored throughout the first year of the project to evaluate the importance of this area of research and the relative value of research in this field compared to the themes identified in the Program Plan.

Appendix 2

Projects in Land and Water Australia's Social and Institutional Research Program

SIRP Projects under the four objectives

SIRP is making $2.3m available for new projects in this area from July 1999 to June 2004. The first projects began in late January 2000, although a number of projects funded under other programs have been identified as more suitably included in the SIRP program. These include continuing projects from the Integration and Adoption of R&D Results at the Catchment Scale, as well as relevant General Call projects.

1) A high quality knowledge base of the social and institutional dimensions of natural resource management

Australian experiences in natural resource management policy and institutions	1/4/99-31/12/00	Dr S Dovers, CRES, ANU
Social and institutional implications of landscape and land use change	1/4/00-31/12/03	Postgraduate
Lessons for Australia of international sustainable development institutions	31/1/01-31/1/02	Dr S Dovers, CRES, ANU
Drivers and constraints to adoption of sustainable NRM practices	17/11/00-31/5/01	Dr John Carey, BRS
Effective policy relationships in NRM	1/1/00-18/6/00	Capital Agriculture Pty Ltd
Decision points for land and water futures	1/7/98-31/12/01	Barney Foren and Michael Dunlop CSIRO
Evaluation of NRM policies and programs	1/1/00-18/6/00	Charlie Zammit, Geoff Cockfield USQ
Building the knowledge base of the social and institutional dimensions of NRM	1/1/00-18/6/00	Dr Julie Davidson and Dr Elaine Stratford U of Tas

2) Best practice research products and services that integrate biophysical, social and institutional dimensions of NRM and facilitate adoption

Use of Citizens juries in NRM decision making	1/1/99-30/6/00	Dr Russell Blamey, Research School of Social Science, ANU
Community participation in NRM (typography of participation)	1/1/00-18/6/00	Dr Marlene Buchy (Forestry) and Dr Helen Ross (CRES) ANU
Evaluation of NRM decision support and policytools and frameworks	1/1/00-18/6/00	Mike Young, Stefan Hajkowicz CSIRO
Evaluation of integrated catchment management	1/7/94-30/6/99	Jenny Bellamy CSIRO
An integrated catchment management software package	15/1/96-31/12/00	Young, Jakeman and Cuddy, CSIRO
The insight model for exporing land and water policy alternatives	1/11/98-30/11/00	Paul Walker & Russell Goddard, CSIRO
Assessment of ecosystem goods and services in the Goulburn Broken Catchment	1/11/99-15/6/02	Steven Cork, CSIRO
Assessing the effectiveness of whole catchment management	1/7/96-30/11/97	Dr Geoffrey Syme, CSIRO
The impact of new corporate structures and supplychain integration on NRM decision-making	1/2/97-31/1/01	Dr David Burch and Prof Roy Rickson Giffith University

Transferability of successful NRM institutions (Healthy Waterways case study)	18/1/01-31/12/01	Mary Maher Associates
Methodology for evaluating NRM law and regulation	1/1/00-18/1/00	Paul Martin and Miriam Verbeek, The Profit Foundation
Options for reform of Australian natural resource property rights, land tenure and land management institutions	15/11/00-30/6/01	Paul Martin, The Profit Foundation
Integration of research and development in catchment management	1/7/96-31/5/01	Tom McMahon,Rodger Grayson, Civil and Environmental Engineering
Governance of natural resources across regional landscapes	1/7/99-30/6/02	David Brunckhorst, UNE
Creation of a common property resource management institution	1/7/00-30/5/03	David Brunckhorst, UNE
An integrated information exchange system for catchment managers	1/1/96-30/7/99	Bruce Hooper IRM Research P/L
Integrating cross-jurisdictional planning for sustainable regions	1/2/00-31/1/03	Postgraduate
Integrating water policy reforms and rural adjustment	1/7/98-31/3/01	Jennifer McKay, U of SA
The effectiveness of integration of water and land use planning	1/3/00-31/12/02	Postgraduate

3) Critical mass in awareness of the social and institutional dimensions of NRM

To build critical mass in awareness amongst stakeholders of the social and institutional dimensions of natural resource management so that issues are addressed, solutions are derived and change takes place. There are no projects listed under this objective.

4) Enhanced and demand-driven R&D capacity in the social and institutional dimensions of NRM

Coordination of stakeholders and inter-disciplinary teams in natural resource science	31/3/99-31/3/02	Postgraduate
Producer initiated and managed R&D (with Meatand Livestocks SGA program)	30/11/00-8/6/01	Jennifer Andrew, Resource Policy and Management
Participation in NRM research	1/1/00-18/6/00	Tony Gleeson, Synapse Agriculture and Resource Consulting
Gap and opportunity analysis of the Land andWater Australia R&D portfolio against strategic theme outcomes	14/11/00-31/5/01	Tony Gleeson, Synapse Agriculture and Resource Consulting
Interdisciplinary research methodologies in NRM	1/1/00-18/6/00	Michael Booth, Fionnuala Frost, Steven Rodgers, Murdoch University

Weight of research seems to be on best practice research products and services that integrate biophysical, social and institutional dimensions of NRM and facilitate adoption. Programs and projects by number:

1	2	3	4
7 projects 1 postgrad	17 projects 2 postgrad	0	4 projects 1 postgrad

Appendix 3

Initiatives in natural resource management requiring an understanding of social and community issues

2.1 Description of process

Participants worked in groups of 5-7 and listed initiatives in natural resource management that require an understanding of social and community issues. Groups were each asked to name, for the whole workshop, a limited of number of initiatives, and then to add any others they thought were important. All the initiatives were recorded. They are:

2.2 Initiatives

National NRM Policy (Strategy for sustainable natural resource management)

Salinity and Water Quality Initiative

Carbon Credits – Greenhouse initiative

Environmental Banking

Utilisation of Climate Applications and diagnostic tools/skills applied in NRM decision-making

National Heritage Trust (NHT) Mark 1 and Mark II – need for social/economic evaluation of NHT programs.

Cooperative Research Centres – Capacity building

Networking the Nation

Murray Darling Basin Commission – applied; awareness – the Human Dimension Program

Landcare and ICM programs

Waterwatch and Saltwatch

National Action Plan for Environmental Education

Regional NRM strategies, eg SEQ 2001

Regional Planning Advisory Group (RPAG)

Great Artesian Basin Council (GABC)

Lake Eye; Cape York strategy developments

Desert Uplands – Commonwealth Rural Partnership Program

Integrated Catchment Management (ICM)

Central Highlands Regional Resource Use Planning (CHRRUP)

Water Resource Planning (incl. Water Allocation and Management Plans – WAMPs)

Commercial sector – Environmentally Friendly Initiatives (contact John Searle)

Vegetation Management

Up-taking technology in rural communities – how effectively adopted in rural communities are technological improvements?

ISO 14000

Native Title Act

Best Management Practice (Farmcare; cotton; sugar)

Regional Forests Agreement (RFA)

Integrated Planning Act (IPA)

Ecotourism – accreditation

Waterwise

Fisheries Resource Management

Indigenous Cultural Heritage
Indigenous Land Use agreements
Mining EPP/Legislation
Market driven natural resource management
- Green Tick
- Accreditation
- Quality Analysis
Private initiatives
Conservation Acquisitions – Government – EPA; Community – RAOU
Agribusiness initiatives – QA; Chemical audits; Stanbroke
Regional Solutions Program
Community Initiatives
Water Re-use and Recycling Strategies
Land and Water Australia's (formerly LWRRDC) Social and Institutional Research Program (SIRP)
Multiple Use Strategic Plans
National Land and Water Audit
Farmbis
Statewide Land cover and Trees Study (SLATS)
Building Rural Leaders

A comment was made that initiatives reflected changes in emphasis and focus, *from* considering commercial initiatives and then examining social, resource and environmental consequences *to* environmentally based community initiatives and then examining social and resource consequences.