People, communities and economies of the Lake Eyre Basin

Edited by

Thomas G Measham
Lynn Brake

Report 45
2009
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Desert Knowledge CRC Report Number 45

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ISBN: 1 74158 090 0 (Print copy)
ISBN: 1 74158 091 9 (Online copy)
ISSN: 1832 6684

Citation

The Desert Knowledge Cooperative Research Centre is an unincorporated joint venture with 28 partners whose mission is to develop and disseminate an understanding of sustainable living in remote desert environments, deliver enduring regional economies and livelihoods based on Desert Knowledge, and create the networks to market this knowledge in other desert lands.

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The work reported in this publication was supported by funding from the Australian Government. The views expressed herein do not necessarily represent the views of Desert Knowledge CRC or its Participants.

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## Contents

1. Synthesis of the ‘People, communities and economies of the Lake Eyre Basin’ project
   
   *Thomas G Measham, Cathy Robinson, Silva Larson, Carol Richards, Alexander Herr, Liana Williams, Lynn Brake, Tim Smith*
   
   1

2. Regional profile of the Lake Eyre Basin catchments
   
   *Alexander Herr, Tim Smith, Lynn Brake*
   
   41

3. An overview of the natural resources management arrangements in the Lake Eyre Basin
   
   *Silva Larson*
   
   89

4. Tools for successful NRM in the Lake Eyre Basin: achieving effective engagement
   
   *Thomas G Measham, Cathy Robinson, Carol Richards, Silva Larson, Mark Stafford Smith, Tim Smith*
   
   125

5. Sustaining successful engagement: a case study of responding to demographic changes in the Lake Eyre Basin
   
   *Thomas G Measham, Liana Williams, Silva Larson*
   
   171

6. A broker diagnostic for assessing local, regional and LEB-wide institutional arrangements for Aboriginal governance of desert environments
   
   *Cathy Robinson, Liana Williams, Marcus Lane*
   
   217

7. Monitoring the success of stakeholder engagement: Literature review
   
   *Silva Larson, Liana Williams*
   
   251

All the chapters in this compilation are self-contained reports and available individually from the DKCRC website. Each report presents the findings from its respective research component of the ‘People, communities and economies of the Lake Eyre Basin’ project. The first chapter presents a synthesis of the whole project.
1. Synthesis of the ‘People, communities and economies of the Lake Eyre Basin’ project

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Citation


Acknowledgements

Funding for this study was provided by

- Natural Heritage Trust (NHT, http://www.nht.gov.au/)
- Commonwealth Scientific and Industrial Research Organisation Division of Sustainable Ecosystems (CSIRO CSE, http://www.cse.csiro.au/)

Thanks to Mark Stafford Smith and Rachel Williams for their helpful comments on an earlier draft of this report. Above all, thanks to all the residents of the Lake Eyre Basin and the government staff who participated in this research.
## Contents

Summary .............................................................................................................................................. 5

1. Introduction ...................................................................................................................................... 7
   1.1 A focus on engagement ............................................................................................................. 7
   1.2 Project components ................................................................................................................. 7

2. Methods overview ............................................................................................................................ 8
   2.1 Component 1 methods ............................................................................................................. 8
   2.2 Component 2 methods ............................................................................................................. 8
   2.3 Component 3 methods ............................................................................................................. 9
   2.4 Component 4 methods ............................................................................................................. 9

3. Component 1: regional social, economic and resource profiles ...................................................... 10
   3.1 Regional natural resource management context ........................................................................ 10
   3.2 Social profile .......................................................................................................................... 11
   3.3 Resource profile ..................................................................................................................... 12
   3.4 Economic profile ..................................................................................................................... 15
   3.5 Summary of key findings ......................................................................................................... 15
   3.6 Social networks of LEB ......................................................................................................... 15

4. Component 2: A toolkit of success factors for NRM organisations .................................................. 16
   4.1 Agency perspectives ................................................................................................................. 16
   4.2 Factors for success ................................................................................................................... 17
   4.3 Community perspectives ......................................................................................................... 20
   4.4 Discussion relative to characteristics of desert regions .......................................................... 23

5. Component 3: Case studies of regional engagement ....................................................................... 25
   5.1 Case study 1: responding to demographic and industry changes in the LEB .......................... 25
   5.2 Case study 2: A broker diagnostic for assessing local, regional and LEB-wide institutional arrangements for Aboriginal governance of dryland environments .................................................. 27

6. Component 4: Monitoring framework for successful NRM engagement ....................................... 29
   6.1 Learning from the literature for the LEB context ..................................................................... 29
   6.2 Monitoring engagement in remote regions ............................................................................. 30

7. Conclusion ....................................................................................................................................... 35

8. References ....................................................................................................................................... 37
Figures and graphs

Figure 1: Urban Centre/Location residents counted at home during census night ........................................ 13
Figure 2: Socio-economic disadvantage in the LEB.................................................................................... 13
Figure 3: Labour Force Participation Rate .................................................................................................. 13
Figure 4: Mean annual rainfall .................................................................................................................. 13
Figure 5: Location of Artesian bores in the LEB ..................................................................................... 14
Figure 6: LEB soil limitations .................................................................................................................... 14
Figure 7: Land use in the LEB ................................................................................................................... 14
Figure 8: Mineral, oil and gas mining in the LEB ..................................................................................... 14
Figure 9: Schematic of monitoring dimensions .......................................................................................... 31
Figure 10: Recommended approach to MEE ............................................................................................ 32
Figure 11: Stage in MEE process at which particular success factors could be monitored for improved insights ..... 32

Tables

Table 1: Summary of results from broker diagnostic .................................................................................. 28
Table 2: Success factors that could be monitored at various stages of the MEE cycle, with examples of monitoring methods that could be used ................................................................. 33

Shortened forms

GAB Great Artesian Basin
LEB Lake Eyre Basin
MEE monitoring and evaluation of engagement
MERI monitoring, evaluation, reporting and improvement
NRM Natural resources management
NSW New South Wales
NT Northern Territory
Qld Queensland
SA South Australia
Summary

The purpose of this synthesis is to present an overview of the main findings of the ‘People, communities and economies of the Lake Eyre Basin’ project. This synthesis is designed as a stand-alone document and as the keynote chapter in the edited compilation of project reports. This three-year study has developed from the stance that successfully caring for the country and the communities of the Lake Eyre Basin (LEB) depends on four principles. First, it is crucial to better understand the social and economic landscape of the LEB and its resources. Second, effective management of the LEB is underpinned by building effective engagement processes between residents, management agencies and policy makers. Third, it is necessary to identify and explore the key human dimensions specific to remote regions that affect the management of the LEB now and into the future. Finally, the fourth is to develop a mechanism to underpin long-term social learning to support the effective governance of the LEB in the form of a monitoring process. In contrast to monitoring frameworks used for day-to-day compliance monitoring, we emphasise that the framework developed in this project focuses on supporting continual learning that needs to be built into ongoing management activities to facilitate long-term care of the LEB and its communities. For organisations that are faced with the unique management challenges of remote regions, and are already stretched in terms of available resources, additional funding may be required.

The synthesis begins with an introduction and background to the project presented in section 1, followed by a description of the project methods in section 2. This is followed by an overview of the four main components of the research project: a regional profile of the LEB, a toolkit of success factors of NRM organisations, case studies of successful natural resources management (NRM) engagement processes and a framework for monitoring successful engagement processes in the LEB.

The findings from component 1 (regional profile) are presented in section 3 and emphasise that the social profile of the LEB is characterised by a small, sparse population. Though small, it still varies considerably in terms of population density. Its relative social and economic advantage in terms of income, education and employment also varies considerably. The most widespread economic activity is pastoralism; however, both tourism and mining are significant industries. The LEB has important gold, copper, zinc and uranium deposits. Beside the mineral and energy resources, the LEB overlies a large proportion of the Great Artesian Basin, containing approximately 64000 million ML of groundwater, much of which is potable. The majority of soil resources are of limited commercial use. It is also noteworthy that evaporation exceeds precipitation across the region, making it one of the driest parts of Australia.

Section 4 presents findings from component 2 of the research, which developed a set of ‘success factors’ for NRM engagement. Some of the tools and principles are specific responses to regional characteristics: respecting desert time frames and being opportunistic when resources and circumstances arise infrequently. Other success factors presented are generic, such as building community ownership, communicating well and maintaining transparency, although the implementation of these may also involve desert-specific issues. Maintaining credible staff and avoiding community burnout are major issues for NRM in general, and this research demonstrated acute reliance on particular individuals throughout the LEB who take on multiple roles. Community residents emphasised that the processes of engagement should be sympathetic to the distance travelled and the time taken for people to attend workshops or committee meetings and the resources required to achieve this level of engagement. A crucial issue for NRM engagement in the LEB is that regional organisations are strongly limited by
the resources available to them. In this way, the ability to engage upwards with governments is a key dimension to successful regional NRM in the LEB, where distances are great and communities are remote from the policy makers in capital cities.

Section 5 summarises the results of two case studies which represent component 3 of the research project design. The first case study involved discussing industry and demographic changes with NRM regional organisations through workshops. The research found differences in how forecast changes may play out depending on the sector and the region. In South Australia (SA), it was generally perceived that most future NRM issues would be largely the same as those faced today. For example, land holders would still be focused on day-to-day survival, but in the future NRM would be given a higher priority by land holders and government. By contrast, in Queensland (Qld) it was considered that climate change may place extra pressure on the region, and that global demographic trends may trigger increased population which would influence natural resource management and lead to new issues for this region. In both regions, it was considered that the increase of the mining and petroleum industries would bring a considerable increase in population to the region, but one with relatively little connection to the land and limited long-term commitment to the area. In both Qld and SA, the factors influencing successful engagement into the future were seen to be largely the same as those that operate in the present. It was thought that future generations would be more educated about NRM issues, providing a base on which to build more elaborate knowledge of effective NRM. In addition, the importance of expanding partnerships and building relationships with private industry, research organisations and private conservation companies was emphasised.

The second case study involved working with individual Aboriginal brokers from across the LEB. The case study developed a framework referred to as a ‘broker diagnostic’ and reflects the importance of individual facilitators, leaders and community champions to broker the interface between Aboriginal communities and environmental programs and institutions. The framework proposes that these individuals can act as a valuable ‘litmus test’ to critically assess the support provided to Aboriginal communities to manage the LEB’s Aboriginal and shared environments and resources. The diagnostic focused on analysing (1) the level of understanding in the LEB of key contextual issues for Aboriginal governance; (2) the individual and organisational capabilities available to respond to challenges; and (3) the extent to which Aboriginal knowledge is integrated into NRM planning and management. The case study found there was significant variation across the LEB with regard to these issues.

The fourth component of the project, summarised in section 6 of this report, brings together a monitoring framework for successful NRM organisations. It focuses on the crucial role of engagement that was highlighted in the research design and expanded in the ‘toolkit’ of component 2. The framework draws on an extensive literature review of national and international monitoring frameworks and incorporates the success factors developed through community interviews, presenting these on a timeline from short-term to long-term trends. Finally, section 6 presents the elements of the framework in terms of what to monitor, how and when to monitor. The section explains the difference between monitoring for program accountability and monitoring for local adaptive learning and shows how efforts could be re-directed to place a greater emphasis on the latter. It recognises the different dimensions of successful NRM engagement for regional interface organisations, namely: inputs, process, outputs, outcomes and trends, all of which are relevant aspects to successful monitoring.

Each of these sections is expanded upon in full reports which form the subsequent chapters of this compilation. In addition, each of these chapters is available separately for download from the Desert Knowledge CRC website at www.desertknowledgecrc.com.au.
1. Introduction

The Lake Eyre Basin (LEB) is situated in central Australia and spans the borders of South Australia (SA), New South Wales (NSW), Queensland (Qld) and the Northern Territory (NT). At approximately 1.2 million square kilometres, it covers around one-sixth of the Australian landmass and is among the world’s largest internally draining river systems. In addition to being a unique ecological environment, the LEB is also a special social environment, with a sparse population of Aboriginal and non-Aboriginal people. The economy comprises the major activities of mining, pastoralism and tourism. It is important to recognise that there are features that are specific to natural resource management (NRM) in remote locations such as the LEB. Other broader issues are common to rural Australia, such as drought, declining terms of trade, threatened profitability and population decline, but are compounded by the sheer size, isolation and harsh climatic conditions in remote and arid lands.

1.1 A focus on engagement

By their very nature, regional NRM organisations are at the interface between, on the one hand the resident communities of their respective regions, and on the other the Australian and State Government policy arenas that give them their mandate to act. Given the importance of this interface, this project focuses on the process of engagement which characterises the success (or otherwise) of regional NRM. Careful attention to these processes is particularly important in remote dryland regions where resources tend to be scarce and variable, and inherent challenges exist in conducting NRM due to a suite of key factors including the sparseness of the populations and the distance to the decision-making arenas of Australian and State Governments (Reynolds et al. 2007, Stafford Smith 2008). The topic of civic, business and government engagement has been widely embraced from a range of different perspectives and disciplinary areas (for example see Leach et al. 2005, Boxelaar et al. 2006), although perhaps with more emphasis on ‘engaging communities’ rather than looking critically at how all parties can effectively collaborate. The importance of fostering and harnessing community engagement has been identified as crucial to building a prosperous future for rural and remote regions in Australia, and is a key dimension of regional NRM in general (Fenton 2004, McDonald et al. 2005, Rogers 2005, Smith et al. 2005).

It is in this institutional environment, across jurisdictions of four separate NRM organisations – South Australian Arid Lands NRM Board (SAAL); Desert Channels Queensland (DCQ); NT NRM Board; and the Western Catchment Management Authority in NSW – that the LEB’s resources are managed. In addition, the Lake Eyre Basin Ministerial Forum, including Ministers from Australian, South Australian, Qld and NT Governments, seeks to ensure a region-wide coordinated approach to management of the LEB.

1.2 Project components

The project was designed to address some of the challenges and needs identified in section 1.1 through four phases. These four components are reflected in the structure of this report.

- Component 1: developing a socio-economic profile of the LEB.
- Component 2: developing a ‘tool kit’ of successful engagement through extensive literature review and interviews with community and government representatives.
- Component 3: two case studies of engagement – one analysing Aboriginal engagement and the other looking at engagement in the face of anticipated changes in industry and demographic characteristics.
- Component 4: developing a framework to help interface organisations monitor engagement.
Throughout the design and implementation phases, the project was supported by a Project Steering Group which included members of the LEB Community Advisory Committee, the LEB Scientific Advisory Panel, representatives of LEB regional NRM bodies, staff of the Desert Knowledge CRC, and policy advisors supporting the NRM Ministerial Forum. This group played a key role in facilitating engagement with community and policy stakeholders throughout the project.

2. Methods overview

This section presents a brief overview of the methods used for each component of the project. More detailed discussions for each component are presented in the respective reports associated with these components.

2.1 Component 1 methods

The regional profiles of the LEB were compiled from secondary data. The principal data sources were:

- Soil information stems from the digital atlas of Australian Soils from the Bureau of Rural Sciences (BRS 2005)
- GAB springs and bores spatial data from the Bureau of Rural Sciences, Department of Agriculture, Fisheries and Forestry.
- Australian Standard Geographical Classification 2001 (for local government areas)
- Population/demographic data calculated from 2001 census (ABS 2001)
- ABS 2001 Socio-economic indexes for Areas (SEIFA)
- Topographical data from AUSLIG TOPO 2.5M (1:2.5 million) data.

In addition, a social network analysis was conducted drawing on secondary data to represent the formal relationships between NRM institutions and organisations in the LEB in the form of membership of Boards and related official advisory roles.

2.2 Component 2 methods

The ‘toolkit’ of success factors was generated from background literature review, interviews with Australian and State Government agency liaison officers with responsibility for the LEB and an innovative community-based research methodology (see Measham et al. 2009 for more details).

Key government representatives were identified as the Regional Liaison Officers responsible for achieving effective NRM collaboration throughout the LEB. Liaison officers were approached in Australian and State Governments, leading to a total of eight interviews. These interviews were semi-structured and conducted by experienced social scientists.

The project tapped into local knowledge and networks by engaging and training LEB community members to collect information by conducting interviews in their local areas (total 49). This project is novel in that the individuals we refer to as ‘community-based researchers’ are not necessarily formally trained ‘experts’, but people living within the community who can access existing networks of trust and who, as locals themselves, are well-versed in the challenges of NRM in arid and remote areas.

All interviews were digitally recorded and transcribed. The content of the transcripts was analysed to identify key themes with the assistance of NVivo qualitative analysis software. These themes form the basis of factors for success reported in section four of this report.
2.3 Component 3 methods

Component three was developed as a result of discussions with regional bodies through the course of conducting component 2 and involved two case studies, each discussed below.

2.3.1 Case study 1: forecasting demographic and industry changes in the LEB and their effects on engagement

Case study 1 involved a combination of a desktop analysis of available secondary data, two workshops with regional organisations, and in-depth interviews with staff from one regional NRM organisation. Based on the desktop analysis a series of illustrative forecasts were prepared to summarise available secondary data about demographic and industry change over the medium term (10–20 years). It is important to emphasise that these documents were not designed to be analytical in their own right. Rather, they were designed to present an illustrative sketch of existing forecasts to prompt discussion through workshops with NRM interface organisations. Using these forecast sketches, workshops were held with a) SAAL NRM Board and b) DCQ. Workshop participants comprised staff employed in interface roles, managers and advisory board members. The focus of the workshops was on:

- understanding and considering the forecast scenarios
- reviewing existing options for maintaining and enhancing engagement processes
- developing strategies to address future scenarios including links across sectors
- assessing the relevance of component 2 ‘success factors’ now and in the future.

Following the workshops, a series of in-depth face-to-face discussions were conducted with staff employed in interface roles to relate the success factors from component 2 to daily engagement activities to assist embedding these factors in on-ground activities.

2.3.2 Case study 2: Aboriginal broker diagnostic

The Aboriginal broker diagnostic case study gathered perspectives from ‘brokers’ who are funded by government programs to manage the interface between Aboriginal communities, local and regional organisations and government agencies. This provided a pragmatic ‘litmus’ test of Aboriginal participation in sustainably managing LEB environments.

Titles for Aboriginal brokers varied from ‘facilitator’, ‘manager’ and ‘leader’ and were chosen based on formal roles established by government environmental programs and informal roles chosen by Aboriginal communities. Each broker was asked questions to obtain their perspectives on their role and how it fitted with the principles outlined above. Brokers funded to manage this interface at local, regional and LEB-wide scale (includes Australian and State Government–level facilitators) were interviewed face-to-face or over the telephone (n= 27) between 2007 and 2008 and a few (n=5) responded to an internet survey.

2.4 Component 4 methods

The methods for component 4 involved synthesising a framework from the following sources.

**Literature review** comprising:

- theory of social and economic monitoring relevant to engagement
- international examples of social and economic monitoring relevant to engagement
- Australian examples of social and economic monitoring relevant to engagement.
Research experience from the ‘People, communities and economies of the Lake Eyre Basin’ Project, in particular:

- success factors developed in component 2
- case study 1 of SAAL Board and DCQ
- case study 2 of success factors for Aboriginal NRM brokers.

3. Component 1: regional social, economic and resource profiles

The LEB is Australia’s largest inland catchment with a size of approximately 1.2 million square kilometres (SKM 2002) and is home to almost 60,000 people. The sparsely populated desert landscapes in the LEB make natural systems and human activities fundamentally different from wetter and more populated regions in Australia. Over most of the LEB the climate is arid and semi-arid, and biological processes are driven by episodic weather events that generally do not follow predictable annual cycles. Infrequent rains and hot-drying winds shape the landscape and drive production in natural ecosystems. In these landscapes evaporation far exceeds annual rainfall. Implications of the regional institutional context are presented in 3.1 (see Larson 2009 for details), followed by an overview of the regional, economic and resource profile of the LEB in 3.2–3.5 (See Herr et al. 2009 for a detailed version). Analysis of regional networks is summarised in 3.6.

3.1 Regional natural resource management context

The current regional NRM policy environment reflects a focus on decentralised processes as a key strategy for achieving NRM outcomes. Central to the current NRM context is the role of regional institutions that interface between local groups and issues, and national funding priorities.

The LEB comprises four legislative regions, each with different legislative arrangements for administration. These have the following characteristics compared with the rest of Australia:

- high percentage of land under leasehold arrangements
- high percentage of land under native title claims
- high percentage of land in Aboriginal ownership
- high percentage of Aboriginal populations
- sparse population resulting in quantitatively low human capital
- large physical areas under administration by a single NRM board.

The following key specific issues of the NRM engagement in remote regions of Australia were also identified (Larson 2009):

- There is no single ‘right’ scale for management: collaboration between regional and local levels and between regional level and key national (both government and commercial) players is needed, as is ‘horizontal’ coordination between and among NRM bodies.
- Capacity development of both agencies and communities to enable effective engagement in the process is essential, yet complex and expensive; complexity and expense of capacity development should not be underestimated.
• Tension exists between local knowledge and scientific knowledge. Better linkages between local knowledge, science and policy would facilitate more acceptable policy actions and development of robust monitoring and learning programs.

• Availability of data on the cultural, social and ecological values placed on natural resources in remote regions is limited. Efforts of the NRM bodies are experiments in policy interventions; they therefore need to be carefully and continually monitored, evaluated and adapted.

• The vital role of volunteers in regional NRM needs to be recognised and supported. The role of ‘champions’, and ways of recruiting and maintaining their interest, warrants further investigation.

• Traditional owners need to be better acknowledged as key stakeholders. Engagement mechanisms viewed as suitable and appropriate by both Aboriginal and non-Aboriginal stakeholders need to be developed.

• The ‘stakeholders’ concept needs to be expanded beyond current limiting identification of ‘stakeholders’ with ‘land holders’. Greater involvement of other segments of community should be encouraged, including communities of practice, commercial enterprises and others with interests in the region.

• Significant power is retained by NRM Joint Steering Committees and/or Ministers – depending on the State/Territory arrangement. Community perceptions of the retention of this power may reduce trust in government institutions regarding regional action.

• The devolution of NRM responsibilities to the regional scale needs to be concurrent with the devolution of rights and resources. Although this issue is pertinent to any natural resources management process, it is potentially even more significant in remote regions where human, financial and other critical resources are chronically limited.

3.2 Social profile

The social landscape is characterised by small, sparse populations including large unincorporated areas. The population is unevenly distributed, with much of the population living in clusters around the edge of the LEB near Alice Springs, Longreach and Roxby Downs, as demonstrated by Figure 1.

The NT and SA have a high proportion of Aboriginal people, ranging from 40%–90% of the total resident population. At a finer scale these areas highly populated with Aboriginal people are confined to the most western edge of SA and areas around Alice Springs. Aboriginal tenures and native title determination cover approximately 2% of area and there is further Aboriginal involvement in NRM through Indigenous Land Use Agreements. In addition to having a small and unevenly distributed population, the LEB is characterised by a mismatch of administrative (and other) boundaries.

Considerable variation is found in relative advantage/disadvantage of the population in terms of education/income/employment. For example, the map shown in Figure 2 presents different levels of social advantage/disadvantage based on the Social and Economic Index for Areas based on ABS data. The green areas are relatively advantaged and the red areas are relatively disadvantaged. This allows consideration of the reasons for this difference, and the actions or opportunities that may arise from these disparities.

There are low employment areas north of Alice Springs, south of Winton and east of Tibooburra, where the unemployment rate is above 20%. In most of the LEB the unemployment rate is below 10%. However, when comparing this statistic with the labour force participation rate (LFPR) a different picture emerges (Figure 3). LFPR is a measure of the proportion of the working age population that
engages in the labour market, either looking for work or employed. A low LFPR can, for example, indicate that the population is disenfranchised from the labour market or that there is a high proportion of persons not in the labour force because of age and/or disability. There are several areas of low LPFR, mainly in the NT and SA.

3.3 Resource profile

The LEB receives low rainfall ranging from 600 mm in its north-eastern part to less than 150 mm in the southern area (Figure 4). Evaporation exceeds rainfall throughout the LEB and is highest in the southern area, where it is up to 18 times higher than the rainfall.

Most of the water in the LEB enters from the eastern river catchments, where coastal cyclones and tropical rains spill over the dividing ranges to recharge catchments. These rain depressions occasionally extend across the LEB, but are usually restricted to the upper reaches of the ephemeral rivers. Creek flows and floods then slowly move across the flat landscape toward Lake Eyre. Sometimes rain enters the LEB from the west to recharge the western rivers, but these flows are less frequent and usually smaller. Flows and floods from rains fill water holes, revitalise riparian vegetation and support water dependent ecosystems along the ephemeral river systems. Except for the occasional very large floods, water in the LEB rivers evaporates in the drying winds of the arid landscape well before it reaches the salty expanse of Lake Eyre, leaving only the occasional waterhole as drought refuge.

The Great Artesian Basin (GAB) extends under much of the LEB. The GAB is one of the largest fresh water artesian aquifer systems in the world. It underlies about one-fifth of the Australian continent and contains 64000 million ML of mostly potable groundwater, which is approximately 2000 times the total surface water storage of the combined Murray-Darling Basin. The GAB is recharged from rainfall on the Great Dividing Range. Water enters exposed aquifer systems in the Great Dividing Range and slowly moves through permeable sandstone confined between layers of shale. The water takes more than 2 million years to reach the other side of the LEB.

Water in the GAB naturally discharges through springs (mainly in the western margin of the LEB) and through leaking from the surface into the water table. Springs provide the only natural permanent water in an otherwise dry landscape. Thousands of artesian bores have been drilled into the GAB since the first artesian bore was drilled late in the nineteenth century. Bores provide the only reliable source of water to support all human activity over much of the LEB (see Figure 5).

Long dry periods and infrequent rainfall mean that the landscape experiences dramatic changes in plant and animal populations, natural processes and the productivity of natural resource–based industries. The timing, scope and duration of these natural fluctuations are not predictable, making it very difficult to recognise and evaluate the impact of human activities in this changing environment. There are some areas that show signs of increased landscape stress and hydrological condition changes as a result of humans trying to gain a livelihood from one of the driest parts of the Australian continent, where evaporation significantly exceeds precipitation and soils limit production.

Soils in most areas in the LEB have limited use for agriculture (Figure 6). Saline and physically limited soils provide the least opportunity for agricultural use. On the fringes of the LEB are soils with low fertility that lend themselves to nutritional improvements, given sufficient precipitation. The majority of these occur in the Diamantina and Cooper’s Creek catchments.
Figure 5: Location of Artesian bores in the LEB

Figure 6: LEB soil limitations

Figure 7: Land use in the LEB

Figure 8: Mineral, oil and gas mining in the LEB
3.4 Economic profile

The life patterns and resource economics of early Aboriginal inhabitants of the LEB were largely determined by the wetting and drying cycles in the landscape. Food production associated with rain events and floods and the refuge offered by widely scattered springs and waterholes during dry periods remain an integral part of Aboriginal culture and life on their traditional country.

The major employment sector in the LEB today is agriculture (36%), which is consistent with grazing being the major landuse in the LEB (see Figure 7). Besides grazing, tourism and mining are the other two important natural resource–based industries in the LEB. While mining and agriculture rely on the extraction of natural resources, tourism uses resources directly through hunting, fishing, fossicking, amenity, services and infrastructure (e.g. roads, tours). The vast expanses of the LEB provide a tourist experience based on natural and cultural heritage features. Commercial interest is growing since visitor numbers are increasing. Visitor estimates for 2001 are well over 2 million people for the key tourism areas within and adjacent to the LEB (Schmiechen 2004). This classifies tourism as a major industry with the potential to significantly contribute to the economic viability and livelihoods of the LEB.

Mining is another, albeit more localised, important contributor to the LEB economy (Figure 8). Increasing commodity prices over the last years have sparked exploration efforts and new mine developments. The LEB has important gold, copper, zinc and uranium deposits and contains significant oil and gas extraction facilities. However, mining employees are often fly-in/fly-out inhabitants of larger centres outside the LEB, so that flow-on effects from mining wages are mostly distributed outside the LEB. The census data includes miners living outside the LEB.

3.5 Summary of key findings

In summary, the regional profile of the LEB draws attention to the following findings:

- Most areas in the LEB are classified as remote and people living in the LEB have to travel large distances to the major health and service centres.
- The major land use in the LEB is grazing, followed by conservation. Most land is under leasehold tenure (see Figure 7).
- Major employment sectors in the LEB are agriculture followed by government, retail, health, education and personal services and construction. While mining is currently the most economically important industry in the LEB, in many cases it uses fly-in/fly-out labour.
- The major water supplies for people and industries come from the GAB and from periodic flooding. There are concerns for the sustainability of the ground water extraction, though the management of this is continually improving.
- The LEB scores low in all four socio-economic indices that the Australian Bureau of Statistics developed to describe the wellbeing of the nation.

3.6 Social networks of LEB

Research on the partnerships and organisational relationships of the LEB was conducted through a social network analysis of formal relationships, characterised by such roles as membership of boards, employment, and registered associations. This activity was conducted for the major sectors of the economy and communities of interest including:

- pastoralism, mining, Aboriginal people, tourism
- government and non-governmental organisations.
This analysis has shown that across the LEB, formal links within sectors are generally strong. For example, pastoralists have strong links within their industry, as do tourist operators. In contrast, across the LEB formal links between sectors are generally weak. The implication is that more could be done to stimulate productive interactions between, for example, those in the mining industry, pastoralists and Aboriginal peoples.

Between-sector interactions were particularly weak for mining and petroleum. The nature of these networks complicates effective engagement across sectors (such as mining and grazing). Historically, this has also been reflected in governance arrangements (separate departments for different sectors). The challenge is to improve ‘weak’ interactions so that there is greater ownership of initiatives aimed at producing a more sustainable future for the LEB.

4. Component 2: A toolkit of success factors for NRM organisations

The toolkit of success factors draws on agency and community perspectives. To put these in perspective, a literature review was conducted which drew attention to the following factors that characterise successful engagement in a wide variety of contexts:

- community ownership
- promotion of inclusiveness, equity and trust
- inclusion of multiple interests
- focus on strategic outcomes
- transparency
- well defined appropriate scale and scope
- sufficient resources and access to assistance
- effective communication.

See Measham et al. (2009) for a further discussion. A summary sheet developed for interface organisations in desert areas based on these results is also provided in Appendix 1.

4.1 Agency perspectives

Among the government interview participants there was a strong recognition of the challenges for successful NRM engagement processes in remote areas. There was a recognition that remote regions attract less attention compared with more densely populated regions, which in turn is reflected in reduced investment. This is particularly relevant when agency staff are responsible for whole States, rather than just remote areas. This represents a kind of conceptual remoteness, in addition to the physical remoteness that is already well known.

Maintaining effective engagement processes in a remote location like the LEB requires a high level of extra skill and commitment on behalf of the interface organisations themselves and those they engage with. From this point of view, successful engagement in remote areas requires a high degree of political awareness in order to attract support for resource challenges that have longer-term needs and impacts instead of only the topical issues. However, another way of looking at this is that the very remoteness of the LEB could be an advantage, because a smaller population could be easier to work with. The key to realising this advantage is to develop the most appropriate engagement processes for remote areas, which may need to be different from other NRM regions.
4.2 Factors for success

Several themes of the successful engagement have emerged from the interviews with the government representatives, and are presented in sections below.

4.2.1 Building and maintaining trust

There was a general perspective from government liaison officers that across Australia interface organisations, and particularly NRM Boards, varied enormously in terms of the degree to which they were perceived as ‘community organisations’ or ‘another arm of government’. The way that communities engage with interface organisations was seen as intrinsically linked to this perception. In the case of the LEB, two of the main interface organisation (SAAL NRM Board and NT NRM Board) have specific statutory powers and operate under government legislation, while DCQ strongly distances itself from government and presents itself as an independent organisation, despite receiving substantial government funding and support. It must be kept in mind, however, that interface organisations cannot be wholly independent, but operate in accordance with political forces. Interface groups cannot operate outside government policy. They will not be funded and supported by governments unless they contribute to policy implementation. A key task for all interface organisations is to define their relationship between regional communities and governments as they build social capital with their constituents and continue to operate within their terms of reference. In environments where stakeholders generally lack trust in government, interface organisations need to find a balance between acknowledging their government program delivery role and maintaining the role of representing the interests of local stakeholders.

4.2.2 Attracting and retaining credible staff

Long-term staff are needed for the necessary experience, respect and credibility that underpin effective engagement. For staff working in interface organisations, engagement extends across both the community and government spheres. Staff need both the capacity to engage with government processes and agendas and the ability to engage with diverse community needs and expectations.

One challenge is attracting staff in the first place. A key issue to achieving this is being able to offer adequate tenure for new staff, a problem that is exacerbated by short-term and uncertain funding environments and one that has already been noted since before the regional NRM model was developed. This problem disadvantages remote areas because it serves as a disincentive towards attracting skills from urban areas. Retaining staff and providing new staff with appropriate training are additional challenges. Overall, finding and retaining credible staff who perform multiple roles was identified by the respondents as one of the key factors for successful NRM engagement in remote areas. The importance of this factor was also noted in the recent report by Haslam McKenzie (2007). These individuals play a crucial role in all the other success factors discussed in the interviews, through effective communication, building partnerships and realising on-ground action.

4.2.3 Visibility/local involvement

Government interviewees noted that getting out on the ground is an important factor in successful engagement in remote areas. They were aware of the inherent challenges for doing so in remote areas given the large areas and small number of staff. They noted that this required strong commitment from interface organisations. In the NT, the staff have to cover the whole of the Territory and are mostly located outside the LEB; however, one officer is located in Alice Springs and this type of investment in on-ground staff is critical. From the perspective of one such regional facilitator, the key to this role is to be active at the local scale in order to convey ideas and make it happen. Skilful facilitators learn to become translators between needs, aspirations and cultures of resource users and the language, culture and processes of government bureaucracies.
Part of being locally recognised is also the issue of being seen to be open to community input. Successful on-ground facilitators are approachable and know how to interact with different organisations and sectors. This links strongly to two more success factors: being adaptive and effective communication.

4.2.4 Being adaptive
Successful NRM engagement involves reviewing and updating engagement processes. At the organisational level, this involves reviewing internal governance arrangements which provide the context for effective engagement to occur, including adjusting the composition of the Board over time in some cases. At the individual level, staff also need to be adaptive in terms of how to engage with different sectors or organisations and take note that over time community perspectives can change.

Another way of viewing adaptability concerned the need to be aware of changes in the operating environment, such as government agencies and regional needs. Part of this flexibility involves identifying emerging priorities and the most effective ways to address these. Being adaptive involves paying attention to new research on key issues such as pests and seeking to apply suitable technologies to address those challenges. It was also noted that interface organisations have a role in identifying gaps in knowledge and policy responses, and being flexible about working with other agencies on those gaps.

4.2.5 Enthusiasm and determination
Relating to flexibility, enthusiasm and determination play an important role in engaging remote communities due to the particular challenges of their environments. When applied together, determination, enthusiasm and being flexible about the manner in which engagement is conducted were found to promote successful engagement across the greater distances of remote areas such as the LEB. Another way of looking at determination is patience and persistence. One government liaison officer suggested that in dealing with government agencies, a key to successful engagement is the patience and persistence to navigate complicated internal structures to reach the desired information.

Over time, developing an understanding of the ‘avenues’ within the policy environment can provide access to important information and knowledge. While this example focused on government organisations, the importance of patience and ingenuity applied in other contexts too, such as working with the many committees that characterise the social landscape of NRM. In some instances, the enthusiasm to facilitate more open sharing of ideas and information across organisations was regarded as positive initiative and good will. While crucial elements, enthusiasm and determination alone are not sufficient, and rely heavily on time and money being available. This leads us to discussion of the resources success factor.

4.2.6 Adequate resources and accountability
Government agencies have developed processes to ensure investments are accounted for and appropriate outcomes are achieved. Continued investment depends on being able to achieve the milestones that processes dictate. On the other hand, community support depends on timely and significant outcomes that affect community interests. Central to the success of regional NRM engagement is achieving the milestones as defined by government agencies to maintain transparency while interpreting these in a way that is regionally relevant. Apart from the strategic skill in navigating this, it is also recognised that meeting compliance requirements under the regional NRM model requires substantial resources in terms of time and money, in addition to the resources required for the engagement activities. As summed up by one participant: ‘Money speaks volumes’.

Another way of looking at the adequacy of resources concerned how those resources are managed. Interface organisations have a degree of flexibility for managing their resources, hence the importance of ‘self-assessment’ or ‘self-learning’ to improve internal management of resources. Overall, accountability is focused on reporting both to government through compliance-related measures, as
well as to the community directly. Achieving both of these is challenging but central to promoting successful engagement. An alternative suggestion in terms of the adequacy of resources was that a lack of resources could, hypothetically, trigger innovative approaches to addressing regional issues. In particular, there was potential for innovation through partnering, which leads to the next success factor.

4.2.7 Effective use of partnerships

Recognising the value of partnerships and relationships is a crucial element of successful engagement, particularly in remote areas where time frames can be longer for NRM processes. While ‘managing’ relationships in many ways is up to the people involved, there is also a role for NRM arrangements to support the circumstances for partnerships to develop. Partnerships can help to overcome some of the additional costs of addressing extensive long-term NRM challenges in remote areas. It was noted that some of these issues were generally understood (e.g. weed and feral animal management), while others were less well understood (e.g. the effect of climate change). Both types of issue are more expensive to address in remote areas due to the distances involved and scale of impacts. Crucial partners noted for interface organisations were the government agencies responsible for the problems in question, as well as research organisations, particularly when it comes to addressing new challenges.

4.2.8 Representation and collective vision

Interface organisations need to reflect the NRM sectors they interact with, including representation on Boards. Related to this is having a balanced team that is effective across a range of capacities. Some participants viewed representation as beyond representing particular interests, that is, including a range of skills and expertise rather than interests alone. A good cross-section of local people was identified as one of the key dimensions to successful interface organisations. Specifically in the NT, it was noted that representation should include being culturally sensitive, given the large Aboriginal populations of remote areas. It should also include spatial representation, even though the Boards of NRM organisations are designed to be constituted on the basis of skills and knowledge.

Part of realising collective vision is for government policy to tune into community needs. Successful engagement requires developing a degree of alignment from a range of different interests, and includes willingness to adjust policy foci so that other stakeholders can be engaged. An important strategy is to look for synergies but acknowledge conflicting and exclusive issues. Importantly, collective vision cannot simply apply at the community scale. It also requires alignment across jurisdictions and scales of influence.

4.2.9 Communication

Most of the interview participants emphasised the importance of maintaining and improving communication. Communication was viewed as especially important for remote organisations where distance makes engagement more difficult. The key to achieving this communication was in part related to flexibility and willingness to adapt approaches to communication such as through the use of different mediums and formats. Furthermore, successful engagement requires communication in both directions between government agencies and interface organisations, with adequate opportunity for feedback. However, it is also necessary to be alert to the potential for a disjunct between local interests and policy recommendations or responses.

Effective communication is not just about being able to communicate with local sectors but also about knowing how to use the bureaucratic system to communicate local issues; that is, being able to take local issues and make them into issues of interest on the government agenda. There might be currently too much emphasis on building capacity with the community and not enough on building the capacity of the NRM staff to communicate effectively with the ‘top’ levels. It is through feedback that alignment and collective vision can be assessed and adjusted.
Communication was considered important, not only between the interface organisation and its surrounding community, but also between various organisations in order to learn from each other. What emerged from the interviews was that communication is both more difficult and thus more important to achieving successful engagement with all parties for interface organisations, including fellow interface organisations to help learning from each other.

4.3 Community perspectives

This section focuses on the research findings from the community, presenting some important lessons learned. Many of these findings resonate strongly with the success factors for community engagement that were identified in the literature review. For example, trust was found to be a crucial factor of effective engagement in the literature, as well as in the LEB. Other issues were found to be unique to the LEB as a collection of desert ecosystems and a physically and socially remote space.

4.3.1 Engagement in the vast variable geography of the LEB

Inevitably, many of the challenges of managing natural resources in the LEB were related to its sheer scale. A number of the interviewees noted how the LEB covered one-sixth of the Australian land mass, and contained a vast diversity of people, landscapes and management problems. With this scale also comes issues of distance and time – with many of those interviewed feeling that interface organisations were not always sensitive to the time taken to travel long distances to meetings. Those from the community highlighted the need to ensure that not all meetings were in central regions because ‘people on the fringes feel excluded and they tend to disregard what’s happening’. The ‘huge amount of time and money’ required for engagement, given these geographical realities, were also noted. Processes of engagement should be sympathetic to the distance travelled and the time taken for people, who are often volunteers, to attend workshops or committee meetings. This may have significant resource implications.

A key issue for community residents was that engagement activities such as meetings are held within the LEB. For example, it was noted as important that the annual Ministerial Forum – where Ministerial representatives of the Australian and State Governments get together and discuss issues and budgets – is actually held in the LEB, so that residents can take part. The scale of the LEB also means that it spans a number of State and regional jurisdictions and geographical boundaries. Participants identified a need for improved cross-boundary management.

4.3.2 Place-based or issue-based engagement in the outback

Having acknowledged that the sheer scale of the LEB is somewhat overwhelming for interviewees in terms of its NRM management, there was evidence that change, both in terms of social attitudes and environmental outcomes, is best effected at the local level. It was thought that place-based or issue-based NRM activities offer a tangible focus for local engagement in a bioregion that has diverse and vast landscapes and jurisdictions. Many of those interviewed identified with more localised and smaller scale projects, also revealing how trusting working relationships could facilitate change.

Communication technologies such as the internet, teleconferencing and networked whiteboards can resolve some of the temporal and spatial dimensions of engagement faced by LEB interface organisations. Training to enable some local and non-government interests to use new communication technologies may be needed. The ‘localising’ of success factors in the LEB highlights how small-scale issues are more tangible and manageable but also suggests that ‘scaling-up’ to the catchment level might present challenges dependent upon the issue at stake, and the stakeholders involved.
4.3.3 Acknowledging desert time frames

Issues of time overlap with issues of spatial scale, particularly in relation to the distances that need to be travelled to engage in meetings and workshops. This is dealt with in part above. However, there are other aspects of time that are specific to remote and arid areas such as the LEB. Participants noted that it was hard to allocate time and resources to additional NRM burdens while trying to keep your stock alive and pay the bills. In this way, the effects of the seasons directly influence individuals’ ability to engage in NRM. Not only does the dry climate require more active input from land holders, but seasonal variability over long periods of time was reported to hinder the assessment of whether projects had been successful.

4.3.4 Acknowledging funding time frames

On the topic of time frames, one interviewee also noted that funding cycles did not promote continuity and consistency with staff over time. Grant programs tend to have short time frames that do not provide security for attracting staff to NRM roles. Furthermore, the importance of aligning funding cycles with the natural cycles of arid environments was also a recurring theme throughout the research. Participants emphasised the need to measure impacts over appropriate time scales because it could be many years before there is sufficient rainfall to convert management efforts into observable differences. This was compounded by a lack of continuity of personnel leading to significant problems at the local level, where effort is at risk of waning over time. Issues of funding also overlapped with concerns about community burnout, with some people identifying a link between the lack of resources and the greater potential for the goodwill of community members to be exhausted.

4.3.5 Community burnout: sparse populations managing vast areas of land

During the interviews, many LEB residents noted that there were a number of key people who were community leaders in relation to NRM issues. These people were highly valued by the community and tended to be engaged at a number of levels, often beyond issues of NRM. For instance, community-based researchers identified that these key people would also be involved in local progress associations or in organising the local sports. One negative aspect of their involvement in numerous community projects and events was the tendency of these people to be overburdened, often taking on roles as ‘no one else would do them’. Many interviewees identified this as an issue that was specific to remote regions, where populations are small and sparsely distributed. For these people, engagement and consultation can become overbearing on them personally because there are not enough individuals to share the load. This is best summed up with a direct quote from one person engaging people in NRM activities in remote areas:

> It’s a challenge because the cost is huge because of the distances involved and the logistics. The isolation is enormous. [There is] social exhaustion. There’s such a small handful of people that you wear out and get exhausted.

This issue can affect community leaders and project staff from NRM organisations alike who tend to be ‘run off their feet’, partly by the lack of individuals involved and compounded by the distances involved. In the case of volunteers serving on regional committees and the like, providing effective compensation for travel and related costs and greater recognition of their efforts would go some way to alleviate burnout and would encourage others to get involved.

4.3.6 Communications

When asked about the success factors of interface organisations, many of those interviewed placed high priority on communications. Crucial to the effective functioning of organisations was the role played by key people in communicating. Interviewees identified that good communication:

- occurs when NRM personnel officers are able to talk to people, one to one
• can take place once an organisation and its personnel have clearly articulated their roles and where their organisation fits within the network of organisations across the Lake Eyre landscape
• reduces costs and the likelihood of ‘reinventing the wheel’
• raises an organisation’s profile
• enables interface organisations to assess the needs of the community, rather than pre-empt their needs
• happens when there are effective translators who act as an information conduit across diverse sectors, such as land holders, NRM bodies and Australian, State and local Governments
• can facilitate stronger links, networks and relationships of trust.

4.3.7 Networks of trust
Another side-effect of effective communication was identified as building networks of trust. Interviewees identified a number of factors that facilitated greater trust relationships between local communities and regional NRM Boards and other organisations. Important dimensions to building networks of trust are:

• listening
• treating people fairly, without discrimination
• respecting different perspectives and interests
• maintaining transparency in governance processes
• acknowledging and recognising the work that people are doing.

The maintenance of good social networks through processes of communication and inclusion were identified as instrumental in effective NRM engagement.

4.3.8 Getting on with the job: less talk and more action
While recognising the need for effective and inclusive communication, there was also a strong theme that there should be ‘less talk and more action’. For some, this desire for more ‘on the ground action’ was due to the perception of the bureaucratic activities of interface organisations, where large volumes of paperwork were generated and too much time was spent in ‘talkfests’. For many, processes that occurred at the ‘grass roots’ level, or ‘on the ground’ proved that the local population was being listened to, confirming that they had an important role to play in NRM planning and actions. From the interview data, organisations are successful in achieving ‘on the ground’ action when:

• there is less talk and more action
• less time is spent in the office
• land holders have access to an organisation’s staff
• staff constantly communicate with people, and make an effort to visit properties and talk to people face to face
• local people are also skilled in working with organisations (for example, they have skills in using the internet or email)
• the local community ‘drives’ projects rather than just ‘participates’
• organisations are in touch with ‘people on the ground’ and their needs.

4.3.9 Regional NRM governance structures
A number of comments were made about the role of NRM Regional Bodies, and their role as translators between the community and the government. Some saw their role as problematic for a number of reasons, including:
• governments have passed responsibility to regional bodies (as interface organisations) but not necessarily the power to set their own agendas
• regional bodies appear to be another layer of bureaucracy with their own paper work and meetings
• community members often relate to these organisations as ‘de facto governments’ as they are government funded and appear to do the work of government.

Despite a perception that NRM bodies operated as another tier of government, a number of people interviewed felt that many interface organisations did not have power and autonomy to effect change that was aligned to local needs. In particular, they lacked discretionary funds to respond to regional concerns.

4.4 Discussion relative to characteristics of desert regions

The existing literature on remote desert areas in Australia has argued that they share a number of key drivers that together distinguish them from more settled regions, namely: climate variability; scarce resources; sparse populations; distant voice from decision making and markets; social variability in markets, labour and policy; limited research knowledge and persistent traditional and local knowledge; and distinct cultural differences (Stafford Smith 2008). The sections below systematise the impacts and responses to the key engagement principles emerging from this study against these key drivers.

Climatic variability is of such overriding biophysical importance to NRM in the LEB that interface organisations have to be strongly aware of its context for their activities – as shown in the consultations for this project.

• Be very aware of the effects of drought (and floods) on engagement processes; drought can increase engagement fatigue
• The longevity of projects and detecting their success is also often dependent on climatic cycles.

In terms of scarce resources, the limited productivity of most lands in the LEB means that options open in other regions may not be appropriate here. It may even greatly limit the ability of people to find time to carry out or be involved with engagement activities, so that realistic funding is needed to support this. On the other hand it highlights the importance for organisations or sectors with scarce resources to build partnerships with organisations and sectors that are better (or more reliably) resourced, such as mining and local government and in some cases tourism.

As the overriding social driver, the effects of small and sparse populations of the LEB relate to every aspect of interface organisation activities, both positively and negatively. While there are significant constraints in terms of numbers of skilled people, with implications for burnout, and long distances to travel for engagement between dispersed population centres, there is also the potential to reach agreement on goals relatively quickly. Small size emphasises the need for, and possible benefits from, partnerships among stakeholders. The sparse and patchy distribution of people means that travel and engagement costs are high, which needs to be allowed for equitably in budgets; alternative, innovative engagement options are also important.

• Be creative about setting up more partnerships with stakeholders who are less involved, but possibly better resourced, to increase critical mass
• Use the small community size to get strong agreements quickly
• Allow for lots of travel in budgets and staff expectations
• Have local on-ground facilitators.
Having a distant voice is perhaps the most important consequence of a sparse population, as isolation imposes a great need to make and sustain the case for remote regions to distant interests. This demands a particularly high degree of political awareness and networking. The constraints on livelihood strategies in remote regions may also mean that agreed community goals are qualitatively different from ‘mainstream’ expectations, so clear, persistent and enthusiastic articulation of these is vital. A consequence of past effects of distant voice is that remote communities tend to be mistrustful of distant experts and government decisions; however, the small community size does allow engagement more easily than might be imagined, excepting the cost of travel again. Hence interface organisations need to tread a fine line between connecting with government and being seen to maintain independence. Agencies need to respect this when done well. The inherent challenge for all this is that interface organisations need to be accountable and transparent to both their community and government constituencies.

- Maintain some independence from government but respect the balance on both sides
- Be prepared to think through and articulate why the region may need different approaches to elsewhere
- Be aware of likely community distrust, but engage locally to overcome this.

Social variability is characterised by unpredictability in staff turnover which is a dominating concern for remote areas. Issues such as longer contracts, adequate tenure and support for long-term staff are paramount. Coupled with this is the need for staff in small organisations and communities to play multiple roles, which also need to be valued, and supported with training. Variability caused by markets, policies, staff and climate all drive the need for staff to be tremendously flexible and adaptable.

- Be imaginative and flexible in creating longer-term contracts and attractiveness in regional NRM jobs
- Value and train people for multiple roles.

The importance of local knowledge stems from the fact that formal research will always be modest and the vast areas of the LEB demand sensitivity to local conditions in ways that are less important in small coastal catchments. Hence it is strategic to emphasise local knowledge (including Aboriginal knowledge) in interface partnerships. However, these need to create the best possible alliances with agency and scientific knowledge where possible. Local community ownership of NRM planning and implementation activities is needed so that there is access to locally relevant knowledge. Horizontal learning among NRM groups (often themselves far apart geographically) is also important to speed up the rate of improvement; governments have a key role in facilitating this. Measuring appropriate factors – e.g. outcomes, staff turnover, collaboration, awareness, representativeness – can provide vitally important feedback for learning.

- Ensure representative engagement with the community to gain true community ownership that permits access to locally relevant knowledge.

Governments need to recognise that all these factors mean that there are cultural differences in people and institutions in remote regions such as the LEB. Successful local organisations may operate rather differently from those in more settled areas; therefore, specific flexibility in how organisations operate should be allowed, that is, define the necessary components for accountability and transparency but then allow the community to self-organise. Conversely, the community must recognise and respect the fact that government staff have institutional pressures which may not match local priorities, and work with (and around) these rather than just running into conflict with them.

In considering the success factors presented in this research, it is clear that NRM engagement requires a multitude of seemingly contrasting characteristics: to be independent yet maintain effective partnerships; to be the voice of the community while being in alignment with government priorities; to
be determined yet adaptive. This demonstrates that the very nature of interface organisations poses a challenge in terms of having multiple, and frequently competing aims and priorities. However, at least it is clear that these challenges are recognised by community members and government officers alike, as is the importance of supporting successful engagement processes. This was reflected in the high degree to which the participants who took part in this research were keen to hear of the outcomes of the study and to contribute towards and to receive the outcome of the ‘factors for successful engagement’ presented in this study.

5. Component 3: Case studies of regional engagement

5.1 Case study 1: responding to demographic and industry changes in the LEB

The research found differences in how forecast changes in population and industry may play out depending on the sector and the region. In SA, it was generally perceived that some future NRM issues would be largely the same as those today. For example, land holders would still be focused on day-to-day survival but with the main difference being one of recognition: that NRM would be given a higher priority. By contrast, in Qld it was considered that climate change may place extra pressure on the region, and that global demographic trends are triggering increased population which may increase demand for natural resources in the LEB. In both regions, it was considered that the increase of mining and petroleum industries would bring a considerable increase in population to the region, but one with relatively little connection to the land and limited long-term commitment to the area. This would raise significant challenges for resource management and in particular for water resources; however, it could also bring advantages in terms of infrastructure.

The lack of reliable data on which to base projections was raised as a key concern in both regions, due to the impact this has on the ability to plan for future change. In both regions, it was thought that the tourism industry was likely to increase with improved infrastructure (due to mining), increasing accessibility and the influx of new people into the area. This was supported by the increasing trend for pastoralists to diversify income sources through tourism on properties, and the increasing presence of private conservation NGOs as land holders in the region.

Workshop participants from SAAL emphasised that successful engagement in their region currently requires a different approach to other regions due to the small, sparse population. Being seen as part of the community and developing strong relationships with the community was very important. This involved taking a personal approach: linking SAAL with community events and being seen as more than government representatives. An intrinsic part of this was having continuity of staff over the longer term to allow for these relationships to build. Perhaps one of the most challenging aspects of successful engagement raised was balancing the (nationally defined) outcomes and administrative requirements of the NHT with regionally specific community priorities and emerging issues.

A key finding was that greater flexibility was needed to maximise meaningful engagement and limit community disenfranchisement with the process. In many cases, government-defined time frames and outcomes of the program were often inappropriate for the needs of desert regions and therefore limited the success of engagement. It was suggested the governments need to place a greater degree of trust in regions to deliver programs and allow NRM Boards to address challenges without overly prescribing outputs in the funding process. This would allow the regions to deal with changing circumstances and emerging priorities without compromising goals for environmental outcomes. A degree of discretionary funds for regional NRM organisations would facilitate the ability to respond to community needs.
A crucial factor affecting current engagement that was raised in the DCQ workshop is how to successfully interact with government. Perhaps unsurprisingly, many features of good community engagement, such as developing strong relationships and understanding diverse perspectives, are equally important in the government sphere. Understanding the rationale and context for government policy and processes was seen as a key to negotiating meaningfully and avoid being stuck in an adversarial position. Maintaining a good relationship with government was seen to be important, and one way to do achieve this is through hosting visits from government representatives and building their understanding of the region and its NRM issues. While maintaining a strong relationship with government was important, it was also noted that standing up to government is important in some situations. Another success factor was to discuss issues without polarising positions.

In both Qld and SA, the factors influencing the successful engagement into the future were seen to be largely the same as those that operate in the present. The changes that were thought to be relevant were that future generations will probably be more aware and educated about the environment and NRM issues, making the focus of engagement a more elaborate building of knowledge and moving beyond introducing basic concepts of NRM. In addition, the importance of expanding partnerships and building relationships with private industry, research organisations and private conservation companies was emphasised. In terms of engaging with the policy environment, it was thought that there would be an increasingly complex operating context for regional bodies, which makes transparency more challenging. DCQ noted that their experience of engaging with Aboriginal communities is influencing how they approach engagement more broadly, now and into the future. For example, they noted the importance of allowing adequate time frames, communicating face to face and developing relationships and communicating in ways that are culturally appropriate.

The SAAL Board emphasised the need for a more tailored approach to engagement in the future through better defining and understanding who they were engaging with, why, and what the best mechanisms or approaches were to achieve this. They were already attempting to achieve this through the development of district groups, providing a forum for community concerns to be voiced to the Board. They also identified the need for clearer entry points to engage with Aboriginal communities in the future, along with the importance of understanding the priorities of Aboriginal communities.

The case study concluded that there was a widespread perception that the nature of the NRM engagement challenges in the LEB over the next 20 years or so are likely to be very similar to those of today. However, the intensity of those challenges is generally thought to be much greater than they are today. In considering the monitoring implications for this, aiming to adequately address current challenges may prove insufficient over time as engagement challenges intensify. The case study reinforced that effective management of remote regions requires respect for desert time lines, which was thought to be under-acknowledged by policy makers located exterior to the LEB. In terms of monitoring, this demonstrates the importance of considering multiple time scales. A crucial finding is that regional NRM groups in the LEB have very limited engagement with the mining and energy sectors, which reflects a dichotomy between, on the one hand, NRM and, on the other, mining and energy industries. This highlights the importance of self-assessment and monitoring of relationships to identify new opportunities with these stakeholders in the future.
5.2 Case study 2: A broker diagnostic for assessing local, regional and LEB-wide institutional arrangements for Aboriginal governance of dryland environments

The second case study involved developing a diagnostic for assessing Aboriginal environmental governance of dryland environments. Earlier phases of the project highlighted the importance of activities and support for individual ‘brokers’ employed by organisations to manage the ‘interface’ between communities and natural resource users and government agencies. This work also highlighted that Aboriginal participation in environmental programs continues to be a critical challenge and priority for many interface organisations, such as DCQ and SAAL regional natural resource management bodies.

The framework is referred to as a *broker diagnostic*. This reflects the importance of individual facilitators, leaders and community champions to broker the interface between Aboriginal communities and environmental programs and institutions. The framework proposes that these individuals can act as a valuable ‘litmus test’ to critically assess the support provided to Aboriginal communities to manage the Aboriginal and shared environments and resources of the LEB.

Brokers who are funded by government programs to manage the interface between Aboriginal communities, local and regional organisations and government agencies were chosen to take part in the case study. Interviewees were approached based on formal roles established by government environmental programs and informal roles chosen by Aboriginal communities. Their titles varied from ‘facilitator’ to ‘manager’ or ‘leader’. Each broker was asked questions to obtain their perspectives on their role and how it fitted with the principles outlined below.

Of the 33 informants, seven identified themselves as being of Aboriginal and Torres Strait Islander descent. When discussing this bias with those seven informants, some noted that this bias reflected a reality in the LEB. One Aboriginal facilitator interviewed succinctly outlined the dilemma: ‘Aboriginal leaders are busy being leaders for their own communities … there aren’t many left [who have the] time or skills needed to also work for the government mob’. At the time of writing, regional bodies operating in LEB approached for this study noted that facilitators who could broker their efforts with local Aboriginal communities in the region were absent or precariously engaged, and overwhelmingly needed. Even so, this is an important bias in the results presented by this preliminary assessment.

The broker diagnostic has been informed by research that has critically examined key drivers affecting sustainable development in dryland environments (Reynolds et al. 2007) and the emergence of regional integrated planning approaches to achieve sustainable development outcomes (e.g. Morrison et al. 2004, Lane & Robinson, in review). Of particular interest in this body of research are the assessments of Aboriginal participation in local and regional NRM programs in Australia (e.g. Robinson et al. 2005, Lane and Williams 2008); and the role of brokers in regional NRM planning and implementation (e.g. Fenton 2007).

This work was used to inform the following three components that underpin the broker diagnostic:

- **Component 1**: Brokers and organisations understand the key contextual issues affecting Aboriginal environmental governance.
- **Component 2**: Brokers have individual, Aboriginal community and organisational capabilities needed to respond to key issues affecting Aboriginal environmental governance.
- **Component 3**: Aboriginal Knowledge is integrated into environmental planning and management.
A rapid application of this broker diagnostic was undertaken between late 2007 and early 2008 using the research approach summarised above. While the application of this broker diagnostic is preliminary at best, the analysis done to date does start to provide an assessment of the organisational support for Aboriginal environmental governance in this dryland macro-region of the LEB and is summarised in the table below.

Table 1: Summary of results from broker diagnostic

<table>
<thead>
<tr>
<th>Component</th>
<th>LEB findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brokers and organisations understand the key contextual issues affecting Aboriginal environmental governance.</td>
<td>Interviews suggest a strong bias towards Aboriginal participation in local NRM planning processes. LEB-wide arrangements have failed to take into account how broader planning decisions and outcomes can engage with Aboriginal people and accommodate the multiple outcomes that Aboriginal communities wish to achieve through NRM activities, partnerships and programs.</td>
</tr>
<tr>
<td>Brokers have individual, Aboriginal community and organisational capabilities needed to respond to key issues affecting Aboriginal environmental governance.</td>
<td>Limited</td>
</tr>
<tr>
<td></td>
<td>Local brokers felt they were doing their best to support Aboriginal community efforts to make sustainable NRM decisions and engage in partnerships to help them respond to issues affecting Aboriginal communities and lands. Brokers working at each level noted the lack of support provided by regional and LEB-wide organisations to support ‘vertical’ integration between local, regional and LEB-wide organisations and lack of ‘horizontal’ coordination between authorities working at the same decision-making level. As result brokerage efforts to respond to the multi-level dimensions of Aboriginal environmental governance is weak.</td>
</tr>
<tr>
<td>Aboriginal Knowledge is integrated into environmental planning and management.</td>
<td>Limited</td>
</tr>
<tr>
<td></td>
<td>Knowledge integration with Aboriginal people, experiences and epistemologies is a key challenge and need reported by many brokers. Most of the effort to date has focused on the local scale and some success has been reported on instrumental dimensions of Aboriginal Knowledge – i.e. bush tucker and its uses and interactive dimensions of Aboriginal Knowledge that can easily be used to inform other stakeholder practices (i.e. fire management strategies).</td>
</tr>
</tbody>
</table>

Brokers’ accounts and experiences show that partnerships seriously engaging Aboriginal people in environmental planning, management and review while maintaining the support from all other partners (Aboriginal, non-Aboriginal and government) are far from easy to achieve. Engagement strategies often fail to reflect or accommodate Aboriginal people’s motivations to enter into partnerships, which include efforts to improve the economic, social and physical health of Aboriginal people and build capacity in their communities (e.g. Wondolleck & Yaffee 2000). Issues of unequal power relations within partnership agreements have also been identified, limiting Aboriginal people’s ability to achieve mutually beneficial outcomes. Integration of Aboriginal knowledge into NRM priorities and decision-making can also be difficult and requires careful negotiation of appropriate protocols to enable equitable and appropriate sharing of knowledge with other stakeholders.

Results from the development and rapid application of the diagnostic provides regional NRM organisations with some insights into how to examine the current approach to integrate environmental management programs and activities with Aboriginal people and communities in the LEB. It is not intended to provide an ‘ideal’ solution for institutional arrangement design and activities. Rather, it is meant to support dialogue between local, regional and LEB-wide organisations and Aboriginal communities about how to best support Aboriginal people and their land management responsibilities in the LEB.

The diagnostic recognises the high reliance on brokers to achieve this integration and dissects the context and organisational arrangements that support their work. This helps to determine the degree to which these ‘interface nodes’ achieve the integration needed for effective environmental and natural resource management. Areas for further consideration and exploration would be:
• To critically examine the reliance on brokers as a mechanism for integration, and if these individuals are to be used how they can be supported more effectively.
• To examine how broker work and supporting organisational functions and activities can be managed in a more coordinated way to enable integration across and between scales of NRM decisions and activities.
• To examine how local, regional and LEB-wide integrated environmental management can better respond to drivers identified in this diagnostic.

6. Component 4: Monitoring framework for successful NRM engagement

This chapter first summarises the learnings from the monitoring and evaluation literature, as presented in Larson and Williams (2009). A conceptual framework for monitoring and evaluation of engagement (MEE) in remote regions is then proposed. This framework is based on the findings from the literature as well as learning from the case studies. It is recommended that the proposed conceptual framework should be tested with the on-ground interface agencies and refined as a next research step.

6.1 Learning from the literature for the LEB context

The very absence of monitoring in most participatory projects in the past has been identified as potentially the largest gap in methodological knowledge about engagement processes (Abbot & Guijt 1998, Guijt 1998, Buchy & Hoverman 2000, Lane 2005, Reddel & Woolcock 2004, Abelson & Gauvin 2006).

Four broad reasons as to why government might want to get the public engaged in a particular process can be summarised as follows (Lane 2005, Rosenstrom & Kyllonen 2007, Warburton et al. 2006):

1. fairness and improved governance
2. social learning and improved social capital
3. improved quality of delivery or service
4. improved competence and capacity building.

It is also important to acknowledge that there are two general reasons for monitoring: monitoring for auditing purposes, where a funding body requires that an implementing body or stakeholders monitor the engagement process and outputs in order to ensure compliance with the funding contracts; and monitoring for evaluation and learning, where the implementing body and stakeholders are interested in monitoring the quality of their actions and deliverables in order to learn and improve in the future.

What we monitor for in engagement will therefore fundamentally depend on the core reasons for the engagement. In recent years, there has been a notable shift towards: monitoring of learning (in communities and within organisations); applying of lessons; capacity or competence building; and joint actions to determine agreed outcomes (Mahanty et al. 2007). Reasons for engagement will play a large role in what is monitored, as well as in determining the level of engagement (Buchy & Hoverman 2000, Stalker Prokopy 2005).

Monitoring is a process and not a single action, and therefore should occur at different stages of the engagement process. Stages in monitoring can be summarised as monitoring of inputs, process, outputs, outcomes, trends and the unexpected (Bond et al. 2006, Cuthill 2003, Johnson 2004, MED 2004).

Several cautionary notes have been prominent on this subject. Most notably, there is a need to consider time frames; that is, distinguish the shorter- and longer-term changes. Also, several authors have

However, there is a general agreement that any monitoring system, engagement monitoring included, needs to be valid, relevant, specific, timely, reliable, sensitive, feasible and cost-effective (MED 2004, UNDP nd). Several ‘features of the system’ or ‘principles of good practice’ are proposed (Bond et al. 2006, Krick et al. 2005, MED 2004, Syme & Sadler 1994, UNDP n.d., Warburton et al. 2006), such as:

- The monitoring and evaluation system itself should be participatory and should fully involve different project stakeholder groups and staff throughout the system stages. The system should be user friendly and culturally sensitive.
- Criteria to demonstrate whether objectives are met should be agreed at the outset by all stakeholder groups concerned. The criteria should be well thought through, focus on both short-term and long-term views, be both qualitative and quantitative, consider wider context of external drivers, etc.
- The system should be planned for all stages of engagement and should allow for changes in process and methods if needed. Monitoring should be treated as an integral part of the projects, and evaluations should occur over time as a continuous effort.
- Plans should include the purpose, the process, as well as responsibilities, resources, methodologies, etc.
- Findings should be recorded, communicated and used as a basis for future improvements. Principles of adaptive management should be followed.
- Effort should be balanced in terms of costs versus benefits and should concentrate on provision of useful information. The key achievement is to collect and analyse a minimum but sufficient amount of data and information for adaptive learning.

NRM bodies are likely to be familiar with and adhere to the principles of best practice as a part of their overall monitoring, evaluation, reporting and improvement (MERI) system.

Several references stress that there is no ‘one size fits all’ generic approach to monitoring and evaluation of engagement processes, nor there is a generic set of indicators (MED 2004, Warburton 2006, Krick et al. 2005, UNDP n.d., Buchy & Race 2001). Rather, the above good practice principles should be used in the development of the project-specific engagement process and monitoring and evaluation plan. Specific priorities for monitoring need to be well thought about and set. The plan needs to target specific interests at a specific scale, and needs to monitor a specific stage of the activities. In addition, allowing for the specific circumstances of the organisation related to human, financial and other capitals is crucial for the creation of feasible plans.

6.2 Monitoring engagement in remote regions

Generic principles of good practice for monitoring and evaluation of engagement (MEE) have been summarised in the previous section. However, several other aspects of planning should be taken into account when planning for engagement in NRM in remote regions.

Figure 9 provides a conceptual framework developed to guide the MEE planning process for NRM in remote regions. The framework proposes to follow the principles of ‘Good practices’, but also to take into account the variety of interests of different stakeholders and the specificities of desert conditions (Stafford Smith 2008). The principles of good practices, stakeholder interests and desert drivers need to be viewed in the context of the three-dimensional system that they reside within: the time scale; the geographic scale; and the societal/institutional scale. Only by taking all of these into account can we attempt to create a tailor-made, efficient and effective engagement monitoring plan.
Thus, successful monitoring of engagement needs to take into account principles of good monitoring practice, the variety of stakeholder interests and the desert drivers, and to address them at the right geographic, institutional and time scale.

6.2.1 How to approach MEE?

Ways in which organisations can address their monitoring needs are many. The conceptual framework presented in Figure 9 above provides a reminder of the issues that should be thought about and taken into account when devising a plan for monitoring of engagement. General principles for monitoring, as discussed in the previous section, should also be followed. The key objective is to minimise additional effort, that is additional financial capital and staff effort required to MEE, as well as to minimise additional burden on the stakeholders, who will often be ultimate ‘judges’ of the progress.

Therefore, every attempt should be made to maximise the use of existing monitoring and evaluation plans and data collection exercises (Figure 10). Any additional monitoring and evaluation should be carefully assessed against the capacity required for the additional efforts. MEE action lists and plans should not be developed before a ‘reality check’ is performed to confirm that the resources needed for additional activities indeed exist (Figure 10). Recording and reporting to the stakeholders should be undertaken, and the information thus collated should be used to evaluate the existing engagement and learn from both the shortcomings and success stories. Learning from the historic experiences should always be applied before further actions take place (Figure 10).
6.2.2 What to monitor and evaluate? ‘Situation analysis’

As discussed previously, the organisation can monitor and evaluate inputs required for the activities to be completed, the process and outputs of the activities as set in the plans or the outcomes of actions and trends they create. In addition, the organisation can also monitor for the unexpected, that is, unplanned things that occur during the plan’s cycle. Most importantly, the organisation needs to be able to learn from the MEE, and as a result improve its performance in the future.

**Shorter term**  
**Longer term**

<table>
<thead>
<tr>
<th>Input</th>
<th>Process</th>
<th>Output</th>
<th>Outcome</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Be determined</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Think of long-term results</td>
<td>Think of long-term results</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Access resources when you can</td>
<td>Take advantage of opportunities</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Recognise desert champions</td>
<td></td>
<td>Build and maintain trust</td>
<td>Build and maintain trust</td>
<td></td>
</tr>
<tr>
<td>Desert talk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Build and maintain trust</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop community ownership</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Recognise different roles you play</td>
<td>Maintain transparency</td>
<td>Use the partnerships effectively</td>
<td>Be adaptive</td>
<td></td>
</tr>
<tr>
<td>Use the partnerships effectively</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learn how the system works</td>
<td></td>
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</tbody>
</table>

Different tools for success, or ‘success factors’, as proposed in this report, will have their key importance at different stages of the MEE process (Figure 11). We propose that interface agencies could monitor *some* of the tools for success and evaluate their performance and progress around them. Table 2 provides ideas on which success factor could be monitored, and how, at each stage of the activities cycle. Examples of methods that can be used for MEE are also listed.
Table 2: Success factors that could be monitored at various stages of the MEE cycle, with examples of monitoring methods that could be used

<table>
<thead>
<tr>
<th>Stage</th>
<th>What to monitor</th>
<th>Examples of how to monitor</th>
<th>When?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inputs</td>
<td>Your stakeholders and champions:</td>
<td>Create a table on 'Enablers' (what would you need to happen to enable you to complete the planned activity?). Select a few of what you consider key enablers and monitor and record what happens with them:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Have we defined our critical engagement audiences? Who are they?</td>
<td>- In principle?</td>
<td>Throughout the process</td>
</tr>
<tr>
<td></td>
<td>Which are engaged? Who is disengaged? Who is being overlooked?</td>
<td>- In practice (e.g. financially)?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Who are our key champions? Are we looking after them?</td>
<td>Signal of success: To what level of engagement?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Use of existing knowledge:</td>
<td>1. Off the radar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Building and maintaining trust:</td>
<td>2. In discussion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Are we incorporating local knowledge to decision making?</td>
<td>3. Contributing to the agenda and sharing decision making</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Are we incorporating Aboriginal knowledge to decision making?</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Are we using our institutional and corporate knowledge?</td>
<td></td>
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<tr>
<td></td>
<td>Working strategically within the NRM System:</td>
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<tr>
<td></td>
<td>Are we being strategic?</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Are we in line with community priorities?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Are we in line with government priorities?</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Are we supporting Aboriginal brokers?</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Opportunistic resourcing:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Are we looking 'out of the box' for resources (human, financial, operational,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>etc) and partners?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Create a table on 'Enablers' (what would you need to happen to enable you to complete the planned activity?). Select a few of what you consider key enablers and monitor and record what happens with them:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- In principle?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- In practice (e.g. financially)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Signal of success: To what level of engagement?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Off the radar</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>2. In discussion</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Contributing to the agenda and sharing decision making</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Throughout the process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process and outputs</td>
<td>Community ownership:</td>
<td>Create a list of the activities and outputs you want to monitor. Select a few that you consider key and monitor and record what happens:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Are we being listened to?</td>
<td>- Did the activity/output occur?</td>
<td>At the time of the activity or soon after output was produced</td>
</tr>
<tr>
<td></td>
<td>Long-term results:</td>
<td>- How was it received? What did your stakeholders think?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>How well are we considering different time frames?</td>
<td>Staff can monitor and evaluate using activities journals; stakeholders can be approached through surveys.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Project time frames (months)</td>
<td>Signal of success: To what level of engagement?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Funding time frames (years)</td>
<td>1. Off the radar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Desert time frames (decades)</td>
<td>2. In discussion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Understanding of different roles we play and effective partnering:</td>
<td>3. Contributing to the agenda and sharing decision making</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Working strategically within the NRM System:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Are we seen by the community as 'just another arm of government'?</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>- Are we seen by the government as credible partners?</td>
<td></td>
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<tr>
<td></td>
<td>Desert talk:</td>
<td></td>
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<tr>
<td></td>
<td>Are we using the technology as best as we can?</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Are we sharing with our stakeholders as much as we should?</td>
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<tr>
<td></td>
<td>Are we taking the opportunity of community events to meet with our stakeholders?</td>
<td></td>
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<tr>
<td></td>
<td>Are we using the technology as best as we can?</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Stage</td>
<td>What to monitor?</td>
<td>Examples of how to monitor</td>
<td>When?</td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Outcome</td>
<td>Adapting and thinking of long-term results:</td>
<td>Discuss planned versus real using ‘Gap identification’:</td>
<td>Outcomes should be monitored on a long-term scale, preferably annually.</td>
</tr>
</tbody>
</table>
|            | Are we learning?  
|            | - Are the goals being updated?                                                   | OR Discuss most important outcomes                                                           |                                                                       |
|            | - Is it helping?                                                                 | OR Rate your outcome against best and worst case scenarios you have developed                |                                                                       |
|            | Are we effecting long-term drivers of change?                                    | Compare objectives as set in operational plans with what is happening on the ground          |                                                                       |
|            | - Do we know how to respond?                                                     |                                                                                             |                                                                       |
|            | Transparency:                                                                   |                                                                                             |                                                                       |
|            | Are we informing our stakeholders and partners of our learning and changes       |                                                                                             |                                                                       |
|            | we want to make as a result?                                                     |                                                                                             |                                                                       |
|            | Determination:                                                                  |                                                                                             |                                                                       |
|            | Are we managing to maintain the enthusiasm of our stakeholders, partners and     |                                                                                             |                                                                       |
|            | champions?                                                                      |                                                                                             |                                                                       |
|            | Are we taking enough initiative to achieve our goals?                            |                                                                                             |                                                                       |
| Trends     | Adapting:                                                                       | Assess the change against pre-set ‘Signals of success’;                                      | Trends should be monitored on a long-term scale, preferably annually.  |
|            | Which way are we heading?                                                       | or use stakeholder surveys.                                                                 |                                                                       |
|            | Building and maintaining trust:                                                  | Signals of success:                                                                          |                                                                       |
|            | Do our stakeholders trust us?                                                    | 1. Easy runs: impact points through mainstream programs                                       |                                                                       |
|            | What is the % of people who take up our advice?                                  | 2. Using easy runs as a catalyst for addressing bigger issues                                 |                                                                       |
|            | Using the partnerships effectively:                                             | 3. Tackling complex challenges: engaging with new types of people, addressing emerging      |                                                                       |
|            | Are we managing to maintain the enthusiasm of our stakeholders, partners and     | problems                                                                                  |                                                                       |
|            | champions?                                                                      |                                                                                             |                                                                       |
|            | Long-term results:                                                               |                                                                                             |                                                                       |
|            | Are we just going for easy and ‘preaching to the converted’ or are we addressing |                                                                                             |                                                                       |
|            | complex challenges with disengaged stakeholders?                                 |                                                                                             |                                                                       |
| Unexpected | Adapting:                                                                       | Use journals and/or stakeholder surveys.                                                     | Annually                                                             |
|            | Taking advantage of unexpected opportunities:                                   | Record the unexpected when it happens; have at least an annual ‘check’ of different         |                                                                       |
|            | Did anything happen that we did not foresee but had significant impact on:       | operational aspects and stakeholder experiences to ensure you have not missed                |                                                                       |
|            | - our organisation?                                                              | something.                                                                                  |                                                                       |
|            | - our engagement?                                                                |                                                                                             |                                                                       |
|            | - our stakeholders?                                                              |                                                                                             |                                                                       |
7. Conclusion

The ‘People, communities and economies of the Lake Eyre Basin’ has been an innovative project that has brought together four distinct elements into an integrated research program, combining social, economic and resource profiles, a toolkit of success factors for NRM organisations focusing on the importance of successful engagement, detailed case studies of individual and organisational attributes relevant to successful NRM and a monitoring framework to facilitate learning among NRM organisations. As a highly participatory project, the research team have been guided by and engaged with a steering committee of leaders from the spheres of community, science and policy, including the directors of crucial NRM regional organisations and key representatives of the LEB Community Advisory Committee and LEB Scientific Advisory Panel. This highly supportive environment has greatly assisted the research team to develop and implement a project that has been scientifically and practically relevant.

From the first component of the project, it was clear that the administrative setting in the LEB is unique, straddling four jurisdictions and four regional management authorities. Except for Qld, regional management arrangements extend beyond the borders of the LEB. Lack of alignment in the other boundaries such as catchment management, conservation management and Local and State Government boundaries presents a challenge for achieving coordinated and integrated natural resource management. Within this context, the social, economic and resource profile provides a stand-alone overview of this socially complex and ecologically unique basin. As a snapshot of the region, the residents of the LEB and the LEB Ministerial Forum are likely to find great value in this profile. To build on this investment into understanding this region, repeating the profile on an iterative basis in the future is an option.

Successful NRM outcomes in the LEB require successful engagement processes. Understanding the ‘success factors’ of engagement is of crucial importance for NRM regional bodies and all organisations at the interface between formal governance processes and community action. It is also important to emphasise that engagement is as much about interfacing with governments as it is with supporting on-ground community action. The principles and tools presented in the success factors report were identified, distilled and integrated from a combination of literature review and interviews with both Australian and State Government liaison officers and community residents of the LEB.

Some of the tools and principles for NRM in the LEB are location specific. These include respecting desert time frames and being opportunistic when scarce resources and circumstances arise infrequently. Other success factors are generic to a wide range of management contexts, such as building community ownership, communicating well and maintaining transparency. However, even these are manifested differently in remote areas, where communication is complicated by distance and sparse populations. Maintaining credible staff and avoiding community burnout are major issues for NRM in general, and this research demonstrated acute reliance on particular individuals throughout the LEB who take on multiple roles. It is crucial for NRM agencies to recognise such constraints and to engage with regional NRM organisations in remote areas in a way that is mindful of the pressures they are under, being conducive towards resolving these where possible.

The case studies presented here were developed based on the understanding generated in component 1 and tied to the ‘success factors’ presented in component 2. With oversight from the project steering committee and interest from the regional NRM interface organisations, they took up two important and practical aspects of the social dimensions of successful NRM at the individual and organisational scales in the LEB.

One case study involved discussing industry and demographic changes with NRM regional organisations through workshops. The research investigated the similarities and differences in how forecast changes may play out depending on the sector and the region. One of the key findings of this was that, from an engagement point of view, the challenges for NRM organisations are likely to be broadly similar in
the future, though more intense in some cases as more people move to the LEB temporarily to work in expanding industries such as minerals and energy production. Though these people may reduce the effects of under population, they may not share the same level of commitment to the unique social character and ecology of the region that is held by current residents. A further conclusion was that NRM bodies have limited interaction with the mining and tourism sectors and that opportunities for greater collaboration exist with these sectors.

The other case study emphasised the importance of individual facilitators, leaders and community champions to broker the interface between Aboriginal communities and environmental programs and institutions. It proposed a diagnostic tool to critically assess the support provided to Aboriginal communities to manage the Aboriginal and shared environments and resources of the LEB. The case provided a new approach to recognising and supporting Aboriginal participation in environmental management programs.

The fourth and final component of the research has delivered a monitoring framework summarised in this report, and expanded upon in a separate volume. It has been developed building on the strength of the former research components and informed by a detailed national and international literature review that was too broad to present in this synthesis volume.

The monitoring framework instils monitoring components drawing on the success factors in relation to a time line from short-term to long-term trends. The framework presents a practical approach to what, when and how to monitor the characteristics of regional NRM organisations that characterise successful NRM interface organisation functioning in the LEB.
8. References


SKM [Sinclair Knight Mertz]. 2002. *Aboriginal Language Groups in Australia*. Australian Institute of Aboriginal and Torres Strait Islander Studies (AITSIS) and SKM, Canberra.


Appendix 1: Tools for successful NRM engagement

1. Work strategically in the system
Successful NRM engagement relies on maintaining community trust while carefully navigating governance processes.

Learn how the system works
- Understand the rules and cultures and know how and when to use them.
- Ask about the meaning between the lines when policy is ambiguous
- Be strategic: look for the right mix of regional independence and fitting in with federal and state government priorities.

Be adaptive
- Over time community perspectives and priorities change
- Adapt to changing governments and processes

Use partnerships effectively
- Recognise the value of long-term collaborations
- Link with agencies, research and industry
- Meaningful inputs require meaningful outputs

Maintain transparency
- Let the public know about decisions taken
- Publicise outcomes effectively e.g. online
- Maintain necessary documentation
- Keep people informed: knowledge is power

2. People play multiple roles in sparse populations

Recognise the different roles you play
- Interface organisations have different roles, from delivering government programs to eliciting community views
- Wear the right hat for the job

Develop community ownership
- If possible, avoid acting just as ‘another arm of government’
- Listen to community perspectives and be mindful of community concerns
- Engage community sectors in meaningful decisions that affect their interests

Build and maintain trust
- Acknowledge, accept and respect different perspectives and interests
- Negotiate fairly and openly

Desert talk
- Face-to-face communication is best but expensive across large distances
- Be flexible with technology when face to face is not an option
- Plan to make communication inclusive

3. Recognise desert champions
Remote NRM depends on key individuals. Recognising and supporting these people is crucial to successful engagement.

- Individuals can make or break NRM projects in remote regions
- Build and support community advocates
- Long-term staff are more likely to have the experience, respect and credibility.
- Encourage people who are good on the ground, natural communicators

4. Take advantage of opportunities
Opportunities can be unpredictable and infrequent in remote regions. Like with desert rain, take advantage of circumstances when they come.

Access resources when you can
- Look out for changes in funding environments
- Take advantage of visits – a friendly talk can make a big difference with the right people

5. Focus on desert time frames
Thinking ahead and maintaining commitment are crucial to long-term survival.

Think of long-term results from short-term initiatives.
- Work towards an agreed vision
- Plan for future opportunities
- Call in a favour when you need to.

Be determined
- In remote regions, maintaining enthusiasm and commitment is crucial
- Initiative and perseverance help get access to information and resources
2. Regional profile of the Lake Eyre Basin catchments

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The work reported in this publication was supported by funding from the Australian Government. The views expressed herein do not necessarily represent the views of Desert Knowledge CRC or its Participants.

Citation


Acknowledgements

Funding for this study was provided by

- Natural Heritage Trust (NHT, http://www.nht.gov.au/)
- Commonwealth Scientific and Industrial Research Organisation Division of Sustainable Ecosystems (CSIRO CSE, http://www.cse.csiro.au/).

The authors acknowledge the valuable contributions to the regional profiles made by the project steering group (Angus Emmott, Geoff Lawrence, Alwyn McKenzie, John Childs, John Gavin, Krista Hancy, and Mike Chuk), and other CSIRO project researchers (Silva Larson, Cathy Robinson, Tom Measham, Angela Wardell-Johnson, Mark Stafford Smith, Tim Lynam, Anne Leitch and Beau Hug), by DWLBC in SA and DNRMW in Qld, and BRS in Canberra. Also thanks to the Desert Knowledge CRC, in particular Ange Vincent, Alice Roughley, and Jan Ferguson.

Kris Kleeman (MDBC), Krista Hancy (DEH), Jane Hoskins (DEH), John Maconochie (DWLBC), Michael Malavazos (PIRSA), Vol Norris (DEH), Mark Pierson (DNREA), Tim Ransley (BRS) and James Shaddick (DCQLD) are thanked for providing support in obtaining spatial data.

This document was circulated as a draft at the Lake Eyre Basin Conference in September 2006, particularly through the Lake Eyre Basin Ministerial Forum’s Community Advisory Committee (‘CAC’) and the State and Commonwealth agency staff (‘officers’) involved. Comments received from various community and agency readers were incorporated in the document. The edited draft was then made available to the CAC and government officers on a private website location for finalisation through the remainder of 2006. The CAC meeting in Canberra on 28th March 2007 agreed that the document should be released publicly and committed resources to its circulation. It was published separately from this volume as Herr A, Smith, T and Brake L 2007, Regional Profile of the Lake Eyre Basin Catchments, Desert Knowledge CRC, Alice Springs.
## Contents

Preface ........................................................................................................................................... 46

1. Introduction .................................................................................................................................. 47
   1.1 The Lake Eyre Basin context ................................................................................................... 47
   1.2 Natural resource management in the LEB ........................................................................... 48
   1.3 Overview of key findings ....................................................................................................... 48

2. Topography and management arrangements .............................................................................. 50
   2.1 LEB roads, major population centres and management boundaries ...................................... 50
   2.2 Floodplain areas ..................................................................................................................... 50
   2.3 Remoteness and health services ............................................................................................. 50

3. Land use and tenure .................................................................................................................... 53
   3.1 Land use in the LEB .............................................................................................................. 53
   3.2 Tenure arrangement in the LEB ............................................................................................. 53
   3.3 Native title and Aboriginal tenures ......................................................................................... 54

4. Biogeographical regions and landscape health .......................................................................... 54
   4.1 Landscape health ..................................................................................................................... 56
   4.2 Landscape stress ...................................................................................................................... 56
   4.3 Hydrological conditions .......................................................................................................... 57

5. Biological and physical land conditions ..................................................................................... 57
   5.1 Rainfall and evaporation ........................................................................................................ 59
   5.2 Soil limitations of the LEB ..................................................................................................... 59
   5.3 The Great Artesian Basin groundwater source ................................................................... 59

6. Population statistics, sectorial information and wellbeing indices ........................................... 62
   6.1 Administrative regions ............................................................................................................ 62
   6.2 Aboriginal statistics ............................................................................................................... 64
   6.3 General employment statistics and sectorial employment .................................................... 67
   6.4 Socio-economic indices for areas – SEIFA ......................................................................... 69
   6.5 Methods and data sources ..................................................................................................... 70

7. Tourism and mining .................................................................................................................... 70

8. Conclusion ................................................................................................................................... 73

9. References .................................................................................................................................... 74

Appendix A: Description of IBRA regions .................................................................................... 76
Appendix B: Soil mapping descriptors and lookup table ............................................................... 78
Appendix C: Australian Standard Geographical Classification .................................................... 79
Appendix D: Variable specifications for the SEIFA Indices ............................................................. 80
Appendix E: Further details to Figure 42 ...................................................................................... 84
Figures

Figure 1: LEB sub-catchments and regions ................................................................. 51
Figure 2: LEB state-based management authorities .................................................. 51
Figure 3: Multi-resolution Valley bottom flatness index of the LEB also showing ephemeral rivers and saltlakes ... 51
Figure 4: Remoteness score of LEB locations and remoteness classification of the LEB ................................................................. 51
Figure 5: Health services in the LEB ........................................................................ 52
Figure 6: Land use in the LEB .................................................................................... 52
Figure 7: Interpolated property sizes ........................................................................ 52
Figure 8: Tenure arrangement in the LEB ................................................................. 52
Figure 9: Native title, Indigenous Land Use Agreements (ILUA) and Aboriginal tenure in the LEB ................................................................. 55
Figure 10: LEB bioregions ......................................................................................... 55
Figure 11: Priority bioregions in the LEB for developing the National Reserves System ................................................................. 55
Figure 12: Landscape stress in the LEB ..................................................................... 55
Figure 13: Hydrological conditions in the LEB ......................................................... 58
Figure 14: Potential evaporation divided by mean annual rainfall ................................ 58
Figure 15: Mean annual rainfall ............................................................................... 58
Figure 16: LEB soil limitations .................................................................................. 58
Figure 17: Great Artesian Basin ................................................................................ 61
Figure 18: Wetlands in the LEB ................................................................................ 61
Figure 19: Location of springs in the LEB ................................................................. 61
Figure 20: Location of artesian bores in the LEB ...................................................... 61
Figure 21: Administrative boundaries ...................................................................... 63
Figure 22: Urban Centre/Location (UCL) residents counted at home during census night ................................................................. 63
Figure 23: Population density based on residents at home during census night ....... 63
Figure 24: Total number of residents counted at home during census night ............ 63
Figure 25: Indigenous proportion of the population based on usual residents data at Statistical Local Area level ................................................................. 65
Figure 26: Indigenous proportion of the population based on enumerated persons at CD level ................................................................. 65
Figure 27: Indigenous language boundaries in the LEB .......................................... 65
Figure 28: Unemployment rate .................................................................................. 65
Figure 29: Labour force participation rate ............................................................... 66
Figure 30: Employment in agriculture, forestry and fishing .................................... 66
Figure 31: Employment in the government sector .................................................... 66
Figure 32: Employment in retail ............................................................................... 66
Figure 33: Employment in health services ............................................................... 68
Figure 34: Employment in education ...................................................................... 68
Figure 35: Index of education and occupation ......................................................... 68
Figure 36: Index of economic resources .................................................................. 68
Figure 37: Index of relative socio-economic disadvantage ..................................... 71
Figure 38: Index of relative socio-economic advantage/disadvantage .................... 71
Figure 39: Visitors to the LEB at census night .......................................................... 71
Figures (cont’d)

Figure 40: Employment in accommodation, cafés and restaurants .......................................................... 71
Figure 41: Tourism sectors in the LEB .................................................................................................... 72
Figure 42: Tourism activity in the LEB .................................................................................................... 72
Figure 43: Major mines and oil/gas extraction and processing facilities ................................................ 72
Figure 44: Employment in mining ....................................................................................................... 72

Tables

Table 1: Land use statistics of the LEB ................................................................................................... 53
Table 2: Tenure use statistics of the LEB .............................................................................................. 53
Table 3: Bioregions (IBRA 5.1) in the LEB and their priority ranking for the National Reserve System ...... 54
Table 4: Land condition indicators for devising landscape stress ......................................................... 56
Table 5: Descriptors of hydrological change for defining the hydrological landscape condition .......... 57
Table 6: Census-based sectoral employment for CDs intersecting the LEB ........................................ 67

Shortened forms

ABS    Australian Bureau of Statistics
CD     collection district
ESD    ecological sustainable development
GAB    Great Artesian Basin
LEB    Lake Eyre Basin
LFPR   labour force participation rate
LGA    local government area
MEE    monitoring and evaluation of engagement
MERI   monitoring, evaluation, reporting and improvement
NRM    Natural resources management
NSW    New South Wales
NT     Northern Territory
Qld    Queensland
SA     South Australia
SLA    statistical local area
UCL    Urban Centre/Locations
Preface

The Lake Eyre Basin is a huge and truly unique system. Its rivers are the most variable in the world by a large degree, and they are among the last major unregulated dryland rivers on the planet. The Basin itself ranks among the largest internally draining river basins in the world, and supports a unique flora and fauna adapted to extreme patterns of boom and bust tied to cycles of flood and drought. The ephemeral wetlands of the Basin support enormous feeding and breeding opportunities for waterfowl and shorebirds, which are becoming even more important as the wetlands of the Murray Darling Basin disappear.

It is both a rare privilege and a sobering responsibility to be living in such a Basin and to be involved in its sustainable management.

The challenges of looking after the Lake Eyre Basin have been recognised for some time, and scientific research and monitoring is beginning to fill the large gaps in our knowledge of the Basin. For many years, the communities of the Basin have also drawn attention to the complex balance required between natural resource sustainability and economic or social development. The importance of learning about the people, communities and economies in the Basin, in addition to its rivers and catchments, has been recognised more and more by governments.

In early 2004, the Lake Eyre Basin Community Advisory Committee and the Lake Eyre Basin Scientific Advisory Panel reached a consensus that a study of the people, cultures and communities of the Lake Eyre Basin, along with their social, economic and other circumstances, was required as an essential tool for the effective implementation of the Lake Eyre Basin Agreement. The regional profile presented here is a product of that consensus, and of the growing recognition that people and communities are central to our efforts to bring a better balance to our natural resource decision making. Without people and communities, the best knowledge of the natural resources will get us nowhere.

After a hundred and fifty years of European settlement, the Lake Eyre Basin is in relatively good condition when benchmarked against the rest of the world. However, we have some way to go to match the sustainable approaches of the Aboriginal people who lived on this land for thousands of generations. This regional profile is an important step towards getting the balance right for the Lake Eyre Basin, and I commend it to all people who seek a sustainable future based on better knowledge of both ourselves and our environment.

Angus Emmott

Chair, Lake Eyre Basin Community Advisory Committee

October 2006
1. Introduction

1.1 The Lake Eyre Basin context

The Lake Eyre Basin (LEB) is Australia’s largest inland catchment with a size of approximately 1.2 million square kilometres (SKM 2005) and is home to almost 60 000 people. The sparsely populated desert landscapes in the LEB make natural systems and human activities fundamentally different from wetter and more populated regions in Australia.

Over most of the LEB the climate is arid and semi-arid, and biological processes are driven by episodic weather events that generally do not follow predictable annual cycles. Infrequent rains and hot-drying winds shape the landscape and drive production in natural ecosystems. In these landscapes evaporation far exceeds annual rainfall.

Most of the water in the LEB enters from the eastern river catchments, where coastal cyclones and tropical rains spill over the dividing ranges to recharge catchments. These rain depressions occasionally extend across the LEB, but are usually restricted to the upper reaches of the ephemeral rivers. Creek flows and floods then slowly move across the flat landscape toward Lake Eyre. Sometimes rain enters the LEB from the west to recharge the western rivers, but these are less frequent and usually smaller. Flows and floods from rains fill water holes, revitalize riparian vegetation and support water dependent ecosystems along the ephemeral river systems. Except for the occasional very large floods, water in the LEB rivers evaporates in the drying winds of the arid landscape well before it reaches the salty expanse of Lake Eyre, leaving only the occasional waterhole as drought refuge.

The Great Artesian Basin (GAB) extends under much of the LEB. The GAB is one of the largest fresh water artesian aquifer systems in the world. It underlies about one-fifth of the Australian continent and contains 64 000 million ML of mostly potable groundwater, which is approximately 2000 times the total surface water storage of the combined Murray–Darling Basin. The GAB is also recharged from rainfall on the Great Dividing Range. Water enters exposed aquifer systems in the Great Dividing Range and slowly moves through permeable sandstone confined between layers of shale. The water takes more than 2 million years to reach the other side of the LEB.

Water in the GAB naturally discharges through springs (mainly in the western margin of the LEB) and through leaking from the surface into the water table. Springs provide the only natural permanent water in an otherwise dry landscape. Thousands of artesian bores have been drilled into the GAB since the first artesian bore was drilled late in the nineteenth century. Bores provide the only reliable source of water to support all human activity over much of the LEB.

Long dry periods and infrequent rainfall means that the landscape experiences dramatic changes in plant and animal populations, natural process, and the productivity of natural resource based industries. The timing, scope and duration of these natural fluctuations are extremely difficult to predict, making it very difficult to recognise and evaluate the impact of human activities in this changing environment.

The life patterns of early Aboriginal inhabitants of the LEB were largely determined by the wetting and drying cycles in the landscape. Food production associated with rain events and floods and the refuge offered by widely scattered springs and waterholes during dry periods remain an integral part of Aboriginal culture and life on their traditional country.
Wet and dry periods in the LEB continue to determine life patterns of all those who depend on its ecosystems. European settlers introduced new technologies to modify natural patterns and relationships in an attempt to produce new products of interest such as meat from livestock and minerals from mining. The impacts of these technologies and practices on natural processes and ecosystems were not well understood and were often difficult to predict, especially in such a variable landscape.

Some ways to use the land productively were successful and continue to be used by industries and in natural resource management practices; others have been abandoned. Although the natural ecosystems of the LEB are generally intact, a legacy of human-caused changes remains in the landscape. People living in the LEB have always tried to understand the natural relationships and processes of the LEB and use this understanding to support their wellbeing.

1.2 Natural resource management in the LEB

Natural resources management (NRM) is where people manage natural resources for their desired outcomes. Whether these desired outcomes relate to improved productivity or conservation of biodiversity, the desired outcomes and means to achieve them are constructed by, and dependent upon, people. Hence, effective community engagement is critical in achieving NRM.

Remote regions face numerous NRM challenges. Some of these challenges relate to sparse populations and limited resources; large distances; high seasonal variability; remoteness in terms of support and influence; pronounced disconnection of resources, rights and responsibilities; and variability of costs and value of natural resources. These challenges are compounded by the extreme dependence of communities in remote regions on natural resources and subsequent ecosystem services for their wellbeing.

1.3 Overview of key findings

This publication has been produced to provide a context for the challenges of natural resource management in the LEB. It documents the resources, industries and people of the LEB. It presents 43 maps that describe the current natural, social, economic, and institutional attributes of the LEB. The key findings are as follows:

- The administrative setting in the LEB straddles four jurisdictions and four regional management authorities. Except for Queensland (Qld), regional management arrangements extend beyond the borders of the LEB. Lack of alignment in the other boundaries such as catchment management, conservation management, and local and state government boundaries further complicates the aim of achieving coordinated and integrated natural resource management (NRM).
- Most areas in the basin are classified as remote and people living in the basin have to travel large distances to the major health and service centres.
- The major land use in the basin is grazing followed by conservation, and most land is under leasehold tenure.
- Mining is the most economically important industry in the LEB.
- Aboriginal tenures and native title determination cover approximately 2% of area and there is further Aboriginal involvement in NRM through Indigenous Land Use Agreements.
- Conservation planning in the LEB has identified large areas that support healthy ecosystems and maintain important biodiversity.
- There are some areas that show signs of increased landscape stress and hydrological condition changes as a result of humans trying to gain a livelihood from one of the driest parts of the Australian continent, where evaporation exceeds precipitation significantly and soils limit production.
• The major water supply for people and industries comes from the GAB and periodic flooding. There are concerns for the sustainability of the ground water extraction, though the management of this is continuously improving.

• GAB springs and associated wetlands are highly important for natural habitats, culture and for nature based tourism.

• Large deep waterholes along the ephemeral river systems provide drought refuge for water dependent species. During floods these species populate the rivers and drive aquatic production.

• Uncontrolled flows and floods in the LEB are essential for the survival of river-side vegetation and aquatic ecosystems.

• There are few urban locations in the LEB and population density is generally less than 1 person per 1000 square kilometre. For most of the area Aboriginal proportions are low, although there are 59 Aboriginal language groups. However, there are some settlements where Aboriginal people are the majority of residents.

• Major employment sectors in the LEB are agriculture followed by government, retail, health, education and personal services, and construction.

• The LEB scores low in all four socio-economic indices that the Australian Bureau of Statistics developed to describe the wellbeing of the nation.

• Tourism and mining are two locally important industries in the LEB.

• Tourism relies heavily on infrastructure, services and access to nature based destinations including waterholes and wetlands associated with GAB springs.

• Mining is a localised activity, and with the current commodity price boom, exploration and mining activity continues to increase in the LEB. This is not captured in the 2001 Census analysis.
2. Topography and management arrangements

2.1 LEB roads, major population centres and management boundaries

The Lake Eyre catchments form the world’s largest inland basin. Figure 1 shows the catchment boundaries. The LEB is generally sparsely settled with major population centres (Alice Springs, Mount Isa, Broken Hill) occurring at the fringe. Nevertheless, some of the settlements in the LEB with very small populations are important regional centres.

Management of the catchment is under the control of State, Northern Territory (NT) and Australian Government legislation, supported by regional NRM Boards in each jurisdiction. The LEB Regional NRM Boards are Desert Channels Queensland NRM Board, South Australian Arid Lands NRM Board, the Western Catchment Management Authority in New South Wales (NSW) and the NT NRM Board. Only the Qld management arrangement is focused entirely on the LEB; all other regional management authorities extend beyond the borders of the LEB (Figure 2).

2.1.1 Data sources
The Catchment Committee boundaries are approximately aligned based on the LEB Coordinating Group (Lake Eyre Basin Coordinating Group undated). NRM bodies are based on NHT2 region boundaries.

2.2 Floodplain areas

Most of the LEB has minimal slope and acts as a floodplain area with extended inundation periods after rains. Figure 3 shows the flood areas in a light colour. With increasing darkness the slopes become steeper, indicating hills and mountains. The figure is based on the calculation of a dimensionless flatness index, which provides a visual three-dimensional impression of the terrain and highlights flat and steep areas. The flatness of the LEB is a major factor driving the landscape response following rains.

2.2.1 Methods and data sources
The dimensionless flatness index is based on a multi-resolution approach that calculates the terrain flatness from different scales (Galant & Dowling 2003). The Geodata 9 second DEM version 2 provided the digital elevation data for the index calculation.

2.3 Remoteness and health services

The majority of settlements in the LEB are very remote from major service centres. Only locations close to Mount Isa, Alice Springs, Broken Hill and Port Augusta score a better rating of Moderately Accessible (Figure 4). The remoteness of most of the LEB is a major lifestyle factor for people and helps to define the types of people who choose to live and work there. It also contributes to the operating costs of business in the basin.

Remoteness in Australia is defined through the index of Accessibility/Remoteness (ARIA), which is a geographic measure. This index defines remoteness based on how easily a service centre is accessible from a given location via roads. Remoteness is closely linked to health services with distance to hospitals being a major determinant. There are hospitals in the towns within and surrounding the LEB (Figure 5). In Qld there are also primary health care centres (Birdsville and Boulia) and clinics (Windora) with trained nurses on-site and specialist doctors and orthodontists visiting regularly.
Figure 1: LEB sub-catchments and regions

Figure 2: LEB state-based management authorities

Figure 3: Multi-resolution Valley bottom flatness index of the LEB also showing ephemeral rivers and salt lakes

Figure 4: Remoteness score of LEB locations and remoteness classification of the LEB

Note: Circle shapes and colours represent the ARIA score of settlements.
2.3.1 Methods and data sources

The remoteness presented here is based on the GISCA ARIA+ remoteness index, which relies on road distance to service centres, defined as an urban centre in the 2001 census (Department of Health and Aged Care 2001, GISCA undated).
3. Land use and tenure

3.1 Land use in the LEB

Grazing livestock is the dominant land use in the LEB (82%). Conservation and ‘other minimal uses’, covering 16% of the area (Table 1), are also important land uses (Figure 6). Other minimal uses include residential, airports and areas where no specific data are available. Properties tend to increase in size towards the centre and the west of the LEB (Figure 7).

### Table 1: Land use statistics of the LEB

<table>
<thead>
<tr>
<th>Landuse</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grazing</td>
<td>82%</td>
</tr>
<tr>
<td>Conservation</td>
<td>11%</td>
</tr>
<tr>
<td>Others minimal uses</td>
<td>5%</td>
</tr>
<tr>
<td>Water and dry salt lakes</td>
<td>2%</td>
</tr>
</tbody>
</table>

Grazing livestock is the dominant land use in the LEB (82%). Conservation and ‘other minimal uses’, covering 16% of the area (Table 1), are also important land uses (Figure 6). Other minimal uses include residential, airports and areas where no specific data are available. Properties tend to increase in size towards the centre and the west of the LEB (Figure 7).

3.1.1 Methods and data sources

The land use mapping is based on 1996/97 data from the 1996/97 Land Use of Australia, Version 2, National Land and Water Resources Audit. The summary categories shown in Figure 6 are a combination of land use information. Interpolated property sizes result from universal kriging of area sizes based on cadastre boundaries. This means they include, besides grazing, other land uses such as conservation and urban uses. However, interpolation distances above 10 km ensured focus on the larger property sizes generally occurring in rangeland grazing. Still, the cadastral data may not provide exact (grazing) property boundaries and may, for example, display several subdivisions per property. Therefore the interpolation should be interpreted as a trend rather than absolute values.

3.2 Tenure arrangement in the LEB

Most of the LEB is grazing land under leasehold (71%) and grazing also occurs on most of the freehold land (Figure 6 and Figure 8). Freehold and conservation areas cover another 22% with the remainder being crown land and Indigenous tenure (Table 2).

### Table 2: Tenure use statistics of the LEB

<table>
<thead>
<tr>
<th>Tenure</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leasehold</td>
<td>71%</td>
</tr>
<tr>
<td>Freehold</td>
<td>12%</td>
</tr>
<tr>
<td>Conservation</td>
<td>10%</td>
</tr>
<tr>
<td>Crown land</td>
<td>5%</td>
</tr>
<tr>
<td>Indigenous tenure</td>
<td>2%</td>
</tr>
</tbody>
</table>

Large areas of conservation are situated mostly in South Australia (SA) and Qld. There are some smaller conservation areas west and north-west of Alice Springs and at the north-eastern corner of SA. A closer analysis (using the NT Atlas and Spatial Data Directory: http://atlas.ntlis.nt.gov.au/) of the Crown land and freehold land in the south-west corner of the NT reveals that these areas are also used for conservation or considered natural environments.

3.2.1 Methods and data sources

The tenure mapping is based on data from the 1996/97 Land Use of Australia, Version 2, National Land and Water Resources Audit. Consolidation of the information yielded the eight summary categories shown in Figure 8.
3.3 Native title and Aboriginal tenures

Small areas of Aboriginal freehold and leasehold occur throughout the NT and South Australian parts of the LEB. There are two major native title determinations: one determining the existence of native title in the north-western corner of SA, and one extinguished native title in northern Qld near the road between Boulia and Winton. Indigenous Land Use Agreements (registered ILUA) exist in all states with large areas in central Qld and the western South Australia LEB (Figure 9).

3.3.1 Methods and data sources

Native title determinations and Indigenous Land Use Agreements are valid up to and including the year 2005. Data from Geoscience Australia (http://www.ga.gov.au).

4. Biogeographical regions and landscape health

Australia’s biogeographical regions (bioregions) are a reflection of the major geomorphic features and the vegetation used for assessment of native ecosystem status. They are the basis of information for the National Reserve System and for monitoring and evaluation of Australian Government NRM initiatives (DEH 2005). The National Reserve System uses the bioregions as its basic unit from which to develop representative areas for Australia. Each region is associated with a priority ranking (ranging from very high to low) that identifies the potential value the bioregion would add to the reserve system. Areas with high priority therefore would contribute most value. There are 20 bioregions in the LEB (Figure 10) and most of these (16) are rated high or very high (Table 3) (Figure 11). Appendix A provides the descriptions of the LEB bioregions.

<table>
<thead>
<tr>
<th>Priority ranking</th>
<th>Bioregion in the LEB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very high</td>
<td>Brigalow Belt South</td>
</tr>
<tr>
<td></td>
<td>Broken Hill Complex</td>
</tr>
<tr>
<td></td>
<td>Burt Plain</td>
</tr>
<tr>
<td></td>
<td>Desert Uplands</td>
</tr>
<tr>
<td></td>
<td>Einasleigh Uplands</td>
</tr>
<tr>
<td></td>
<td>Finke</td>
</tr>
<tr>
<td></td>
<td>Mitchell Grass Downs</td>
</tr>
<tr>
<td></td>
<td>Tanami</td>
</tr>
<tr>
<td>High</td>
<td>Central Ranges</td>
</tr>
<tr>
<td></td>
<td>Channel Country</td>
</tr>
<tr>
<td></td>
<td>Davenport Murchison Ranges</td>
</tr>
<tr>
<td></td>
<td>Flinders Lofty Block</td>
</tr>
<tr>
<td></td>
<td>Great Sandy Desert</td>
</tr>
<tr>
<td></td>
<td>Mount Isa Inlier</td>
</tr>
<tr>
<td></td>
<td>Mulga Lands</td>
</tr>
<tr>
<td></td>
<td>Stony Plains</td>
</tr>
<tr>
<td>Medium</td>
<td>Gawler</td>
</tr>
<tr>
<td></td>
<td>MacDonnell Ranges</td>
</tr>
<tr>
<td>Low</td>
<td>Great Victoria Desert</td>
</tr>
<tr>
<td></td>
<td>Simpson Sirzelecki Dunefields</td>
</tr>
</tbody>
</table>
Figure 9: Native title, Indigenous Land Use Agreements (ILUA) and Aboriginal tenure in the LEB

Figure 10: LEB bioregions

Figure 11: Priority bioregions in the LEB for developing the National Reserves System

Figure 12: Landscape stress in the LEB
4.1 Landscape health

Maintaining healthy landscapes is a goal of ecological sustainable development (ESD). ESD integrates economic, social and environmental issues into the management of Australia’s natural resources and forms an integral part of the decision-making process in natural resource management (e.g. Australian Government’s *Environmental Protection and Biodiversity Conservation Act 1999*, Queensland’s *Nature Conservation Act 1992*, Queensland’s *Environmental Protection Act 1994*).

The national action plan for water quality and salinity arises from the concept of ESD and addresses two important issues: water quality and salinity. These are also key issues for healthy landscapes. However, the healthy landscape concept goes beyond these issues and takes a big approach, to include systemic interaction within and between landscapes. A landscape includes uniform landforms, soils, geology and hydrogeology of an area. By this definition, a landscape can contain several catchments or alternatively may be part of a single catchment (National Land and Water Resource Audit 2001).

The national land and water resource audit (NLWRA) assesses landscapes’ health on the basis of the interim biogeographic regionalisation for Australia (Thackway & Cresswell 1995). The LEB intersects these bioregions (Figure 10), each of which is divided into subregions. The health of these subregions is assessed on a range of indicators. These indicators are:

- native vegetation and land use
- soil and hydrology
- weeds and feral animals
- threatened species and ecosystems.

The NLWRA report on landscape health (Morgan 2001) provides an assessment of these indicators against several criteria and the combined measure of landscape stress. The analysis separates land into two zones: intensive use zones that have more than 10% of their native vegetation cleared, and the extensive use zones that have less than 10% cleared (Morgan 2001). The LEB lies within the extensive use zone. The following sections provide a selection of the assessments of the current condition using landscape stress as a combination of the terrestrial condition and hydrological conditions to show degradation.

4.2 Landscape stress

Landscape stress describes landscape health over time on the basis of the different criteria discussed in the NLWRA. It uses land condition indicators such as grazing pressure, pests and threatened species (Table 4) of the extensive use zone to derive a combined landscape stress value (Morgan 2000).

A visual inspection of Figure 12 indicates that approximately half of the LEB is in the lowest stress categories (categories 5 and 6) and almost all the remainder belongs to the medium stress categories 3 and 4. There is only a small area at the southern tip of the LEB that shows high stress.

Table 4: Land condition indicators for devising landscape stress

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of subregion with least impact from total grazing pressures</td>
<td></td>
</tr>
<tr>
<td>Percent of native vegetation in land tenures associated with conservative land use practices</td>
<td></td>
</tr>
<tr>
<td>Density of weeds</td>
<td></td>
</tr>
<tr>
<td>Density of feral animals</td>
<td></td>
</tr>
<tr>
<td>Number of threatened species</td>
<td></td>
</tr>
</tbody>
</table>
4.2.1 Methods and data sources
Linking of landscape health attributes from the NLWRA (Morgan 2000) for each bioregion (Thackway & Cresswell 1995) in the LEB is presented in Figure 12.

4.3 Hydrological conditions
The hydrological conditions give an indication of the anthropogenic change that is caused by land use. Impacts on the hydrology of terrestrial components (i.e. excluding rivers and lakes) may result from land surface use and activities that have caused soil degradation. These include, but are not limited to, overgrazing, vegetation clearing, levelling and draining of land, levee and dam construction, all of which relate to land use practices (Morgan 2001).

The hydrological condition of the LEB’s bioregions indicates only minor change for most of the central area and the NT with the exception of a small area in the south of SA. Bordering fringes around Mount Isa, the eastern Qld part of the LEB, the southern fringes of SA and a significant part of western SA show moderate changes to their hydrology.

4.3.1 Methods and data sources
The hydrological condition assessment is based on the definitions of hydrological change from Table 5. It does not include the riverine environments (Morgan 2001).

<table>
<thead>
<tr>
<th>Hydrological condition description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate to major change, including changes in infiltration and run-off due to soil modification by extensive cultivation, or due to soil degradation caused mainly by intensive livestock grazing on developed pastures. Widespread disruption of drainage and flow paths by land surface modification (e.g. laser levelling, contour banking) for intensive cultivation, or by numerous farm dams associated with closer settlement. Moderate to intensive use of local groundwater.</td>
</tr>
<tr>
<td>Moderate change, including changes in infiltration and run-off due to soil degradation caused mainly by extensive livestock grazing, with limited areas of cultivation and limited use of local groundwater.</td>
</tr>
<tr>
<td>Moderate to minor change, largely restricted to changes in infiltration and run-off due to soil degradation caused by extensive livestock grazing.</td>
</tr>
<tr>
<td>Minor change in hydrology.</td>
</tr>
</tbody>
</table>

Source: Morgan 2001

5. Biological and physical land conditions
The LEB is dry and rain deficient and has evaporation rates that exceed rainfall throughout most of the year. Thus it is categorised as an arid to semi-arid area with hot desert, hot steppe and cool steppe (Köppen 1936 classification). Surface water and river drainage systems are generally dry except in summer when tropical-monsoonal depressions provide rainfall in the northern and eastern upstream areas and in winter when southern storms pass across southern LEB catchments. In winter the southern part of the LEB experiences rains from the mid-latitude frontal system that drives southern Australian weather patterns. Flood events are mainly associated with the tropical weather patterns (Kotwicki & Allen 1998). Hence, excluding flood events, the water supply for LEB inhabitants relies solely on groundwater sourced mainly from porous regional sedimentary aquifers of Palaeozoic to Mesozoic origin or from lower yielding crystalline basement rocks of Proterozoic origin. Underlying most of these provinces, which are located mainly at the north-west and southern part of the LEB, is the GAB. Based on area, the GAB lies under 73% of the LEB area, with the other basins splitting the difference (McMahon et al. 2005).
Figure 13: Hydrological conditions in the LEB

Figure 14: Potential evaporation divided by mean annual rainfall

Figure 15: Mean annual rainfall

Figure 16: LEB soil limitations
Water availability and soil conditions determine the agricultural productivity, which is highly variable. The following section will present the context of climatic conditions, water resources and soils information relevant to the LEB.

5.1 Rainfall and evaporation
The LEB receives low rainfall ranging from 600 mm in its north-eastern part to less than 150 mm in the southern area (Figure 15). Evaporation exceeds rainfall throughout the LEB and is highest in the southern area (Figure 14) where it is up to 18 times higher than the rainfall.

5.1.1 Methods and data sources
Rainfall surfaces stem from interpolated Bureau of Meteorology mean annual rainfall data for the period 1980–1999. Potential evaporation is based on the Priestly-Taylor (1972) method and comes from the same time period.

5.2 Soil limitations of the LEB
Soils in most areas in the LEB have limited use for agriculture. Saline and physically limited soils provide the least opportunity for agricultural use. At the fringes of the LEB are soils with low fertility which lend themselves to nutritional improvements given sufficient precipitation. The majority of these occur in the Diamantina and Cooper’s Creek catchments (Figure 16).

The major soil divisions in the LEB are:

i. mineral and texturally uniform soils with particle sizes ranging from sands, loams, clays and cracking clays
ii. mineral and texturally gradational soils including calcareous earths and massive and structured earths
iii. mineral and texturally duplex soils including red, brown, yellow and dark duplex soils (SKM 2002).

5.2.1 Methods and data sources
Soil information stems from the digital atlas of Australian Soils from BRS (2005), which is based on Northcote et al. (1960–68). Summarising the extensive soil management limitations yields the broad description of soil limitations, which indicate the options for human intervention that may improve arability. These are organic soils and soils that have chemical limits, low fertility or no limits. Appendix A provides a lookup table for the translation of BRS (2005) soil attributes into soil limitations of Figure 16.

5.3 The Great Artesian Basin groundwater source
Australia’s GAB is one of the largest fresh water artesian aquifer systems in the world. It underlies about one-fifth of the Australian continent and contains to up to 64 000 million ML of mostly potable groundwater. In other words, the GAB holds about 2000 times the total surface water storage of the combined Murray–Darling Basin. Water from rainfall on the Great Dividing Range infiltrates into exposed aquifer systems and slowly moves for more than 2 million years across the Basin through permeable sandstone confined between layers of shale.

The GAB is the most important groundwater source in inland Australia and covers a large area of the LEB (Figure 17). It has multi layered aquifers located in Triassic, Jurassic and Cretaceous continental quartzose sandstones and consists of two major systems. Cretaceous marine-derived silts and clays mostly cover and confine the aquifers’ surfaces. There is a smaller western groundwater system that
flows south and a larger eastern system that flows mostly to the south west. Water from the GAB escapes through mound springs and diffuse surfacing with a discharge of up to 14 ML per day (at Dalhousie springs) at the fringes of the slow flowing (5 km/year or less) GAB water.

GAB water is suitable for stock and domestic use, but the salt concentration prevents its use for irrigation purposes (SKM 2005). The mound springs are an important cultural feature and are also important tourist attractions. They are listed under the Australian Government’s EPBC Act 1999 as threatened ecological communities (Environment Australia 2003).

Given the dry nature of the LEB environment, wetlands are a significant feature with cultural and heritage values that attract tourist attention. Locations of wetlands are shown in Figure 18. There are six major areas of water extrusions in the LEB: Lake Frome springs, Lake Eyre springs, Dalhousie springs, Mulling River springs, Springvale springs and Barcaldine springs (Figure 19). Further water sources in the LEB are accessed through artesian bores.

Over much of the GAB, bores provide the only reliable source of fresh water for all human activity. Water from the Basin supports the pastoral, mining and tourism industries as well as outback towns and their associated businesses. Natural discharge from the Basin through springs supports water-based natural communities in the desert. These contain a wide variety of endemic species surrounded by an otherwise largely waterless landscape.

As well as their ecological significance, these natural springs are culturally very important to Aboriginal and non-Aboriginal Australians. GAB springs were the only reliable water source for Aboriginal people in central Australia for thousands of years and set the boundaries for early European exploration and development through the central inland during the 19th and early 20th centuries. Figure 20 is a location map of perennial water sources in the LEB.

Since discovery of the GAB in 1878 thousands of bores have been drilled into the complex aquifers. Currently there are about 3400 artesian bores and over 10 000 sub-artesian bores which access the aquifers of the GAB. For the first fifty years, artesian bores were uncontrolled and flowed freely into open bore drains to supply water for stock. More than 95% of the 550 000 ML/day of water that flowed into these open bore drains was wasted through seepage and evaporation. These free-flowing bores also cause substantial pressure reductions over much of the Basin.

The need for intervention to control the extraction of water from the GAB was recognised by governments and land holders as early as 1913. Since that time, governments and land holders have continued in their efforts to control the waste of GAB water and reverse the reduction in artesian pressure. Until recently these attempts at intervention to control bores and eliminate bore drains were only selectively successful due to limited technology to deal with hot pressurised water and a lack of political will.

In the last several decades a considerable investment has gone into understanding the Basin and the natural ecosystems that depend on GAB springs. At the same time technologies have been developed to control hot pressurised bores. In order to stop wasting GAB water and restore artesian pressure, governments have cooperated with land holders to rehabilitate bores and eliminate bore drains. The water savings and increased artesian pressure has helped to restore the health of the Basin and the GAB springs. The maintenance of artesian pressure and the judicious use of the valuable water heat and pressure contained in GAB aquifers is necessary to support the production of valuable products over a large area of Australia.

5.3.1 Methods and data sources
Tim Ransley from Bureau of Rural Sciences, Department of Agriculture, Fisheries and Forestry, Canberra kindly provided the GAB springs and bores spatial data.
Figure 17: Great Artesian Basin
(Map provided by Vol Norris, Lake Eyre Basin Community Advisory Committee)

Figure 18: Wetlands in the LEB
(copied from Schmiechen 2004)

Figure 19: Location of springs in the LEB

Figure 20: Location of artesian bores in the LEB
6. Population statistics, sectorial information and wellbeing indices

The main source of socio-economic data in Australia is the five-yearly census. The latest information available at the time this data was compiled was the 2001 census. The following section uses this data to describe the socio-economic status quo of the LEB. The Australian Bureau of Statistics (ABS) undertakes the census, in which information is collected from households in collection districts (CD), which is the smallest unit of data collection. The statistical local areas (SLA) combines data from several collection districts. A local government area (LGA) in turn consists of one or more SLAs, with combinations of LGAs then forming higher units for statistical data dissemination. The Australian Standard Geographic Classification shown in Appendix C defines the relationship between the statistical data collection units.

Administrative boundaries of local government areas and collection district boundaries do not overlap with catchments and catchment management boundaries anywhere in Australia. This presents a dilemma for natural resource management, which aims to integrate information from socio-economic and biophysical systems to achieve sustainable resource management. It is even more confounded by the temporal difference of data collections which may result in a mismatch of up to several years between socio-economic and biophysical systems data. Such differences become a problem when processes underlying the systems are driving rapid changes and are not captured simultaneously. Fortunately, the biophysical drivers discussed in the previous section do not change significantly within the time frame important for this study, so the main issue faced here is the mismatch between administrative/socio-economic data collection boundaries and catchment management boundaries (e.g. Figure 21).

The integration of socio-economic information with the catchment management boundaries is based on a best-fit option. The following section uses the CDs, SLAs and LGAs within and adjoining the LEB for visual description of the socio-economic status quo. For presentation purposes of ABS statistics at the CD level, the section presents only the parts of the CDs that lay within the LEB, cutting off areas outside the LEB boundary.

6.1 Administrative regions

Figure 21 shows the mismatch of administrative boundaries including States/Territories, local governments and catchment management boundaries in the LEB. For the Qld part of the LEB, local government areas are comparatively small when compared with the others States. For example, the LEB is only a small part of the large unincorporated NT administration area. A similar situation exists in SA and NSW, where the unincorporated parts exceed the LEB extensively. For socio-economic statistics at the LGA level this means that socio-economic information for the non-Qld parts is of limited use for this study. These non-overlapping institutional boundaries pose a complication for land and resource management across states and local government boundaries and are overlaid by another layer of biophysical boundaries (here reflected by catchment committee boundaries) which are more relevant to managing natural resources.

6.1.1 Data sources

The Catchment Committee boundaries are approximately aligned and are based on the Lake Eyre Basin Coordinating Group (Lake Eyre Basin Coordinating Group undated). Local Government Areas are based on the Australian Standard Geographical Definition 2001 (Trewin 2003).
6.1.2 Urban locations within and adjacent to the LEB, and population density

The ABS defines urban centres and localities based on the number of people living in close proximity. An urban centre has a population of 1000 or more persons while a locality has less than this, but a minimum of 40 occupied dwellings in a non-farm setting (Trewin 2003). Urban Centre/Locations (UCLs) allow the identification of regions in which the production base (agricultural or industrial) supports urban development and associated high population numbers. There is a distinct lack of UCLs within the LEB; most urban concentrations occur at its fringes and mainly to the south and east. This pattern follows the agricultural resource base and climate (see Section 5) which identifies the interior of the LEB as low productivity based on water availability and soil limitations. Mainly the north-east Qld part has a higher number of urban areas that are located in the freehold areas around Winton and Longreach along the Matilda Highway and Matilda Development Road (Figure 22). The population density throughout the LEB is very low and seldom achieves more than 1 person per square kilometre (Figure 23) except for areas defined as urban centres/locations (Figure 22).

6.1.3 Methods and data sources

Population densities calculated from residents counted at home during the census night. This means that the numbers underestimate the population slightly because people away from home are not counted. Data is based on the 2001 census.

6.1.4 Estimating the number of residents

The ABS provides socio-economic information from the 2001 census (ABS 2001a) in a range of standard data packages such as CDATA (CD level and above information) and IRDB (SLA level or above). All data provided at the CD level is based on the amount of people counted, so includes visitors as well as residents. This is usually not a major problem in the larger urban centres where the population is high. However, in areas with high visitor numbers and small populations – as is the case in the outback – this can lead to major distortions. In the LEB there are several areas where ABS statistics based on counted data provide only a limited account of the real socio-economic conditions. Figure 24 shows residents at home during census night – a result of subtracting all visitors from the enumerated population. To this effect the population and residents counted at home give the upper and lower boundary of actual resident numbers.

This also means that the reliability of ABS statistics is restricted in areas with low population density. Subsequent maps that use ABS data show low confidence areas where visitors exceed 25% (arbitrarily chosen) to remind the reader of the issue.

6.2 Aboriginal statistics

While there is a range of Aboriginal information, this regional profile only provides limited details. This is firstly due to the limited availability of Aboriginal-specific information from census data at the fine scale. Secondly, a range of Aboriginal information is culturally sensitive; an example is that locations of culturally significant places are generally unavailable. Hence the following will focus on Aboriginal population and language boundaries.

6.2.1 Aboriginal proportion comparison between enumerated fine scale and usual residents broader scale

The NT and SA have a higher proportion of Aboriginal people ranging from 40–90% of the total resident population (Figure 25). At a finer scale these areas are confined to the most western edge of SA and areas around Alice Springs. As Figure 26 indicates these data are in an area with low visitor convolution, so are indicative of the resident population. Other studies have revealed that while there is a rural exodus in outback regions, the Aboriginal proportion in the outback is increasing due to higher birth rates (e.g. Herr & Greiner 2004, ABS 2003).
Figure 25: Indigenous proportion of the population based on usual residents data at Statistical Local Area level.

Figure 26: Indigenous proportion of the population based on enumerated persons at CD level.

Figure 27: Indigenous language boundaries in the LEB.

Figure 28: Unemployment rate.
Figure 29: Labour force participation rate

Figure 30: Employment in agriculture, forestry and fishing

Figure 31: Employment in the government sector

Figure 32: Employment in retail
6.2.2 Language groups

Based on the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) information there are 59 Aboriginal language groups within and bordering the LEB. The language boundaries are indicative only and some may consist of several dialects or groupings of individual languages, hence this map is not suitable for defining exact tribal boundaries (see e.g. http://www.aiatsis.gov.au/aboriginal_studies_press/aboriginal_wall_map). More detailed information on the people from a particular region is available from the land councils. Digital data for this map is based on SKM (2002).

6.3 General employment statistics and sectorial employment

6.3.1 Unemployment statistics

There are low employment areas north of Alice Springs, south of Winton and east of Tibooburra, where the unemployment rate is above 20%. In most of the LEB the unemployment is below 10% (Figure 28). However, when comparing this statistic with the labour force participation rate (LFPR) a different picture emerges (Figure 29). LFPR is a measure of the proportion of the working age population that engages in the labour market, either looking for work or employed. A low LFPR can, for example, indicate that the population is disenfranchised from the labour market or that there is a high proportion of persons not in the labour force because of age and/or disability. There are several areas of low LPFR, mainly in the NT and SA.

6.3.2 Sectoral employment for the major industries in the LEB

The following section describes employment in the major industry sectors. It provides an overview of the major employment sectors (Table 6) and presents maps to visualise the distribution and location of these sectors, where employment is above 5%.

Table 6: Census-based sectoral employment for CDs intersecting the LEB

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, forestry and fishing</td>
<td>36%</td>
</tr>
<tr>
<td>Government</td>
<td>11%</td>
</tr>
<tr>
<td>Retail</td>
<td>7%</td>
</tr>
<tr>
<td>Health services</td>
<td>6%</td>
</tr>
<tr>
<td>Education</td>
<td>6%</td>
</tr>
<tr>
<td>Personal other services</td>
<td>5%</td>
</tr>
<tr>
<td>Construction</td>
<td>5%</td>
</tr>
<tr>
<td>Accommodation, cafés, restaurants</td>
<td>4%</td>
</tr>
<tr>
<td>Transport</td>
<td>3%</td>
</tr>
<tr>
<td>Property business services</td>
<td>3%</td>
</tr>
<tr>
<td>Mining</td>
<td>3%</td>
</tr>
<tr>
<td>Not stated</td>
<td>3%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>2%</td>
</tr>
<tr>
<td>Wholesale</td>
<td>2%</td>
</tr>
<tr>
<td>Culture and recreation</td>
<td>2%</td>
</tr>
<tr>
<td>Others less than 2 %</td>
<td>2%</td>
</tr>
</tbody>
</table>

The major employment sector in the LEB is agriculture (36%, Table 6), which is consistent with grazing being the major land use in the LEB (Figure 6 and Table 1). A visual inspection of Figure 30 and comparison with Figure 14 indicates that where agriculture is the main industry for employment there is more rainfall. The exception is the most south-eastern CD in the NT, where there is very high agricultural employment. The area has a very low population (≤ 50 persons counted at home, Figure 24) and there are no other major industries, so this reflects the farming population in the area.

Government work is the second largest employment in the region. Highest employment in the government sector is mostly located around Alice Springs and the most north-western part of SA (Figure 31). This could be a reflection of employment in management of nearby conservation areas (Figure 6).

Retail, health services and education are the next sectors with 7% to 6% respectively (Table 6). Retail is a major employer in a small area in the north-west of SA along the Stuart Highway (Figure 32) near the towns of Ininidi, Cadney Park and Indulkana. Health services provide employment in small pockets throughout the LEB which are mostly related to the locations of hospitals and clinics and mining locations with onsite medical facilities. Employment in education is also located in small pockets around the LEB, with some high employment to the north of Alice Springs, around Longreach, and the rural and regional centres in the southern tip of the LEB in SA.
6.4 Socio-economic indices for areas – SEIFA

The ABS provides four socio-economic indices describing the wellbeing of the nation (ABS 2001b):

- the index of education and occupation
- the index of economic resources
- the index of relative socio-economic advantage (termed disadvantage in the following)\(^1\)
- the index of relative socio-economic advantage/disadvantage.

The variables for each indicator are based on a theoretical model of disadvantage, which the ABS developed through literature review (Trewin 2001). Each of the indices consists of the core variables: education, income and occupation and other variables measuring the level of disadvantage in relation to living standard, living conditions and access to services. The indices show disadvantaged areas with a lower value (Trewin 2001) and they are standardised to a mean of 1000 and a standard deviation of 100 for all CDs in Australia. Although they only capture a limited number of the factors contributing to wellbeing, normative measures enable us to compare wellbeing between different areas based on a set norm (e.g. Larson et al. 2006, ABS 2001b).

The following figures present these indices for CD level census 2001 Australia. There are large areas of Australia without CD-level SEIFA information, where a low population made index calculation impractical. As with most ABS census data the SEIFA indices are based on counted populations, so are restricted in their ability to convey the real status of wellbeing. This study suggests that, in general, areas with high visitor numbers will display a better SEIFA index value because it assumes that visitors to outback regions have better financial means and/or other factors included in the wellbeing.

6.4.1 The index of education and occupation

This index provides a summary of the educational and occupational status of an area. A low score indicates a concentration of people with low educational attainment (i.e. low number of persons with secondary or better education) and/or high unemployment and/or low unskilled employment. The LEB generally scores low in this index; most areas are below the 75% and approximately half of the area is in the 50% or less quintile. Tourism areas such as Innamincka, the Oodnadatta track, areas in south-west SA and areas around Alice Springs (eastern MacDonnell Ranges) are in a higher bracket (50% or above) indicating the influence of visitors on the index. An exception is the southern corner of the NT, where the number of residents counted at home is below 75%.

6.4.2 The index of economic resources

This index provides a summary of the economic resources available to the families of a collection district. The variables included in this index are measures of income, expenditure and wealth (e.g. dwelling size). Economic resources in the LEB are generally below the Australian average (50% and below). Only some areas in Qld have a higher score, with Longreach and surrounds being in the highest quintile (Figure 36).

6.4.3 The index of relative socio-economic disadvantage

This index is a measure of low income, low education, high unemployment and employment in unskilled occupations. High score on the disadvantage counter-intuitively indicates areas with few low income families and few people with low training and unskilled work. A high score means a reduced disadvantage rather than an advantage. The north-east areas around Winton and Longreach have a low disadvantage (Figure 37), whereas most other areas score below the second quintile (75% or less) in this measure, indicating more socio-economic disadvantages.

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\(^1\) We have grappled with how to best explain this index and decided to change its name to be more intuitive. This means we changed the ABS naming to disadvantage, which we then explain more in 6.4.3.
6.4.4 The index of relative socio-economic advantage/disadvantage

Areas with highly skilled people on bigger incomes and low proportions of persons with low incomes score highly on the index of relative socio-economic advantage/disadvantage. A low score means the area has more people on low incomes and in unskilled positions. The LEB scores generally in the lower quintile (50% and less). There are only few areas above this level (Figure 38). However, it is important to remember the caveats of using counted data, so tourist areas are likely to have a higher score than for residents, assuming that tourists have a more disposable income.

6.5 Methods and data sources

Socio-economic data comes from the ABS standard package CDATA 2001 Release 2 (see http://www.abs.gov.au for more information). Local government areas and ABS data collation units are the product of the ASGC 2001 (Trewin 2003, ABS 2001c). The Catchment Committee boundaries are approximately aligned and based on the Lake Eyre Basin Coordinating Group (Lake Eyre Basin Coordinating Group undated). Other topographical data is from the AUSLIG TOPO 2.5M (1:2.5 million) data and CSIRO derived spatial information.

7. Tourism and mining

Besides grazing, tourism and mining are the other two important natural resource based industries in the LEB. While mining and agriculture rely on the extraction of natural resources, tourism uses resources directly through hunting, fishing (e.g. Bauer & Herr 2004), fossicking, amenity, services and infrastructure (e.g. roads, tours). The vast expanses of the LEB provide a tourist experience based on natural and cultural heritage features. Commercial interest is growing since visitor numbers are increasing. Visitor estimates for 2001 are well over two million people for the key tourism areas within and adjacent to the LEB (Schmiechen 2004). This classifies tourism as a major industry with the potential to significantly contribute to the economic viability and livelihoods of the LEB. Unfortunately there is no tourism-specific census data that would allow direct tourism assessment. Instead, visitor numbers and employment in accommodation, cafés and restaurants can serve as indicators for areas where tourism is important. Transport, retail, trade, cultural activities and recreation are other sectors that may incorporate tourism elements, but the tourism contribution to these industries is not quantifiable from the data. Visitors are a good indication of tourism activities (albeit only showing a one-day snapshot) because the census occurred during the peak tourism season. The high visitor numbers (>500 persons) in Figure 39 allows identification of the major tourist centres: Alice Springs with the MacDonnell Ranges, Innamincka, Oodnadatta and Flinders ranges. This is supported through the heritage tourism report (Schmiechen 2004) that identified these areas as major tourist sectors (Figure 41) and tourism hotspots (Figure 42). Further details for Figure 42 are given in Appendix E.

Employment in accommodation, cafés and restaurants (Figure 40) further highlights the major tourism areas around Alice Springs, along the Oodnadatta track, Birdsville and the Flinders ranges. A visual comparison with Figure 42 identifies these as tourism hotspots along the travelling routes.

Mining is another, albeit more localised, potentially important contributor to the LEB economy. Increasing commodity prices over the last years have sparked exploration efforts and new mine developments. However, this increase is not captured in the 2001 census analysis. The LEB has important gold, copper, zinc, and uranium deposits and contains Australia’s only onshore oil/gas extraction facility. The spatial arrangement of employment in mining (Figure 44) reflects the location of the major mines in the LEB. However, mines often provide fly-in/fly-out services to their employees who may live in larger centres. This also means that flow-on effects from mining wages are mostly distributed outside the LEB. The census data includes miners living outside the LEB.
Figure 37: Index of relative socio-economic disadvantage

Figure 38: Index of relative socio-economic advantage/disadvantage

Figure 39: Visitors to the LEB at census night

Figure 40: Employment in accommodation, cafés and restaurants
Figure 41: Tourism sectors in the LEB
Source: Schmiechen 2004, p. 36

Figure 42: Tourism activity in the LEB
Source: Schmiechen 2004, p. 4

Figure 43: Major mines and oil/gas extraction and processing facilities

Figure 44: Employment in mining
8. Conclusion

The purpose of this Regional Profile of the LEB was to provide a more comprehensive update to the partial profiles provided in 1996 (Abare, AGSO & BRS 1996), and to build a picture of the LEB as background to an analysis of the interactions between community and government in the on-going project ‘People, communities and economies of the Lake Eyre Basin—Their characteristics and trends, and the roles of their institutions in sustainable natural resource management in the Basin’. The LEB is unique globally as an inland catchment of unregulated, variable, arid zone rivers supporting a sparse and diverse human population. As the report shows, both the environment and, in consequence, human endeavours in the LEB operate under drivers that are fundamentally different from other, more populated areas.

The report quantifies a large number of factors that people in the LEB will be well aware of, but those outside often are not – such as the real remoteness of much of the LEB, its relatively low scores on criteria that ABS perceives as measuring wellbeing and the reliance on resource-based industries. It also notes aspects of resource use which have the potential to cause future problems – areas with increased landscape stress, doubtful sustainability of water use, or pressures from tourism. Partly because of the sparse population, the report has documented gaps or statistical problems in the socio-economic information which are undesirable given the complexity of institutional arrangements across the region. These findings are summarised on page 1 of the report.

This profile is dedicated to the people of the LEB to assist with their future decision making.
9. References


SKM. 2002. *Aboriginal Language Groups in Australia*. Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) and Sinclair Knight Merz Pty Ltd (SKM), Canberra.

Appendix A: Description of IBRA regions


BHC Broken Hill Complex: Hills and colluvial fans on Proterozoic rocks; desert loams and red clays, lithosols and calcareous red earths; supporting chenopod shrublands *Maireana* spp. - *Atriplex* spp. shrublands, and mulga open shrublands *Acacia aneura*.

BBS Brigalow Belt South: Predominantly Jurassic and younger deposits of the Great Artesian Basin and Tertiary deposits with elevated basalt flows; Subhumid; Eucalyptus woodlands and open forests of ironbarks, poplar box, spotted gum (*E. maculata*), cypress pine (*Callitris glaucophylla*), Bloodwoods (eg. *E. trachyphloia*, *E. hendersonii* ms), brigalow-belah forests (*E. harpophylla*, *Casuarina cristata*), and semi-evergreen vine thicket.

BRT Burt Plain: Plains and low rocky ranges of Pre-Cambrian granites with mulga and other acacia woodlands on red earths.

DEU Desert Uplands: Ranges and plains on dissected Tertiary surface and Triassic sandstones; woodlands of *E. whitei*, *E. simulis* and *E. trachyphloia*.

EIU Einasleigh Uplands: High plateau of Palaeozoic sediments, granites, and basalts; dominated by ironbark (*Eucalyptus* spp) woodlands.

FIN Finke: Arid sandplains, dissected uplands and valleys formed from Pre-Cambrian volcanics with spinifex hummock grasslands and acacia shrublands on red earths and shallow sands.

MGD Mitchell Grass Downs: Undulating downs on shales and limestones; *Astrebla* spp. Grasslands and acacia low woodlands; Grey and brown cracking clays.

TAN Tanami Desert: Mainly red Quaternary sandplains overlying Permian and Proterozoic strata which are exposed locally as hills and ranges; the sandplains support mixed shrub steppes of *Hakea suberea*, desert bloodwoods, acacias and grevilleas over *Triodia pungens* hummock grasslands; wattle scrub over *T. pungens* hummock grass communities occur on the ranges; alluvial and lacustrine calcareous deposits occur throughout. In the north they are associated with Sturt Creek drainage, and support *Crysopogon* and *Iseilema* short-grasslands often as savannas with River Gum. Arid tropical with summer rain.

CR Central Ranges: High proportion of Proterozoic ranges and derived soil plains, interspersed with red Quaternary sandplains; the sandplains support low open woodlands of either Desert Oak or Mulga over *Triodia basedowii* hummock grasslands; low open woodlands of Ironwood (*Acacia estrophiolata*) and Corkwoods (*Hakea* spp.) over tussock and hummock grasses often fringe ranges; the ranges support mixed wattle scrub or *Callitris glaucophylla* woodlands over hummock and tussock grasslands; arid, with summer and winter rain.

CHC Channel Country: Low hills on Cretaceous sediments; forbfields and Mitchell grass downs, and intervening braided river systems of coolibah *E. coolibah* woodlands and lignum/saltbush *Muehlenbeckia* sp./*Chenopodium* sp. shrublands. (Includes small areas of sand plains.)

DMR Davenport Murchison Range (also MUR Murchison): Mulga low woodlands, often rich in ephemerals, on outcrop and fine-textured Quaternary alluvial and eluvial surfaces mantling granitic and greenstone strata of the northern part of the Yilgarn Craton; surfaces associated with the occluded drainage occur throughout with hummock grasslands on Quaternary sandplains, saltbush shrublands on calcareous soils and *Halosarcia* low shrublands on saline alluvia; areas of red sandplains with mallee-mulga parkland over hummock grasslands occur in the east.
FLB Flinders Lofty block combined bioregion

LB Lofty Block: Temperate, well-defined uplands of Cambrian and Late Proterozoic marine sediments with eucalypt open forests and woodlands and heaths on mottled yellow and ironstone gravelly duplex soils in the wetter areas and red duplex soils in drier areas; now largely cleared for agriculture and urban development.

FOR Flinders and Olary Ranges: Semi-arid to arid Proterozoic ranges, alluvial fans and plains, and some outcropping volcanics, with native cypress, black oak (belah) and mallee open woodlands, eremophila and acacia shrublands, and bluebush/saltbush chenopod shrublands on shallow, well-drained loams and moderately-deep, well-drained red duplex soils.

GSD Great Sandy Desert: Mainly tree steppe grading to shrub steppe in south; comprising open hummock grassland of *Triodia pungens* and *Plectrachne schinzii* with scattered trees of *Owenia reticulata* and Bloodwoods, and shrubs of *Acacia* spp, *Grevillea wickhamii* and *G. refracta*, on Quaternary red.

MII Mount Isa Inlier: Rugged hills and outwash, primarily associated with Proterozoic rocks; skeletal soils; low open eucalypt woodlands dominated by *Eucalyptus leucophloia* and *E. pruinosa*, with a *Triodia*.

ML Mulga Lands: Undulating plains and low hills on Cainozoic sediments; red earths and lithosols; *Acacia aneura* shrublands and low woodlands.

STP Stony Plains: Arid stony silcrete tablelands and gibber and gypsum plains with sparse low chenopod shrublands on duplex soils and calcarceous earths.

GAW Gawler: Semi-arid to arid, flat-topped to broadly rounded hills of the Gawler Range Volcanics and Proterozoic sediments, depositional plains and salt-encrusted lake beds, with black oak (belah) and myall low open woodlands, open mallee scrub, bluebush/saltbush open chenopod shrublands and tall mulga shrublands on shallow loams, calcarceous earths and hard red duplex soils.

MAC MacDonnell Ranges: High relief ranges and foothills covered with spinifex hummock grassland, sparse acacia shrublands and woodlands along watercourses.

GVD Great Victoria Desert: Arid active sand-ridge desert of deep Quaternary aeolian sands overlying Permian and Mesozoic strata of the Officer Basin; tree steppe of *Eucalyptus gongylocarpa*, Mulga and *E. youngiana* over hummock grassland dominated by *Triodia basedowii*; arid, with summer and winter rain.

SSD Simpson – Strzelecki Dunefields: Arid dunefields and sandplains with sparse shrubland and spinifex hummock grassland, and cane grass on deep sands along dune crests.
Appendix B: Soil mapping descriptors and lookup table

Lookup table describing the derivation of management limitations based on the *Digital Atlas of Soils* (BRS 1992) lookup tables.

<table>
<thead>
<tr>
<th>Management limits</th>
<th>Management descriptor</th>
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<tbody>
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<td>Chemical limits</td>
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</table>
Appendix C: Australian Standard Geographical Classification

The Australian Standard Geographic Classification has a hierarchical structure as shown (image sources from Trewin 2003):

(a) Incorporated areas only.
(b) Areas covered by S Dist. only.
(c) Areas covered by UC/L only.
Appendix D: Variable specifications for the SEIFA Indices


<table>
<thead>
<tr>
<th>VARIABLES UNDERLYING SOCIO-ECONOMIC INDEXES</th>
<th>INDEX OF ADVANTAGE/DISADVANTAGE</th>
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</thead>
<tbody>
<tr>
<td>% Persons aged 15 years and over with degree or higher (0.24)</td>
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<tr>
<td>% Couple families with dependent child(ren) only with annual income greater than $77,999 (0.24)</td>
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<tr>
<td>% Couple families with no children with annual income greater than $77,999 (0.25)</td>
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<tr>
<td>% Employed Males classified as ‘Professionals’ (0.25)</td>
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<tr>
<td>% Persons aged 15 years or over having an advanced diploma or diploma qualification (0.21)</td>
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<tr>
<td>% Employed Females classified as ‘Professionals’ (0.21)</td>
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<tr>
<td>% Single person households with annual income greater than $36,399 (0.20)</td>
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<tr>
<td>% Persons using Internet at home (0.19)</td>
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<tr>
<td>% Couple families with dependents and non-dependents or with non-dependents only with annual income greater than $103,999 (0.18)</td>
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<tr>
<td>% Single parent families with dependent child(ren) only with annual income greater than $36,399 (0.17)</td>
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<tr>
<td>% Persons aged 15 years and over at university or other tertiary institution (0.15)</td>
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<td>% Employed Males classified as ‘Associate Professionals’ (0.14)</td>
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<tr>
<td>% Single parent families with dependents and non-dependents or with non-dependents only with annual income greater than $62,399 (0.13)</td>
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<tr>
<td>% Employed Females classified as ‘Advanced Clerical &amp; Service Workers’ (0.10)</td>
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<tr>
<td>% Dwellings with four or more bedrooms (0.08)</td>
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<tr>
<td>% Single parent families with dependents and non-dependents or with non-dependents only with annual income less than $26,000 (–0.10)</td>
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<tr>
<td>% Employed Females classified as ‘Elementary Clerical, Sales &amp; Service Workers’ (–0.10)</td>
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<tr>
<td>% Employed Males classified as ‘Tradespersons’ (–0.15)</td>
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<tr>
<td>% Employed Females classified as ‘Intermediate Production &amp; Transport Workers’ (–0.15)</td>
<td></td>
</tr>
<tr>
<td>% One parent families with dependent offspring only (–0.13)</td>
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<tr>
<td>% Couple families with dependents and non-dependents or with non-dependents only with annual income less than $52,000 (–0.15)</td>
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<tr>
<td>% Females (in labour force) unemployed (–0.16)</td>
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<tr>
<td>% Males (in labour force) unemployed (–0.16)</td>
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<tr>
<td>% Single person households with annual income less than $15,600 (–0.18)</td>
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<tr>
<td>% Employed Males classified as ‘Intermediate Production and Transport Workers’ (–0.19)</td>
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<tr>
<td>% Employed Males classified as ‘Labourers &amp; Related Workers’ (–0.19)</td>
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<tr>
<td>% Employed Females classified as ‘Labourers &amp; Related Workers’ (–0.19)</td>
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<tr>
<td>% Couple families with dependent child(ren) only with annual income less than $36,400 (–0.20)</td>
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<tr>
<td>% Couple only families with annual income less than $20,800 (–0.20)</td>
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<tr>
<td>% Persons aged 15 years and over with highest level of schooling completed being Year 11 or below (–0.24)</td>
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</tr>
<tr>
<td>% Persons aged 15 years and over with no qualifications (–0.25)</td>
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</tbody>
</table>
### Variables Underlying Socio-Economic Indexes

**Dropped initial variables**

- % Employed Males classified as 'Advanced Clerical & Service Workers' (0.08)
- % Households who are group households (0.07)
- % Employed Males classified as 'Intermediate Clerical, Sales & Service Workers' (0.06)
- % Employed Males classified as 'Managers or Administrators' (0.06)
- % Employed Females classified as 'Associate Professionals' (0.06)
- Average number of bedrooms per person (0.05)
- % Households purchasing dwelling (0.04)
- % Dwellings with three or more motor vehicles (0.03)
- % Households owning dwelling (0.03)
- % Employed Females classified as 'Managers or Administrators' (0.03)
- % Dwellings with one or no bedrooms (0.00)
- % Persons aged 15 years and over who are still at school (-0.00)
- % Persons aged 15 years and over at TAFE (-0.02)
- % Employed Males classified as 'Elementary Clerical, Sales & Service Workers' (-0.02)
- % Persons living in Caravan park (-0.03)
- % Households living in improvised dwellings (-0.05)
- % Persons aged 15 years and over with certificate qualification (-0.04)
- % Lacking fluency in English (-0.05)
- % Occupied private dwellings with two or more families (-0.05)
- % Rental dwellings (-0.05)
- % Employed Females classified as 'Intermediate Clerical, Sales & Service Workers' (-0.06)
- % Dwellings with no motor vehicles at dwelling (-0.06)
- % Employed Females classified as 'Tradespersons' (-0.07)
- % Single parent families with dependent child(ren) only with annual income less than $15,600 (-0.08)
- % Persons aged 15 years and over who did not go to school (-0.08)

### Index of Economic Resources

- % Couple families with dependent child(ren) only with annual income greater than $77,999 (0.33)
- % Couple families with no children with annual income greater than $77,999 (0.32)
- % Single person households with annual income greater than $36,399 (0.30)
- % Households paying rent greater than $225 per week (0.30)
- % Households paying mortgage greater than $1,360 per month (0.29)
- % Couple families with dependents and non-dependents or with non-dependents only with annual income greater than $103,999 (0.27)
- % Single parent families with dependent child(ren) only with annual income less than $36,399 (0.24)
- % Single parent families with dependents and non-dependents or with non-dependents only with annual income greater than $62,399 (0.20)
- % Dwellings with four or more bedrooms (0.13)
- % Single parent families with dependents and non-dependents or with non-dependents only with annual income less than $26,000 (-0.16)
- % Households paying rent less than $88 per week (-0.19)
- % Couple families with dependents and non-dependents or with non-dependents only with annual income less than $52,000 (-0.23)
- % Single person households with annual income less than $15,600 (-0.27)
- % Couple only families with annual income less than $20,800 (-0.28)
- % Couple families with dependent child(ren) only with annual income less than $36,400 (-0.28)
dropped initial variables

% Households purchasing dwelling (0.11)
% Dwellings with three or more motor vehicles (0.07)
% Households who are group households (0.05)
Average number of bedrooms per person (0.05)
% Households owning dwelling (0.05)
% Dwellings with one or no bedrooms (−0.05)
% Households living in improvised dwellings (−0.06)
% Rental dwellings (−0.10)
% Dwellings with no motor vehicles at dwelling (−0.10)
% Single parent families with dependent child(ren) only with annual income less than $15,600 (−0.11)

INDEX OF EDUCATION AND OCCUPATION

% Persons aged 15 years and over with degree or higher (0.33)
% Employed Males classified as ‘Professionals’ (0.31)
% Employed Females classified as ‘Professionals’ (0.29)
% Persons aged 15 years or over having an advanced diploma or diploma qualification (0.28)
% Persons aged 15 years and over at university or other tertiary institution (0.21)
% Employed Males classified as ‘Associate Professionals’ (0.18)
% Employed Males classified as ‘Advanced Clerical & Service Workers’ (0.12)
% Employed Females classified as ‘Elementary Clerical, Sales & Service Workers’ (−0.14)
% Males (in labour force) unemployed (−0.17)
% Females (in labour force) unemployed (−0.18)
% Employed Females classified as ‘Intermediate Production & Transport Workers’ (−0.18)
% Employed Males classified as ‘Tradespersons’ (−0.19)
% Employed Males classified as ‘Labourers & Related Workers’ (−0.24)
% Employed Females classified as ‘Labourers & Related Workers’ (−0.25)
% Employed Males classified as ‘Intermediate Production & Transport Workers’ (−0.26)
% Persons aged 15 years and over with highest level of schooling completed being Year 11 or below (−0.32)
% Persons aged 15 years and over with no qualifications (−0.32)

dropped initial variables

% Employed Females classified as ‘Advanced Clerical & Service Workers’ (0.10)
% Employed Males classified as ‘Intermediate Clerical, Sales & Service Workers’ (0.09)
% Employed Females classified as ‘Associate Professionals’ (0.08)
% Employed Males classified as ‘Managers or Administrators’ (0.08)
% Employed Females classified as ‘Managers or Administrators’ (0.05)
% Employed Males classified as ‘Elementary Clerical, Sales & Service Workers’ (−0.01)
% Persons aged 15 years and over at TAFE (−0.02)
% Persons aged 15 years and over who are still at school (−0.03)
% Persons aged 15 years and over who did not go to school (−0.09)
% Employed Females classified as ‘Intermediate Clerical, Sales & Service Workers’ (−0.09)
% Persons aged 15 years and over with certificate qualification (−0.10)
% Employed Females classified as ‘Tradespersons’ (−0.10)
INDEX OF RELATIVE SOCIO-ECONOMIC DISADVANTAGE

% Persons aged 15 years and over with no qualifications (0.31)
% Families with offspring having parental income less than $15,600 (0.29)
% Females (in labour force) unemployed (0.27)
% Males (in labour force) unemployed (0.27)
% Employed Males classified as ‘Labourer & Related Workers’ (0.27)
% Employed Females classified as ‘Labourer & Related Workers’ (0.27)
% One parent families with dependent offspring only (0.25)
% Persons aged 15 years and over who left school at or under 15 years of age (0.25)
% Employed Males classified as ‘Intermediate Production and Transport Workers’ (0.24)
% Families with income less than $15,600 (0.25)
% Households renting (government authority) (0.22)
% Persons aged 15 years and over separated or divorced (0.19)
% Dwellings with no motor cars at dwelling (0.19)
% Employed Females classified as ‘Intermediate Production & Transport Workers’ (0.19)
% Persons aged 15 years and over who did not go to school (0.18)
% Aboriginal or Torres Strait Islanders (0.18)
% Lacking fluency in English (0.15)
% Employed Females classified as ‘Elementary Clerical, Sales & Service Workers’ (0.13)
% Occupied private dwellings with two or more families (0.13)
% Employed Males classified as ‘Tradespersons’ (0.11)

dropped initial variables
% Households renting (non-government authority) (0.08)
% Employed Females classified as ‘Intermediate Clerical, Sales & Service Workers’ (0.08)
% Employed Males classified as ‘Elementary Clerical, Sales & Service Workers’ (0.08)
% Employed Females classified as ‘Tradespersons’ (0.07)
% Dwellings with one or no bedrooms (0.06)
% Recent migrants from non-English speaking countries (0.06)
% Households in improvised dwellings (0.04)
**Appendix II: Tourism flow routes – Lake Eyre**

Tourism flow routes, entry points and major tourist locations-2003 (refer to map, page 43)

<table>
<thead>
<tr>
<th>Key</th>
<th>Name and location</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (RS)</td>
<td>Matilda Highway (Landsborough Hwy) – Qld Tambo-Blackall-Barcaldine-Longreach-Winton-Cloncurry. Connect to the Overlander Hwy. Branded themed route part of Qld heritage trails network</td>
<td>Major connector from the eastern seaboard for through traffic to central Australia, Darwin and the Kimberley. It is characterised by heritage centre attractions in the major towns enroute.</td>
</tr>
<tr>
<td>2 (RS)</td>
<td>Stuart Hwy (Explorer Hwy) – NT/SA Pt Augusta-Alice Springs-Darwin. Branded themed route has been extensively marketed and promoted internationally</td>
<td>Main south-north traffic route – primarily a transport corridor that has been promoted as a tourism drive.</td>
</tr>
<tr>
<td>3 (RS)</td>
<td>Barrier Hwy – SA/NSW Burra-Peterborough-Broken Hill-Dubbo</td>
<td>This is a major flow route for traffic from Sydney and into South Australian outback with Broken Hill as the hub.</td>
</tr>
<tr>
<td>4 (RS)</td>
<td>Overlander’s Hwy – Qld/NT Townsville-Charters Towers-Hughenden-Cloncurry-Mt Isa-Camooweal-Tennant Creek</td>
<td>This is one of the major northern flow routes from the eastern seaboard to the NT and Kimberley. Cuts the Basin in the headwaters of Cooper, Georgina and Diamantina catchments. Promoted and branded as a themed route.</td>
</tr>
<tr>
<td>5 (RPS)</td>
<td>Diamantina Developmental Road – Qld Charleville-Quilpie-Windorah-Bedourie-Birdsville (sealed to Windorah) Birdsville Developmental Road (Unsealed) Windorah-Betoota-Birdsville Bedourie-Boula</td>
<td>This is a main route from the eastern seaboard to Birdsville. For most sections the road is sealed.</td>
</tr>
<tr>
<td>5.1</td>
<td></td>
<td>This is a major route to or from the north connecting to Mt Isa or Winton.</td>
</tr>
<tr>
<td>6 (RPS)</td>
<td>Adventure Way – Qld/SA Cumnamulla-Thargominda-Naccowlah Oil Field (sealed)-Innaminka</td>
<td>This is a major access from Brisbane/Sydney for the Burke and Wills area on Cooper Creek.</td>
</tr>
<tr>
<td>7 (RPS)</td>
<td>Pioneers’ Path – NT From Alice Springs this passes through the Western MacDonnell Ranges linking major Central Australian landmarks, Palm Valley, Watarka (Kings Canyon), Uluru (Ayers Rock). Follows Larapinta Drive from Alice to join the unsealed Mereenie Loop Road west of Hermannsburg to Kings Canyon, then the Luritja Rd to the Lasseter Hwy either to Uluru or Erldunda</td>
<td>This is one of the most travelled routes in central Australia. It is a primary tourism focus and it is planned to seal the Mereenie Loop Road in the near future. As part of the marketing promotion for the NT drive routes, this has been themed and branded as the Pioneers’ Path.</td>
</tr>
<tr>
<td>8 (RPS)</td>
<td>Ross Hwy – NT Alice Springs-Ross River-Artunga</td>
<td>This is the main access to the East MacDonnell Ranges and connects to a loop of the 4x4 Explorer Trail.</td>
</tr>
</tbody>
</table>
## Appendix II

<table>
<thead>
<tr>
<th>Key</th>
<th>Name and location</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 (PU)</td>
<td>Birdsville Track – SA/Qld Marree-Mungeranie-Birdsville</td>
<td>This is the main south-north connector to Birdsville and the Simpson Desert – a well formed major road.</td>
</tr>
<tr>
<td>10 (PU)</td>
<td>Strzelecki Track – SA Lyndhurst-Moomba-Innaminka</td>
<td>One of the most popular routes to access the key historic Burke and Wills precinct and Coongie Lakes wetlands on Cooper Creek. A well-formed major road.</td>
</tr>
<tr>
<td>11 (PU)</td>
<td>Oodnadatta Track SA-Marree-William Creek-Oodnadatta, SA</td>
<td>This is the major alternative route for south, north traffic looking for the genuine outback experience as an alternative to the Stuart Hwy transport corridor. Mainly, a well-formed road with important offshoots at William Creek to Coober Pedy.</td>
</tr>
<tr>
<td>11.1 (PU)</td>
<td>Coober Pedy to William Creek</td>
<td>Currently major flow in or out of Oodnadatta Track. This is gaining in popularity to see the Painted Desert.</td>
</tr>
<tr>
<td>11.2 (PU)</td>
<td>Oodnadatta to Cadney Park via The Painted Desert</td>
<td>This is the most important connector for traffic to Dalhousie Springs and the western approach to the Simpson Desert, or connecting to Finke to head north to Santa Theresa, Alice Springs.</td>
</tr>
<tr>
<td>11.3 (PU)</td>
<td>Oodnadatta to Mala on Stuart Hwy</td>
<td>This short section is the major northward track option and passes one of the outback icons, Old Andado Station.</td>
</tr>
<tr>
<td>11.4 (PU)</td>
<td>Oodnadatta to Mt Dare/Dalhousie Springs includes the Pedirka Track on Eringa Station designated as a Public Access Route (PAR)</td>
<td>Well-formed connecting road and the easy option to the Stuart Hwy and on to Uluru.</td>
</tr>
<tr>
<td>11.5 (PU)</td>
<td>Mt Dare to Finke</td>
<td></td>
</tr>
<tr>
<td>11.6 (OU)</td>
<td>Old Andado Station to Santa Theresa</td>
<td></td>
</tr>
<tr>
<td>11.7 (PU)</td>
<td>Finke to Kulgera</td>
<td></td>
</tr>
<tr>
<td>12 (PU)</td>
<td>French Line Simpson Desert – SA/Qld Dalhousie/Freeth Junction-Poeppel Corner QAA Line-Qld Poeppel Corner-Birdsville from the Border this is the main continuation to Birdsville</td>
<td>This is one of the most popular desert 4x4 adventure activities, drawing ever increasing numbers. The main approach is from the west and this route has the highest usage. It is the closest of this type of experience for major recreational vehicle owners on the eastern seaboard. The majority of users take out the SA Desert Park permit.</td>
</tr>
<tr>
<td>12.1 (PU)</td>
<td>Rig Road and K1 Line provide alternative crossing offshoots from the French Line heading primarily south to join up to the Warburton Track through Clifton Hills Station joining the inside Birdsville Track some 100 kms south of Birdsville</td>
<td>This has been promulgated as a Public Access Route (PAR)</td>
</tr>
<tr>
<td>13 (RPS)</td>
<td>Pt Augusta-Hawker-Copley-Lyndhurst-Marree Road – SA</td>
<td></td>
</tr>
<tr>
<td>13.1 (PPS)</td>
<td>Flinders Ranges National Park Road – SA Hawker-Wilpena Pound (sealed)-Blinman-Gammon Ranges National Park-Arkaroola</td>
<td>This is the main gateway to the SA outback and north connecting to the Strzelecki, Birdsville and Oodnadatta tracks.</td>
</tr>
<tr>
<td>13.2 (PU)</td>
<td>Copley to Balcanoona Road – SA Copley-Nepabunna-Balcanoona</td>
<td>This is the main route through the Flinders ranges connecting to Arkaroola Sanctuary in the northern extremity. The road is sealed up to Wilpena and generally well formed from there on. Connects sealed Leigh Creek Road to Gammon Ranges National Park and Arkaroola.</td>
</tr>
<tr>
<td>13.3 (OU)</td>
<td>Moolawatana Track – SA Balcanoona-North Mulga-Moolawatana-</td>
<td>This is a popular connection northwards through the north Flinders Ranges to Innaminka and Birdsville. Generally a well-formed maintained Track joining the Strzelecki Track just east of Mt Hopeless.</td>
</tr>
</tbody>
</table>
### Appendix II

<table>
<thead>
<tr>
<th>Key</th>
<th>Name and location</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 (RS)</td>
<td>Strzelecki Track Junction&lt;br&gt;Peterborough to Hawker Road – SA&lt;br&gt;Peterborough-Ororoo-Hawker</td>
<td>With the sealing of the Ororoo-Hawker section this is the main connector for people to and from the Barrier Hwy heading west and north through the Flinders Ranges.</td>
</tr>
<tr>
<td>15 (PU)</td>
<td>Cordillo Downs Road – SA/Qld&lt;br&gt;Innaminka-Cordillo Downs-Birdsville</td>
<td>This is one of the main options for vehicles heading north to Birdsville or south to Innaminka. Transport SA is looking to downgrade this road to track status.</td>
</tr>
<tr>
<td>16 (OU)</td>
<td>Yaraka Road – Qld&lt;br&gt;Blackall-Emmet-Yaraka-Jundah</td>
<td>This is a minor road accessing Ilalja and Welford national parks. Follows spur rail line to Yaraka and is a back road alternative to Windorah and access to Birdsville and Innaminka.</td>
</tr>
<tr>
<td>17 (PU)</td>
<td>Arrabury Road – Qld&lt;br&gt;Nappa Merrie-Arrabury-Haddon Corner-Birdsville Developmental Road</td>
<td>This is the alternative route out of Innaminka via Haddon Corner, which is one of the border points. From the Birdsville Development Road junction travellers either head west to Birdsville via Betoona or east to Windorah.</td>
</tr>
<tr>
<td>18 (PU)</td>
<td>Plenty Hwy/Donnhobue Hwy – NT/Qld&lt;br&gt;Alice Springs (Stuart Hwy)-Gemtree-Hartz Range-Tabernora-Glenormiston-Boulia&lt;br&gt;From here there are a number of options (see 5)</td>
<td>This is a major connector from east to west linking Central Australia to mid-west Queensland. It forms a major part of the proposed Outback Hwy from Leonora in WA to Winton in Qld. It is a 4x4 alternative to the sealed Overlander Hwy linking Mt Isa to Tennant Creek. Increasingly being used.</td>
</tr>
<tr>
<td>19 (PPS)</td>
<td>Silver City Hwy – NSW&lt;br&gt;Broken Hill-Milparinga-Tibooburra</td>
<td>This is a major route north to access Innaminka and Birdsville from Broken Hill. There is a small sealed section near Paksaddle.</td>
</tr>
<tr>
<td>20 (PU)</td>
<td>Tibooburra-Cameron Corner to Strzelecki Track – NSW/SA&lt;br&gt;Tibooburra-Cameron Corner-Merty-Merty-Strzelecki Track Junction</td>
<td>Main route through from the east via Tibooburra.</td>
</tr>
<tr>
<td>21 (OU)</td>
<td>Bore Track/Bollards Lagoon Track – SA&lt;br&gt;Dillon Hwy/Nappa Merrie Road to Bore Track Junction&lt;br&gt;Regional Reserve Boundary&lt;br&gt;-Bollard’s Lagoon Station-Cameron’s Corner</td>
<td>This is an increasingly popular alternative route to the Strzelecki Track, which is more like a major road than track. This is also the main connector for travellers going to and from Cameron’s Corner. The last section on Bollard’s Lagoon Station charges a fee for travelling this section.</td>
</tr>
<tr>
<td>22 (PO)</td>
<td>Border Track – NSW&lt;br&gt;Broken Hill-Silverton-Border Downs-Hewart Downs-Sturt National Park</td>
<td>This is a 4x4 route following the border and dog fence north to join the main track to Innaminka in the Sturt National Park. Increasingly sought by those seeking to get the real off-track outback experience.</td>
</tr>
<tr>
<td>23 (OU)</td>
<td>Yunta to Martins Well Road – SA&lt;br&gt;Yunta-Erudina Woolshed-Martins Well</td>
<td>This is one of the off-road alternative routes accessing the Flinders Ranges from the Barrier Hwy.</td>
</tr>
<tr>
<td>24 (OU)</td>
<td>Walkers Crossing Track – SA&lt;br&gt;Innaminka-Walkers Crossing-Birdsville Track Junction</td>
<td>This is the main connector from Innaminka to the Birdsville Track – recently declared a PAR and increasingly used. In part follows Burke and Wills route.</td>
</tr>
<tr>
<td>25 (OU)</td>
<td>Coongie Lakes Track – SA&lt;br&gt;Innaminka Regional Reserve</td>
<td>This is one of the premier wetlands in the Basin. RAMSAR listed it as one of the focal points of visitation in the Innaminka region.</td>
</tr>
</tbody>
</table>
### Appendix II

<table>
<thead>
<tr>
<th>Key</th>
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</thead>
</table>
| 26(OU) | Mulooirina Track – SA  
Marree-Mulooirina Station-Lake Eyre  
North-Level Post Bay | One of two the public access points to the shores of Lake Eyre in the Lake Eyre National Park – accessed out of Marree – PAR. |
| 27(OU) | Halligan Bay Track – SA  
William Creek-Lake Eyre North-ABC and Halligan Bay | This is the other public access track to Lake Eyre just south of William Creek off the Oodnadatta Track. Heavy visitation during the 2000 filling of the Lake. PAR crossing Anna Creek Station. |
| 28(OU) | Moon Plain Road – SA  
Coober Pedy-Moon Plain-Mt Barry-Oodnadatta | This is an increasingly used scenic route providing access to Oodnadatta and the Arkaringa Hills and Painted Desert. |
| 29(OU) | Breakaway Reserve Track – SA  
Coober Pedy-Breakaway Reserve-Dog Fence-Coober Pedy | This is one of the most visited locations in this area and often undertaken as a loop trip out of Coober Pedy. |
| 30 (PU) | Finke Track – NT  
Finke-Alice Springs  
Designated as part of the 4x4 trails network branded as Explorer Trails | This is a themed interpreted route as part of the Old Ghan Railway heritage trail. Offers two route options either on the old built-up railway track embankment or on the service track alongside. The annual Finke Desert Rally also uses this. Increasingly seen as a 4x4 adventure drive option. |
| 30.1 (OU) | Chambers Pillar Track – NT | This is one of the icon visitation sites and utilises the upper section of the Finke Track out of Alice Springs as primary access. |
| 31 (OU) | Sandover Hwy – NT/Qld  
From Plenty Hwy Junction north of Alice Springs to Alparrurulam-Urandangi or Camooweal  
Alparrurulam-Camooweal  
Urandangi-Mt Isa  
Mt Isa-Dajarra-Bouliia | This is a connector to Mt Isa but has no easy direct route once it crosses the QldNT border. One of the NT 4x4 Trails network and arounder alternative to the Plenty Hwy. |
| 32 (OU) | Diamantina National Park Access – Qld  
There are a number of access points to this remote mid-west National Park  
Bouliia to Diamantina Lakes via Springvale  
Winton via Kennedy Development Road-Brighton Downs-Diamantina Lakes  
Berdourie-via Springvale or Monkira to Diamantina Lakes  
Windorah-via Kennedy Development Road-Palparara-Diamantina Lakes | This remote park is increasingly of interest to the adventurous travellers seeking more out of the way locations.  
All of these are basic outback station tracks that offer different alternative entry points. |
| 33(OPS) | Links between Overland Hwy and Matilda Hwy – Qld  
Winton to Hughenden via Kennedy Developmental Road  
Longreach to Prairie/Hughenden  
Barcaldine via Aramac to Torrens Creek | This is a major link to the Overlander Hwy and is sealed all the way. |
| 34(OPS) | Thomson Developmental Road – Qld  
Longreach-Stonehenge-Jundah-Windorah | This is a major route south for traffic coming from the Matilda Hwy and looking to head to Birdsville. |
3. An overview of the natural resources management arrangements in the Lake Eyre Basin

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The work reported in this publication was supported by funding from the Australian Government. The views expressed herein do not necessarily represent the views of Desert Knowledge CRC or its Participants.

This publication was prepared as a background document for the ‘People, communities and economies of the Lake Eyre Basin’ project

Citation

Acknowledgements
Funding for this study was provided by
- Natural Heritage Trust (NHT, http://www.nht.gov.au/)
- Commonwealth Scientific and Industrial Research Organisation Division of Sustainable Ecosystems (CSIRO CSE, http://www.cse.csiro.au/).
Contents

Summary ................................................................................................................................................. 93
State/Territory-level NRM arrangements .............................................................................................. 93
Regional NRM arrangements .................................................................................................................. 94
Common threads and threats ................................................................................................................ 96
1. Introduction ........................................................................................................................................ 97
  1.1 Natural resources management in Australia .................................................................................. 97
  1.2 Natural resources management in the Lake Eyre Basin .............................................................. 98
2. South Australia .................................................................................................................................. 99
  2.1. NRM arrangements in South Australia .................................................................................... 99
  2.2. Provisions for engagement ........................................................................................................ 101
  2.3. South Australian Arid Land Natural Resources Management Board ....................................... 101
  2.4. Engagement in the SAAL region ............................................................................................... 103
  2.5. Funding, key problem areas and the current projects .............................................................. 103
3. New South Wales ............................................................................................................................ 104
  3.1. NRM arrangements in New South Wales ................................................................................. 104
  3.2. Provisions for engagement ........................................................................................................ 105
  3.3. Western Catchment Management Authority ........................................................................... 106
  3.4. Engagement in the WCMA region ............................................................................................ 107
  3.5. Funding, key problem areas and the current projects .............................................................. 108
4. Queensland ....................................................................................................................................... 108
  4.1. NRM arrangements in Queensland ......................................................................................... 108
  4.2. Provisions for engagement ........................................................................................................ 110
  4.3 Desert Channels Queensland Inc ................................................................................................ 110
  4.4. Engagement in the DCQ region ................................................................................................. 111
  4.5. Funding, key problem areas and the current projects .............................................................. 112
5. The Northern Territory .................................................................................................................. 112
  5.1. About the region ........................................................................................................................ 112
  5.2. NRM arrangements in Northern Territory .............................................................................. 113
  5.3. Provisions for engagement in NT ............................................................................................ 114
  5.4. Funding, key problem areas and the current projects .............................................................. 115
6. Discussion ....................................................................................................................................... 116
  6.1. Lessons from international and Australian literature .............................................................. 116
  6.2. Issues specific to NRM engagement in remote regions ........................................................... 119
References .............................................................................................................................................. 121
Figures

Figure 1: NRM organisations in the LEB ................................................................. 99
Figure 2: NRM structure in South Australia ....................................................... 101
Figure 3: NRM structure in NSW ................................................................. 105
Figure 4: NRM structure in Queensland ......................................................... 109
Figure 5: NT NRM investment by action type, 2004–07 .................................... 115
Figure 6: Institutional linkages and ripple effects ........................................... 117

Tables

Table 1: Overview of the State/Territory-level NRM arrangements in the LEB ........................................................................................................ 94
Table 2: Overview of NRM arrangements in the LEB ....................................... 95

Shortened forms

CAC  Community Advisory Committee
CAP  Catchment Action Plan
CMA  Catchment Management Authority
CMB  Catchment Management Board
CSIRO  Commonwealth Scientific and Industrial Research Organisation
DCQ  Desert Channels Queensland Inc
LEB  Lake Eyre Basin
LEBCG  Lake Eyre Basin Coordinating Group
NAP  National Action Plan for Salinity and Water Quality
NHT  Natural Heritage Trust
NRC  Natural Resources Commission
NRM  Natural Resources Management
NRMBNT  Natural Resources Management Board of Northern Territory
NSW  New South Wales
NT  Northern Territory
Qld  Queensland
RIS  Regional Investment Strategies
SA  South Australia
SAAL  South Australian Arid Lands
SAP  Scientific Advisory Panel
SIP  state-level investment program
WCMA  Western Catchment Management Authority
Summary

Data and arrangements presented throughout this report were current as at March 2007.

This report was developed as a background document providing an overview of the formal institutional arrangements for natural resources management (NRM) in the Lake Eyre Basin (LEB). It is a technical report that represents one component of the ‘People, communities and economies of the Lake Eyre Basin’ project conducted by Desert Knowledge CRC and CSIRO Sustainable Ecosystems. In accordance with the project design, this report focuses on describing formal NRM arrangements to complement and inform the other components of the study. As the central focus of the broader project is on community engagement, it follows that a major theme of the discussion presented here is on the formal institutional arrangements that enable these processes to occur. The primary focus of the LEB study is on Queensland (Qld), South Australia (SA) and Northern Territory (NT); however, this report also includes consideration of the institutional context in New South Wales (NSW) to complete the overview of the formal institutional context for the LEB.

Current NRM institutions in Australia are based on the Natural Heritage Trust of Australia Act 1997 and the National Action Plan for Salinity and Water Quality 2000. The LEB region NRM institutions are thus organised into four state-based bodies:

- South Australian Arid Lands Natural Resources Management Board (SAALNRM)
- Western Catchment Management Authority in NSW (WCMA)
- Desert Channels Qld Inc. in Queensland (DCQ)
- Northern Territory Natural Resources Management Board (NRMNT).

This summary provides an overview of the current NRM arrangements in the NT and each State with an interest in the LEB region (Table 1), followed by an overview of arrangements directly relevant to the LEB (Table 2). The summary concludes with potential key challenges for NRM in the LEB.

State/Territory-level NRM arrangements

An overview of the current NRM arrangements in the NT and the States with an interest in the LEB is presented in Table 1.

NRM in both SA and NSW is based on the respective legislations enacted in each State. This means that the NRM Boards in SA and the Catchment Management Authorities (CMAs) in NSW are statutory bodies that share the legal responsibility for NRM with their respective State Minister. Furthermore, the NRM legislation in SA and NSW gives these NRM Boards powers to directly collect funds via levies (Table 1).

On the other hand, neither Qld nor the NT have an overarching legislation that governs NRM at the State/Territory level. Therefore, the legal responsibility for the NRM in both Qld and the NT remains with the Joint Steering Committee, a body comprising representatives of both Australian and State Governments, and the Minister designated as in charge of NRM issues. This means that NRM Boards in Qld and the NT do not have statutory powers. Furthermore, they do not have power to collect levies, and thus largely depend for their funding solely on budgets released to them from State/Australian Government funds (Table 1).
Table 1: Overview of the State/Territory-level NRM arrangements in the LEB

<table>
<thead>
<tr>
<th>State legislation</th>
<th>SA</th>
<th>Natural Resources Management Act 2004</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NSW</td>
<td>Catchment Management Authorities Act 2003 and Natural Resources Commission Act 2003</td>
</tr>
<tr>
<td></td>
<td>Qld</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>NT</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Legislative responsibility</th>
<th>SA</th>
<th>Minister → Regional NRM Boards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NSW</td>
<td>Minister → NRM Boards (CMAs)</td>
</tr>
<tr>
<td></td>
<td>Qld</td>
<td>Minister and the Joint Steering Committee</td>
</tr>
<tr>
<td></td>
<td>NT</td>
<td>Minister and the Joint Steering Committee</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Funding</th>
<th>SA</th>
<th>NRM levies (regional NRM levy and NRM water levy), State Treasury, Natural Heritage Trust</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NSW</td>
<td>Natural Heritage Trust, National Action Plan for Salinity and Water Quality, State Government, and a provision for the Catchment Contribution Levy</td>
</tr>
<tr>
<td></td>
<td>Qld</td>
<td>Natural Heritage Trust, National Action Plan for Salinity and Water Quality, State Government</td>
</tr>
<tr>
<td></td>
<td>NT</td>
<td>Natural Heritage Trust, Salinity and Water Quality NAP; and NT Government</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NRM body responsible for the LEB region</th>
<th>SA</th>
<th>South Australian Arid Lands Natural Resources Management Board (SAALNRM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NSW</td>
<td>Western Catchment Management Authority (WCMA)</td>
</tr>
<tr>
<td></td>
<td>Qld</td>
<td>Desert Channels Queensland Incorporated (DCQ)</td>
</tr>
<tr>
<td></td>
<td>NT</td>
<td>Natural Resource Management Board NT Incorporated – single NRM body for the entire NT</td>
</tr>
</tbody>
</table>

**Regional NRM arrangements**

Table 2 summarises key characteristics of the NRM bodies administering the LEB. The regional NRM Plans have been finalised and endorsed by government for the NRM bodies responsible for the Qld and NT sections of the LEB. The Plans are still in the development stage for the NSW and SA regional bodies. Table 2 further summarises the main NRM themes, aims and objectives identified in the Plans or preceding documents. All documents identify Land, Water, Biodiversity and Community as the main themes or key assets for NRM work. The NT Plan also adds ‘NRM institutions and knowledge’ to the list.

Objectives of the engagement strategies are also presented in Table 2. Qld and NT NRM plans are based on an approach that identifies the key threats to the regions and then proceeds to set management areas and targets for overcoming the threats identified. Key threats identified in the DCQ Plan are ineffective community engagement and inadequate planning leading to inadequate sustainability targets. The Plan for the NT concentrates mainly on NRM data collection, and provision of this information to the communities (Table 2). In NSW, the WCMA appears to see itself as a ‘funding broker’, as most of their engagement targets are in the area of assistance with funding and provision of technical expertise for development of project/funding applications to promote community involvement in NRM projects. In SA, the ‘Concept Statement’ of the SAALNRM Board presents three broad categories for engagement, all based on similar themes of education, capacity building and increasing public awareness (Table 2).
### Table 2: Overview of NRM arrangements in the LEB

<table>
<thead>
<tr>
<th>Status of the NRM Plan</th>
<th>SAALNRM (SA)</th>
<th>WCMA (NSW)</th>
<th>DCQ (Qld)</th>
<th>NRMNT (NT)</th>
</tr>
</thead>
</table>

#### Main themes

| SAALNRM (SA) | Genuine community engagement  
Landscape/Whole-of-system approach  
Adaptive management (based on Concept Statement document) |
|-------------|----------------------------------------------------------|
| WCMA (NSW)  | Land and vegetation  
Rivers and groundwater  
Biodiversity  
Community |
| DCQ (Qld)   | Key assets: Land  
Water  
Biodiversity  
Community |
| NRMNT (NT)  | Key assets: Land  
Inland waters (also coastal and marine)  
Terrestrial biodiversity  
Communities  
NRM institutions and knowledge |

#### Aims/Objectives

| SAALNRM (SA) | Aims:  
Strategies that reflect social, cultural, economic and environmental values  
Involvements in cross-border projects  
Management of water resources, native vegetation, threatened species, weeds and feral pests |
|-------------|----------------------------------------------------------|
| WCMA (NSW)  | Objectives:  
Reflecting diverse values equitably  
Managing land and vegetation on a landscape scale to achieve an acceptable balance between environmental, productive, cultural and social values for present and future communities  
Conserving and, where possible, improving native biological diversity  
Managing water resources to support environmental, productive, cultural and social values |
| DCQ (Qld)   | Objectives:  
Biodiversity conservation  
Sustainable use of natural resources  
Community capacity building and institutional change |
| NRMNT (NT)  | Key principles:  
Integrated natural resources management  
Ecologically sustainable development  
Precautionary principle  
Adaptive management |

#### Objectives of engagement strategy

| SAALNRM (SA) | Promoting public awareness  
Undertaking or supporting educational activities  
Increasing the capacity of people to engage in NRM |
|-------------|----------------------------------------------------------|
| WCMA (NSW)  | Providing principal point of contact for NRM in region  
Providing assistance with funding  
Promoting community involvement in projects  
Providing technical expertise for development of projects  
Supporting community in providing input to Plans |
| DCQ (Qld)   | - To effectively overcome the following identified threats:  
Ineffective leadership and engagement of the community  
Economic development not adequately addressing NRM sustainability  
Inadequate cross-border frameworks  
Inadequate planning  
Lack of information and skills |
| NRMNT (NT)  | - To effectively overcome the following identified threats:  
Remoteness and consequently greater costs of engaging communities  
Lack of comprehensive baseline data, and research and monitoring programs to guide and justify decisions  
Fragmented storage of available formal data and other information  
Limited access to relevant information on NRM issues and solutions |

SAALNRM = South Australian Arid Land Natural Resources Management  
WCMA = Western Catchment Management Authority  
DCQ = Desert Channels Queensland Incorporated  
NRMNT = Natural Resource Management Board NT Incorporated
Common threads and threats

This project has identified the following threads as common to all four legislative regions of the LEB compared with Australia in general:

- High percentage of land under leasehold arrangements
- High percentage of land under native title claims
- High percentage of land in Aboriginal ownership
- High percentage of Aboriginal populations
- Sparse population resulting in quantitatively low human capital
- Large physical areas under administration by a single NRM board.

This study proposes the following as key specific issues of the NRM engagement in remote regions of Australia:

- No single ‘right’ scale for management: collaboration between regional and local levels and between regional-level and key national (both government and commercial) players is needed. ‘Horizontal’ coordination between and among NRM bodies is also needed.
- Capacity development of both agencies and communities is essential to enable effective engagement in the process, yet it is complex and expensive; complexity and expense of capacity development should not be underestimated.
- Tension between local knowledge and scientific knowledge needs to be resolved: Better linkage of local knowledge and science with policy making would aid in the development of both more acceptable policy actions and robust monitoring programs.
- Limited availability of data on the cultural, social and ecological values placed on natural resources in the remote regions: efforts of NRM bodies are experiments in ecological interventions; they therefore need to be carefully and continually monitored, recorded, audited and adapted.
- The vital role of volunteers in regional NRM needs to be recognised and supported. The role of ‘champions’, and ways of recruiting and maintaining their interest, warrants further investigation.
- Traditional owners need to be better acknowledged as key stakeholders. Engagement mechanisms viewed as suitable and appropriate by both Aboriginal and non-Aboriginal stakeholders need to be developed.
- The concept of ‘stakeholders’ needs to be expanded beyond the current limiting identification of ‘stakeholders’ with ‘land holders’. Greater involvement of other segments of local community, communities of practice, commercial enterprises and others with interest in the region should be encouraged.
- Devolution of responsibilities needs to be concurrent with the devolution of rights and resources. Although this issue is pertinent to any NRM process, it is potentially even more significant in the remote regions where human, financial and other critical resources are chronically limited.
- Significant retention of power with the Joint Steering Committees (JSCs) and/or Minister – depending on the State/Territory arrangement – might undermine stakeholder rights in the NRM process. More importantly, stakeholders’ perceptions that the JSC and/or Minster retain power undermines the perception that stakeholders have rights, and therefore, in the long run, could undermine the trust in government and government-based and -funded institutions.
1. Introduction

1.1 Natural resources management in Australia

Over the last two decades, the Australian Government, in association with State and Territory governments, has been involved in facilitating the delivery of improved natural resources management (NRM) across Australia.

One of the first comprehensive NRM initiatives in Australia was the emergence of the Landcare program in the 1980s (Commonwealth of Australia 1989) and the start of the National Landcare Program in 1992. The Landcare programs aimed at promoting better environmental management by providing funding to locally based community groups to undertake a range of environmental and land management projects.

With the passing of the *Natural Heritage Trust Act of Australia 1997*, concepts and activities related to NRM were further formalised. A series of programs, such as the National Weeds Program, National Oceans Policy programs and Waterwatch, were undertaken between 1996 and 2002 at a cost of $1.2 billion (Marriott et al. 2000). These Natural Heritage Trust programs are often referred to as Phase 1, or NHT1 programs.

The activities undertaken under the Landcare program and the NHT1 programs played an important role in both improvements of the biophysical state of the land and in capacity building in the local communities involved in the projects. However, they were criticised for their focus on local areas and issues and lack of a more strategic, larger-scale approach (Australian Government 2002).

The enlargement of the focus from the local scale to the regional scale was publicised through the National Action Plan for Salinity and Water Quality (NAP) developed in 2000. The NAP identified 56 relevant regions, covering all of Australia (Department of the Environment and Heritage and Department of Agriculture, Fisheries and Forestry 2005). The second stage of the Natural Heritage Trust investments, often referred to as ‘NHT2’, acknowledged the lessons learnt from the NHT1 and the NAP and stated that ‘there will be a fundamental shift in the Trust towards more strategic investment’ (Australian Government 2002, p. 1).

Three overarching objectives for the second round of funding (NHT2) were identified as Biodiversity Conservation, Sustainable Use of Natural Resources, and Community Capacity Building and Institutional Change (Australian Government 2002). These objectives have been a basis for defining the four programs (Bushcare, Landcare, Coastcare and Rivercare) and the scopes of NHT2 activities.

The investment arrangements for NHT2 programs are specified at both national and state level (for issues with broadscale outcomes) and the regional level.

Bilateral agreements between the Australian Government and State governments, creating a framework under which the parties will cooperate, are based on section 19 of the *Natural Heritage Trust of Australia Act 1997*. The agreements, signed with South Australia (SA), Northern Territory (NT) and New South Wales (NSW) in 2003 and with Queensland (Qld) in 2004, address institutional reforms and set out how the second phase of the Natural Heritage Trust, from 2002 to 2007, will be delivered in each State and Territory.

Investment at the regional level is made on the basis of an accredited, integrated NRM plan and investment strategy developed by each region. Each NRM region therefore needs to develop a Natural Resources Management Plan that details specific concerns and targets for that particular NRM area.
The Natural Heritage Trust specifies an additional mode for investment into rangelands areas of Australia, which ‘may occur outside a regional framework, but still within the areas of activity identified for Trust investment’ (Australian Government 2002, p. 4). Envirofund was also established in parallel to NHT2 as an interim funding vehicle for the local groups while the regional processes were underway.

1.2 Natural resources management in the Lake Eyre Basin

The management of land and water within the Lake Eyre Basin (LEB) has a long and rich history (Yelland & Brake 2008). By the end of the 1980s, Landcare groups and activities had been established throughout the catchments. Two significant community processes began in the mid-1990s in the region. A proposal, made in 1994, to list some of the South Australian parts of the LEB for World Heritage status triggered considerable debate across whole of the LEB (DCQ 2004a). Consequently, the Lake Eyre Catchment Protection Group was founded in 1994, with membership principally from the channel country in Qld and the far north of SA. In the following year, another proposal was put forward, this time to develop a large-scale cotton irrigation project on Cooper Creek at Currareva, near Windorah. Sustained opposition to the project was mounted by the Cooper Creek Protection Group and the Barcoo Shire Council (DCQ 2004a). The process resulted in the creation of the Water Resource (Cooper Creek) Plan 2000, which does not allow for significant irrigation development in the catchment. The water management planning process, triggered by the irrigation application, was the first water planning process undertaken in the LEB.

The Lake Eyre Basin Steering Group, representing a wide range of stakeholders, came together in 1995 to consider options for community-based management of the natural resources of the LEB. The process continued with the formation of the Lake Eyre Basin Coordinating Group (LEBCG) in 1997. The Lake Eyre Basin Intergovernmental Agreement was signed in October 2000 between the Commonwealth of Australia and States of Qld and SA (Commonwealth of Australia, State of Queensland and State of South Australia 2000). The Agreement provided for the establishment of the LEB Ministerial Forum, including the Scientific Advisory Panel (SAP) and Community Advisory Committee (CAC). The Northern Territory joined the Ministerial Forum in June 2004. The LEBCG gave rise to the Cooper’s Creek and Georgina/Diamantina Catchment Committees. Both Catchment Committees also developed individual catchment strategic plans.

However, following the changes induced by NHT2, the preferred option by the Australian and State Governments for the LEB was to create new bodies delineated by state boundaries (DCQ 2004a). The LEB region was consequently organised into four state-based bodies (Figure 1, from Herr et al. 2007):

- Desert Channels Qld Inc. in Queensland (DCQ)
- Northern Territory Natural Resources Management Board (NRMNT)
- South Australian Arid Lands Natural Resources Management Board (SAALNRM)
- Western Catchment Management Authority in NSW (WCMA).

These four state-based bodies are currently responsible for planning and implementation of sustainable management of natural resources in the region, in line with NHT2 objectives.
The following sections are therefore organised by the NHT2–based state bodies and describe NRM arrangements in each State/Territory of the LEB. State-based sections (Sections 2–5) start with an overview of the state-wide arrangements, and, specifically, arrangements related to stakeholder engagement. The sections continue with the overviews of each relevant NRM organisation, their provision for engagement and key problem areas and projects identified. The report concludes with the discussion section (Section 6).

2. South Australia

2.1. NRM arrangements in South Australia

The NRM arrangements for SA are laid out in the Natural Resources Management Act 2004 (SA) (hereafter ‘the Act’). The key objectives for State-wide NRM under the Act were summarised by Cheers and Kruger (2005, p. 12) as:

- integrated management
- protection of existing biological diversity
• ecological restoration and rehabilitation, limited by feasibility (which is undefined) and economic production
• balancing ecological needs with the need to support the contribution of ‘primary and other economic production systems’ to the State economy, especially agriculture and mining
• supporting and increasing people’s capacity to participate in NRM, especially through educational initiatives.

The Act establishes the Natural Resources Management Council as the State-wide peak body for NRM, with the goal of providing the State Government with expertise and advice about the long-term strategic directions for the management of the State’s natural resources (Figure 2). The Council developed a five-year State NRM Plan and is working with South Australia’s eight regional NRM boards (one of which is SAAL Board), government agencies and peak bodies (such as South Australian Farmers Federation) to collectively implement the State NRM Plan.

Nine members sit on the Council, and they are nominated by the Minister and appointed by the Governor. One member with the required skills is nominated by each of the South Australian Farmers Federation (SAFF), the Local Government Association (LGA), and the Conservation Council of South Australia (CCSA). In addition, there is a member that represents Aboriginal interests (Government of South Australia 2004), and other members are appointed solely on the basis of their contributions to total Council expertise.

The Council has numerous functions under the Act and reports directly to, and is under the general direction and control of, the Minister. Therefore, the Council is independent from the Department of Water, Land and Biodiversity Conservation. The integrity and autonomy of the Council is ensured in that the Minister cannot give any direction to the Council on matters of recommendations and reports produced (Lane et al. 2005). However, analysis of the SA NRM process performed by Lane et al. (2005) cautions that, nonetheless, the resource ownership and powers are maintained by the State and Minister and are not transferred to the lower levels of authority or non-State associations.

The Act has established eight NRM regions in SA. Each region needs to be managed by a separate NRM Board, being a body corporate established by and responsible to the Minster (Figure 2). The Minister and NRM Boards are responsible for the implementation of the Act in SA. Cheers and Kruger (2005) point out the innovativeness of this arrangement for Australia, where the Minister, the Council and Boards have management responsibilities and powers and the Department assists with the administration of the Act (Figure 2). A regional NRM Board is responsible to the Minister for planning, management, reporting, monitoring and auditing, increasing awareness of NRM issues and building capacity. Each Board has its own Fund, which it operates in accordance with SA government requirements. Each Board is responsible for development of a regional NRM Plan with clearly specified components, including a water allocation plan where relevant. The Act provides considerable detail on preparation, consultation, adoption and maintenance of the Plans. The stakeholders in the Plan-creation process are explicitly identified in the Act as ‘relevant SA government departments and agencies’, the Minister administering the Development Act 1993, NRM groups and local councils, the peak bodies (such as the South Australian Farmers Federation), members of the regional community and the general SA public. Cheers and Kruger (2005, p. 32) conclude that:

Requirements concerning regional plans reinforce the highly consultative, collaborative, participatory, partnership, and network approach to natural resources management that is stated in policies and confirmed throughout the Act. This approach involves high transparency, information provision to a wide range of partners and stakeholders, considerable informed, detailed input from them, and serious consideration of this input.
The Boards can (by notice in the Gazette) establish a geographical NRM area and form an NRM Group responsible for initiating, conducting and managing projects in that area. NRM Groups, in turn, are fully responsible to the Board. The Groups have up to seven members appointed by the Board and cannot employ their own staff.

2.2. Provisions for engagement

The SA government has adopted a ‘deliberately decentralised’ (Lane et al. 2005) approach to NRM. According to a discussion paper titled *New directions for natural resource management in South Australia* (Government of South Australia 2002), effective community engagement is to be achieved through appropriate devolution of decision making to regional and local communities. The engagement is to be achieved through effective communication and consultation processes, with the aim of increasing awareness, capacity and commitment of those involved. The ‘appropriate authority’ is to be devolved to the NRM Council, Regional Boards and NRM groups. However, Lane et al. (2005) note that, although Boards are intended to be representative of the major stakeholders in the given region, and are to be key mechanisms of community participation in NRM, they are, nonetheless, government instruments that fall under the direction and control of the Minister. Boards therefore provide institutionalised participation for citizens in NRM.

2.3. South Australian Arid Land Natural Resources Management Board

The South Australian Arid Land Natural Resources Management (SAALNRM) region covers around 530 000 square kilometres of northern SA, more than 50% of the State. The population is close to 10 000. Aboriginal people make up about 10% of the population.
The region is mostly unincorporated. This means that, apart from the town governments of Coober Pedy and Roxby Downs, there are no local government arrangements in the region. The land is mainly under lease as ‘pastoral tenure’ or is reserved for conservation. Native title claims exist over much of the land. Mining leases in the region are extensive, and the region harbours the world’s largest known uranium reserve (at Roxby Downs) and Australia’s largest on-shore gas and oil reserves (Cooper Basin) (Cheers & Kruger 2005).

The SAAL NRM Board promotes itself as a ‘peak strategic body with the duty of providing leadership and direction in the sustainable management of issues relating to soil, water, pest plants and animals to the broader community in the Arid Lands region’ (Government of South Australia 2007a). The SAAL NRM Board has created five geographical NRM groups to replace the six Soil Conservation Boards that were operating in the region. The district NRM groups are North Flinders, Maree-Innaminka, Marla-Oodnadatta, Kingoonya and Gawler Ranges. In general terms, the district groups will have responsibility to develop, implement or participate in plans and programs associated with NRM in their designated area. The groups will advise the SAAL NRM Board on relevant NRM issues so that the Board can make strategic decisions. The SAAL NRM Board has nine voting members appointed from the community by the Governor on the basis of skills relevant to the management of resources in the region, as well as five non-voting Agency representatives appointed by the Minister attend the meetings.

The SAAL NRM Board was expected to build on work being done by a series of groups that it replaced, including statutory water and soil boards. The new Board inherited a series of statutory plans developed prior to its appointment. These plans included a regional plan and investment strategy accredited as meeting the requirements of the regional NRM initiative by the Joint Steering Committee. The new NRM legislation requires the Board to develop its own Regional NRM Plan. The Regional NRM Plan will have a 10-year strategic focus and a 3-year business plan. The planning process started with the ‘Concept Statement’, a document that sets out proposed content, identifies matters to be investigated in the planning process and sets proposals for the consultation process. The concept statement for the SAALNRM Plan opened for comments in September 2006 (Government of South Australia, 2006). According to the Call for Comments on the Concept Statement, the Plan:

... aims to achieve an integrated NRM vision for the community, industry and the environment through:

• Implementation of regional strategies that reflect social, cultural, economic and environmental values
• Involvement of all natural resource managers in various regional and cross border projects and initiatives
• Management of water resources, native vegetation, threatened species, weeds and feral pests.

(Government of South Australia 2007b)

The forthcoming SAAL regional NRM Plan will build on three main themes (Government of South Australia 2006, p. 8):

• **Genuine Community Engagement**: Seeking to involve all parties with interests in a natural system in planning and decision making to build shared awareness, understanding and knowledge and develop ownership of, and commitment to, better NRM

• **Landscape/Whole-of-System Approaches**: Managing all resources within relevant natural resource system boundaries – ecosystems, bioregions, land systems, catchments and landscapes

• **Adaptive Management**: Involving an ongoing cycle of ‘planning, doing, checking’ to ensure that we continuously learn from our actions and improve management practices.
The Concept Statement states that the Plan will be developed using all the best available knowledge, but that there will be no formal investigations undertaken by the SAAL NRM Board in the development of the plan.

The Concept Statement document also specifies the timeline proposed for the creation of the SAAL regional NRM plan. The preparation of the draft plan is expected between December 2006 and October 2007. Consultation on the Draft Plan is proposed for the period of October–December 2007, with the final Plan expected to be adopted by June 2010.

2.4. Engagement in the SAAL region

Lack of adequate human and financial capital was identified in the Concept Statement as one of the historic and ongoing issues for successful NRM management in the region (Government of South Australia 2006).

The Concept Statement presents a comprehensive list of functions for the SAAL NRM Board. Several of those functions relate to the engagement processes and can be grouped into three broad categories:

- promoting public awareness
- undertaking or supporting educational activities
- increasing the capacity of people to implement NRM programs.

One of the key functions of the NRM groups is to ‘maintain close links with the community’. The NRM groups will provide service to the Board by being ‘particularly involved’ in the ‘consultation and engagement with local communities and key local stakeholders’ (Government of South Australia 2006, p. 7).

It is expected that the SAAL Regional NRM Plan will contain specific information related to capacity-building programs, community engagement, education and communications responsibilities and budgets. The Concept Statement lists ‘Education and Capacity Building’ as one of the five themes to be addressed in the Plan. The Education and Capacity Building theme will address the following:

- capacity building for those involved in NRM, including land managers and technical specialists
- establishing incentives for improved NRM
- supporting school-based education programs
- building partnerships, including with local government and Aboriginal communities
- communications and awareness programs.

In addition, all other themes of the Plan will also deal with engagement issues. For example, one of the sections of the ‘Monitoring and evaluation’ theme will be developing a process of ongoing knowledge management.

2.5. Funding, key problem areas and the current projects

State Treasury has established a National Resources Management Fund which consists of budgetary allocations, grants, loans, investments, fees, etc. paid into the fund.

NRM levies are only payable as set out in a regional NRM plan. Regional NRM levies payable by local councils to the NRM boards are potentially the most significant source of funding for the SA NRM Boards. The levy is collected by the local councils from ratepayers within a Council area. In out-of-council areas, the Minister may declare and collect a regional NRM levy from land holders. An NRM water levy is also declared and collected by the Minister from water licence holders. However, given that the majority of SAAL is unincorporated land, NRM in this region is primarily funded directly by the Minister.
The Australian Government through the Natural Heritage Trust also supports NRM issues. For example, more than $3.1 million in funds were approved under extension funding to the Rangelands region to tackle its environmental and natural resource issues (Australian Government 2002).

As discussed above, the SAAL Regional NRM plan is under development and the planning process to date has specified general ‘Threats to the region’ only. These include climate change, soil degradation, weeds, pest animals, excessive total grazing pressure, bio-security threats and decline of rural populations and services. Projects under way in 2006/07 were grouped into three themes: Water, Biodiversity and Community Building.

3. New South Wales

3.1. NRM arrangements in New South Wales

Thirteen Catchment Management Authorities (CMAs) have been established across New South Wales as a result of the legislative changes brought by the Catchment Management Authorities Act 2003 (Government of New South Wales 2004). The CMAs are statutory bodies governed by the Board that report directly to the NSW Minister for Natural Resources (Figure 3). The 13 newly established CMAs effectively replaced 72 previously existing NRM committees (Pannell et al. 2004).

Functions of the CMAs include the preparation of Catchment Action Plans (CAPs) and associated investment strategies, recommending and managing incentive programs to implement catchment management plans and allocating funds to support development and implementation. While CMAs are a new initiative of the NSW Government to manage natural resources, they build on work previously undertaken by Catchment Management Boards (CMBs) and Regional Vegetation Committees. This historic link is acknowledged in the request that preparation of Catchment Action Plans (CAPs) be based on the integration of the previous work, latest information and science and local knowledge (Department of Infrastructure, Planning and Natural Resources 2005). The specific functions of CMAs are described in Article 15 of the CMA Act and can be summed up as Planning and investment, Native vegetation, Water, On-ground works, and Community engagement. The CMA Act specifies that the Community engagement area should aim to help land holders adopt new land management practices; provide technical advice and support on vegetation management issues; consult Aboriginal communities on plans, programs and investment strategies; and provide community information and support.

The CMAs are also required to work in partnership with the community, local government, State Government agencies, industry and individuals. In addition to the Department of Infrastructure, Planning and Natural Resources, relevant State agencies were identified as NSW Agriculture (Department of Primary Industries), and the Department of Environment and Conservation (Pannell et al. 2004).

The CMA Boards consist of a chairperson and up to six Board members, with all appointments being skill and merit based. The Boards also have a general manager and operational staff.

At the same time as the CMA Act, the Parliament also passed the Natural Resources Commission Act 2003. The main objective of this Act is to establish an independent body for the purposes of (Article 3):

(a) establishing a sound scientific basis for the properly informed management of natural resources in the social, economic and environmental interests of the State,
(b) enabling the adoption of State-wide standards and targets for natural resource management issues, and
(c) advising on the circumstances in which broadscale clearing is to be regarded as improving or maintaining environmental outcomes for the purposes of the Native Vegetation Act 2003.
Consequently, the Natural Resources Commission (NRC) was established as a body corporate with the general functions of ‘providing the Government with independent advice on natural resource management’ (Article 12 (1) of the NRC Act).

The NRC is part of the Premier’s portfolio, reflecting its independent nature. One key role of the NRC is to provide advice on NRM issues to the relevant Minister (Figure 3). Article 11 of the Act specifies that ‘The Commission is not subject to Ministerial control in respect of the preparation and contents of any advice or recommendation of the Commission, but in other respects is subject to the control and direction of the Minister.’

Several core and additional roles and functions are set for the Commission by the Act. The NRC’s core functions are in recommending state-wide standards and targets for NRM, reviewing and recommending for approval the Catchment Action Plans and auditing CMAs’ implementation of these plans and their effectiveness in achieving state-wide standards and targets.

According to Pannell et al. (2004), under the new structure government remains the key source of policy and direction in NSW. The role of the NRC is to independently advise on standards and targets and progress towards targets, while the CMAs deliver programs and outcomes on the ground.

The (former) Department of Infrastructure, Planning and Natural Resources (now split into Department of Planning and Department of Natural Resources) expected that over $406 million would be allocated directly to the CMAs from the National Action Plan for Salinity and Water Quality and the Natural Heritage Trust grant processes. In addition, the NSW Government committed $120 million over a four-year period for ‘native vegetation reforms’ (Department of Infrastructure, Planning and Natural Resources 2005). Furthermore, Schedule 4 – Catchment contributions of the Act – allows for a catchment contribution levy to be declared on any land within the CMAs’ area of operations.

### 3.2. Provisions for engagement

Legislative provision for community engagement and stakeholder involvement can be found in Article 15 of the Catchment Management Authorities Act 2003 – Specific functions of the CMAs. Article 15(d) deals with assistance to ‘landholders to further the objectives of [a CMA’s] catchment action plan (including providing information about native vegetation)’, while Article 15(e) relates to providing ‘educational and training courses and materials in connection with natural resource management’.

Figure 3: NRM structure in NSW
The Department of Infrastructure, Planning and Natural Resources (2005) summarises the community engagement role of the CMAs as to:

- help land holders undertake works or try new land management practices to improve catchment health
- provide technical advice and support on vegetation management issues
- consult Aboriginal communities on CAPs, natural resource programs and investment strategies
- provide community information and support.

3.3. Western Catchment Management Authority

The Western Catchment region covers 230 000 square kilometres and supports a population of 18 000 people, 22% of whom are Aboriginal. It is the largest catchment region in NSW and includes the Bourke and Brewarrina shires, significant portions of the Cobar, Central Darling and Walgett shires and a substantial unincorporated area. The Catchment is predominantly leasehold land, administered under the Western Lands Act 1901 by the Department of Natural Resources. There are more than 630 pastoral and agricultural holdings in the Western Catchments. A significant portion of the region is in the Murray-Darling Basin (WCMA 2006a).

The Catchment is administered by the six-member Western Catchment Management Authority (WCMA). The Western Catchment Plan, developed by the WCMA, was reviewed by the Natural Resources Commission (NRC) in September 2006 and recommended to the Minister for approval (Natural Resources Commission 2006).

The Plan has been heavily based on the Catchment Blueprint, developed by the previous Western Catchment Management Board. The Blueprint document for the region was completed in 2001 and has identified the key land and water management issues in the Western Region as:

- grazing pressure and restoration and maintenance of perennial pastures
- noxious weed threats
- declining water quality
- surface water sharing and river flow management, including environmental flows, and management of groundwater resources
- effective management of western floodplains
- conservation of water and land-based biodiversity
- sustainable dryland and irrigated agriculture
- preservation of cultural heritage.

The WCMA Plan builds on the pre-existing Vision Statement and Catchment Objectives developed in the Blueprint. The vision of the Catchment Management Board of the ‘Dynamic, viable communities and enterprises which support and sustain diverse natural environments and cultural values’ remains as the vision of the new CMA. The objectives of the WCMA are specified in the Plan (WCMA 2006b) as:

1. Diverse values equitably reflected in the integrated management of natural resources for present and future communities.
2. Land and vegetation managed on a landscape basis to achieve an acceptable balance between environmental, productive, cultural and social values for present and future communities.
3. Native biological diversity is conserved and, where possible, improved in the Western Catchment.

1 http://www.western.cma.nsw.gov.au
4. Water resources supporting the environmental, productive, cultural and social values for present and future communities.

The Plan addresses the following four themes: Land and Vegetation, Rivers and Groundwater, Biodiversity and Community. It sets catchment targets for each theme. The Community theme addresses activities applicable across all of the catchment themes and targets. This theme includes issues such as monitoring and evaluation, the development and implementation of cultural heritage programs and community capacity building.

It is important to note that activities under the Community theme are not planned to appear as separate funding areas within the Investment Strategy. Rather, the Community theme and targets are intended to be included as components of other operational programs.

3.4 Engagement in the WCMA region

The Community theme of the Plan consists of:

- Cultural Heritage Management (with two set targets)
- Community Education and Support Program (three targets set, plus three State-wide targets)
- Monitoring and Evaluation Program (no set targets).

However, the Plan specifies (p. 52) that the Monitoring and Evaluation Program is ‘to provide mechanisms for reporting program implementation, financial tracking and output achievements and not deal with the monitoring of natural resource management outcomes.’ There is no mention of monitoring of community engagement, stakeholder satisfaction or similar parameters in the Plan.

The WCMA recognises that providing support to stakeholders and the community is essential for meeting the Management Targets of the Plan. The WCMA has developed a Community Education and Support Strategy with the function to build the capacity of stakeholders and increase their ability to adapt to change, along with the function of supporting the community’s involvement in the delivery of NRM activities across the catchment (WCMA 2006b). Other functions of the Community Education and Support Strategy include identifying mechanisms for capacity building through community education and support, ensuring community education and support is consistent and meets stakeholder needs and establishing a framework for monitoring and evaluating the delivery of community education and support. Funding sources for the activities outlined in the Community Education and Support Strategy are not clearly specified in the documentation.

Under the Community Support theme, the WCMA (2006b p. 67) is planning to:

- provide a principal point of contact for all NRM issues for the Western CMA region
- provide assistance, information and advice on funding sources and opportunities
- actively promote community involvement in programs/projects
- provide technical expertise for the development and implementation of projects
- involve and support the community in providing input to the development and review of plans and strategies
- ensure that the support is driven by the community to the community
- provide the means to appropriately monitor the support provided to stakeholders.

Under the Community Education theme, the WCMA (2006b, p. 68) is planning to aid the community in effective NRM activities and outcomes, by:

- raising awareness of the CMAs, the Management Targets outlined in the Western Catchment Plan and NRM issues generally
- developing and providing information on best practice techniques
improving the knowledge, understanding, skills and awareness of community members, increasing their ability and willingness to participate in the delivery of outcomes.

The WCMA Annual Report for 2006 (WCMA 2006a) specifies the following Community Management Targets:

- Establish an Indigenous Natural Resource and Cultural Reference Group, within two years of Catchment Plan approval to formally coordinate the input of Aboriginal communities into natural resource management planning activities in the Western Catchment.
- Develop and assist the implementation of a process for the documentation, evaluation and ownership of Indigenous knowledge of sustainable land management and cultural values in the Western Catchment by 2009.
- There is a continual increase in land managers’ awareness, knowledge and skills in natural resource management and adoption of practices which improve natural resource outcomes.
- Land managers and other natural resource managers are actively engaged in collaborative action to improve the management of natural resources through the development and implementation of regionally relevant natural resource management.
- There is a continual increase in the willingness of land managers, other stakeholders and the community to partner natural resource management organisations to deliver natural resource outcomes.

3.5. Funding, key problem areas and the current projects

The WCMA Plan defines catchment management authorities as the ‘primary vehicle for the delivery of incentive programs funded by both the State and Commonwealth Governments to achieve restoration and improvements in the natural resources of the State’ (WCMA 2006b, p. 9). To this effect, the WCMA will be granted NSW and Australian government combined funds of $23 million over four years ($19 million for projects). Out of the project allocation, 80% is planned to be spent on on-ground works, 15% on education and training and 5% on monitoring and evaluation.

In 2005, $2.2 million was allocated to 62 land managers for projects matching WCMA’s targets. The project received grants under the following targets: sustainable agriculture, riverine habitat, pest management, high value ecological communities, native pasture recovery and water quality (WCMA 2006c).

4. Queensland

4.1. NRM arrangements in Queensland

In Qld, the National Action Plan for Salinity and Water Quality (NAP) and the Natural Heritage Trust (NHT) are jointly delivered by the Australian and Qld Governments. A Joint Queensland and Commonwealth Natural Resource Management Steering Committee (JSC) has been established to oversee the development and implementation of the NAP and NHT-funded programs. Two key documents, the NAP Bilateral Agreement signed in March 2002 and the NHT Bilateral Agreement signed in June 2004, outline arrangements for the implementation of the programs in Queensland.

Fourteen NRM regions and twelve designated regional bodies were formally designated in the Bilateral Agreements. The bilateral agreements commit the Qld and Australian Governments to working with the regions to help them ‘develop better representational and structural arrangements to implement fully integrated NRM plans across the regions.’ The key responsibilities of the JSC are (Bilateral Agreement 2004):
• developing principles and criteria to guide NHT and NAP investment
• assisting the regional bodies in developing regional integrated NRM plans and investment strategies
• considering the integrated NRM plans and making recommendations to Australian Government and Qld Ministers on accreditation of those plans
• recommending NHT and NAP investment programs to Australian Government and Qld Ministers
• agreeing on the release of funding to proponents from the joint Australian Government and Qld account for the NHT and the NAP
• reviewing quarterly and six-monthly reports for projects to Australian Government and Qld Ministers
• developing and implementing the Communication and Monitoring and Evaluation Strategies.

The NRM regional bodies in Qld are not statutory bodies and hence are referred to as ‘community boards’. They are guided by the NAP and NHT Bilateral agreements. The NRM regional Boards are responsible for the preparation of the regional NRM Plans and Regional Investment Strategies (RIS) that form the basis for implementation of on-ground NRM activities (Figure 4).

Funding arrangements between the Australian and the Qld Governments are detailed in each Bilateral Agreement. For NAP, the funding is based on a 50:50 investment in cash by both parties, and for NHT the funding is 50% cash from the Australian Government, which is matched by 50% in-kind. Actual investment for the financial years 2004/05 and 2005/06 was:

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<td>NAP:</td>
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<tr>
<td>Aust.G</td>
<td>$18 244 761</td>
<td>$19 797 362</td>
</tr>
<tr>
<td>State</td>
<td>$15 682 828</td>
<td>$21 578 718</td>
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<td>NHT:</td>
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<tr>
<td>Aust.G</td>
<td>$34 464 475</td>
<td>$28 379 852</td>
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<tr>
<td>State</td>
<td>$421 153 cash and $31.7 million in-kind</td>
<td>$480 697 cash and $27.6 million in-kind</td>
</tr>
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</table>

The Australian Government support is provided through the Department of Agriculture, Fisheries and Forestry and the Department of the Environment, Water, Heritage and the Arts. The Qld Department of Natural Resources and Water is the lead state agency for delivery of the NAP and the NHT (Figure 4).
4.2. Provisions for engagement

The Queensland State government has defined five state-level investment project areas (Department of Natural Resources, Mines and Water 2006). The state-level investment program (SIP) funding areas include capacity building, salinity, social and economic research, sustainable agriculture and water quality.

The Capacity Building SIPs have the aim of helping local governments, including the Aboriginal and Torres Strait Islander Community, understand the relevance of NRM priorities to local government business, develop effective and coordinated approaches to local and regional planning and management for NRM issues and integrate NRM priorities into local government corporate plans and associated mechanisms.

The projects in the Social and Economic SIP groups include:

- institutionalising social and economic considerations and assessment in regional arrangements
- coordinating social and economic information for the development of a regional information service
- social research, development and extension
- integrated research, development and extension for regional NRM
- understanding economic drivers for NRM and developing and trialling a toolkit of incentives and market-based instruments for regional NRM.

The Qld government released a discussion paper in April 2005 titled *Options for future community engagement in regional natural resource management*. The paper was to guide submissions in a government review of community involvement in regional NRM. The findings of the review indicate that the community strongly supports the continued operation of non-statutory community-based NRM bodies, with almost three-quarters of the submissions supporting variations on this model (Queensland Government 2005).

4.3 Desert Channels Queensland Inc

Desert Channels Queensland Inc (DCQ), is a community-based NRM group covering the Qld section of the LEB. The Desert Channels region covers an area of 510 000 square kilometres (around 30% of the State) and supports a population of 16 000. DCQ estimates that 66% of this population lives in the main centres of Winton, Longreach, Boulia, Barcaldine and Blackall, leaving the remaining 5000 people ‘thinly scattered across the rest of the landscape’ (DCQ 2004b, p. 9).

The Aboriginal population of the NRM region is estimated at around 6% but is highly variable within the region. For example, the Georgina Diamantina catchment has an Aboriginal population of around 15% of the total population, with significant communities at Dajarra and Urandangi, while the Cooper catchment has a population that is only 3.4% Aboriginal, with no major communities. Twenty-four native title claims, covering around 50% of the DCQ region, have been made, mostly in the west and north (DCQ 2004b).

The landscapes of the DCQ are diverse. The main industries in the NRM region are pastoralism, mining, petroleum and tourism. Grazing is a dominant land use, under either pastoral lease, perpetual lease or freehold tenure arrangements. The whole of the DCQ NRM region is incorporated as Shires.

The NRM Plan for DCQ (the Plan) was endorsed in December 2004 by both the Australian and State Government Ministers. The vision for the DCQ is specified in the plan as ‘The Desert Channels Region … valued for its healthy land and rivers, sustainable communities and production and its unique natural and cultural heritage’ (DCQ 2004b, p. 2).

http://www.dcq.org.au/
The Plan identifies four key assets of the region: Land, Water, Biodiversity and Community. The vision for the community is of a ‘well-informed, resourced and motivated community … wisely managing its natural resources, heritage and institutions’ (DCQ 2004b, p. 2).

DCQ consists of three implementation groups: the Georgina Diamantina Catchment Committee, the Cooper’s Creek Catchment Committee and the Desert Uplands Build Up and Development Strategy Committee. Community members sit on these committees and work to implement the projects funded through the DCQ.

The current DCQ NRM Plan builds on several planning and consultation processes that have occurred in the region. The Desert Uplands community developed an NRM plan for their area in 1999. The Cooper’s Creek and Georgina Diamantina Catchment Committees released their strategic plans in 2000. In addition, two major cross-border initiatives that exist in the region are specifically mentioned in the Plans: Lake Eyre Basin (LEB) Agreement and related arrangements and the Great Artesian Basin (GAB) Strategic Management Plan and related arrangements.

NRM targets were set in accordance with the National Framework for NRM Standards and Targets. In keeping with the NHT2 guidelines, the Plan (DCQ 2004b) focuses on the relevant parts of three key objectives: Biodiversity conservation, Sustainable use of natural resources and Community capacity building and institutional change.

4.4. Engagement in the DCQ region

A 70-page community information document was developed by DCQ in October 2004 (DCQ 2004a). DCQ defines its community as including pastoralists, Aboriginal groups, townspeople, industry, governments (local and State) and conservationists.

The management part of the DCQ NRM Plan (DCQ 2004b) has a section for each of the four assets (Land, Water, Biodiversity and Community). Each section starts with the asset’s current state and a target aspired to for 2050. Issues and threats to the asset are then discussed, and the current management responses are outlined. The sections conclude with the tables of Resource Condition Targets and Management Action Targets.

For the ‘Community’ asset, the following threats have been identified:

- Ineffective leadership and engagement of the community (with four actions set to manage the threat)
- Economic development not adequately addressing NRM sustainability (with four management targets)
- Inadequate cross-border frameworks (one management target)
- Inadequate planning (one management target)
- Lack of information and skills (six management targets).

The historic Aboriginal involvement in NRM was recognised as being ‘modest’ (DCQ 2004b). Therefore, threats to Aboriginal land management and heritage were additionally identified as:

- Lack of Aboriginal involvement in NRM
- Poor protection of cultural heritage.

Four specific targets were set to manage those threats.

In addition, Capacity building and Aboriginal land management were also identified as areas for cross-border action between SA and Qld. The LEB processes are seen as the vehicle for delivery in those areas.
4.5. Funding, key problem areas and the current projects

DCQ acknowledges in its NRM Plan (DCQ 2004b, p. 10) that ‘Funding will always be an issue; we must be realistic and recognise it will be limited … We must also recognise that our ability to spend NRM funding effectively will be limited by our level of human resources and remoteness.’

In addition to the Plan, a Regional Investment Strategy (RIS) document was also developed by DCQ. With regard to the DCQ RIS, the Joint Steering Committee recommended to the Minister the following levels of investment (JSC 2005):

- 2004/05: approval of $1 180 586 in Trust funds
- 2005/06: in-principle approval of $905 124 in Trust funds
- 2006/07: in-principle approval of $559 278 in Trust funds.

The DCQ was also required by the JSC to develop a risk management strategy and to ‘consider the social and economic consequences of undertaking the actions included in the Regional Investment Strategy’ (JSC 2005).

The Annual Report (DCQ 2006) reports total incomes of $4.2 and $2.3 million for the 2004/05 and 2005/06 financial years respectively, of which around $1.2 and $1 million were spent on project funding.

Examples of DCQ programs and projects in 2005/06 include:

- Protecting our Future program: an umbrella program providing funding to deliver integrated outcomes across planning, capacity building, and on-ground activities
- Cross Catchment Weeds and Feral Animals Initiative
- National Landcare program
- ‘Coming together’ Indigenous land management and heritage program
- WaterSmart program, combining the best grazing management with the best technologies in stock water storage and delivery
- Wise Urban Water Use (WUWU) project
- Desert Uplands Social Research project.

5. The Northern Territory

5.1. About the region

The Northern Territory (NT) is a single natural resource management region under the Natural Heritage Trust. It covers an area of 1 346 200 square kilometres and supports a population of 200 000, with the majority living in the major towns of Darwin, Alice Springs and Katherine. Only 1% of Australia’s population lives in the Northern Territory, and more than one in four Territorians are of Aboriginal background (Australian Government 2004).

The dominant industries of the region are mining, agriculture, tourism and defence. Mining is the leading sector, accounting for $3.2 billion per year. Tourism accounts for $1 billion and cattle enterprises for more than $360 million annually (Australian Government 2004).

The Landcare Council of the NT (LCNT) has historically been responsible for managing the NRM community networks and facilitating the delivery of the original NHT1 funding.
5.2. NRM arrangements in Northern Territory

In the NT, the National Action Plan for Salinity and Water Quality (NAP) and the Natural Heritage Trust (NHT) are jointly delivered by the Australian and Northern Territory Governments. The arrangements for implementing the NAP and the NHT programs are outlined in a Bilateral Agreement signed in 2003. A joint Australian and Northern Territory Government Steering Committee (JSC) is responsible for managing the delivery of NAP and NHT programs (Bilateral Agreement 2003). The role of the Steering Committee includes:

- developing principles and criteria to guide NAP and NHT investment
- endorsing the regional body’s approach to preparing and implementing its integrated NRM regional plan
- arrangements during the interim period
- assisting the regional body in developing a regional investment strategy
- considering integrated NRM regional plans and making recommendations to Australian Government and Northern Territory Ministers for accreditation
- prioritising NAP and NHT investments in consultation with the regional body
- recommending three-year NAP and NHT investment programs to Australian Government and Northern Territory Ministers
- approving release of funds to proponents.

The Joint Steering Committee comprises representatives from both the Australian Government (Department of Agriculture, Fisheries and Forestry and Department of the Environment, Water, Heritage and the Arts) and the Northern Territory Government (Department of Natural Resources, Environment, the Arts and Sport and the Department of Regional Development, Primary Industry, Fisheries and Resources). The Steering Committee is required to report annually to the Australian Government and Northern Territory Ministers on decisions to date, and to the NRM Ministerial Council on implementation of the NAP and NHT.

As the NT has been identified as a single region under the current NRM arrangements, the Natural Resource Management Board (NT) Inc. is the regional body responsible for developing and implementing the integrated NRM regional plan in the entire Territory, and is also responsible and accountable for:

- identifying and integrating opportunities and priorities for the management of the NT’s natural resources, particularly through review of the Integrated Natural Resources Management (INRM) Plan and RIS as appropriate
- promoting and nurturing partnerships aimed at achieving the outcomes of the INRM Plan
- managing investment funds made available to it by governments or other investors
- reporting to stakeholders (including managers of natural resources, community organisations and groups) on the processes for and outcomes of such investments.

The first INRM Plan for the Northern Territory was formally accredited in May 2005. The Plan, titled *Sustaining our resources – people, country and enterprises* (NTG, LCNT and NHT 2005) identifies, reviews and prioritises NRM issues across the NT. The plan is based on four key principles: Integrated Natural Resource Management, Ecologically Sustainable Development, The Precautionary Principle and Adaptive Management.

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4 It needs to be noted that, although the NT is defined as a single region, four subregions have been created in order to facilitate a more targeted approach and a more tailored delivery.
The vision of the NRM Board (NT) is defined in the plan as (NTG, LCNT and NHT 2005, p. iv):

The diverse cultures and knowledge systems of Northern Territorians will be valued and contribute equally to the management of our unique and largely intact land and seascapes to sustain their rich biodiversity and the economies and lifestyles they support.

The Plan defines five major assets of the Northern Territory as Terrestrial Biodiversity; Land; Inland Waters; Coastal and Marine; and Communities, NRM Institutions and Knowledge.

5.3. Provisions for engagement in NT

Organisation of the Integrated Natural Resource Management Plan for the NT is similar to that of the Qld NRM Plans, with a separate section for each of the assets identified. Each section starts with the asset description and values, and aspiration targets for 2025. Issues and threats to the asset are then discussed, and the current management responses are outlined. The sections conclude with the tables of Resource Condition Targets and Management Action Targets.

The key issues and threats for the ‘Communities, NRM Institutions and Knowledge’ asset have been identified and discussed in the Plan. The Plan acknowledges that:

Effective participation of the Territory’s people in NRM is constrained by the Territory’s sheer size, diversity of landscapes, remoteness of most settlements from infrastructure and other support, and sparse population outside the few major centres.

(NTG, LCNT and NHT 2005, p. 72).

The role of the variation in socioeconomic and educational status and issues of different cultural perspectives, value systems, and knowledge bases is also acknowledged.

The Plan identifies the following key issues for successful community engagement and effective management of natural resources in the NT:

- remoteness and consequently greater costs of engaging communities in planning and management activities and delivering on-ground works
- lack of comprehensive baseline data and research and monitoring programs to guide and justify decisions
- fragmented storage of available formal data and other information and, for some communities and sectoral groups, limited access to relevant information on NRM issues and solutions in forms that they are able to exploit.

A total of eight Management Action Targets with 42 specific management actions are identified in the plan for the ‘Communities, NRM Institutions and Knowledge’ asset. These are (NTG, LCNT and NHT 2005, pp. 76–80):

1. By 2010, a coordinated and partnership-based capacity-building program focusing on core NRM awareness, skills and knowledge and incorporating existing capacity-building measures, is operating (a total of 10 management areas [MAs] are specified in the plan for this Target).
2. By 2010, Indigenous Ecological Knowledge is appropriately documented, protected and maintained in accordance with the wishes of the holders of that knowledge (a total of 4 MAs).
3. By 2007, design and implement an information management system accessible to all NRM managers to service regional-scale planning, management and reporting needs (a total of 4 MAs).
4. By 2007, regional NRM networks are maintained and strategically expanded to improve information availability (a total of 4 MAs).
5. By 2008, mechanisms are in place within NT government agencies to include publicly accessible Indigenous Ecological Knowledge in natural resource survey, research and management programs (a total of 7 MAs).

6. By 2010, planning and policy frameworks are reviewed to improve NRM integration across land-coastal-marine areas, social and economic development and across tenures (a total of 5 MAs).

7. By 2010, an incentives program is developed to deliver greater land holder and industry group involvement in and uptake of best practice land and sea management (a total of 5 MAs).

8. By 2010, at least 5 innovative sustainable enterprises are viably operating in remote regions with limited economic support (a total of 2 MAs).

5.4. Funding, key problem areas and the current projects

The total amount of investment proposed for the years 2004–07, including NT government in-kind investment, is $81,876,000. Of this total, $20,958,000 is sourced from the Australian Government through NAP/NHT programs (SKM & CDU 2005). Programs developed to enhance the ‘Community, NRM Institutions and Knowledge’ asset totalled almost $20 million for the 2002–07 period, including:

- increase capacity for NRM: $7,715,000
- using effective incentives: $805,000
- conserving Indigenous ecological knowledge: $6,247,000
- regionally coordinating NRM: $3,202,500
- supporting sustainable enterprise: $1,795,000.

Activity types (planning, resource assessment, on-ground works and capacity building) have been assigned to each activity proposed for investment. The overall proportion of investments allocated to each activity type is illustrated in Figure 5.

**Total investment: NAP and NHT**

- On-ground works, 45%
- Planning, 9%
- Resource assessment, 19%
- Capacity building, 27%

*Figure 5: NT NRM investment by action type, 2004–07*
6. Discussion

The last few decades have brought significant changes to the thinking about and management of nature and natural values in Australia. The interface between government and communities/individuals in relation to the natural resources in Australia is currently provided via institutions that can be referred to as ‘interface agencies’ or ‘interface groups’. The history of such groups, although relatively short, has nonetheless been rather varied and dynamic. Some of the points relevant to the future of these interface groups are presented in section 6.1. Further research into the viability and functionality of the interface agencies, in particular in relation to the community engagement, could benefit from taking those points into consideration. Section 6.2. presents a discussion related to the specific issues and requirements of engagement in remote areas.5

6.1. Lessons from international and Australian literature

Shifts in the ecological paradigm

The ecological paradigm shift away from the ‘natural equilibrium’ to non-equilibrium dynamics and acknowledgement of long-term shifts (Botkin 1990, Wu & Loucks 1995, Zimmerer & Young 1998, Folke 2003, Carpenter et al. 2001) is having a pronounced impact on NRM worldwide. On-ground examples of the paradigm shift can be observed through a range of emerging practices, from adoption of ‘let-burn’ policies in bushfire management to provisions for the unexpected fluctuations of wildlife populations (Zimmerer 2000). On the ecological management level, shifts from equilibrium to non-equilibrium dynamics have resulted in a shift from prescribed to adaptive management practices (Gunderson 1999, Light & Blann 2004, Olsson et al. 2004). A shift from conservation, protection and restoration to use and production (discussed later in the text) has also been facilitated by the ecological paradigm shift.

However, this dynamic is not only temporal but also spatial in character. To use Zimmerer’s (2000) wording, to address the space–time linkages, the emphasis should be on both flux rather than fixity, as well as on crossing-over rather than cordoning-off. The institutions capable of dealing with both aspects of dynamics would therefore need to be adaptive not only on time-scales, but also at a spatial scale. Viable co-management requires the multiscale operation of government agencies, local clusters, land and resource users and other groups and institutions (Zimmerer 2000).

Dynamic institutions for dynamic natural resources

Acceptance of the paradigm of non-equilibrium and long-term shifts leads us the question of capacity of governing institutions to adapt to these changes. Study of the institutional dynamics therefore becomes crucial. Smajgl and Larson (2007 p. 14) address the issues of both temporal and spatial dynamics when they argue that ‘not only institutions cannot easily be copied from one context to the other, but … institutional arrangements may become ineffective over time as context, circumstances and desired outcomes change’. Smajgl and Larson also introduce the concept of an institutional ripple effect (Figure 6, from Smajgl & Larson 2007). They argue that ‘context’ is often wider than is typically appreciated and that a relationship between an institution and a resource cannot be studied in isolation. Figure 6 below shows how institutional system components (I) could be embedded in a whole-of-system approach, linked to economic (E), environmental (R) and social (S) system components. Changing an institution (for example, I1) in order to regulate the access and use of resource (R1) can have flow-on effects that impact how another institution (for example, I3) regulates different resources (R2). Ripples thus created in the system will in turn affect the newly introduced institution, (I1). Therefore, in order to maintain relevance and applicability, the institutions need not only to be dynamic and capable of adapting to a changing context but should also be designed against the background of potential

5 The analyses presented in this section are those of the author and are not an extension of the formal arrangements per se.
institutional ripple effects. In summary, Smajgl and Larson (2007) argue that types of processes of institutional change need to be better understood. The focus of further research would therefore need to shift from the components of the system (the circles in Figure 6) to the links, dynamics and drivers between the components (arrows between the components in Figure 6).

![Figure 6: Institutional linkages and ripple effects](image)

Regionalisation

Recent changes in natural resources management in Australia have shifted the weight of NRM from a local focus, typical of NHT1 projects and institutions, to the current regional focus. This regionalisation, or ‘civic regionalism’ as Lane et al. (2005) call it, ‘centres on environmental planning and management through processes of civic engagement organised at the regional scale’ and is supposed to result in ‘decentralisation of authority and resources for environmental management to regionally organised citizen boards or statutory committees’ (Lane et al. 2005, p. 11).

Civic regionalism is therefore an approach to NRM that promotes policy development on a regional level, by organised groups of citizens. It is linked to the concepts of associational governance (Smyth et al. 2005) and adaptive management (Gunderson 1999, Light & Blann 2004, Olsson et al. 2004), and emphasises the role of the community and networks of stakeholders and actors. Policy is developed by a process of negotiation and interactive learning (Lane et al. 2005). Three key concepts of regionalisation or civic regionalism are proposed, expected to result in a more effective, efficient and integrated environmental management (Lane et al. 2005, Farrelly 2005). The key concepts of civic regionalism are presented here and discussed in the light of the developments on the ground:

*Scaling environmental management to a regional level allows management efforts to focus on an ecologically contiguous geographic unit.*

This is one of the key justifications for the regionalisation of NRM. The ecological geographic units are typically defined as river basins or catchments but can also be defined on the basis of climatic/rainfall gradients, landscape features or dominant ecosystems. Boundaries of the ecological geographic units, however defined, rarely coincide with the previously existing administrative units such as Local Government Areas. Scaling of environmental management to regional levels therefore tends to result in the creation of a new set of institutions, rather than incorporation of the environmental management tasks into existing institutions. Therefore, the environmental management remains institutionally separated from the management of social, civic and economic aspects of the region. Nonetheless, the geographic units and associated management institutions, as currently organised, do cease at the state boundaries.
If government is perceived as having failed to secure environmental sustainability, alternative agents of management need to be found.

On the other hand, critics argue, delegating substantial, even intractable problems to citizen boards is an exercise of ‘passing the buck’ (Paton et al. 2005). This is particularly so when passing of the management responsibilities is not accompanied with the passing of the matching rights and resources. In the current arrangements, the government – via Minister or JSCs, depending on the particulars of the arrangement in the given State/Territory – retains a major role in institutional structures and probably practice.

Instead of being constructed as ‘stakeholders’, the citizens of any given region are central to the process and therefore should be directly engaged in both policy development and implementation.

Provisions for the citizens of the region to be engaged in policy development and implementation may exist, but this does not necessarily mean the envisaged direct engagement actually does occur in practice. For this concept to function, the interface groups would need to be truly involved in the development of policy, and the leaders and opinion makers of the local/regional community would need to be really involved in the regional groups.

Changes in NRM in Australia are in line with a wider international movement for decentralisation and devolution of a range of national responsibilities, including environmental and resources management. A number of decentralised management approaches have been applied, such as collaborative environmental planning (Wondolleck & Yaffee 2000), community-based environmental management (Agrawal & Gibson 1999), institutionalised participation (Ribot 2002) and an enhanced role of civil society (Friedmann 1998).

However, a core concept of decentralisation is that it also implies transfer of resources, assets and powers to local and regional decision-making bodies (Ribot 2002). While NRM in Australia has shifted to the regional level, the ownership of natural resources is maintained at the state level. This spatial discrepancy of institutions responsible for management versus those ‘in charge’ of the resource might create negative impacts on NRM in Australia in future. Ribot (2002) analyses cases where insufficient resources and authority for managing natural resources are devolved. In these circumstances, civic regionalism can fail to deliver because regional bodies are unable to fulfil their mandate. Lane et al. (2005) conclude that the SA NRM process does not really represent decentralisation as resource ownership and powers are not transferred to the lower levels of authority, or non-state associations, but are maintained by State and Minister. Similarly, in Qld and the NT, the Joint Steering Committees retain a very strong role. The current arrangement therefore represents more of an ‘administrative decentralisation’, where only administration but not real power is reconcentrated (Lane et al. 2004).

Key strengths of the regional approach have been identified as economies of scale for administration, financial assistance and information management, and the ability of the regional scale to translate national policy into local context as regions are seen as ‘half-way’ between ‘bottom-up’ and ‘top-down’ approaches (Farrelly 2005). Furthermore, regions can be seen as ‘hubs’ to nest place-based community groups and provide them with the option to be more strategic. This nesting, or polycentric system of governance, was studied by Vincent Ostrom (1987, Ostrom et al. 1993) and McGinnis (1999). McGinnis defines polycentric order as networks of interacting organisations. He argues that self-governance at the local level is sustainable only in the context of a supportive political and cultural environment at the constitutional level.

The main weaknesses of the regionalisation process have been identified by Farrelly (2005) as creating increased institutional complexity, questionable autonomy of the regions and concerns regarding representativeness of actors involved in decision-making processes. Participation could become
dominated by the powerful and articulate and could create ‘privatisation’ of environmental governance. Or, alternatively, it could create policy paralysis by prolonged timelines that are only resolved by passing very weak and watered-down policy.

Economisation of nature

Another paradigm shift characteristic of recent decades is the ‘economisation’ or ‘privatisation’ of nature (Escobar 1995, Goldman 1998, O’Connor 1994, Katz 1998). This is particularly evident in recent wording shifts from phrases such as ‘Landcare’ to ‘Natural resources management’ and from ‘ecological sustainability’ to ‘ecosystem services’. The words ‘resources’ and ‘services’ have well-defined, fundamentally economic, meanings. Use of such wording has the potential to reduce nature to a commodity. Use of market-based instruments and monetary incentives to manage the nature-commodity, such as ‘water resources’, is then a logical next step.

6.2. Issues specific to NRM engagement in remote regions

This section summarises some of the issues that have been identified as specific to NRM in more remote regions of Australia. Engagement between NRM Boards and on-ground stakeholders appears to be receiving most of the attention, while engagement of Boards with other key players, such as commercial entities, sectoral organisations and agencies, does not appear to receive enough attention, if any at all. Furthermore, much of the literature focuses on farmers’ participation only, and does not even include other on-ground stakeholders such as town residents, business owners, Aboriginal people and those involved in other land uses (Broderick 2005).

Limited funding, restrictive timelines, vague guidelines and prescriptive information have been identified as key frustration points for regional groups in South Australia (Farrelly 2005). Findings by Farrelly (2005) also indicate that the following areas could benefit from further attention:

• the need to involve the community more comprehensively and to further devolve decision making to the local level
• instituting more appropriate time frames
• the need to be appropriately resourced
• finding the right people to lead the process
• not repeating mistakes.

She also points out that regional ‘hubs’ have direct responsibility to ensure that their linkages with the sub-regional and local community groups are optimal. Given the vast areas covered by interface agencies in the LEB, local NRM groups become crucial for actual functioning of the process (DCQ 2004a).

Principal challenges to making the new regional community-based arrangements work are also discussed by Lane et al. (2005). They stress that:

• There is no single ‘right’ scale for management.
• Deliberately engaging citizens in planning and policy making is a difficult and complex task.
• Developing the capability of the newly created citizen boards is essential yet complex and expensive.
• Effectiveness of local and regional efforts depends heavily on the practices of higher levels of government.
• ‘Horizontal’ integration and coordination between and among NRM institutions and actors is essential.

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6 Resource: Wealth, supplies or goods that a country can use (Oxford Dictionary); Wealth of the country or its means of producing wealth (Macmillan Dictionary).

7 Services: Benefit, use, advantage (Oxford Dictionary); Useful economic activity other than production of goods (Macmillan Dictionary).
• Efforts of NRM bodies are experiments in ecological interventions and therefore need to be carefully and continuously monitored, recorded, audited and adapted.
• Tension between local knowledge and scientific knowledge needs to be resolved.

In a study of water management arrangements in remote Australia, Larson (2006) cautions that specifics of the local conditions need to be better taken into account when planning for natural resources in remote regions. She emphasises the need for:

- better linkage of local knowledge and science with policy making, which would not only aid in the development of more acceptable policy actions but also in the development of robust monitoring programs
- development of an engagement process where information disclosure and consultation mechanisms are tailored to meet the unique conditions of remote Australia, such as distances to major centres and low population density
- development of capacity of both agencies and communities, to enable effective engagement in the process, including financial support and availability
- transparency and responsiveness on the part of government, which has the potential to create long-term relationships and trust at the ground level, benefiting the institutions, communities and individuals involved.

Larson (2006) also argues that the amount and quality of information available for planning and decision making differs between regions. In the case of expansive regional and remote areas, only limited knowledge and data-sets might be available, and considerable uncertainties remain. Therefore, application of the ‘precautionary principle’ and greater integration of local knowledge into the overall knowledge systems appear to be prudent actions to take.

In addition, Yelland and Brake (2008) caution about the expectation for people living in remote areas to donate an inordinate amount of their capacity to maintain civil society, with little recompense or acknowledgement. The Australian Landcare Council estimates that the contribution of volunteers to NRM and related projects is worth more than three times the contribution provided through formal investor funding (Keogh et al. 2006). Due to increasing reliance on volunteers to carry out tasks such as monitoring and restoration, it is important to support volunteers to maintain a sustainable level of effort which matches their motivations (Measham & Barnett 2007).

A recent discussion paper on the future of NRM bodies in Qld (Queensland Government 2005) summarises respondents’ views on issues related to regional NRM as:

- There should be a stronger role for local government in NRM.
- All levels of government should make a long-term funding commitment to regional NRM.
- The vital role of volunteers in regional NRM needs to be recognised and supported.
- Traditional owners need to be better acknowledged as key stakeholders.
- Regional bodies would benefit from a more streamlined reporting system.
- Regional body Boards and staff need to build their capabilities in governance, ecological knowledge and technical skills.
- The current system needs consolidating and would benefit from a period of stability.

The key issues identified as specifics to NRM engagement in remote regions have been discussed above. This discussion provides directions for future research into development of an engagement process tailored to meet the unique conditions of remote regions, both in Australia and internationally.
References


Ch 3: An overview of the natural resources management arrangements in the Lake Eyre Basin pp. 89–124


4. Tools for successful NRM in the Lake Eyre Basin: achieving effective engagement

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The work reported in this publication was supported by funding from the Australian Government. The views expressed herein do not necessarily represent the views of Desert Knowledge CRC or its Participants.

This publication was prepared as a background document for the ‘People, communities and economies of the Lake Eyre Basin’ project

Citation

Acknowledgements
Funding for this study was provided by
• Natural Heritage Trust (NHT, http://www.nht.gov.au)

Thanks to all the residents of the Lake Eyre Basin and the government participants who took part in this research.
Contents

Summary .............................................................................................................................................. 129
Summary: Tools for successful NRM engagement in LEB ................................................................. 131
1. Introduction ...................................................................................................................................... 132
2. Overview of engagement processes and remote NRM ................................................................. 132
  2.1 The context: regional natural resource management ............................................................... 133
  2.2 Overview of the NRM arrangements in the LEB ................................................................. 134
  2.3 Engagement within regional frameworks of governance ................................................ 136
  2.4 Success factors from literature review ................................................................................ 137
  2.5 Dimensions of success .................................................................................................... 141
3. Methodological approach ................................................................................................................ 142
  3.1 Government representatives .............................................................................................. 142
  3.2 Community representatives ............................................................................................... 142
4. Government perspectives on successful engagement ...................................................................... 146
  4.1 Perceptions of the LEB region ........................................................................................... 146
  4.2 Factors for success .............................................................................................................. 147
  4.3 Discussion ........................................................................................................................... 152
5. Community perspectives on successful engagement ...................................................................... 153
  5.1 Community-based research approach: lessons learnt ....................................................... 153
  5.2 Community perspectives .................................................................................................... 154
6. Collating the lessons ....................................................................................................................... 163
  6.1 Specific issues in the remote desert areas of Australia ....................................................... 164
7. Conclusion ....................................................................................................................................... 166
8. References ....................................................................................................................................... 167
Figures and tables

Figure 1: Community-based researcher ‘mental map’ of interviewee selection process......................... 144
Table 1: Occupational roles and gender of people interviewed...................................................................... 145

Shortened forms

CMAs   Catchment Management Authorities
CSIRO  Commonwealth Scientific and Industrial Research Organisation
DCQ    Desert Channels Queensland
JSCs   Joint Steering Committees
LEB    Lake Eyre Basin
NRM    Natural Resource Management
NTNRM  Northern Territory Natural Resources Management
NSW    New South Wales
NT     Northern Territory
QLD    Queensland
QMDC   Queensland Murray-Darling Committee
SA     South Australia
SAALNRM South Australian Arid Lands Natural Resources Management Board
WCMA   Western Catchment Management Authority
Summary

This chapter was developed as part of the ‘People, communities and economies of the Lake Eyre Basin’ project. It has been written for communities, government agencies and interface organisations involved in natural resource management (NRM) in the Lake Eyre Basin (LEB). Its purpose is to identify the key factors for successful community engagement processes relevant to the LEB and present tools and principles for successful engagement processes. The term ‘interface organisation’ is used here to refer to the diverse range of local and regional organisations (such as Catchment Committees or NRM Regional Bodies) that serve as linkages, or translators, between local communities and broader Australian and State Governments. The importance of fostering and harnessing effective processes of community engagement has been identified as crucial to building a prosperous future for rural and remote regions in Australia.

The chapter presents an overview of the literature on successful community engagement processes for NRM, as well as an overview of the current NRM arrangements in the LEB. The main part of the chapter presents findings of the series of interviews conducted with the government liaison officers representing both state and federal organisations who are responsible for coordinating and facilitating regional NRM in the LEB, and with the members of communities of the LEB.

The literature review begins with an acknowledgement of the importance of community ownership, which can be promoted by providing avenues through which local voices can be heard, and providing those who want to participate with the opportunity to do so. The findings from the community-based research show not only the community’s willingness to participate, but suggest some clear ‘rules of engagement’ for planners and policy makers. Of significance to many of the people interviewed was that engagement needed to occur at the local or property level, preferably face to face. Given the finite amount of resources for personnel and travel, and the low population density of the LEB, this requirement presents a considerable dilemma. In considering this issue, a key finding from the government interviews was emphasising the importance of on-ground facilitators, who have such a crucial role in the engagement process.

Also related to the building of trust and partnerships which, from all evidence, appears to be crucial for effective engagement, is the issue of ‘independence’ of organisations such as NRM Regional Bodies. Independence was raised in the literature review; however, the community interviewees did not use this term, but spoke instead of the importance of knowing that interface organisations are locally, rather than government, driven. A number of people interviewed felt that interface organisations were replicating the functions of government, particularly because of the bureaucratic nature of dealings with them. This led to the recognition by many that there needed to be ‘less talk and more action’, and less paperwork.

The chapter demonstrates that government representatives emphasise that the regional delivery of NRM processes was indeed an extension of government programs; however, they clearly recognise the need for flexibility and local adaptation for their implementation. A critical issue for achieving on-ground action under this system is attracting and maintaining credible staff. A feature of remote areas seems to be having fewer people to play more roles, so finding and supporting staff who are effective in conducting multiple roles is crucial to successful engagement processes, which frequently involves balancing multiple dimensions: communicating with a wide range of stakeholders, understanding local and regional systems and interacting with different government organisations, all of which are changing over time. For these reasons, a further distinct feature of successful engagement in remote areas is the high importance of enthusiasm and determination, given the dispersed social environment and the larger distances, which make access to resources and information more difficult.
The low population density of remote areas does not relieve the complexity of managing natural resources. If anything, sparse populations and large geographic areas intensify the problems and create their own tensions and contradictions. For example, the preference of the local people to engage in fewer ‘talk-fests’ was also countered with a concern that there needs to be more face-to-face, or one-on-one interaction at the property level. While this is beneficial in terms of coming to terms with the concerns of the local people, it is also costly and time consuming, and competes with the ability to effect ‘on-the-ground action’, which was also a priority for those interviewed.

Similarly, despite a dislike for paperwork, people also appreciated good communication and good governance, seeing newsletters as evidence that interface organisations were effective. Without media such as websites and newsletters, transparency of processes, and therefore accountability to those people who live in remote locations, would be difficult to achieve. Importantly, the need to build local capacity in communication technologies was identified in the community interviews and was seen as a process that could overcome some of the issues of scale, time and transport costs. In a related way, the Government interviews emphasised the need for flexibility and adaptation in NRM engagement, for example, the need to use initiative to communicate across dispersed communities.

The importance of defining the appropriate scale and scope for good engagement was recognised throughout the literature review and also resonated with the findings of the interviews. For community interviewees there was a strong local dimension to many of the success factors that were identified. For example, there was a tendency for people to focus on small-scale, local issues such as the preservation of a specific species, or waterhole, rather than conceptualise ‘success’ in terms of the LEB as a whole. The government interviewees agreed on the need for ‘on-ground action’ but also emphasised the need to be aligned with government programs that are focused at the state or national level. This is not surprising, given the sheer scale of the LEB and the various landscapes, land uses and localities it contains. Ideally, a place-based approach can assist to link these scales, by tying local action to national issues.

Some of the barriers to successful engagement have the potential to be overcome given sufficient human resources, technical expertise and money. Maintaining credible staff and avoiding community burnout are major issues for NRM in general, and this research demonstrated acute reliance on particular individuals throughout the LEB who take on multiple roles. There is merit in questioning whether better resourcing of such ‘community champions’ might alleviate burnout – or whether emotional fatigue stems from structural factors, such as a small population, rather than the lack of resourcing or recognition of their work.

In considering the success factors presented in this research, it is clear that NRM engagement requires a multitude of seemingly contrasting characteristics: to be independent yet maintain effective partnerships; to be the voice of the community while being in alignment with government priorities; to be determined yet adaptive. This demonstrates that the very nature of interface organisations poses a challenge in terms of having multiple and frequently competing aims and priorities. However, at least it is clear that these challenges are recognised by community members and government officers alike, as was the importance of supporting successful engagement processes. This was reflected in the high degree to which the participants who took part in this research were keen to hear of the outcomes of the study, to contribute towards and receive the outcomes of the ‘factors for successful engagement’ presented in this study.
Summary: Tools for successful NRM engagement in LEB

1. Work strategically in the system
Successful NRM engagement relies on maintaining community trust while carefully navigating governance processes.

Learn how the system works
- Understand the rules and cultures and know how and when to use them.
- Ask about the meaning between the lines when policy is ambiguous.
- Be strategic: look for the right mix of regional independence and fitting in with federal and state government priorities.

Be adaptive
- Over time community perspectives and priorities change.
- Adapt to changing governments and processes.

Use partnerships effectively
- Recognise the value of long-term collaborations.
- Link with agencies, research and industry.
- Meaningful inputs require meaningful outputs.

Maintain transparency
- Let the public know about decisions taken.
- Publicise outcomes effectively e.g. online.
- Maintain necessary documentation.
- Keep people informed: knowledge is power.

2. People play multiple roles in sparse populations

Recognise the different roles you play
- Interface organisations have different roles, from delivering government programs to eliciting community views.
- Wear the right hat for the job.

Develop community ownership
- If possible, avoid acting just as ‘another arm of government’.
- Listen to community perspectives and be mindful of community concerns.
- Engage community sectors in meaningful decisions that affect their interests.

Build and maintain trust
- Acknowledge, accept and respect different perspectives and interests.
- Negotiate fairly and openly.

Desert talk
- Face-to-face communication is best but expensive across large distances.
- Be flexible with technology when face to face is not an option.
- Plan to make communication inclusive.

3. Recognise desert champions
Remote NRM depends on key individuals. Recognising and supporting these people is crucial to successful engagement.

- Individuals can make or break NRM projects in remote regions.
- Build and support community advocates.
- Long-term staff are more likely to have the experience, respect and credibility.
- Encourage people who are good on the ground, natural communicators.

4. Take advantage of opportunities
Opportunities can be unpredictable and infrequent in remote regions. Like with desert rain, take advantage of circumstances when they come.

Access resources when you can
- Look out for changes in funding environments.
- Take advantage of visits – a friendly talk can make a big difference with the right people.

5. Focus on desert time frames
Thinking ahead and maintaining commitment are crucial to long-term survival.

Think of long-term results from short-term initiatives.
- Work towards an agreed vision.
- Plan for future opportunities.
- Call in a favour when you need to.

Be determined
- In remote regions, maintaining enthusiasm and commitment is crucial.
- Initiative and perseverance help get access to information and resources.
1. Introduction

This chapter was developed as part of the ‘People, communities and economies of the Lake Eyre Basin’ project. It builds on earlier work, including a regional profile of the Lake Eyre Basin (Herr et al. 2009) and a discussion of institutional arrangements (Larson 2009).

The Lake Eyre Basin (LEB) is situated in central Australia and spans the borders of South Australia (SA), New South Wales (NSW), Queensland (Qld) and the Northern Territory (NT). At approximately 1.2 million square kilometres, it covers around one-sixth of the Australian landmass and is among the world’s largest internally draining river systems. There are few large towns in the LEB and population density is generally less than 1 person per 1000 square kilometre. Aboriginal populations are low in most of the region, although there are 59 Aboriginal language groups. However, there are some settlements where Aboriginal people are the majority of residents (Herr et al. 2009). The mix of economic activities includes mining, pastoralism and tourism. The LEB is valued for its unique ecosystems, which support rare and endangered plant and animal species such as the Greater Bilby, the Kowari and Waddi Waddi trees. Given the remoteness of the area, human populations are dispersed.

It is important to recognise that there are features specific to natural resource management (NRM) in remote locations such as the LEB. As a result, a generic list of ‘factors for successful engagement’ may not suit the unique circumstances of this region. Issues that are common to rural Australia – such as drought, declining terms of trade, threatened profitability and population decline – are compounded by the sheer size, isolation and harsh climatic conditions in remote and arid lands (Herbert-Cheshire 2000). The aim of this study was to assess how the ‘special features’ of the LEB affect engagement factors and identify strategies that fit these specific circumstances.

The next section presents an overview of the literature on successful community engagement processes for NRM, and includes an overview of the current NRM arrangements in the LEB. Section 3 summarises methods used for the collection of the primary data through interviews with the government representatives and the community members. Findings of the interviews with eight government liaison officers representing both state and federal organisations who are responsible for coordinating and facilitating regional NRM in the LEB are then presented in Section 4. In Section 5, community perspectives on successful engagement processes are presented, drawing on a novel research methodology, namely community-based research. The aim of reporting this methodology is two-fold: to provide transparency in the research process itself and to assess the efficacy of the community-based research model for studies of this style. The chapter concludes with a discussion that links the findings of the literature review, the government interviews and the community interviews and summarises the key ‘tools for successful engagement’ (Section 6).

Summaries of the key findings from this research are also presented in the executive summary and the non-technical summary at the start of this chapter.

2. Overview of engagement processes and remote NRM

The following section sets the scene for community engagement in the LEB by assessing the literature on this topic. First, the contextual backdrop of ‘regionalism’ is explored, followed by an overview of community engagement for NRM. The remainder of the literature review draws upon Aslin and Brown’s (2004) detailed account of community engagement, providing a template of community engagement criteria through which to compare the efficacy of community engagement within the regions of the LEB. While Aslin and Brown’s (2004) ‘terms of engagement’ provide the theoretical framing for this study, other literature is also drawn upon to provide a critical overview of the process of community engagement for effective, collaborative NRM. Special attention is given to literature relating to engagement and NRM in arid areas with low population density.
2.1 The context: regional natural resource management

The regional NRM policy environment, which has characterised recent years, reflects a focus on decentralised processes as a key strategy for effective community engagement. Central to the current NRM context is the role of regional institutions that interface between local groups and issues, and national funding priorities. Given the combination in Australia of frameworks such as the National Action Plan for Salinity and Water Quality and the Natural Heritage Trust, and the regional application of those frameworks, these institutions take the form of NRM citizens’ boards and statutory committees concerned with implementing on-ground change at the regional level (Farelly 2005, Lane et al. 2004, Lane et al. 2005a). For the purpose of this project, we use a broader term ‘interface organisations’, as this concept allows us to also include institutions such as regional associations and committees, which fulfil a similar role in terms of regional interface in the LEB but are not necessarily recognised as formal NRM regional bodies. Therefore, the concept of ‘interface organisation’ refers to those organisations that serve as linkages between broader NRM policy frameworks and the on-ground, regional application of those policies.

The focus of this research is to improve the function and design of interface organisations in order to build their capacity to engage with NRM issues of relevance to the LEB and to help them become more adaptive to the changing needs of the NRM policy environment and the LEB itself. The role of engagement is central to this capacity to manage and to adapt, as demonstrated by a strong focus on the role of engagement in both theoretical and applied contexts (Leach et al. 2005, McDonald et al. 2005).

While recognising the key ingredients of successful community engagement within the regions of the LEB, it is also worth taking a step back to briefly address the concept of ‘region’ and the current trend in the US, Europe and Australia towards regionalism (Moore & Rockloff 2006). In this context, regionalism refers to a process of governance whereby the state devolves responsibility for regional decision making, planning and service delivery to the regions themselves (Abrahams 2005, Everingham et al. 2006). Partnerships, such as those between civil society and ‘the government’, have become an increasingly popular way to respond to environmental issues such as soil erosion and salinity, resulting in the emergence of new relationships between previously disparate groups such as the farming sector, conservationists and Australian and State Governments (Lockie 2006). As such, ‘the community’ and ‘localities’ become the new territory for governance.

In considering the factors affecting the success of community engagement processes, it is crucial to consider how community is defined, given the multiplicity of ways that the term is used in the social sciences (Jewkes & Murcott 1996). The term ‘community’ has been a contentious term in social research for at least the last 100 years, but it represents an important, multi-dimensional concept for NRM in Australia (Broderick 2005). For these reasons, it is important to consider who is the community involved in a given engagement process, and what cultural and power relations are reflected in its definition (Liepins 2000). Within the context of this research, the community can be conceptualised as the residents and organisations involved in managing the natural resources of the LEB.

With these new localised community responsibilities comes the need for rights and resources. Rights imply that the community has the autonomy to make decisions, while resources such as skills, human capacity and finances are necessary to enable the creation and implementation of NRM activities, such as regional planning (Stafford Smith 2000). This is a particularly pertinent issue for NRM governance in the LEB, as Stafford Smith (2000) has noted, in recognising that the special characteristics of the Australian outback require regional organisation to facilitate more localised planning in partnership with the three tiers of government.

In these early stages of the new regionalism, it is not surprising that debates have arisen about the extent of governments’ devolution of rights and resources. Some have argued that the responsibility of NRM planning and management has been devolved, but not necessarily alongside the resources and power...
to effect change (Herbert-Cheshire 2000, Lane et al. 2005a). Gaining consensus across government, business and civil society has also been a difficult and complex process (Whelan & Oliver 2004). Despite such perceived shortfalls, networked forms of governance can promote entrepreneurialism, long-term private commitment and landscape-scale management (Lockie 2006) and social inclusion (Whelan & Oliver 2004).

Regional institutional arrangements in the LEB, within the context of the policy direction of decentralised governance arrangement in Australian NRM, have been described in Larson (RD REF 2007). The next section provides overview of that report and highlights how legislation and policy in the state jurisdiction have resulted in different institutional responses to regional NRM.

2.2 Overview of the NRM arrangements in the LEB

The LEB region NRM institutions are organised into four state-based bodies:

- South Australian Arid Lands Natural Resources Management Board (SAAL NRM)
- Western Catchment Management Authority in NSW (WCMA)
- Desert Channels Qld Inc. in Queensland (DCQ)
- Northern Territory Natural Resources Management Board (NTNRM).

This summary provides an overview of the current NRM arrangements in each State/Territory that has an interest in the LEB region, followed by an overview of arrangements directly relevant to the LEB. The summary concludes with potential key challenges for NRM in the LEB region.

Data and arrangements presented throughout this report were current as of March 2007. Further details on the formal NRM arrangements and related engagement issues can be found in Larson (2009).

2.2.1 State/Territory-level NRM arrangements

An overview is presented here of the current NRM arrangements in the States and Territory having an interest in the LEB. In accordance with Australia’s regional system of NRM, all the regional bodies operating in the LEB have legal responsibility for the NRM activities they conduct, but there is a difference between the states in terms of whether or not those responsibilities are directly conferred on them by statute, or whether they operate within a wider legal framework of contractual law and delegated powers. The difference between NSW/SA on the one hand and Qld/NT on the other, is that the former have statutory authority and powers and the latter do not. Despite this, the Qld regional bodies still have legal responsibilities for the NRM programs they administer, which are contractual responsibilities. They also have legal responsibilities under their various corporations and companies’ Acts, which are the basis for their existence. The various government officers on the Qld/NT Joint Steering Committees have delegated legal authority to administer Government NRM programs, but government ministers have the ultimate authority.

2.2.2 Regional NRM arrangements

This subsection summarises key characteristics of the NRM bodies administering the LEB region. The regional NRM plans have been finalised and endorsed by government for the NRM bodies responsible for the Qld and NT sections of LEB. The Plans are still in the development stage for the NSW and SA regional bodies. The main NRM themes, aims and objectives or key assets for the NRM work identified in the Plans or preceding documents, can be summarised as Land, Water, Biodiversity and Community. The NT plan also adds ‘NRM institutions and knowledge’ to the list.

Objectives of the engagement strategies are also specified in the Plans and related documentation. Queensland and NT NRM plans are based on an approach that identifies the key threats to the regions. They then proceed to set management areas and targets for overcoming the threats identified. Key threats identified in the Desert Channels Queensland (DCQ) Plan are ineffective community engagement...
and inadequate planning, leading to inadequate sustainability targets. The Plan for the NT concentrates mainly on NRM data collection and provision of this information to the communities as the main objective of engagement. The Western Catchment Management Authority (WCMA) appears to see itself as a ‘funding broker’, as most of their engagement targets are in the area of assistance with funding and provision of technical expertise for development of projects/funding applications to promote community involvement in NRM projects. The ‘Concept Statement’ of the South Australian Arid Land Natural Resources Management (SAALNRM) Board presents three broad categories for engagement, all based on similar themes of education, capacity building and increasing public awareness.

2.2.3 Common threads and threats
The following threads have been identified as common to all four legislative regions of the LEB, compared with Australia in general:

- high percentage of land under leasehold arrangements
- high percentage of land under native title claims
- high percentage of land in Aboriginal ownership
- high percentage of Aboriginal populations
- sparse population resulting in quantitatively low human capital
- large physical areas under administration by a single NRM board.

The following key specific issues of the NRM engagement in remote regions of Australia were also identified (Larson 2009):

- No single ‘right’ scale for management exists: collaboration between regional and local levels and between regional level and key national (both government and commercial) players is needed. ‘Horizontal’ coordination between and among NRM bodies is also needed.
- Development of capacity of both agencies and communities is essential to enable effective engagement in the process, yet it is complex and expensive: complexity and expense of capacity development should not be underestimated.
- Tension between local knowledge and scientific knowledge needs to be resolved: better linkage of local knowledge and science with policy-making would not only aid in the development of more acceptable policy actions but also in development of robust monitoring programs.
- Availability of data on cultural, social and ecological values placed on natural resources in remote regions is limited: efforts of the NRM bodies are experiments in ecological interventions. They therefore need to be carefully and continuously monitored, recorded, audited and adapted.
- The vital role of volunteers in regional NRM needs to be recognised and supported. The role of ‘champions’, and ways of recruiting and maintaining their interest, warrants further investigation.
- Traditional owners need to be better acknowledged as key stakeholders. Engagement mechanisms viewed as suitable and appropriate by both Aboriginal and non-Aboriginal stakeholders need to be developed.
- The ‘stakeholders’ concept needs to be expanded beyond current limiting identification of ‘stakeholders’ with ‘land holders’. Greater involvement of other segments of local community, communities of practice, commercial enterprises and others with interest in the region should be encouraged.
• The devolution of responsibilities needs to be concurrent with the devolution of rights and resources. Although this issue is pertinent to any NRM process, it is potentially even more significant in remote regions where human, financial and other critical resources are chronically limited.

• Significant retention of power with the Joint Steering Committees (JSCs) and/or Minister, depending on the State/Territory arrangement, might undermine stakeholder rights in the NRM process. More importantly, stakeholders’ perceptions of retention of power undermines the perception of rights and therefore, in the long run, might undermine trust in government and government-based and funded institutions.

2.3 Engagement within regional frameworks of governance

Effective engagement between residents, managers and scientists represents an important aspect of sustainability in dryland environments and NRM in general (Reynolds et al. 2007). Given these new and emerging collaborations, the topic of civic, business and government engagement has been widely embraced from a range of different perspectives and disciplinary areas (for example see Leach et al. 2005, Boxelaar et al. 2006), although with perhaps more emphasis on ‘engaging communities’ rather than looking critically at how all parties can effectively collaborate. Oliver and Whelan (2003) also caution about the use of the term ‘engagement’ due to its militaristic overtones. It is acknowledged in this chapter that discourses concerned with how ‘we’ engage ‘them’ raise concerns about power and the true extent to which rights and responsibilities have been devolved. However, much of the literature makes genuine attempts at collaboration through ‘engagement’ without critically appraising specifics of power. The term ‘engagement’ is used throughout this chapter with this in mind.

Aside from the nuances of the terminology of ‘engagement’, the importance of fostering and harnessing community engagement has been identified as crucial to building a prosperous future for rural and remote regions in Australia and is a key dimension of regional NRM (Fenton 2004, McDonald et al. 2005, Rogers 2005, Smith et al. 2005). Campbell (2006) emphasises the critical role of knowledge sharing in engaging community sectors as well as the need to give proper status to local, scientific and organisational knowledge. Effective collaboration and engagement is fundamental to forming legitimate relationships between individuals and institutions. With new regional organisations such as regional NRM bodies at the centre of planning and decision making in regional areas, effective engagement between different knowledge cultures, and between policy and practices, is crucial. This has been demonstrated in a body of work that is concerned with ‘boundary organisations’, which serve to mediate between different knowledge cultures, such as science and politics (Miller 2001) or farmers and scientists (Carr & Wilkinson 2005).

The diversity of the population of the LEB presents a challenge for effective collaboration through interface organisations. While NRM interest groups within the LEB do contain scientists, farmers and politicians, there are other residents and interest groups, such as Aboriginal people, conservationists and extraction industries, whom regional decision making affects. Sectors of industry become actively engaged when they see that their understanding is relevant to decision making and that the outcomes of decisions affect their interests. Collaborating with such a diverse body of interest groups, across large and remote areas, certainly presents a challenge for engagement, as Whelan and Oliver (2004) have noted.

Successful community engagement in the Australian NRM context has been conceptualised as processes and practices in which different people work together to achieve shared goals. In Aslin and Brown’s (2004 p. 5) conceptualisation, community engagement ‘goes further than participation’ and involves capturing people’s attention and focusing their efforts on the issues at hand.
2.4 Success factors from literature review

A key source for practical guidance on successful community NRM engagement in Australia is the toolkit developed by the Murray-Darling Basin Commission (Aslin & Brown 2004). Neighbouring the LEB, the Murray-Darling Basin has its own challenges; however, Aslin and Brown’s ‘toolkit for engagement’ presents a very useful starting point for assessing the key processes of community engagement, and their ‘degree of fit’ with arid zone NRM. Other important reference points include work by Carr (2002), Cheshire (2006), Lucas et al. (2005), Nelson and Pettit (2004) and Selman (2004). The following success factors identified in the literature will be discussed further in the sections below:

- community ownership
- promotion of inclusiveness, equity and trust
- inclusion of multiple interests
- focus on strategic outcomes
- transparency
- well-defined appropriate scale and scope
- sufficient resources and access to assistance
- effective communication.

2.4.1 Community ownership

A key success factor is the importance of community ownership of any given process. Part of this involves a recognition that defining and ‘owning’ a given NRM problem can be a matter of community self-determination and a basis for commitment to management processes (Andrew & Robottom 2005, Measham 2007). In part, this stems from participants having a genuine interest and ability to contribute. In addition, a key issue is making sure that people’s voices are listened to and that feedback is provided (Lane et al. 2005b). A practical example of this issue in regional NRM contexts is presented by Walker and Lewis (2006), who found that listening to people’s comments and making sure they were ‘satisfactorily addressed’ was one of the factors that helped to make their engagement process work when reviewing regional NRM targets in the Qld section of the Murray-Darling Basin.

One way to foster community ownership is to avoid relying on self-nominated spokespeople to provide adequate representation (Aslin & Brown 2004). The problem of representation is not unique to Australia. Marshall and Jones (2005) conducted research in Norris Reservoir Watershed in Tennessee, USA, to assess whether the citizens who participated in NRM processes were representative of the residents and stakeholders who were impacted upon by the decisions made. When compared with the residents who lived in the watershed, participants were found to be ‘older, disproportionately male, more educated, and more affluent, and as having higher levels of political efficacy and trust in governments’ (Marshall & Jones 2005 p. 731). This raises questions about the reasons for the lack of participation of a broader range of residents in regional NRM, leading Marshall and Jones (2005) to speculate whether this was due to low levels of political efficacy and trust, or whether the pursuit of genuine broad-ranging participation was an unattainable democratic ideal. However, legitimacy of the policy implementation develops more easily through shared collaborative actions (Considine 2004). Aslin and Brown (2004 p. 45) identify ‘deliberative democracy’ as a process that can break away from the domination by experts and pre-nominated spokespeople by using consensus-based decision making models such as citizens’ juries, deliberative opinion polls and electronic voting.

Another element of promoting ownership includes developing and agreeing on foundation principles for engagement processes. For example, the values underpinning engagement in the Murray-Darling Basin are stated up front in their engagement toolkit and referred to throughout the text (Aslin & Brown 2004). Those that are relevant to this study include inclusiveness, commitment, respect and flexibility.
In considering community ownership as a success factor in relation to remote regions such as the LEB, it is important to explore how issues such as low population density will affect the strength of community ownership in regards to engagement processes (Stafford Smith et al. 2003). An adequate frequency of interaction may be hard to maintain due to the scale of the LEB and the time and costs in establishing and maintaining linkages and networks. On the other hand, a strong overlap between community of interest and community of place1 may play a role in facilitating community ownership of engagement processes in remote areas.

2.4.2 Promoting inclusiveness, equity and trust
The potential for inequality in terms of reflecting community interests has been well recognised in regional NRM and community-based approaches to environmental planning (Lane & McDonald 2005). For these reasons attempting to treat people ‘fairly and without discrimination’ has been noted as a key success factor in community engagement (Aslin & Brown 2004). These issues can be heightened when engaging with communities that have a history of tokenistic or manipulative engagement in the past.

While participatory equity is of concern at the regional level, where citizens engage with interface organisations such as NRM regional bodies, it is also worth evaluating the equity and inclusion at a higher scale: the relationship between interface organisations and governments. Whelan and Oliver (2004) note the difficulties in forming equitable partnerships between government and civil society, as represented by groups such as regional bodies. They offer the example of a south-east Qld NRM regional body that was charged with the development and implementation of a regional NRM plan, questioning whether this and similar partnerships can truly be equitable and autonomous when both the plans and subsequent funding have to be approved by committees that are steered by Australian and State Government officials.

The establishment of trust in organisations and institutions is necessary for the shift of rural governance from control to partnerships. Trust can be described as an element of social relationships where there is interdependence among groups, uncertainty or risk in relation to the behaviour of others (individuals or institutions) and the expectation that vulnerabilities will not be exploited (Rus & Iglič 2005). Rus and Iglič (2005) identify two different types of trust: interpersonal and institutional. Interpersonal trust is derived through strong links and ties between particular people. This type of trust is based on historical ties (kinship, long-term friendships) and the quality of the relationship between people or groups. Institutional trust is more generalised and extends beyond trust relationships of individuals. Institutions have capacity to build trust when they display socially acceptable characteristics, such as impartiality, justice and honesty, and mediate conflictual relationships (Rus & Iglič 2005). These are essentially measures of trust, to which can be added accountability and transparency. Theoretically, this generalised trust is necessary to forge strong cooperation where weak ties exist and to connect to different social circles. In the absence of trust, political/civic relations are precarious to say the least (Sztompka 1999).

It could be further theorised that reputation is a form of ‘pre-emptive trust’ and is necessary to build and maintain linkages between diverse groups and institutions. This is particularly important in sparsely populated areas such as the LEB, where ties have the potential to be weak. One suggested approach to building trust is to employ expert teams that are independent of interested parties such as government departments or politically motivated organisations (Nelson & Pettit 2004). However, this strategy may be complicated for remote regions given that the expert teams, or even policy-based teams, may not be based within the region and may not be attuned to its particular characteristics.

Solutions:

- Give people the opportunity to participate.
- Develop and agree on principles for engagement processes.
- Do not rely on self-nominated spokespeople to provide adequate representation.

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1 ‘Community of interest’ refers to a community that is brought together around a particular issue, whereas ‘community of place’ refers to people that form a geographical community (e.g. town). In the case of communities within the LEB, these communities sometimes overlap.
2.4.3 Including multiple interests

Community groups are stronger when they are confident in their links to important information, community resources and key decision makers who can affect outcomes (Considine 2004). While it is not necessary for all members of a given community to participate in an engagement process, a generally recognised principle of successful engagement is that all members of a given community are able to participate in a given process, contributing ideas, energy and action (Democracy 2000). For example, in an engagement process for regional planning in the Qld section of the LEB, DCQ sought to include community development, conservation, education, Aboriginal, industry and local government interests, among others. In addition, they identified a three-tiered hierarchy of interest for their community: generally aware citizens, interested land holders and engaged land managers (DCQ 2004). This approach is consistent with the broadly recognised importance of creating opportunities for interaction among diverse groups in order to achieve successful engagement in NRM (Wondolleck & Yaffee 2000).

In northern Australia, recognising and accommodating diversity of interests has proved fundamental to successful NRM planning (McDonald et al. 2005). Similarly, in the Murray-Darling Basin, a key issue has focused on achieving balance. For example, in considering the engagement process developed for reviewing their regional NRM targets, the Queensland Murray-Darling Committee found that some important stakeholders were missing from the process, notably Aboriginal stakeholders. However, while some interests were missing, they also found that those which were represented were balanced in terms of the opportunity to engage, and this was a success factor in their process (Walker & Lewis 2006). Within the LEB, the range of land uses is likely to be fewer when compared with more densely settled areas, which should reduce the complexity of including multiple interests, as reflected by the community engagement processes conducted by DCQ (DCQ 2004).

2.4.4 Focusing on strategic outcomes

Working towards an agreed vision with clear objectives is a crucial issue for successful engagement. With a focus on acting for change, Aslin and Brown (2004) emphasise the importance of co-developing and sticking to agendas and warn against pursuing too many tangents. These issues were reflected in the regional planning, whose underlying principles had a strong focus on shared issues and using clear documentation, with a view towards effectiveness and seeking opportunities (for example, see SAAL 2007, DCQ 2004). Walker and Lewis (2006) found that maintaining some continuity of participants helped to maintain a link with the initially intended outcomes, and this helped participants to maintain focus on what was strategic. Keeping to the strategic points only and not broadening the agendas too much also minimises the overload with both information and the participation requirements in small communities. In relating this factor to remote regions such as the LEB, it is important to note that what is strategic is culturally defined, and therefore a significant Aboriginal presence can add additional challenges and opportunities to engagement issues. The key lesson here is, however, to look at NRM problems from multiple angles and be proactive about developing solutions (Wondolleck & Yaffee 2000).

Solutions:

- Be strategic: make the case why desert systems are worthy of government investment.
- Work towards an agreed vision.
- Know what you need in advance so you are prepared for funding opportunities when they arise.
2.4.5 Maintaining transparency

The importance of transparency has been emphasised as a success factor in many engagement processes. Lucas et al. (2005) emphasise the issue of transparency in decision making. Central to transparency is the need for open negotiations and avoiding hidden agendas. This includes being open about constraints to processes and outcomes to ensure these are understood. Openness about constraints in turn makes it easier to manage expectations and also promotes trust, as discussed above. A practical aid to achieving this is having clearly defined roles among the project team to help people to work together more effectively (Walker & Lewis 2006). The maintenance of transparency can be assisted by effective communication, which is discussed below. In remote regions, transparency can be challenging due to having engagement strategies that need to rely on technology (telephones, e-mail) rather than decisions being negotiated and sustained through face-to-face interactions.

Solutions:

- Keep people informed of engagement processes and opportunities for input.
- Let the public know about decisions taken.
- Conduct self-evaluation to keep processes clear.

2.4.6 Define appropriate scale

Scale is a crucial dimension to successful engagement processes, with regional interface organisations themselves reflecting a shifting thinking towards rethinking scales for management (Brunkhorst & Reeve 2006). However, it is important to keep in mind that recent socio-ecological thinking suggests that there is no single appropriate scale; rather, NRM processes need to focus on relevant scales for given questions and on working across the scales (Lane et al. 2005a, Reynolds et al. 2007). In practical terms, a key issue is to seek an appropriate ‘fit for purpose’, or to avoid the potential for mismatch between function, perception and operations (Aslin & Brown 2004). In this context, it is important to make clear at what scope the group is operating: what it is expected to do and what is outside its terms of reference. While the regional NRM model is strongly associated with the regional scale, it is worth noting that in some cases the sub-region or local scale may be more appropriate for successful engagement. This is because the local scale is important to the ways that humans interact directly with their environment and with each other (Lucas et al. 2005). One way to increase the success of engagement processes involving local stakeholders has been through promoting place-based formal and informal institutions, such as boards and forums (Selman 2004). This relates to the importance of a sense of place to the success of regional NRM groups in general. Sense of place in successful NRM groups does not need to be tightly defined but can involve a shared sense of identity, attachment to a given location and the associated meanings with given locations (Carr 2002, Gooch 2003, McDonald et al. 2005). Scale, in terms of the number and density of people compared with the geographic area, clearly raises distinctive issues in remote regions.

2.4.7 Sufficient resources and access to assistance

It is important to make sure engagement processes are sufficiently resourced (Aslin & Brown 2004). An important lesson from research on community-based catchment initiatives is that adequate resourcing is required in order to avoid emotional fatigue and a low sense of accomplishment (Byron & Curtis 2002). In particular, time requirements for successful engagement processes should not be underestimated. For example, Nelson and Pettit (2004) found it challenging to legitimately engage with communities on forest management and planning due to the restrictive time limits available for the process. In practice, even when acknowledging the issue of allocating sufficient resources, it is easy to underestimate the actual timeframes required for processes to work (Walker & Lewis 2006). Even when initiatives are supported by highly committed groups with well-structured processes, the implementation timeframes might be long enough to be impacted by change in political agendas and priorities or by gaps in budget
cycles. In remote regions, obtaining adequate resources for engagement processes is likely to be further hindered due to sparse populations, which have higher costs, in both time and money, for transport over longer distances (Stafford Smith et al. 2003). Counteracting this, the smaller community size may permit relatively more rapid agreements within community, if existing community networks are comprehensive.

2.4.8 Communicate effectively

Effective communication is an important success factor both in conducting engagement processes and dissemination of the outputs of these processes. One important aspect of communication is adequately documenting each stage of the engagement process and having documents available for referral at later stages of the process. In this way, communication is an important issue in maintaining transparency. Communication is particularly relevant to the provision of feedback as part of the engagement process. For example, to promote community engagement DCQ sought to effect communication with their community and encourage participation and feedback by using mechanisms such as newsletters, brochures, websites and information papers. They also used local media to disseminate information about their engagement process (DCQ 2004).

Personal contact has been found to be an important factor in effective communication. Rather than relying on written communication, direct face-to-face processes have been found to be more successful. Furthermore, tailoring personal contact (and communication in general) to suit different people and knowledge cultures is important (Selman 2004). The degree of personal contact is particularly relevant when certain elements of the engagement process are imposed or pre-defined, or when engagement includes trialling externally developed information tools (Nelson and Pettit 2004). However, it is important to remember that personal communication is particularly expensive in sparse and remote regions such as the LEB due to the distances involved.

2.5 Dimensions of success

A key discussion issue with the success factors for engagement, discussed above, is that they are highly contextual. For example, ‘community ownership’ is inherently tied to who the community is. In this way, the degree of community ownership relates strongly to the characteristics of the interface organisation concerned, their perceived objectives and their perceptions of who they should be engaging with. Furthermore, these broad success factors are interrelated. For example, the effectiveness of communication, and the level of personal contact in particular, rely heavily on the resources available for the engagement process under consideration. Equally, the principle of focusing on strategic outcomes is entirely context specific and relates directly to the principle of working at the appropriate scale for the context.

A second key discussion issue is that the success factors for engagement are intended to represent broad ideals rather than measurable criteria. For example, community ownership refers to a general sense of identification with the process, rather than a quantifiable attribute. On the other hand, some of the factors are measurable in their own right, such as trust. However, it should not necessarily be required to precisely quantify the success factors, but rather to determine the level perceived as sufficient by those engaged in the process at hand. Maintaining equity and including multiple interests are also readily listed as success factors for community engagement in the literature (e.g. Aslin & Brown 2004). However, several case studies considered in preparing this overview openly identified the fact that not all interests were included (e.g. Nelson & Pettit 2004, Walker & Lewis 2006). In this context the review emphasises the importance of promoting equity and seeking inclusion as much as possible to be the factors associated with success.
As the broad factors presented in this overview are interrelated, it is clear that citizens or interest groups who are not part of the process cannot have ‘ownership’ of the process, even if they aspire to. It is also acknowledged that seeking greater equity and attempting to include wide interests, and the ‘ownership’ that may flow from these, are important goals, but that they may never be completely fulfilled (Lane & McDonald 2005). In the same vein, focusing on strategic goals does not necessarily mean that strategic goals will eventuate. Rather, the significance of this factor is more to do with the focusing part of the process, in terms of distilling what is strategic in a given context. As a final note in line with the discussion above, this review makes no suggestion that what is strategic for one person or group is necessarily so for another.

3. Methodological approach

Having assessed the literature and identified a set of ‘generic’ success factors for engagement around NRM issues, it is useful to ask ‘what are the factors that are specific to arid and remote locations such as the LEB?’ The methodological framework used to consider this question is addressed in this section. Secondary data and literature collected and analysed for the purpose of this project are presented in section 2. Primary data were collected through interviews with the government representatives (section 4) and the representatives of the communities of the LEB (section 5). The following sections provide details of how this research was undertaken.

3.1 Government representatives

Key government representatives were identified as the Regional Liaison Officers responsible for achieving effective NRM collaboration throughout the LEB. Liaison officers were approached in the Australian and State Governments, leading to a total of eight interviews. Interviews were semi-structured and conducted by experienced social scientists working on the ‘People, communities and economies of the Lake Eyre Basin’ project. All interviews were recorded digitally and transcribed. The content of the transcripts were analysed to identify key themes with the assistance of NVivo qualitative analysis software. These themes form the basis of factors for success reported in section 4 of this chapter.

3.2 Community representatives

Unlike ‘conventional’ social research, this project tapped into local knowledge and networks by engaging and training LEB community members to collect information by conducting interviews in their local areas. The interviews with LEB residents were conducted by community-based researchers (rather than external ‘experts’) in line with methodological principles developed by Rea and Young (2006) and Leung et al. (2004). As locals themselves, community researchers can tap into existing networks of trust and are well versed in the challenges of NRM in arid and remote areas.

During the information collection stage of the study five community-based researchers interviewed 49 people who were each in some way involved in resource management. Those interviewed included pastoralists (who were highly represented), rural consultants, NRM committee and board members, people involved in landcare, local council officials, people connected to the mining industry, ‘on-the-ground’ project officers and other people well connected to their local community through paid or voluntary work. Researchers also ensured, as far as possible, that diverse opinions were heard; therefore, a mix of men and women and older and younger people were interviewed, as well as long-time locals and new-comers.
There are some limitations to this type of research in large, socially and geographically diverse areas such as the LEB. For instance, attempts made to engage a community-based researcher to talk with Aboriginal people within the LEB were unsuccessful. Similarly, most interviews were held in SA and Qld, therefore the views of NT residents are not well represented here. This section should be read with these limitations in mind.

The community interviews research involved four key steps:

- **Selection and recruitment of the community-based researchers**
  Community-based researchers were purposefully selected by Lynn Brake, a member of the research project steering committee with extended networks and a history of interaction with the LEB community. The general criteria for selection were that people lived in the LEB, were keen to participate in the research and that they were available to be involved in workshops and conduct interviews in late 2006 – early 2007. Community-based researchers were paid a modest flat fee and provided with digital recorders.

- **First workshops**
  Workshops were facilitated by Tim Smith and Cathy Robinson (CSIRO) in Adelaide and Brisbane in late 2006 to discuss the project requirements and seek input from the community-based researchers. During workshops, CSIRO and community-based researchers developed a short list of interview questions and piloted them in-house. Discussions were also held about the best way to select, approach and interview LEB community members.

- **Data collection and analysis**
  The next stage of the process was the fieldwork itself, where community-based researchers arranged and conducted interviews. Most researchers conducted between 8–12 interviews, depending upon logistical issues such as travel time and the availability of interviewees.

  The interviews were recorded, then transcribed and analysed by the project team, grouping responses into qualitative themes with the assistance of NVivo software, a computer-assisted tool for the systematic analysis of large volumes of written information, such as interview transcripts.

- **Second workshop**
  The second workshop was held at the St Lucia CSIRO office in Brisbane during April 2007. Two community-based researchers, Gemma Litchfield and Margaret House, attended the workshop, and Adam Bester and Sally Cripps contributed via a conference call. Lynn Brake, consultant to Desert Knowledge CRC, also attended the workshop. The workshop was facilitated by Cathy Robinson and attended by Carol Richards, both of CSIRO.

  The purpose of the workshop was two-fold. First, to assess the effectiveness of the community-based research model for understanding the social dimensions of NRM in arid, remote environments. Second, the workshop provided a forum for testing and verifying the findings that emerged from the NVivo analysis.

During the second workshop, community-based researchers reflected upon how they selected people to interview. Four broad criteria for the selection of participants were identified. These four criteria for selection are also represented diagrammatically in Figure 1:

- people who the community-based researchers personally knew or knew by reputation
- the realm of influence of the individuals (leaders, community-minded people, those on NRM boards and committees)
- ensuring diversity (such as age, gender, occupation, job status/level, newcomers and locals)
- logistics and access (distance, mileage, weather conditions, fuel costs).
3.2.1 Mapping the interviewee selection process

Four broad criteria for selection of participants were identified by the community researchers. Each one of them is briefly discussed here.

**Personal association**

The majority of those interviewed were known first-hand to the community-based researchers, and on assessment it was also felt that those interviewed by each researcher would more than likely know each other, or would have had at least heard of each other. While this may have presented problems of confidentiality, researchers were carefully advised on the need for confidentiality and had explored the ethical aspects of conducting research.

**Logistics**

The people interviewed were connected through geographical location, as well as social, family, business and organisational links. One of the researchers noted that, had she ‘cast a wider net’, the links between each of her interviewees would have been more ‘tenuous’. Time and financial resource restrictions were also a key pragmatic issue that affected the selection of people, as discussed further below.

**Diversity**

Community-based researchers were keen to ensure that their sample captured a mix of social characteristics. This included ensuring that the voice of the ‘middle-aged male grazier’ was not the only one heard. To this end, community-based researchers ensured they accessed a mix of younger and older people, men and women and newcomers as well as those who had longer-term connections to the district. In this way, it was anticipated that a broader scope of viewpoints would be heard.

Of the 49 people interviewed, there was a mix of men and women, pastoralists (who were highly represented), consultants, ‘grass roots’ people, local council officials, people connected to the mining industry and ‘on-the-ground’ project officers involved in species preservation work or working with...
Traditional Owners on the ‘joint management’ of country (Table 1). ‘Grass roots’ was a term often used by the community-based researchers to refer to ‘ordinary’ people who engaged in pastoral or agricultural activities, as opposed to social or political elites.

### Table 1: Occupational roles and gender of people interviewed

<table>
<thead>
<tr>
<th>OCCUPATION OR ROLE OF INTERVIEWEES</th>
<th>NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pastoralist</td>
<td>17</td>
</tr>
<tr>
<td>Traditional Owners</td>
<td>0</td>
</tr>
<tr>
<td>NRM board or committee (current or past member)</td>
<td>18</td>
</tr>
<tr>
<td>Board member of industry bodies (Agforce, etc)</td>
<td>4</td>
</tr>
<tr>
<td>Mining industry</td>
<td>3</td>
</tr>
<tr>
<td>Local Council elected official or officer</td>
<td>3</td>
</tr>
<tr>
<td>NRM officer (Local/State/Australian Govt.)</td>
<td>7</td>
</tr>
<tr>
<td>Consultants (agribusiness/pastoral/NRM/ecologists)</td>
<td>5</td>
</tr>
<tr>
<td>School principal</td>
<td>1</td>
</tr>
<tr>
<td>Joint-management officer (Aboriginal management)</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GENDER OF INTERVIEWEES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>16</td>
</tr>
<tr>
<td>Female</td>
<td>21</td>
</tr>
<tr>
<td>Not reported</td>
<td>12</td>
</tr>
</tbody>
</table>

Note: These figures are indicative only, as in some instances occupation, role and gender were not reported. Also note that many people had multiple roles, such as pastoralist and board member, which is why the figures do not sum to 49.

Community-based researchers reflected that a number of people were not reached, such as Aboriginal people and people who may have been influential or have a positive contribution to make but who were not accessible to the community-based researcher for reasons of logistics (for example, distance and costs involved in accessing particular people).

**Realm of influence**

Interviewees were also selected based on their ‘realm of influence’. In many instances, the ‘same names were heard over and over’ by community-based researchers. Community-based researchers inferred that these people were ‘the players’ and were well known within their communities for being people who were involved in NRM issues. Some of these people were also known as being ‘community people’ in town, involved in numerous local projects and events, such as the rodeo, tennis club and the progress association.

It was also recognised that in some instances, such people were involved in local issues due to the fact that ‘no one else wants to do it’. Community-based researchers also detected that some people might have been appreciated at the regional level (for example, on boards of regional bodies) but not appreciated at the local level due to the perception that they ‘stir up the dust’ or are seen as ‘cracking the whip’ and trying to effect change when the community was not ready.

Some of the key community figures were identified as being outspoken or controversial and were involved in committees and boards because they wanted to effect change, or conversely, maintain the status quo.

**Insiders and outsiders**

Some of the people interviewed were considered to be ‘insiders’ by the community-based researchers and therefore well connected to networks through local activities (such as local development groups, or the tennis club) and through membership of NRM boards and committees. Community-based researchers felt that these individuals were well connected and had the ability to ‘translate’ between the ‘grass roots’ and institutions.
Those who were considered to be ‘outsiders’ by community-based researchers were reported as being ‘vocal and opinionated about issues’ but not necessarily engaged with formal bodies or aware of projects that were occurring. In this sense, ‘outsiders’ were perceived to be more critical but less informed.

The absence of Aboriginal perspectives

At the second stage of the ‘People, communities and economies of the Lake Eyre Basin’ project, Aboriginal peoples’ perspectives were not adequately incorporated into the research, despite efforts to recruit and support Aboriginal community-based researchers. This included one Aboriginal community-based researcher who agreed to be engaged in the work and another community-based researcher who committed to conducting interviews with key Aboriginal Elders, neither of whom could undertake the task for unknown reasons. An alternative method of capturing the viewpoints of the Aboriginal residents of the LEB is clearly needed, with further effort to engage with Aboriginal communities and representative organisations. This provides a rationale for further investment in understanding Aboriginal perspectives in subsequent stages of the project and studying the success factors for incorporating Aboriginal perspectives into NRM of the LEB.

4. Government perspectives on successful engagement

This section presents the results of the first part of the primary data collection conducted for the purpose of this study. As part of the development of the ‘tool kit’ for effective engagement, a series of eight interviews were held with government liaison staff, both at the state and federal level. The aim of the interviews was to gain better understanding of the perceptions held by the government staff about the factors of successful engagement. These interviews complement both the literature review and the community interview components of the research.

4.1 Perceptions of the LEB region

Among the government interviewees there was a strong recognition of the challenges for successful NRM engagement processes in remote areas. Compared with other NRM regions, there was a sense that remote regions are less topical, which in turn is reflected in reduced investment.

Given this relative lack of limelight, maintaining effective engagement processes in a remote location such as the LEB requires a high level of extra skill and commitment on behalf of the interface organisations themselves and those they engage with. From this point of view, successful engagement in remote areas requires a high degree of political awareness in order to attract support for resource challenges that have longer-term needs and impacts rather than being the ‘hot topic’ of the day. Furthermore, there was a perception that even within the LEB, the level of interest about it was variable.

For example, it was perceived by one participant that commitment to the LEB was relatively weaker in the NT. While not all participants agreed that the LEB was of less interest than other parts of the NT, it was nonetheless noted that it was only one part of a large complex planning region, which makes regional planning and regional engagement challenging.

The key to realising this advantage is to develop the most appropriate engagement processes for remote areas, which may need to be different from other NRM regions. A key role for interface organisations, as seen by one regional NRM facilitator, is to understand the perspectives and needs of LEB communities, for without this, management actions may fail due to lack of support.

Within the context of remote areas in general, and the LEB in particular, the following factors were thought to characterise successful engagement process.
4.2 Factors for success

Several themes of successful engagement have emerged from the interviews with the government representatives and are presented below.

4.2.1 Building and maintaining trust

There was a general perspective from government liaison officers that across Australia interface organisations, and particularly NRM Boards, varied enormously in terms of the degree to which they were perceived as ‘community organisations’ or ‘another arm of government’. The way that communities engage with interface organisations was seen as intrinsically linked to this perception. In the case of the LEB, two of the main interface organisations (SAAL NRM Board and NT NRM Board) have specific statutory powers and operate under government legislation, while DCQ strongly distances itself from government and presents itself as an independent organisation despite receiving substantial government funding and support. It must be kept in mind, however, that interface organisations cannot operate independently, but continue to operate in accordance with political forces. Interface groups cannot operate outside government policy. They will not be funded and supported by governments unless they contribute to policy implementation. A key task for all interface organisations is to define their relationship between regional communities and governments as they build social capital with their constituents and continue to operate within their terms of reference. It was also noted that some interface organisations have multiple internal structures, such as committees and working groups, while others do not.

Solutions:

- Avoid acting as ‘another arm of government’.
- Engage community sectors in meaningful decisions that affect their interests.

By their very nature, interface organisations provide the link between major government programs and local activities. Although considerable scope normally exists for negotiating terms of reference to meet community expectations, ministers still have the final say on the boundaries within which interface organisations must operate. Terms of reference normally contain program planning and implementation functions, as well as the responsibility to inform governments about community interests while communicating government policy and programs to the community. At times, however, tension can arise between, on one hand, delivering major programs and, on the other hand, representing community interests, which can involve commentary of government initiatives. In an environment where stakeholders generally lack trust in government, interface organisations need to find a balance between acknowledging their government program delivery role as well as the role of representing the interests of local stakeholders.

Provided interface organisations acknowledge the sources of their funding, it is possible to maintain a relatively independent stance in terms of balancing roles and responsibilities. In the case of conducting this research, being upfront about the work and who was funding it promoted trust among the LEB communities interfacing with this organisation.

Part of maintaining and enhancing trust is about familiarity, which can be enhanced by having personal connections and staff that reside in the region and are not transient.

Developing trust requires being able to demonstrate credibility, which takes time, making this a challenge for new organisations. Having functional systems in place and being seen as equitable are part of achieving this crucial success factor.
Building trust is also improved by having processes to ‘listen to the community’ and be mindful of community concerns, though not necessarily playing to these concerns in every instance. Successful interface groups learn to negotiate programs that address community concerns while delivering the returns that justify government investment. They build their capacity to respond to the interests and issues of the community as well as to the policy agenda of the government of the day.

In turn, trust and credibility are enhanced by improved capacity of staff – which brings us to the next success factor.

4.2.2 Attracting and retaining credible staff

Long-term staff are more likely to have the necessary experience, respect and credibility that underpin effective engagement. For staff working in interface organisations, engagement extends across both the community and government spheres. Staff need both the capacity to engage with government processes and agendas and the ability to engage with diverse community needs and expectations.

One challenge is attracting staff in the first place. A key issue to achieving this is being able to offer adequate tenure for new staff, a problem that is exacerbated by short-term and uncertain funding environments and one that has already been noted since before the regional NRM model was developed. The problem disadvantages remote areas because it serves as a disincentive towards attracting skills from urban areas.

While attracting staff in the first place represents one challenge, retaining staff and providing new staff with appropriate training are additional challenges.

One factor that would enhance successful NRM engagement is provision of longer-term contracts for staff. Job security could improve the ability of the organisations in remote areas to retain effective staff when already in place. However, such arrangements would require a long-term funding commitment from the government.

Credibility also depends on having ‘industry knowledge’, as demonstrated by this quote referring to the NT context:

Solutions:

- Look for people who are effective in multiple roles.
- Long-term staff are more likely to have the experience, respect and credibility to be effective.

Across the interviews, it was found that the success of an interface organisation depends heavily on its staff. Successful NRM engagement processes require particular skills and personalities in terms of how to approach different individuals and communities. However part of the challenge for interface organisations, particularly in remote areas, is the number of roles that individuals play.

Overall, finding and retaining credible staff who can perform multiple roles was identified by the respondents as one of the key factors for successful NRM engagement in remote areas. The importance of these factors was also noted by McKenzie (2007). These individuals play a crucial role in all the other success factors discussed in the interviews, through effective communication, building partnerships and realising on-ground action.

4.2.3 Visibility/local involvement

Government interviewees noted that getting out on the ground is an important factor in the success of engagement in remote areas. They were aware of the inherent challenges for doing so in remote areas, given the large areas and small numbers of staff.
In the NT, the staff have to cover the whole of the NT and are mostly located outside of the LEB. However, one officer is located in Alice Springs.

From the perspective of one such regional facilitator, the key to this role is to be active at the local scale in order to convey ideas and make it happen. Skilful facilitators learn to become translators between needs, aspirations and cultures of resource users and the language, culture and processes of government bureaucracies.

Part of being locally recognised is also the issue of being seen as being open to community input. Successful on-ground facilitators are approachable and know how to interact with different organisations and sectors.

4.2.4 Being adaptive

Successful NRM engagement involves reviewing and updating engagement processes. At the organisational level, this involves reviewing internal governance arrangements that provide the context for effective engagement to occur, including adjusting the composition of the board over time in some cases. At the individual level, staff also need to be adaptive in terms of how to engage with different sectors or organisations.

Solutions:

- Over time, community perspectives and priorities can change.
- Look out for changes in governments and mechanisms.
- Be flexible to the different conditions across the region.

Another way of viewing adaptability concerned the need to be aware of changes in the operating environment, such as government agencies and regional needs.

Part of this flexibility involves identifying emerging priorities and the most effective ways to address these. Being adaptive involves paying attention to new research on key issues, such as pests, and seeking to apply suitable technologies to address those challenges. It was also noted that interface organisations have a role in identifying gaps in knowledge and policy responses and being flexible about working with other agencies on those gaps.

4.2.5 Enthusiasm and determination

Related to flexibility are enthusiasm and determination, which play an important role in engaging remote communities due to the particular challenges of their environments. When applied together, determination, enthusiasm and being flexible about the manner in which engagement is conducted were found to promote successful engagement across the greater distances of remote areas such as the LEB.

Solutions:

- Long-term commitments are crucial.
- Initiative and perseverance help you to get access to information and resources.

Another way of looking at determination is patience and persistence. One government liaison officer suggested that in dealing with government agencies, a key to successful engagement is the patience and persistence to navigate complicated internal structures to reach the desired information.
4.2.6 Adequate resources and accountability

Effective NRM programs require significant resources. Government agencies have developed processes to ensure investments are accounted for and appropriate outcomes are achieved. Continued investment depends on being able to achieve the milestones that processes dictate. On the other hand, community support depends on timely and significant outcomes that affect community interests. Central to the success of regional NRM engagement is achieving the milestones as defined by government agencies to maintain transparency while interpreting these in a way that is regionally relevant. Apart from the strategic skill in navigating this, it is also recognised that effective engagement under the regional NRM model requires substantial resources in terms of time and money.

Solutions:

- Seek the money you need to obtain action.
- If you do not have the resources, look for innovative ways forward or around.
- Do not promise outcomes that cannot be delivered.
- Match expectations and responsibilities to fit with community capacity.

Another way of looking at the adequacy of resources is to examine how those resources are managed. Interface organisations have a degree of flexibility for managing their resources. Accountability is focused on reporting both to government through compliance related measures, as well as to the community directly. Achieving both of these is challenging but central to promoting successful engagement.

4.2.7 Effective use of partnerships

Recognising the value of partnerships and relationships is a crucial element of successful engagement, particularly in remote areas where timeframes can be longer for NRM processes.

While ‘managing’ relationships in many ways is up to the people involved, there is also a role for NRM arrangements to support the circumstances for partnerships to develop. Partnership assumes sharing of rights and responsibilities as well as interdependency of critical roles.

Partnerships can help overcome some of the additional costs of addressing extensive long-term NRM challenges in remote areas. It was noted that some of these issues were generally understood (e.g. weed and feral animal management), while others were less well understood (e.g. the effect of climate change). Both types of issue are more expensive to address in remote areas due to the distances involved and scale of impacts.

Other crucial partnerships noted for interface organisations were with the government agencies responsible for the problems in question, as well as with the research organisations, particularly when it comes to addressing new challenges.

Solutions:

- Recognise the value of long-term collaborations.
- Partnerships can help when resources are lacking.
- Cement partnerships by sharing meaningful roles.
- Learn from your partners when possible.
In addition, partnerships with industry groups and community volunteers can help to deliver on-ground outcomes. Partnerships can be conceptualised as both an outcome and a driver of successful engagement processes. They contribute towards developing an alignment of vision between different organisations and community members.

4.2.8 Representation and collective vision
Interface organisations need to reflect the NRM sectors that they interact with, including representation on boards. Related to this is having a balanced team that is effective across a range of capacities. Some viewed representation as beyond representing particular interests; that is, good representatives have a range of skills and expertise rather than being spokespeople for particular interests alone. A good cross-section of local people was identified as one of the key dimensions to successful interface organisations.

Specifically in the NT, it was noted that representation should include being culturally sensitive, given the large Aboriginal population of remote areas. It should also include spatial representation, even though the boards of NRM organisations are designed to be constituted on the basis of skills and knowledge.

Another point raised was of having a shared vision of the issues at hand. A successful interface organisation is one which can capture that shared understanding.

Successful engagement might not be a one-way activity, but rather an activity that requires developing a degree of alignment from across the board, including adjusting policy focus so that other stakeholders can be engaged. An important strategy is to look for synergies but acknowledge conflicting and exclusive issues.

Importantly, collective vision cannot simply apply at the community scale. It also requires alignment across jurisdictions and scales of influence.

4.2.9 Communication
Most of the interview participants emphasised the importance of maintaining and improving communication. Communication was viewed as especially important for remote organisations where distance makes engagement more difficult.

The key to achieving this communication was in part related to flexibility and adaptiveness, such as through use of different communications techniques. Furthermore, successful engagement requires communication in both directions between government agencies and interface organisations, with adequate opportunity for feedback.

However, the problem might be in the disjunct between local interests and policy recommendations or responses, rather than in communication.

Effective communication is not just about being able to communicate with local sectors, but also about knowing how to use the bureaucratic system to communicate local issues; that is, being able to take local issues and make them into issues of interest on the government agenda. There might currently be too much emphasis on building capacity with the community and not enough on building the capacity of the NRM staff to communicate effectively with the ‘top’ levels.

Solutions:

- Face-to-face communication works best: use it where possible.
- Be flexible with technology when face-to-face is not an option.
- Use the internet to provide information.
It is through feedback that alignment and collective vision can be assessed and adjusted. Communication was considered important, not only between the interface organisation and its surrounding community, but also between various organisations in order to learn from each other.

What emerged from the interviews was that communication is both difficult and thus important in achieving successful engagement with all parties for interface organisations, including fellow interface organisations to help learning from each other.

### 4.2.10 Measuring successful engagement

From a government perspective a key measure of successful engagement is the same as measuring the success of interface organisations in general: delivering on-ground outcomes and achieving targets. Beyond these familiar targets, government representatives found that successful engagement is generally a difficult thing to measure. However, several participants did suggest that measuring engagement could be related to addressing many of the success factors identified throughout the interviews. For example, staff retention rates provide an easily measurable sign of building and maintaining a credible human resource base. Additional measures of successful engagement concerned the degree to which interface organisations were collaborating with partners, both in terms of the number of partners and also in terms of the nature of those collaborations. Another sign of successful engagement is the degree of awareness and understanding of key issues relating to targets. Some participants thought this understanding could be assessed among the staff of the interface organisations themselves as well as among members of the surrounding community. In a similar way, the degree of representation can be considered a way of measuring success, in terms of sectoral representation on committees.

Several participants noted that successful engagement is very hard to measure, because it is difficult to define measures of success. However, some potentially measurable definitions could involve:

- the ability to avoid or manage conflict
- representativeness of organisations in terms of skills and location
- having governance structures in place that allow dialogue
- degree of on-ground representation
- profile and awareness of interface organisations among stakeholders.

### 4.3 Discussion

Overall, the success factors identified through the government interviews are broadly consistent with those reflected in the literature review. Clearly, issues such as building trust, effective communication and adequate resources relate directly to successful engagement in a wide range of contexts. One issue that relates more specifically to a remote region such as the LEB was the critical role of attracting and maintaining staff. A feature of remote areas seems to be having fewer people to play more roles, so finding and supporting staff who are effective in conducting multiple roles is crucial to successful engagement processes. Much of this involves combining and balancing the multiple facets of regional NRM and communicating effectively with a wide range of people and organisations. Another distinct feature of successful engagement in remote areas was the high importance given to enthusiasm and determination. This was critical to achieving successful engagement among a remote and dispersed social environment, where larger distances make access to resources and information more difficult.

In considering the review of success factors above, it would seem that an ideal interface organisation has a seemingly impossible mission: to be independent yet maintain effective partnerships; to be the voice of the community while being in alignment with government priorities; to be determined yet adaptive. This demonstrates how the very nature of interface organisations poses a challenge in terms of needing to find the right balance among multiple, and frequently competing, aims and priorities. However, it was clear from the interviews with government NRM liaison officers and representatives that they recognise
the importance of supporting successful engagement processes. This was clearly demonstrated by the high degree of willingness to take part in the interview process and share their views on successful engagement. All participants indicated an interest in the study and a desire to read about the results. Moreover, government participants were aware that remote regions had particular characteristics and timeframes, and that it is also important for government stakeholders to be flexible too.

5. Community perspectives on successful engagement

This section presents results of the interviews conducted with the community representatives. The data used in this section were collected using community-based researchers. Therefore, the first section explores the experiences with the community-based research approach. This section is followed by the summary of the community’s perspective on success factors.

5.1 Community-based research approach: lessons learnt

5.1.1 Experiences of community-based researchers

The community-based researchers were asked to reflect on their involvement in the project, including the positive aspects of the process and experience, as well as some of the challenges.

Trust and legitimacy

A number of benefits of community-based interviewing were identified. These included capitalising on existing local networks and trust in communities to gain credible input from the community. By drawing on these existing links, it was surmised that interviewees were able to speak openly and freely. As one community-based researcher summarised, ‘It was easier for people to say what they really think’. Similarly, it was observed that the community-based researchers speak the same ‘local language’ and do not use scientific or bureaucratic jargon. This was seen as contributing to interviewees’ sense of trust and legitimacy, which also ensured that, in the words of one researcher, ‘Community researchers can get honest answers, as they would know if [the interviewee] was talking [nonsense]’.

Challenges

A few challenges relating to conducting interviews were identified. There was agreement among the community-based researchers that the time of the year, before Christmas, was not a good time to conduct interviews. At that time it was extremely hot, there was the threat of storms which made driving on dirt roads hazardous, and people were busy hand feeding livestock due to the drought. One community researcher experienced vehicle breakdown and needed police assistance. This incident highlights that vehicle failure is one of the risks of interviewing in remote areas.

Other challenges related to ‘following someone else’s interview questions’ and uncertainty about the degree to which researchers should prompt interviewees or provide more clarification about the meaning of the questions. On reflection, the process could have been improved if there was an opportunity to test the interview questions in the field: researchers could then have compared notes via teleconference and further refined the questions to ensure they were meaningful to participants.

It was also suggested that it might have been easier to get some participants talking if people were interviewed in pairs or groups. Using this method, the information may have been more free-flowing with less reliance on the interviewer alone to facilitate discussion.
Some final reflections from community-based researchers

Community-based researchers reported that they enjoyed the experience, with one reflecting that it would have been good to talk to more people to get more viewpoints. It was also noted that it was ‘nice to talk to people and help them get things off their chest’. Another reflected that she had ‘learned new things about natural resource management’ and had developed greater interest in this area. Despite the first few interviews being difficult, she found the experience valuable.

In summarising her experience of the community-based research model, one researcher offered, ‘Community researchers sums up what we are … we have links to the community and can ask questions that scientists wish to ask in language that local people can understand’.

5.1.2 Benefits and challenges of the community-based researcher approach

There were a number of benefits and challenges involved in using the community researcher approach for this first phase of the research project. A key benefit of using this approach was that these researchers used ‘the same local language’ as the people who were being interviewed, which helped in an open discussion about key issues facing the Lake Eyre region. Another key advantage was the ability of community-based researchers to speak candidly to CSIRO researchers, particularly when it came to describing problems with the research. For example, at one point a team member discussed the content and progress of interviews with some interviewees, and this raised (real or perceived) concerns that interviewees and their perspectives were not anonymous. The workshops enabled these issues to be raised and confidentiality to be re-affirmed. They also ensured that the research approach itself (such as the interview questions) was not ‘too academic’ and could be understood by both parties involved in the community-based interview.

A potential downside of using community-based researchers was the lack of probing questions that would be used by trained researchers to provide insights into the deeper meaning of comments made by the interviewee. While it was beneficial to capture perspectives from people who would not ordinarily agree to be interviewed as part of a research process, many of the interviews conducted did not provide enough material for in-depth analysis of these perspectives. One possible reason for this lack of probing was the familiarity between community researchers and participants. There is no way of knowing if certain topics were avoided or perceived to be unsuited to the specific relations between the parties, compared with an interview undertaken by an external trained researcher.

5.2 Community perspectives

This section focuses on the research findings from the community, presenting some important lessons learned. Many of these findings resonate strongly with the success factors for community engagement that were identified in the literature review. For example, trust was found to be crucial factor of effective engagement in the literature, as well as in the LEB. Other issues were found to be unique to the LEB as a collection of desert ecosystems and a physically and socially remote space.

5.2.1 Engagement in the vast variable geography of the LEB

Inevitably, many of the challenges of managing natural resources in the LEB were related to its sheer scale. A number of the interviewees noted how the LEB area covered one-sixth of the Australian land mass, and contained a vast diversity of people, landscapes and management problems. With this scale also comes issues of distance and time, with many of those interviewed feeling that interface organisations were not always sensitive of the time taken to travel long distances to meetings. Those from the community highlighted the need to ensure that not all meetings were in central regions because ‘people on the fringes feel excluded and they tend to disregard what’s happening’. The ‘huge amount of time and money’ required for engagement, given these geographical realities, were also noted.
The following quotes capture some of the interviewees’ sentiments on this matter:

**Interviewee:** The biggest problem was logistics of course; to have meetings all over the LEB costs a huge amount of time and money. If you centralise your meetings then the people on the fringes feel excluded and they tend to disregard what’s happening.

**Facilitator:** You think it’s important to get out there for meetings?

**Interviewee:** It certainly is, but it’s one of the difficulties, one of the big challenges. To get around, logistically and financially as well. But you’ve got to include as many people and as many organisations as you can.

Another person who was also concerned about the costs and time involved in attending meetings stated:

Distance is also a big one, trying to get people together is really hard. Some of the things like the NRM, we don’t get travel time. So, if it takes two days to go up to a meeting, we don’t get paid for that. Whereas, if you’re in Adelaide, and you drive 20 minutes to a meeting, it’s a big deal, and I think that’s really hard, and puts a lot of people off.

Similarly, there was advocacy for a greater understanding of the isolation of the LEB in terms of trying to conduct engagement activities:

One of the things that is always desirable, or people have always demanded I suppose, is that the meetings are held within the Basin. Each meeting is held within the Basin and the biannual ministerial forum, where all the heads of the States and the Federal Government get together and actually discuss issues and budgets and things, are actually held within the Basin. So that the community have a chance to take part and people get to travel around the Basin and learn a little bit more about the different parts of the Basin.

Another interviewee noted that scale was the main difference between the LEB and other catchments:

**Facilitator:** Is there anything in particular that is needed in relation to the Lake Eyre Basin region that is different to other regions?

**Interviewee:** It’s a big area. So anyone doing that sort of work is going to have to do a lot of kilometres and cover a lot of ground. No. Other than that, I would have thought it was pretty much the same. Just the scales make it that much more difficult and problematic.

Others sensed an inequity between the allocation of resources in urban and remote areas:

Down there [in Adelaide] they get a lot more money because there’s a lot more people, but they’re only spending it on a lot less land. I can’t see why we can’t get the same amount of money for less people up here because we’ve got twice as many issues across – it’s nearly half the state.

The size of the LEB also means that it spans a number of jurisdictions, state, regional and geographical boundaries. Participants identified a need for improved cross-boundary management:

No point in getting all the camels out of the Simpson Desert and then they all come back in from the Territory again.

Another person noted the need to manage natural resources across jurisdictions was time consuming:

So, what are the problems I see? What are the challenges? National coordination is a big one. We find ourselves continually reinventing the wheel. I’m sitting here writing a general management plan, and I’ve got no idea what they’re writing over in [other jurisdiction]. Why don’t I know? Because I’ve got to get this out by Christmas, and I just simply don’t have the time.
5.2.2 Place-based or issue-based engagement in the outback

Having acknowledged that the sheer size of the LEB is somewhat overwhelming for interviewees in terms of LEB NRM management, there was evidence that change, both in terms of social attitudes and environmental outcomes, could be effected at the micro level. Many of those interviewed identified with more localised and smaller scale projects, also revealing how trusting working relationships could facilitate change. For instance:

Now ten years ago to have Birdsville Track land holders cruising around with a picture of a Kowari [animal] on the back of their motor car would be just … you would be laughed at, you know, it would be absurd. But because of this project and their involvement they embraced this whole idea. You know, it changed a lot of attitudes. But those attitudes … it’s easy then if you forget the people stuff for those attitudes then to revert back to where they used to be, in the absence of good clear information and a trusting working relationship.

Solutions:

- Processes of engagement should be sympathetic to the distance travelled and the time taken for people, who are often volunteers, to attend workshops or committee meetings. This may have significant resource implications.
- Communication technologies such as the internet, teleconferencing and networked whiteboards can resolve some of the temporal and spatial dimensions of engagement faced by LEB interface organisations. Training to enable some local and non-government interests to use these new communication technologies may be needed.
- Place-based or issue-based NRM activities offer a tangible focus for local engagement in a bio-region that has diverse and vast landscapes and jurisdictions.

The ‘localising’ of success factors in the LEB highlights how small-scale issues are more tangible and manageable but also suggests that ‘scaling-up’ to the catchment level might present challenges dependent upon the issue at stake, and the stakeholders involved.

5.2.3 Acknowledging desert timeframes

Issues of time overlap with issues of spatial scale, particularly in relation to the distances that need to be travelled to engage in meetings and workshops. This is dealt with in part above. However, there are other aspects of ‘time’ that are specific to remote and arid areas such as the LEB to which the quotes below attest:

It’s very hard to allocate time and resources to doing what is considered extra, which is managing weeds, when you can’t keep your stock alive and you can’t pay the bills. It’s very hard to be able to do anything else until such time as conditions improve. Certainly the weather is a limiting factor, I would imagine.

Not only does the dry climate require more active input from land holders, but seasonal variability over long periods of time was reported to hinder the assessment of whether projects had been successful:

Weather cycles and things like that take so long, you know, trying to measure progress on projects when ... you only have a good year once every ten years, you know, how do you judge how effective a rabbit ripping program has been if you rip it in one of the droughts and it might be six years until you get decent rains and you get decent re-veg happening and stuff like that?

Another interviewee had a similar viewpoint:

There’s a local group who are doing work on a floodplain to assess if they can produce pasture and that sort of thing ... one of the problems they have is that funding, whether it’s State or Federal Government, is for a period only. They say right, the funds are available...
for one year or generally no more than three years. In the environment sense, in the seasonal sense, to study something over three years often doesn’t do justice to getting the correct answer. You may not get a flood in the three years or you might not get rain; or you might get a lot of floods and a lot of rain.

5.2.4 Acknowledging funding time-frames

On the topic of timeframes, an interviewee also noted that funding cycles did not promote continuity and consistency with staff over time:

*For us I think it’s the fact that almost all of our operational money comes from the Federal Government. It comes through grant programs. We don’t have any security of funding. So we’re at the whim of what’s currently in favour for the Federal Government, and along with that then comes problems like ‘Well, how do you attract some secure staff in the region if you can’t offer them any more than a three-year contract?’*

Furthermore, the importance of aligning funding cycles with the natural cycles of arid environments was also a recurring theme throughout the research:

*These things can fall through the cracks or be rated lower than they might otherwise be. So that’s a significant challenge, getting resources to a lot of these projects. Arid land, in particular investing at the appropriate scale, is an issue. It can be much more expensive. Also, ensuring that you can cover things in the right time scale, because it could be many years before you even get the rainfall that you might need to actually make a difference to all of the management that you’ve been putting in place.*

A lack of awareness of the importance of continuity of personnel and projects was reported to have a significant impact at the local level:

*Overall, the last couple of years, [the project] petered out a little bit and I think that was because, when it was at its peak, there was a person living locally in the region who was really driving the research side of things. When that person left the area, they, I guess, did lose that focal point that was really driving the project. So I think in the last couple of years, where that’s been lacking, the interest and community support has perhaps petered out a little bit. But that’s something that we’re really trying to focus on, to get it back up and running again.*

Issues of funding also overlapped with concerns of community burnout, with some people identifying a link between the lack of resources and the greater potential for the goodwill of community members to be exhausted. For example, when asked about the challenges of NRM in the LEB, one interviewee made the following statement:

*Funding! Funding! Put that in neon ... lights: Funding! And continuity of skills. We cannot burn out your [name of person] and expect someone to step into that role and take up where [person] left off. You must have continuity. Funding, continuity of your skills, continuity of staff and skill level.*

The issue of burnout will be described in more detail in the next section.

Solutions:

- Lobby for better alignment between project funding cycles and natural seasonal cycles to achieve both enhanced community involvement and improved NRM outcomes.
- Recognise the importance of continuity and consistency of funding for human resources to respond to NRM issues in remote areas.
5.2.5 Community burnout: sparse populations managing vast areas of land

During the interviews, many LEB residents noted that there were a number of key people who were community leaders in relation to NRM issues. These people were highly valued by the community and tended to be engaged with the community at a number of levels, often beyond issues of NRM. For instance, community-based researchers identified that these key people would also be involved in local progress associations or in organising the local gymkhana. One negative aspect of their involvement in numerous community projects and events was the tendency of these people to be overburdened, often taking on roles as ‘no one else would do them’. Many interviewees identified this as an issue that was specific to remote regions, where populations are small and sparsely distributed. For example:

Facilitator: *What do you think the challenges are for interface organisations?*

Interviewee: *People in the bush, requiring a lot of consultation. You need to phone people all the time. Getting new people to be interested, I see it as a fairly big challenge. The old problem of wearing down the people that are always involved.*

Similarly, another person noted some of the problems of engaging people in NRM activities in remote areas:

*It’s a challenge because the cost is huge because of the distances involved and the logistics. The isolation is enormous. [There is] social exhaustion. There’s such a small handful of people that you wear out and get exhausted.*

Another interviewee offered a similar sentiment:

*It [is] just the same people get dragged into the same sort of groups ... trying to spread a lot of people too thinly, I think.*

Likewise, when asked about the challenges facing interface organisations, another person identified:

*Funding probably. Staff burn-out because the project officers are just so run off their feet because ... the numbers that you can employ, I suppose. That’s always a problem. Distances as well. [People] are not compensated and it seems to be to me that there is no avenue in the money that is provided by both State and Federal Governments to actually [compensate those involved] ... We’re very good at allocating money for staff and vehicles and everything else and then giving a portion of that money on the ground; however, we’re not good at looking after the committee members and as a result we don’t get rejuvenation.*

Others saw that the interrelated issues of scale, time and resourcing could have an impact on the overall success, or even survival, of interface organisations:

*I think as all individual boards were before, I think most of them were pretty successful. But I think a lot of them fell down in a couple of different ways, I suppose, and I guess it was true local things: the same people, the amount of time, commitments and all that; it gets difficult and costly.*

Solutions:

- Assess ways in which to encourage community engagement while also being cognisant of the potential for the community members to be overburdened.
- Identify tangible outcomes where possible to show the value of efforts.
- Demonstrate recognition and appreciation of efforts to encourage others to share the joy (and the burden) of engagement activities.
- Identify effective methods for recruiting and maintaining new staff and volunteers.
- Explore ways of ensuring that staff and volunteers are duly compensated for their efforts (payment for travel time, reimbursement of travel costs, payment for attending meetings, etc.).
5.2.6 Communications

When asked about the success factors of interface organisations, many of those interviewed placed high priority on communications. Crucial to the effective functioning of organisations, was the role played by key people in communicating. Interviewees identified that good communication:

- occurs when NRM personnel officers are able to talk to people, one to one
- can take place once an organisation and its personnel have clearly articulated their roles and where their organisation fits within the network of organisations across the Lake Eyre landscape
- reduces costs and the likelihood of ‘reinventing the wheel’
- raises an organisation’s profile
- enables interface organisations to assess the needs of the community, rather than pre-empt their needs
- happens when there are effective translators who act as an information conduit across diverse sectors, such as land holders, NRM bodies, and local, Australian and State Governments
- can facilitate stronger links, networks and relationships of trust.

One interviewee noted that the success of a particular project was due to effective processes of communication, particularly in ensuring that everybody had the opportunity to have their say:

*Yeah. It really came down to communication with all the stakeholders. They need to be able to communicate and [be] involved in two-way discussion, that’s not just them telling someone how it’s going to be … Things need to be well thought out and not just pipe dreams before they’re taken to the community. So there needs to be some hard facts that can be divvied out and digested. There needs to be enough time for all the different people to be able to speak and make their comments. Whether their comments are taken on board, there needs to be some transparency in that process, so that people can kind of understand, yes, we’re taking it into consideration, even if they weren’t taken on board.*

Likewise:

*The biggest thing is just communication. It means actually going out, onsite, and communicating onsite, in person, not through a phone or office, not via e-mail or whatever, because they’re not valid methods of communication for a lot of people in the region.*

Similarly:

*I think all the programs that I’ve been involved with, the most successful are those that are land holder driven. They come to you with the idea. When I was working in the Desert Uplands, running the [name of program] project was very successful. It allowed for one-on-one time and I think land holders really appreciate that, being able to visit their property and have the time to sit down with them and go through things on an individual basis, in their own home, is often seen as – I don’t know. I find you get the best of it, that way.*

5.2.7 Networks of trust

Another ‘side-effect’ of effective communication was identified as building networks of trust. Interviewees identified a number of factors that facilitated greater trust relationships between local communities and regional NRM Boards and other organisations.

Solutions:

- Listen.
- Treat people fairly without discrimination.
- Respect different perspectives and interests.
- Maintain transparency in governance processes.
- Acknowledge and recognise the work that people are doing.
One interviewee reflected on how one-on-one interaction fostered greater trust and served to break down social barriers between different sectors:

_The one-to-one contact is important. How many of them get out and just sit around the kitchen table individually with people? How many of them can get out and call a meeting every now and again and get people together and talk about things? I think if they can do that they seem to be setting up a bit of trust. People can say, I don’t agree with what he has to say but at least I can talk to him. I think a lot of people don’t value the involvement in that … I understand the bureaucrat or somebody on the committee with a time line saying, now I’ve got to have all these goals achieved by a certain time. But I think when you’ve got that pressure on you, you don’t understand that that’s just talking to people – it makes them go away and think._

Given the challenges in ensuring the inclusion of Aboriginal people in decision-making processes, it is valuable to consider how skilled coordinators were perceived to facilitate this process:

_I mean, one of the reasons the programs worked so well, in addition to involving what people actually wanted to do themselves, was that the coordinators of the program were familiar with working with Aboriginal people and were also very motivated and committed to the project. So the liaison people within that assisted with the program were particularly helpful._

The maintenance of good social networks through processes of communication and inclusion were identified as instrumental in effective NRM engagement:

_At the level that I operate at, with steering committees and things and planning and strategy groups, [you need to] make sure that all of the key stakeholders are represented and able to have a voice, because if interests are excluded, that are key to things happening, then somewhere along the line you’re going to fall down._

Solutions:

- Identify the key processes of trust building, and incorporate them into future planning exercises.
- Maintain transparency of practices and procedures.
- Ensure that the community is able to access information that details what an organisation ‘does’ and how it links into other networks and organisations.
- Where possible, invest in face-to-face communication.
- Recognise the ongoing value of investing in skill development of personnel to facilitate or improve the flow of information cross-culturally.

5.2.8 Getting on with the job: less talk and more action

While recognising the need for effective and inclusive communication, there was also a strong, emergent (although somewhat contradictory) theme that there should be ‘less talk and more action’. For some, this desire for more ‘on-the-ground action’ was due to the perception of the bureaucratic activities of interface organisations, where large volumes of paperwork were generated, and too much time was spent in ‘talkfests’. For example:

**Facilitator:** _Can you just identify some key measures you would use to judge the performance of some of these organisations? How would you judge how they work?_

**Interviewee:** _Well, seeing programs actually happen, on the ground … that things don’t work out to be a talkfest. You need projects like your [name of program], that actually get up and running and that, through people see things happen. Whereas, we haven’t seen anything happen in the last 12 months. Like, with the [name of organisation], they coordinated several feral animal shoots and they were very successful. There was some weed control, spraying and what-have-you of weeds. So people need to see things happen on the ground, to be happy._
For many, processes that occurred at the ‘grass roots’ level, or ‘on the ground’ proved that the local population was being listened to, confirming that they had an important role to play in NRM planning and actions. From the interview data, organisations are successful in achieving ‘on-the-ground’ action when:

- there is less talk and more action
- less time is spent in the office
- land holders have access to an organisation’s staff
- staff constantly communicate with people and make an effort to visit properties and talk to people face to face
- local people are also skilled in working with organisations (for example, they have skills in using the internet or email)
- the local community ‘drives’ projects rather than just ‘participates’
- organisations are in touch with ‘people on the ground’ and their needs.

The following interview excerpt demonstrates the frustration that many people reported when seeking resolution for NRM problems:

Facilitator: Looking at focusing on success factors for these interface organisations, can you recount a personal success story of an experience or program that’s been organised through any interface organisations that you are or have previously been involved in?

Interviewee: That’s an awful question, because one of the things you will find is that it’s very, very difficult to get on-ground action … We could spend the next 10 years trying to understand the feral camel problem while the numbers are going through the roof when we do this. It’s a very research-driven agenda to do more research. But at the end of the day, you want to go out and knock the … things off before they do too much damage. Why can’t we knock them off? Because of the national strategy; it’s written by researchers who advocate that your priority activities – and they’re sitting on them forever – is research, monitoring, evaluation, protocols, plans, strategies. So you’re doing all this … work, paying people millions of dollars, while the problem is spreading.

In a somewhat animated response, an interviewee expressed his frustration that there was too much talk and not enough action:

I sat on [name of organisation] meetings for about five years when I heard people talk about rubber plants on the Stuart Highway. I used to think, why don’t you chop [them] down? I don’t want to go to another meeting and hear about this rubber plague that they keep harping on the Stuart Highway. It just drives me crazy. I could give you many examples like that. Talk, talk, talk, talk, talk, talk, talk, talk, and no action.

Solutions:

- Examine the balance between being able to provide more on-the-ground actions with the imperative to ensure that good processes of communication are implemented.
- Propose simple, outcome-focused responses where available.

5.2.9 Regional NRM governance structures

A number of comments were heard about the role of NRM Regional Bodies, and their role as translators between the community and the government. Some saw their role as problematic for a number of reasons, including:

- Governments have passed responsibility to regional bodies (as interface organisations) but not necessarily the power to set their own agendas
• Regional bodies appear to be another layer of bureaucracy with their own reams of paper work and numerous meetings
• Community members often relate to these organisations as ‘de facto governments’, as they are government funded and appear to do the work of government.

Despite a perception that NRM bodies operated as another tier of government, a number of people interviewed felt that many interface organisations did not have ‘teeth’, that is, the statutory powers and autonomy to effect change that was aligned to local needs rather than government policy. For instance:

*If you had your own discretionary funds, you’d be able to go out and talk to people and when they raise issues you’d be able to actually respond a lot quicker and so the connection between the issue that someone has raised and the action would be a lot closer.*

Similarly, another person noted:

*Unfortunately, they come from an advisory capacity. Their group performs more as advisory and … [name of person] … keeps saying that they’re not performing and he keeps telling me the meetings are not performing, but they’re not empowered to perform. I have talked about this with some other board members, but they have got no money.*

One woman considered the success factors of interface organisations and offered:

*I think the committee has got to be pretty well together and be able to make decisions without dithering around for too long. You have to have good governance, execute all your projects and devolve the money in a very responsible manner so that you build up your reputation within the region or within the State. I think that’s the way to success.*

However, another person who was involved in a regional body spoke about her experiences of the public perception of regional bodies:

*Just about the NRM board in general. I think the feeling is: what have they done for us so far? They think nothing. They probably don’t see a lot of the stuff that goes on in the background, but I think we’re getting viewed as just a government organisation rather than a government interface organisation. I actually think that’s sort of what we’re being told too.*

Solutions:

• Promote balance between good governance and action.
• Reputations are based on cohesive decision making and good governance.
6. Collating the lessons

Four generic factors for achieving successful engagement were present throughout the research, from the most general literature reviewed through to the LEB-specific interviews. These factors characterise successful engagement in a wide variety of contexts:

- developing trust
- adequate resourcing
- effective communication
- being inclusive.

To these we can add some factors that emerge from the review of community-engagement literature, which has shown the importance of:

- being strategic
- promoting community ownership
- defining the appropriate scale for interaction.

In addition to these, we can incorporate some important success factors from a government perspective:

- being transparent
- being determined to achieve NRM initiatives
- adapting as required to reach outcomes
- aligning on-ground works with government priorities.

Finally, success factors from a community perspective focus on:

- being independent
- respecting the landscape
- getting on with the job
- avoiding burnout.

It is clear that environmental management organisations in the LEB need to balance a range of social and economic tensions relating to these different perspectives in order to achieve effective NRM. In principle they need to:

- be the voice of the community while being aligned with government priorities
- ensure that community deliberation leads to on-ground actions
- be independent while maintaining effective partnerships
- follow an agreed-upon sustainability strategy, yet be adaptive.

These factors represent a mix of desert specific and generic factors that apply in a wide range of contexts. Considering the notion of desert drivers (Stafford Smith 2008, and see below), it would seem that even general factors play out differently in remote areas, due to the intensity of challenges where scale and low population density has the potential to exacerbate difficulties in effective NRM engagement. As such, NRM governance in this area requires innovative and creative responses.
6.1 Specific issues in the remote desert areas of Australia

The existing literature on remote desert areas in Australia has argued that they share a number of key drivers (Stafford Smith 2008) that together distinguish them from more settled and mesic regions. The key drivers have been identified as:

1. climate variability at various scales in space and time (climate variability)
2. widespread low and patchy primary productivity (scarce resources)
3. sparse, mobile and patchy human population (sparse population)
4. distant markets and decision making (distant voice)
5. perceived unpredictability in markets, labour and policy (social variability)
6. limited research knowledge and persistent traditional and local knowledge (local knowledge)
7. particular types of people, culture and institutions (cultural differences).

The sections below systematise the impacts and responses to the key engagement principles emerging from this study against these key drivers.

6.1.1 Climatic variability

Climatic variability is of such over-riding biophysical importance to NRM in the LEB that interface organisations have to be strongly aware of its context for their activities, as shown in the consultations for this project.

- Be very aware of the effects of drought (and floods) on engagement processes: drought can increase engagement fatigue.
- The longevity of projects and detecting their success is also often dependent on climatic cycles.

6.1.2 Scarce resources

The limited productivity of most lands in the LEB means that options open in other regions may not be appropriate here; it may even greatly limit the ability of people to find time to participate in engagement activities, so that realistic funding is needed to support this. On the other hand, it highlights the importance for organisations or sectors with scarce resources to build partnerships with other organisations and sectors that are better (or more reliably) resourced, such as mining and local government and, in some cases, tourism.

- Be creative about partnerships with less-involved (possibly better-resourced) stakeholders to increase critical mass.
- Use the small community size to get strong agreements quickly.
- Allow for lots of travel in budgets and staff expectations.
- Have local on-ground facilitators.

6.1.3 Sparse population

As the over-riding social driver, the effects of small population size also reach into every aspect of interface organisation activities, both positively and negatively. While there are significant constraints in terms of numbers of skilled people, with implications for burnout, and long distances to travel for engagement between dispersed population centres, there is also the potential to reach agreement on goals relatively quickly. Small size emphasises the need for, and possible benefits from, partnerships among stakeholders. The sparse and patchy distribution of people means that travel and engagement costs are high, which needs to be allowed for equitably in budgets; alternative, innovative engagement options are also important.

- Be creative about partnerships with less-involved (possibly better-resourced) stakeholders to increase critical mass.
- Use the small community size to get strong agreements quickly.
- Allow for lots of travel in budgets and staff expectations.
- Have local on-ground facilitators.
6.1.4 Distant voice
Perhaps the most important consequence of a sparse population, isolation imposes a great need to make and sustain the case for remote regions to distant interests. This demands a particularly high degree of political awareness and networking. The constraints on livelihood strategies in remote regions may also mean that agreed community goals are qualitatively different from ‘mainstream’ expectations, so clear, persistent and enthusiastic articulation of these is vital. A consequence of past effects of distant voice is that remote communities tend to be mistrustful of distant experts and government decisions; however, the small community size does allow engagement more easily than might be imagined, excepting the cost of travel again. Hence, interface organisations need to tread a fine line between connecting with government and being seen to maintain independence. Agencies need to respect this when done well. The inherent challenge for all this is that interface organisations need to be accountable and transparent to both their community and government constituencies.

- Maintain some independence from government but respect the balance on both sides.
- Be prepared to think through and articulate why the region may need different approaches to elsewhere.
- Be aware of likely community distrust, but engage locally to overcome this.

6.1.5 Social variability
Unpredictability in staff turnover is a dominating concern for remote areas, with issues such as longer contracts, adequate tenure and support for long-term staff being paramount. Coupled with this is the need for staff in small organisations and communities to play multiple roles, which also need to be valued and supported with training. Variability caused by markets, policies, staff and climate all drive the need for staff to be tremendously flexible and adaptable.

- Be imaginative and flexible in creating longer-term contracts and attractiveness in regional NRM jobs.
- Value and train people for multiple roles.

6.1.6 Local knowledge
Detailed research will always be modest, and the vast areas demand sensitivity to local conditions in ways that are less important in small coastal catchments. Hence, it is strategic to emphasise local knowledge (including Aboriginal knowledge) in interface partnerships. However, these need to create the best possible alliances with agency and scientific knowledge where possible. Local community ownership of NRM planning and implementation activities is needed so that there is access to locally relevant knowledge. Horizontal learning among NRM groups (often themselves geographically far apart) is also important to speed up the rate of improvement; governments have a key role in facilitating this. Measuring appropriate factors – for example outcomes, staff turnover, collaboration, awareness, representativeness – can provide vitally important feedback for learning.

- Ensure representative engagement with the community to gain true community ownership that permits access to locally relevant knowledge.

6.1.7 Cultural differences
Government needs to recognise that all these factors mean that successful local organisations may operate rather differently to those in more settled areas, and allow specific flexibility in how organisations operate, that is, define the necessary components for accountability and transparency but then allow the community to self-organise. Conversely, the community must recognise and respect the fact that government staff have institutional pressures that do not match local priorities, and work with (and around) these rather than just discussing them.
7. Conclusion

Successful NRM outcomes require successful engagement processes. Understanding the ‘rules of engagement’, both written and unwritten, is of crucial importance for NRM regional bodies and all organisations at the interface between formal governance processes and community action. It is important to emphasise that engagement is as much about interfacing with governments as it is about supporting on-ground community action. The principles and tools for successful NRM engagement presented in this chapter have been identified, distilled and integrated from a combination of literature review and interviews with both government liaison officers (Australian and State Government) and community residents of the LEB.

Some of the tools and principles presented in this chapter are specific: concerned with respecting desert time frames and being opportunistic when resources and circumstances arise infrequently. Other success factors presented here are generic: such as building community ownership, communicating well and maintaining transparency. However, even this plays out differently in remote areas, where communication is complicated by distance and sparse populations. Maintaining credible staff and avoiding community burnout are major issues for NRM in general, and this research demonstrated acute reliance on particular individuals throughout the LEB who take on multiple roles. There is merit in questioning whether better resourcing of such ‘community champions’ might alleviate burnout, or whether emotional fatigue stems from structural factors such as a small population rather than the lack of resourcing or recognition of their work.

From the perspectives of LEB community residents, processes of engagement should be sympathetic to the distances travelled and the time taken for people to attend workshops or committee meetings and the resources required to achieve this level of engagement. Given the challenges associated with the vast distances of the LEB, it is crucial to consider communication technologies when face-to-face communication is unviable. Use of the internet, teleconferencing and networked whiteboards can resolve some of the temporal and spatial dimensions of engagement faced by LEB interface organisations. Training to enable some local and non-government interests to use these new communication technologies may be needed. The findings from the community-based research show not only the community’s willingness to participate, but suggest some clear ‘rules of engagement’ for planners and policy makers. Of significance to many of the people interviewed was that engagement needed to occur at the local or property level, preferably face to face.

Considering the case studies that follow this stage of the research, two key topics stand out. The first is to build a better understanding of the mechanisms through which Aboriginal contributions to NRM are effectively included. This is particularly relevant given the challenges encountered in this stage of the project in representing the viewpoints of Aboriginal residents of the LEB. The second is an exploration of effective NRM engagement given the forecast demographic changes of the LEB and the potential for industry change relating particularly to the expansion of the energy and minerals sector in the LEB.

In considering the success factors presented in this research, it is clear that NRM engagement requires a multitude of seemingly contrasting characteristics: to be independent yet maintain effective partnerships; to be the voice of the community while being in alignment with government priorities; to be determined yet adaptive. This demonstrates that the very nature of interface organisations poses a challenge in terms of having multiple, and sometimes competing aims and priorities. However, at least it is clear that these challenges are recognised by community members and government officers alike, as was the importance of supporting successful engagement processes in remote regions.
8. References


5. Sustaining successful engagement: a case study of responding to demographic changes in the Lake Eyre Basin

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The work reported in this publication was supported by funding from the Australian Government. The views expressed herein do not necessarily represent the views of Desert Knowledge CRC or its Participants.

Citation

Acknowledgements
Funding for this study was provided by
- Natural Heritage Trust (NHT, http://www.nht.gov.au/)
- Commonwealth Scientific and Industrial Research Organisation Division of Sustainable Ecosystems (CSIRO CSE, http://www.cse.csiro.au/).

Thanks to all the residents of the Lake Eyre Basin and the government participants who took part in this research.
Contents

Summary .............................................................................................................................................. 175
1. Introduction ...................................................................................................................................... 177
  1.1 A focus on engagement ......................................................................................................... 177
  1.2 Snapshot of the Lake Eyre Basin ....................................................................................... 178
2. Methods .......................................................................................................................................... 179
  2.1 Stage 1: Present regional profile and population forecast of case study areas ................. 179
  2.2 Stage 2: Workshops on existing/future engagement processes ....................................... 180
  2.3 Stage 3: Consideration of monitoring processes ................................................................. 180
  2.4 Stage 4: Interviews with regional interface staff ................................................................. 180
3. Trajectories of change in SAAL and DCQ regions ....................................................................... 181
  3.1 Population ............................................................................................................................. 181
  3.2 Pastoralism ............................................................................................................................ 182
  3.3 Mining ................................................................................................................................... 183
  3.4 Tourism .................................................................................................................................. 183
4. Results and discussion .................................................................................................................... 184
  4.1 SAAL workshop findings ...................................................................................................... 184
  4.2 DCQ workshop findings ........................................................................................................ 187
  4.3 Feedback on success factors toolkit ....................................................................................... 189
  4.4 In-depth interviews ................................................................................................................ 190
  4.5 Comparison of workshop results .......................................................................................... 193
5. Conclusions .................................................................................................................................... 196
References ........................................................................................................................................... 198
Appendix 1: A sample of workshop materials .................................................................................. 200
Appendix 2: SAAL NRM Workshop notes ..................................................................................... 204
Appendix 3: DCQ NRM Workshop Notes ..................................................................................... 208
Appendix 4: Interview protocol ........................................................................................................ 215
Appendix 5: Tools for Successful NRM Engagement in LEB ......................................................... 216
Figures

Figure 1: Lake Eyre Basin showing state-based NRM authorities .......................................................... 178
Figure 2: Estimated resident population (ERP) and percentage ERP change for SAAL NRM Statistical Local Areas (year 2006) ................................................................................................................. 182
Figure 3: ERP and percentage ERP change for DCQ excluding Local Government Areas with population centres outside the LEB (Mt Isa, Cloncurry, Flinders, Jericho and Quilpie) ......................................................... 182

Tables

Table 1: Selected mining operations in or neighbouring the Qld and SA areas of the LEB .................. 183

Boxes

Box 1: Example of successful engagement: Taking advantage of opportunities .................................. 191
Box 2: Example of successful engagement – building relationships ................................................ 193

Shortened forms

ABARE  Australian Bureau of Agricultural and Resource Economics
DKCRC  Desert Knowledge Cooperative Research Centre
DCQ    Desert Channels Queensland
ERP    Estimated Resident Population
ILUA   Indigenous Land Use Agreement
LEB    Lake Eyre Basin
NHT    Natural Heritage Trust
NRM    Natural Resource Management
SAAL   South Australian Arid Lands NRM Board
Summary

This case study is one of two case studies conducted as part of the ‘People, communities and economies of the Lake Eyre Basin’ project funded by the Desert Knowledge Cooperative Research Centre (DKCRC) and the Australian Government. The project addresses the role and functions of Natural Resource Management (NRM) organisations operating in the Lake Eyre Basin (LEB) that act as the ‘interface’ between governments and communities involved in NRM. The purpose of the project is to identify the factors that underpin successful NRM organisations in the LEB and how the functioning of NRM organisations can be monitored in the future. Following discussions with the research team, the Project Steering Committee and the CEOs of Desert Channels Queensland (DCQ) and the South Australian Arid Lands NRM (SAAL NRM) Board, this case study focused on helping interface organisations understand and adapt to changes in the demographic and economic profiles of the LEB.

The LEB covers approximately 1.2 million square kilometres across Queensland (Qld), South Australia (SA), the Northern Territory (NT) and New South Wales (NSW). The LEB is sparsely populated with 60 000 people. It is characterised by arid and semi-arid landscapes, with groundwater being the main water source for residents and industry.

With assistance and guidance from the project steering committee, the case study focused on two key NRM institutions in the LEB, namely DCQ and the SAAL NRM Board. The methods involved four stages. The first stage involved preparing and synthesising regional forecast materials for the industry and demographic characteristics of the two NRM regions explored in the study. The purpose of this stage was to provide prompts for discussion in the second stage of the methods. The second stage involved discussing these industry and demographic changes with the participating NRM regional organisations through workshops with staff and managers of these organisations. Following the main focus of the workshop, a third stage involved considering how to monitor the effectiveness of NRM engagement in remote regions. Finally, a series of follow-up in-depth interviews were conducted with staff from one of the NRM organisations to consider some of the workshop findings in greater detail and to consider detailed examples of how effective engagement occurs.

The research found differences in how forecast changes may play out depending on the sector and the region. In SA, it was generally perceived that most future NRM issues would be largely the same as those today. For example, land holders would still be focused on day-to-day survival but with the main difference being one of recognition: that NRM would be given a higher priority. By contrast in Qld, it was considered that climate change may place extra pressure on the region, and that global demographic trends may trigger increased population which would lead to new issues for this region. In both regions, it was considered that the increase of mining and petroleum activities would bring a considerable increase in population to the region, but one with relatively little connection to the land and limited long-term commitment to the LEB. In both Qld and SA, the factors influencing successful engagement into the future were seen to be largely the same as those that operate in the present. It was thought that future generations would be more educated about NRM issues, providing a base on which to build more elaborate knowledge of effective NRM. In addition, the importance of expanding partnerships and building relationships with private industry, research organisations and private conservation companies was emphasised.

The forecast sketches presented and discussed in the workshops show that the expansion of the mining and energy sectors will be a crucial issue for NRM in the LEB into the future. Yet, from an engagement point of view, it was evident that the NRM interface organisations are not currently engaged with the mining sector. Funded by Australian and State Governments, the NRM organisations are affected by a broader governance context which tends to distinguish between mining and energy on the one hand and...
the otherwise broadly defined notion of NRM on the other: a family of issues relating to agriculture, biodiversity, weeds, and water resources, and the Ministers and Departments responsible for these domains.

The in-depth interviews provided additional insight into the workshop findings and emphasised the issue of the long timeframes required for effective NRM engagement to occur. The shorter-term nature of funding support for NRM organisations is largely incompatible with the timeframes required for longer-term NRM processes. In addition, the in-depth interviews provided some detailed examples of engagement initiatives, some of which have been summarised for the purposes of illustration of effective engagement strategies.

Importantly, both organisations that took part in the case study provided valuable feedback on findings from the previous stage of the research project. This feedback was used to refine the ‘Tools for Successful NRM’ report and toolkit summary (Measham et al. 2009a; see also Appendix 5) and also reinforced the validity and relevance of findings.

There are four conclusions from this case study. First, there is widespread perception that the nature of the engagement challenges for NRM organisations in the LEB over the next 20 years or so are likely to be very similar to those of today. However, it was considered that the intensity of those challenges will generally be much greater than today. Second, effective management of remote regions requires respect for desert timelines, which are currently under-acknowledged by policy makers located exterior to the LEB. Third, the regional NRM groups in the LEB currently have very limited engagement with the mining and energy sectors, which reflects a dichotomy between NRM on the one hand, and mining and energy industries on the other, which needs addressing through public policy and discussion. Finally, the case study reinforces the importance of taking advantage of infrequent opportunities which characterise remote regions. This final conclusion is particularly worthy of consideration in relation to the new Caring for our Country policy environment, which lists remote regions as a priority area, thereby providing a potential opportunity for remote regional organisations. The question for regional NRM groups is how best to take advantage of this opportunity.
1. Introduction

This case study is one of two case studies conducted as part of the ‘People, communities and economies of the Lake Eyre Basin’ project funded by Desert Knowledge CRC (DKCRC) and the Australian Government. The project is concerned with the role and functions of natural resources management (NRM) organisations operating in the Lake Eyre Basin (LEB) that act as the ‘interface’ between governments and communities involved in NRM. The purpose of the project is to identify the factors that underpin successful NRM organisations in the LEB and how the engagement of NRM organisations with their stakeholders can be monitored in the future.

This report is one chapter in a research report, all components of which are available from the DKCRC website. The project was conducted in four stages, leading to an integrated set of findings and outputs.

The first phase of the project involved developing a broad profile of the LEB, which brings together existing knowledge about the region in a series of maps (Herr et al. 2009). An analysis of the institutional context of NRM in the LEB was also conducted and provides a useful summary of the operating environment in which the government–community interface occurs (Larson 2009).

This was followed by a series of interviews with community residents and government liaison officers on the key characteristics of successful engagement processes for an arid region such as the LEB. This stage of the work led to a set of ‘Tools for successful NRM Engagement in the Lake Eyre Basin’ (Measham et al. 2009a).

Two case studies were then conducted to test and refine previous findings and as ground work for the final stage of the project. These case studies include this report, focusing on the responses to demographic and industry changes over the medium term; and the second case study report focusing specifically on Aboriginal NRM facilitators and how to support people in these key roles (Robinson et al. 2009).

The final stage of the research is concerned with the development of a monitoring framework for engagement processes (Larson & Williams 2008).

1.1 A focus on engagement

By their very nature, regional NRM organisations are at the interface between, on the one hand, the resident communities of their respective regions, and on the other, the state and federal policy arena that gives them their mandate to act. Given the importance of this interface, this project focuses on the process of engagement that characterises the success (or otherwise) of regional NRM. Careful attention to these processes is particularly important in remote dryland regions where resources tend to be scarce and variable, and inherent challenges exist in conducting NRM due to a suite of key factors, including the sparseness of the populations and the distance to the decision-making arenas of the Australian and State Governments (Reynolds et al. 2007, Stafford Smith 2008). The topic of civic, business and government engagement has been widely embraced from a range of different perspectives and disciplinary areas (for example see Leach et al. 2005, Boxelaar et al. 2006), although perhaps with more emphasis on ‘engaging communities’ rather than looking critically at how all parties can effectively collaborate. The importance of fostering and harnessing community engagement has been identified as crucial to building a prosperous future for rural and remote regions in Australia and is a key dimension of regional NRM in general (Fenton 2004, McDonald et al. 2005, Rogers 2005, Smith et al. 2005).

The case study presented in this report was developed following discussions with the research team, the Project Steering Committee and the CEOs of Desert Channels Queensland (DCQ) and the South Australian Arid Lands (SAAL) NRM Board, who all agreed on the relevance of helping interface organisations understand and adapt to changes in the demographic and economic profiles of the LEB.
The focus of this case study was on:

- reviewing existing mechanisms to address the issue of effective NRM engagement processes
- identifying how changing economies/communities affect existing NRM engagement processes
- considering alternative options for maintaining and enhancing capacity for engagement across sectors as economies and communities change, by building on the success factors identified earlier in the project
- examining how monitoring may help NRM organisations identify and adjust to critical changes in regional economies/communities.

It is important to emphasise that this case study is part of the wider program of research that constitutes the ‘People, communities and economies of the Lake Eyre Basin’ project. A crucial dimension to this is to confirm and disseminate findings from earlier stages of the project, which provides the rationale for seeking feedback on the ‘tools of successful engagement’ developed in an earlier component of the study (Measham et al. 2009a, see Appendix 5). Equally important has been the emphasis on monitoring and evaluation, which was designed to provide input into a subsequent component of the research, concerned with developing a monitoring system for engagement processes in remote regions (Larson & Williams 2009).

1.2 Snapshot of the Lake Eyre Basin

A detailed profile of the LEB is presented elsewhere (Herr et al. 2009, see also http://lebmf.gov.au/basin/index.html). For the purpose of this report we present the following summary of key characteristics relevant to this project.

The LEB covers approximately 1.2 million square kilometres (one sixth of the Australian landmass) across Queensland (Qld), South Australia (SA), the Northern Territory (NT) and New South Wales (NSW) (Figure 1). It is characterised by arid and semi-arid landscapes with ground water the main water source for residents and industry.

Home to around 60,000 people and with a population density that rarely reaches over one person per square kilometre, the LEB is sparsely populated. Most towns occur at its fringe, with some exceptions around the Maltilda Highway in north-eastern Qld. While the majority of the population is non-Aboriginal, SA and the NT have the highest proportion of Aboriginal residents, ranging from 60% to 90% in some areas.
The main land use in the LEB is grazing (82%), followed by conservation (11%). Other economically important industries include mining and tourism.

1.2.1 Institutional arrangements for NRM

A detailed review of institutional arrangements for NRM is presented by Larson (2009). A summary of relevant background information is provided below.

Current NRM institutions in Australia are based on the Natural Heritage Trust of Australia Act 1997 and the National Action Plan for Salinity and Water Quality 2000. The LEB region NRM institutions are organised into four state-based bodies, the boundaries of which are also depicted in Figure 1:

- South Australian Arid Lands Natural Resources Management (SAAL NRM) Board
- Western Catchment Management Authority in NSW
- Desert Channels Qld Inc. in Queensland (DCQ)
- Northern Territory Natural Resources Management Board.

Larson (2009) has identified the following threads as being common to all four legislative regions of the LEB, compared with Australia in general:

- High percentage of land under leasehold arrangements
- High percentage of land under native title claims
- High percentage of land in Aboriginal ownership
- High percentage of Aboriginal population
- Sparse population resulting in quantitatively low human capital
- Large physical areas under administration by a single NRM board.

A separate review of regional NRM bodies across Australia highlighted the varied capacity of NRM bodies generally (Robins & Dovers 2007). This review classed SAAL and DCQ as sitting in the ninth and tenth lowest (out of ten) classes of capacity respectively, due to a range of factors including remoteness and population density (Robins & Dovers 2007).

2. Methods

With assistance and guidance from the project steering committee, the case study focused on two key NRM institutions in the LEB, namely DCQ and the SAAL NRM Board. The methods involved four stages. These are discussed in detail below.

2.1 Stage 1: Present regional profile and population forecast of case study areas

In this stage of the case studies, the project team prepared background profiles of the changing regional populations and economies forecast over the next 20 years. The profile for each case study was based on the LEB overall profile (Herr et al. 2009). The purpose of the regional profiles was to guide discussion at the workshops. Profiles were developed from a literature review of available secondary data and were regionally specific. Profiles relating to agriculture, mining, tourism and population change were prepared for each region and, as much as possible, included information specific to each region.
2.2 Stage 2: Workshops on existing/future engagement processes

Based on the forecast profiles, workshops and interviews were conducted with members of regional NRM interface organisations and representatives from relevant state government agencies. The SAAL and DCQ workshops were conducted in November 2007 and included 11 and 6 participants respectively. The focus of the workshops was on:

- understanding and considering the forecast scenarios
- reviewing existing options for maintaining and enhancing engagement processes
- considering strategies to address future scenarios, including links across sectors (agriculture, mining, tourism, etc)
- developing principles that can be considered socially sustainable in terms of successful engagement processes
- discussion of potential indicators that could be monitored to inform subsequent phases of the research project on how to monitor adaptive responses to changing conditions.

Although the forecast scenarios presented information specific to SAAL and DCQ, the questions posed in the workshops were the same for each region, allowing for comparison between the workshops.

In terms of the second dot point on reviewing existing options for maintaining and enhancing engagement processes, one of the specified requirements of this research was to seek feedback on the success factors for NRM engagement developed in an earlier component of the ‘People, communities and economies of the Lake Eyre Basin’ project (Measham et al. 2009a). To extend this emphasis, the discussion section of this case study report relates the findings to the set of success factors (Appendix 5), and reports how participants viewed the relevance of success factors in the short to medium term.

2.3 Stage 3: Consideration of monitoring processes

The interviews and workshops for the case studies also included discussion on what it is possible and desirable to monitor that may make a difference to NRM in the LEB. Of central importance was to consider what is most useful and feasible in terms of what is most likely to be collected and acted upon beyond the duration of the research project. The purpose of this step was to provide context for the monitoring section of the final synthesis report (Measham et al. 2009b).

2.4 Stage 4: Interviews with regional interface staff

In order to relate the workshop findings and broader project objectives to the practical realities of on-ground engagement activities, a week-long visit was conducted in May 2008 with one of the organisations participating in the case study. Ideally, this would have been conducted over a longer timeframe in order to gain insight into a wider range of engagement processes; however, due to time constraints and demands placed on research participants one week was the maximum viable time.

During this timeframe, one of the research team members was able to discuss the engagement challenges in detail through a series of in-depth interviews conducted in situ. All NRM engagement staff present during this week were interviewed, providing a total of seven interviews (out of a total staff of 18). The remainder of staff were absent due to leave or work related travel. Of the seven interviews, six were carried out in the Port Augusta office of the NRM Board and one was conducted by telephone due to logistical constraints.
Of the seven interviewees, two had started working at SAAL within the last five months. Staff interviewed included project staff (covering geographically different areas of the region) and those in management positions. The interview protocol is provided in Appendix 4.

3. Trajectories of change in SAAL and DCQ regions

While a detailed quantitative analysis of demographic and industry change is beyond the scope of this project, sketches were prepared from available secondary data. These have been used to inform the case study, which focuses on considering how future trajectories may affect regional NRM groups in the LEB.

It is important to note that these are intended to facilitate discussion on how the future might look, and the following qualifications apply:

- Social and biophysical data referring to the LEB are distorted for a number of reasons. For example, the administrative boundaries of the collection districts (used to gather data) are inconsistent with the LEB biophysical boundary. In addition, available data often includes high numbers of visitors in population counts, distorting social and economic information about the resident population. For a detailed discussion of this, and other distortion issues, see Herr (2007).
- Sourcing meaningful population trends for the LEB is problematic, due to the distorted nature of data as discussed above. Trends were derived from population statistics from the Queensland Office of Economic and Statistical Research and Planning SA.
- Forecasting tourism trends is a complex process, with the industry influenced by several external factors (fuel prices, terrorist events, etc). Data relating to tourism is based on the definition of the ‘outback’ tourism region by both Qld and SA. In both states, these regions cover significantly larger areas than the LEB.

3.1 Population

Based on current trends, an overall decrease in the population in the LEB region is anticipated. The expansion of the mining industry will probably counteract some of this predicted population decrease; however, it will (disproportionately) increase the number of highly mobile, affluent, young males.

Taylor et al. (2006) have predicted an increase in the Aboriginal population with concurrent ageing of the population across arid Australia. Current trends suggest that while this may be the case in the South Australian areas of the LEB, the Qld areas may experience a slight overall decrease in the Aboriginal proportion of the population.

Estimated resident populations (ERP) and resident population changes for SAAL NRM and DCQ are presented in Figures 2 and 3, respectively.

---

3.2 Pastoralism

Continuing drought and reduced beef export prices have had a detrimental impact on pastoralism across Australia (ABARE 2007). Best estimate climate change predictions indicate that adverse climate conditions are likely to continue, with areas of the LEB becoming hotter and drier (CSIRO & ABM...
While there may be potential for the agricultural industry to benefit from Australian emission trading schemes or alternative technology (Hatfield Dodds et al. 2007), it is as yet unclear if these opportunities will extend to areas of the LEB.

3.3 Mining

While the mining sector is particularly prone to financial fluctuation, the long-term increase in demand and commodity prices suggests that the sector will continue to expand in the LEB and outback Australia in general. The sector is characterised by increasing investment in exploration and production, increased demand for resources (including low carbon emitters natural gas and uranium), and the presence of significant deposits of base metals and natural gas. Table 1 presents a selection of mining operations of significance to the case study.

Table 1: Selected mining operations in or neighbouring the Qld and SA areas of the LEB

<table>
<thead>
<tr>
<th>Mine</th>
<th>Proposed or approved development as at November 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moomba/Cooper and Eromanga Basins – SA and QLD Santos (gas &amp; oil)</td>
<td>The Cooper Basin has been identified as a key strategic driver for Santos, with expanded production and exploration targets. Cooper Oil Exploitation Project across SA and Qld which expands oil exploration/production. In total it is estimated 1000 extra wells would be drilled. A proposal for large-scale (up to 1 billion tonnes) carbon storage in Moomba was put to the SA government in June.</td>
</tr>
<tr>
<td>Mt Isa – QLD Xstrata (zinc/lead)</td>
<td>Upgrade of zinc-lead concentrator (cost $US120 million). Project should be completed in first half 2008, increasing capacity of the site by 60% to 8 million tonnes of lead-zinc ore per year.</td>
</tr>
<tr>
<td>Olympic Dam – SA BHP Billiton (uranium, copper gold &amp; silver)</td>
<td>BHP is conducting environmental impact assessments in order to seek Australian and State government approval for the expansion of the Olympic Dam mine. Assuming approval from the Government and BHP board is given, the expansion would take around 7 years.</td>
</tr>
</tbody>
</table>

Expansion of the mining industry has the capacity to significantly influence NRM in the region: first, through reinforcing and increasing the presence of mining companies as a significant stakeholder in the region; second, by changing population characteristics as discussed; and third, by increasing pressure on water resources and power infrastructure.

3.4 Tourism

Based on recent trends in the Australian tourism industry, we would expect to see a decrease in visitor numbers across the case study regions. However, tourism is highly influenced by specific events (Tourism Forecast Committee 2007). For example, a flooding event in the LEB can trigger an influx of visitors for the duration of the event due to the impact on wildlife populations. Workshop participants suggested improved infrastructure has increased the accessibility of the region, which facilitates increased visitors, leading to increased interest in farm stays.
4. Results and discussion

This section presents an overview of results from two workshops conducted with staff from the SAAL NRM Board and DCQ. The formal records of the workshops are presented in Appendices 2 and 3.

4.1 SAAL workshop findings

4.1.1 Current priority issues for NRM

Current priority issues and challenges discussed in the workshop included:

- The impact of the expanding mining industry
- Drought and the continuing pressure it places on land holders
- Development of an understanding in the community of what ‘integrated NRM’ means for them
- Effective communication of projects and priorities
- The complexity of engaging with Aboriginal communities
- Recruiting and retaining staff over the long term
- The demands of working within programs and time frames that are perceived as constantly changing and are not appropriate to the needs and context of the region (i.e. are more relevant to other ecological areas).

The combined impact of the drought, mining industry, the volume of information sent to land holders and a perception of constant change in government representatives and programs means many land holders do not see NRM as a high priority. Moreover, they feel overloaded and are switching off to messages regarding NRM and available programs.

4.1.2 Future issues for NRM

It was felt that NRM issues would be largely the same in the future: land holders would still be focused on day-to-day survival, but with the significant difference that land holders would recognise NRM issues as a high priority. While the same issues (e.g. drought and staffing problems) would still be present, the predominance of each would shift in relation to changes in industry and land use.

A key issue discussed was the changing population due to the expanding mining industry. SAAL highlighted the challenges of engaging with an increasing number of mine employees who are unlikely to have any connection to their land, or long-term commitment to the area (and therefore little incentive to participate in NRM projects or activities).

Communication with land holders was highlighted as another key area of change. On one hand, there was recognition that changes in technology (e.g. increasing access to and use of internet and email services) have changed, and are likely to continue to change the possible mechanisms for communication with land holders. On the other hand, it was recognised there could be improvements to the current approach to communicating with land holders by developing a more targeted, focused and innovative approach.

4.1.3 Response to trends

Discussion of future trends highlighted participants’ frustration at the lack of accurate, relevant data available for the SAAL region. This led to scepticism of both the forecasts available from government information sources and those prepared as part of this project.
The issue of labour shortages was raised repeatedly throughout the discussion as potentially limiting the growth in the mining industry. The same issue is expected to affect land holder participation in NRM projects and initiatives developed by regional bodies throughout outback Australia. Increased engagement with Aboriginal communities, many of which have high unemployment rates, particularly since the dismantling of CDEP\(^3\) was seen as one opportunity to overcome these challenges.

Participants viewed the tourism industry as likely to increase, with improved infrastructure increasing accessibility and the influx of new people into the area (due to mining). This was supported by the increasing trend for pastoralists to diversify income sources through tourism on properties and the increasing presence of conservation companies as land holders in the region.

4.1.4 Current factors for successful engagement

Workshop participants discussed successful engagement in the SAAL region as requiring a different approach to other regions due to the small, sparse population.

Being seen as part of the community and developing strong relationships with the community was considered to be very important. This involved taking a personal approach: linking SAAL with community events and being seen as part of the community rather than as simply government representatives. Participants felt it was essential to have continuity of staff over the long term to allow for these relationships to build.

Perhaps one of the most challenging aspects raised of successful engagement was balancing the nationally defined outcomes and administrative requirements of the Natural Heritage Trust (NHT) with regionally specific community priorities and emerging issues. Participants felt the national objectives of the NHT did not always reflect or allow for the integration of regional priorities into the NRM planning process. As such, there was a concern that SAAL would be seen as irrelevant by the community if it was unsuccessful in balancing national outcomes (in order to secure funding) with regional priorities (to address issues that were meaningful to land holders).

Designing programs with clear, transparent processes and reducing the administrative burden on land holders involved was considered to be important. A significant part of this was the ability to provide support at the local level in all stages of involvement with NRM programs (application, implementation, monitoring and reporting). The absence of any of these aspects was observed to limit the willingness of people to participate.

The importance of partnerships with agencies was recognised as being important, but was viewed as entrenched or conducted unconsciously by SAAL. A clear advantage of the SAAL region was direct access to decision makers (in contrast to densely populated regions, where a number of organisations would be competing for access) which allowed for more direct and effective engagement with government.

There was a clear indication from the workshop that greater flexibility was needed to maximise meaningful engagement and limit community disenfranchisement with NRM processes. Participants felt that the government-defined outcomes for the program and its time frames (for consultation, planning and project implementation) were often inappropriate for the needs of the region and therefore limited the success of engagement. It was suggested that Australian and State Governments need to place a greater degree of trust in regions to deliver programs. Allowing NRM Boards to commit to addressing outcomes without defining outputs in the funding process would allow for appropriate flexibility to deal with changing circumstances and emerging priorities, yet would not compromise (and would perhaps

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3 The Community Development and Employment Project (CDEP) was a government program designed to provide increased Aboriginal participation in the workforce. Established in 1977 as an alternative to welfare payments in remote Aboriginal communities, the program was criticised due to the low number of participants that made the transition to “real” jobs. Progressive replacement of CDEP with mainstream employment programs and Secured Training and Employment Projects commenced in 2007 and was due for completion in mid-2008.
even increase) environmental outcomes. The possibility of discretionary funding under NHT3 was also discussed as one way of supporting engagement and providing NRM agencies with the ability to respond to community needs as they emerge.

4.1.5 Future factors of successful engagement
Discussion of future factors for successful engagement related strongly to current success factors and how these could be built upon. There was clear recognition in the workshop that future success was linked to the continuing development of current strategies and the maturation of the SAAL NRM Board.

Generally, it was felt that SAAL could improve how they engaged the communities in the region by developing a more tailored approach through understanding and clearly identifying who they were engaging with, why and the best mechanisms or approaches to achieve this. The continuing development of the district NRM groups was seen as a key part of this process, providing a forum for community concerns to be voiced to the Board.

Engaging with and understanding the priorities of Aboriginal communities was identified as an important but challenging area for improvement. It was felt that in the future, district NRM groups would have clearer entry points to engage with Aboriginal communities, particularly as long processes relating to land rights and defining rightful spokespersons for particular areas were concluding.

4.1.6 Monitoring engagement processes
Participants felt the most valuable type of monitoring would enable self-evaluation and improvement rather than focusing on ‘tick-a-box’ compliance or justification of funding. Taking advantage of current processes, rather than creating entirely new frameworks, was preferred.

Participants felt it was possible for on-ground staff to gain an accurate sense of the effectiveness of engagement strategies through their close interaction with the community. This was thought to give a more accurate picture than a formal monitoring system, which may struggle to give a meaningful picture of qualitative data – particularly as it was felt that SAAL were still in the process of establishing themselves in the region. It was also recognised that, as the organisation became more established and things became more complex, the ability to monitor engagement through more formal processes may be of more value. Whatever form monitoring takes, it was felt that personal contact in data collection was essential.

SAAL have previously participated in a community capacity assessment (Raymond et al. 2006). The assessment used workshops with a range of stakeholders, including NRM volunteers, representatives from state government agencies and primary producers to measure and build the capacity of each of these groups in NRM. Participants felt this was a useful and valuable process that provided an indication of how well SAAL had engaged with various stakeholders.

Participants’ concerns over any monitoring framework included:

- the costs and staff time involved
- difficulties in placing quantitative measures on qualitative data
- difficulties in attributing changes to the environment to actions by the SAAL exclusive of outside influences
- limits to resources and a preference that any extra funding go to NRM projects rather than monitoring
- scepticism regarding how government agencies would use and interpret monitoring data.

4 The Natural Heritage Trust phase 2 (NHT2) finished in June 2008. At the time of conducting the workshops, the structure and processes under the next phase of the Trust were still undecided. With the election of the Rudd Labor Government in October 2007, the NHT has now been formally replaced by the Caring for our Country Program.

5 District NRM groups have recently been established by the SAAL NRM Board to represent and communicate community interests and perspectives to the Board.

6 As part of assessing capacity, the tool asks participants to comment on community engagement. For further information go to: http://nrm.sa.gov.au/nrmresearch/display.php?table=research_project&id=5929
4.2 DCQ workshop findings

4.2.1 Current priority issues for NRM
Discussion of current issues facing NRM covered a broad range of topics relating to environmental and strategic priorities. The main points covered included:

- vegetation management, including opportunities for carbon trading
- the impact of the leasehold land review and security of tenure for land holders
- consistency and coordination across government, including local government amalgamation, Australian and State Governments, NRM boards and private industry with regard to NRM policy, programs and implementation
- the lack of data on, and understanding of, the unique ecology of the LEB, and how this affects decisions surrounding resource use
- community engagement and education about the meaning and importance of natural resource management
- tourism, particularly as it can have a significant environmental impact but as yet sits outside the scope of the regional NRM boards.

4.2.2 Future issues for NRM
Discussion on future issues highlighted awareness within DCQ of the importance of considering the future issues in a lateral manner. For example, changing and emerging industries as a result of climate change and increasingly high standards for animal welfare (in transport, etc.) were discussed. In particular, the group drew attention to the following, which were likely to be issues in the future:

- Climate change may place extra pressure on the DCQ region
- Tourism may become a bigger market, but coordination between departments and industry is an issue, as is competition between regions
- Broader global demographic trends may push the region to open up in relation to national and global climate pressure. This could lead to changes in resource use and the sharing of wealth and resources
- The general (notably urban) population is less connected to the environment and less aware of the connection and impact of NRM
- Changes in energy use from shifting styles of industry, changes in agriculture, and changes to available services and infrastructure
- Potential for alternative sustainable energy sources in the LEB, and potential for the LEB to serve as a carbon sink, changes in energy production and delivery
- New technologies changing how NRM is carried out and how land holders use land (e.g. GPS, satellite, virtual fencing)
- Animal welfare and ethics concerns are likely to increase and direct attention to multiple areas of livestock management and transport
- Perceived push to more local production and sale
- Changing market demands for organic produce and characteristics of different markets
- Diversification of livestock farming, e.g. to kangaroo harvesting.

4.2.3 Response to trends
Lack of reliable data and the impact this has on the regional body’s ability to plan was also discussed by DCQ as part of future trends. In response to the projection information that was distributed by the workshop team, the group expanded the discussion on changes in the mining industry to emphasise that pressure from mining is likely to continue. Flow-on effects from mining expansion were also
discussed, such as significant pressure on housing availability and prices, employment prospects, increased commuting requirements and accident risk and the subsequent pressure placed on individuals and families. In particular, the group noted challenges in terms of skills shortages which affect other sectors (such as agriculture) and related increases in wage costs. Furthermore, it was noted that the mining sector tends to receive preferential treatment compared with other sectors in terms of resource allocation. While presenting many challenges, mining expansion also presented some key opportunities in terms of mining companies’ ability to fund or provide access to high quality data.

In some areas, DCQ anticipates increasing re-connection of Aboriginal communities and their land, providing an increased opportunity for DCQ to engage with these communities. A major challenge in terms of how DCQ engages with Aboriginal communities in the region is the sheer demand on these communities to engage with a range of education, heritage and other NRM processes. This demand, along with cultural protocols and requirements, influences how engagement can be conducted: in terms of timeframes, need for face-to-face discussion and ensuring culturally appropriate processes.

4.2.4 Current factors for successful engagement
Much of the discussion centred on the goal of engendering change in community attitudes, and the importance of supporting projects with strong community interest to create a space for further discussion on broader NRM issues. The devolved grants process was viewed as one of the most successful mechanisms for providing this ‘foot in the door’.

Engaging with Aboriginal communities has influenced how DCQ approaches the broader community. Workshop participants noted how the lessons they had learnt in engaging with Aboriginal communities (e.g. the importance of allowing longer timeframes, communicating face to face, developing relationships and communicating in ways that are culturally appropriate) had helped them better engage with other community groups.

A crucial factor for NRM bodies, including DCQ, is how to successfully engage with government. Perhaps unsurprisingly, many features of successful community engagement, such as developing strong relationships and understanding diverse perspectives, are equally important in the government sphere. Understanding the rationale and context for government policy and processes was seen as key to negotiating meaningfully and avoiding becoming stuck in an adversarial situation. Maintaining a good relationship with government was seen to be important, and one proposed method to achieve this is through hosting visits from government representatives, thus building their understanding of the region and its NRM issues. While maintaining a strong relationship with government was important, workshop participants noted that standing up to government is important in some situations. Another success factor was the ability to discuss issues without polarising positions.

4.2.5 Success factors in the future
The factors influencing successful engagement into the future were seen to be largely the same as those that operate in the present. In addition, there were several key changes that were considered. First, it was hoped that future generations will be more aware and educated about the environment and NRM issues, so the focus of community engagement would need to shift from introducing basic concepts to knowledge building.

Building on the previous discussion on taking advantage of opportunity, participants emphasised the importance of expanding partnerships and building relationships with private industry, research organisations and conservation companies (such as the Australian Bush Heritage Fund).

Finally, it was thought that there would be an increasingly complex operating environment for regional bodies, which could make transparency harder to achieve.
4.2.6 Monitoring engagement

DCQ were already conducting monitoring of the social environment, having undertaken a survey of both local government and community members to gain some baseline data on, for example, community priorities, public awareness of and involvement with DCQ, and examples of what projects or approaches had ‘worked’ in the past. Despite concerns over the rigour of the survey and the small sample size, the information was seen as useful and was taken into consideration by DCQ in decision making.

When asked how monitoring processes could be better supported, participants emphasised the need for the content of any monitoring or reporting activities to be locally relevant. Participants felt that decisions made at the government level were based on reporting requirements that did not capture outcomes of engagement processes in a meaningful way. Current reporting requirements required collection of ‘good news’ stories; however, participants perceived this type of information was not considered in government decision making. Participants stressed both the difficulties and importance of capturing rich and meaningful data that can serve the needs of government agencies and regional bodies.

4.3 Feedback on success factors toolkit

As part of both workshops, feedback was requested on the Success Factors for Engagement Toolkit summary as developed in Phase 2 of the ‘People, communities and economies of the Lake Eyre Basin’ project (Measham et al. 2009a, see Appendix 5 for a summary). These factors were developed and refined based on an extensive series of interviews with both government and community representatives. However, the project team considered it crucial to incorporate feedback from staff of NRM regional organisations such as SAAL and DCQ as part of a dialogue towards refining the tools and making them useful and relevant to interface organisations.

Workshops with both SAAL and DCQ staff confirmed the relevance and value of the success factors summary as an accessible outline of mechanisms to achieve effective engagement. Some refinements were discussed and subsequently incorporated into the toolkit summary. In the case of the SAAL workshop, planning ahead for engagement opportunities was identified as an important issue that was not on the list, particularly planning that meaningfully involves the community and smooths over the perceived disconnection between the regions and national administrators of the NHT. The other significant insight related to the participants’ perception of the success factor ‘Work strategically in the system’. While the relevance of this issue was confirmed and the value of working strategically was recognised, some participants noted that it should not occur at the expense of maintaining trust and credibility with community residents.

In the case of the DCQ workshop, feedback on the toolkit summary was also very positive and emphasised the need to be adaptive: posing questions around issues (rather than stating outright positions) in order to engender community ownership and allow diverse approaches to achieve mutual goals rather than galvanising people around sides. Furthermore, participants felt that being able to take advantage of opportunities was crucial. However, in addition to being able to identify opportunities, being ready and able to act was also important. It was suggested that being able to take advantage of future opportunities in funding environments requires flexibility to respond to emerging priorities. At the same time, it was considered important to have developed ideas for potential portfolios of projects or ‘wish lists’ and where necessary to look at alternative funding sources, such as through private industry and research organisations, to address these. Finally, it was noted that maintaining successful engagement processes into the future requires ‘succession planning’ or at least thinking long term in order to address challenges of short-term funding and staff turnover. This included recognising the need to pass on corporate knowledge and established relationships that otherwise might be lost when individuals change roles. After synthesising the feedback across the workshops, the success factors toolkit summary was revised.
4.4 In-depth interviews

As discussed in the methods section, interviews were conducted with seven staff from the SAAL NRM Board, the regional interface organisation responsible for the South Australian portion of the LEB. The interview findings are presented below in relation to Measham et al. 2009a.

4.4.1 Focus on desert timeframes

Representing just under a third of SAAL staff, five of the interviewees discussed the impact or importance of timeframes in their work. Their comments highlighted the existence of multiple (and often conflicting) timeframes and the difficulties in effectively navigating them. First, they emphasised the lengthy timeframes required both to build up relationships with members of the community and to see evidence of ecological outcomes for project work. This was in conflict with funding and reporting cycles that required results sooner than desert social and ecological timeframes allowed for:

- Plant and weed populations, pest animal populations, don’t fit into a 12-month cycle.
- Changes in feral camel populations across the arid zone is not going to be investigated in a 12-month cycle … and you’re never going to get community engagement in a 12-month cycle. It just simply won’t happen.

In an extreme but poignant example, the Board was asked to re-write the SAAL region investment strategy to fit to the new Caring for our Country program with one day’s notice. Although this was extended by a week, such extremely short timeframes do not allow for any sort of consultation or involvement from the communities in the region.

Importantly, however, the interviews highlighted that sometimes the opposite was true: long government administrative timeframes jeopardised community support. In the case of establishing the district representative groups, the legislative requirements to appoint group members slowed the process to such an extent that there was a risk of losing community enthusiasm and support:

- They [community members] don’t have [the representative group] yet and it’s really hard because we have this legislative process that we have to follow because they want it now, in fact they wanted it six months ago and there was half a dozen [people] who put up their hand and said ‘oh yeah, I’d be interested’, but because we had to get the area gazetted – the district has to be gazetted first, and … then you have to do a nomination process … and then that has to go up to the minister … and then the group members have to be gazetted … It’s a drawn-out process.

The effect of these delays was that residents became frustrated or occupied with other priorities. Above all, it made it difficult to maintain the recently established trust and goodwill with residents due to the limitations imposed by the policy environment. As summarised by one participant:

- … and that’s where we’re losing enthusiasm and impetus to do something because they are going ‘what’s going on? Why can’t … what’s going on?’ and we’re like, well, we’re stuck – the Minister still has to sign off on this …

It is also clear from the comments that maintaining enthusiasm despite the inherent challenges involved is a crucial ingredient to achieving successful engagement over the long term.

4.4.2 Effective use of partnerships: links with agencies, research and industry

The importance of creating strong and meaningful links with industry, particularly mining, was recognised; however, it was felt there were limits to the capacity of SAAL to do this effectively. SAAL board members had direct links with mining company Santos and had also initiated discussions with BHP regarding an Olympic Dam mine site visit and presentation as part of their next Board meeting. SAAL had also run well-attended information sessions for land holders with representatives from the mining industry and relevant government departments (see also Box 1, below).
Creating links with the tourism industry was seen as more of a challenge; while some support had been given to projects providing information to visitors in the region, the focus remained heavily on land managers.

*We don’t have strong links with tourism, but we’re trying to build them. From my perspective I think it is a little harder because of the type of work that we’re doing ... we’re mostly working with the land managers – but we have recognised that there are things that need to happen.*

**Box 1: Example of successful engagement: Taking advantage of opportunities**

**Taking advantage of opportunities**

While travelling, Tim*, a SAAL staff member, started chatting to the person sitting next to him who turned out to be a Member of Parliament. The minister became interested in the project Tim was working on and arranged for a group of parliamentarians to be shown around the region.

The tour included a range of activities: seeing the environment and resources protected and managed by Tim’s project; seeing conservation land and endangered species; touring mine sites and learning about future development; learning about hydrology of the LEB and water allocation planning into the future. Not only were the parliamentarians learning about all these issues, but they were seeing them first hand.

The aim was to give the parliamentarians a concrete understanding of the significance of the area, so next time the LEB is discussed they would be aware of the issues and have a better understanding of the significance of these unique water resources.

This story highlights the importance of taking advantages of opportunities when they present themselves; for example, from turning a friendly conversation while travelling into hosting a visit of interested stakeholders who are keen to know more about the unique features of remote areas and their management.

*Name has been changed

4.4.3 Being adaptive: working in a changing funding environment

The importance of effective communication was emphasised throughout the interviews, and in particular in the context of the new Caring for our Country program (which replaces the Natural Heritage Trust).

At the time of the interviews, limited information had been released in relation to the Caring for our Country program, and communication with the Australian Government about the new program was in early stages.\(^7\) Staff with strategic or oversight roles were more aware of the implications, but they stressed considerable uncertainty over how the program would affect regional NRM organisations.

Under the new program, rather than applying to the regional body for funds to carry out projects, applicants will apply directly to the Australian Government. One participant noted this may present a challenge for SAAL, resulting in a fragmented or uncoordinated approach to NRM in the region. However, the same participant also felt that SAAL’s strong relationships with other organisations in the region would serve as a good safeguard against this.

Since the change of government in 2007, remote and northern Australia has been identified as a priority area for NRM investment. Participants identified this as a potential opportunity; however, this was qualified with statements regarding the lack of information available at the time of the interview on what the priorities mean in practice:

*Maybe that will fit that target ... but it’s a bit hard because at the moment all we know is that it’s remote and far northern Australia ... there’s been no discussion on what that means ... we just don’t know and it makes it difficult.*

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\(^7\) Under the South Australian structure, most communication comes through the State Government (see Larson 2007 for a more detailed discussion). In this instance the State Government had also received limited information regarding the new program.
For staff working at the project level, the most common response was that they did not know much about the new funding arrangements other than there was to be a reduction in funding to regional bodies. They emphasised the dangers in losing the hard-won ground in building relationships and trust within their community through funding cuts or community perceptions of constant change.

_We haven’t been told anything about it, only that we’re going to get less money._

_You need a lot of time to build up rapport and engage people and get them committed to a project, and then funding changes or priorities change, or it just gets left in a pile of paper somewhere and forgotten._

_It takes a lot of time to build up people’s trust, particularly people on pastoral properties ... I think that’s a bit of a challenge to try and make sure the good work that’s been done isn’t all lost by funding cuts or whatever._

### 4.4.4 District groups: developing community ownership, recognising desert champions

A key strategy to achieve effective regional engagement is to work through district or sub-regional groups, which have a higher level of face-to-face community interaction. Interview participants had varied opinions over the role of district groups. While most staff saw district groups as key to successful engagement and an important link between the Board and the community, one staff member perceived a trade-off between strengthening the groups and securing on-ground projects on individual properties:

_District groups are] good, they’re representative and you get a bit of a local flavour of what’s going on but I think you really have to do both. You have to approach them individually and sort of on a district basis through the group. A lot of pastoralists ... are very private people, especially when it comes to ... a financial matter to do with their business, they don’t want to go to the group about it._

To support the district groups, SAAL have recently begun to implement a project called _Building Future Leaders for NRM_, which is focused on supporting people involved in the district groups. The project aims to develop the capacity of group members, particularly the Chairs, to carry out their roles effectively. The project recognises champions and attempts to prevent burn out by providing skills and training in key areas.

### 4.4.5 Signals of success: knowing when you’re engaging successfully in remote communities

Staff were asked how they knew when they were engaging successfully. Almost all staff interviewed said they knew they were successful when community members were contacting SAAL staff for information, advice or just to keep in touch. Others suggested that behavioural change or the number of people who were participating in projects provided an indication of success. This emphasises the importance of good personal relationships and trust building in remote regions with sparse populations, as described in the following quote:

_If they’re ringing me, engaging with the Board, then you’ve got them. If you are having to ring them then it’s always a battle._

An interesting example of building successful relationships was when a member of the community encountered an animal they had never seen before and contacted SAAL to help identify if it was a threatened species. In response to the inquiry, staff undertook a trapping exercise with direct involvement of the community member who sighted the animal. Although they had difficulty locating the animal, the activity demonstrated to SAAL staff that the public were keen to engage with them, and messages around endangered and threatened species were getting through successfully.

Finally, the interviews demonstrated that hard work and good intentions go a long way, but remote NRM organisations are heavily constrained by limited resources, as demonstrated by the following quote:
There’s probably a whole heap that could be done but it’s just the Board’s capacity to do it … we’re pretty much fully occupied with what we’re doing. Like I said, the majority of the staff are project related so they are bound to what they’re delivering and we can’t pull them off and [allocate them to] do something else.

In particular, being heavily committed to existing projects makes it very difficult for remote NRM organisations to have the time to seek out opportunities. In the story presented in Box 1, the opportunity was serendipitous. The story presented in Box 2, below, represents a targeted investment into maintaining and building relationships with stakeholders, but these investments are difficult to make due to existing pressure on staff.

### Developing and building relationships: the importance of perspective

A significant agreement between a group of pastoralists and Aboriginal communities in the SAAL region was reached in 2008 in the form of an Aboriginal Land Use Agreement (ILUA). Two SAAL staff members attended the signing ceremony, one whose day-to-day role primarily involved engaging with the pastoral community and another whose role primarily involved engaging with Aboriginal land managers and communities. Neither of the SAAL staff were directly involved in the process of negotiating the Agreement. Rather, they attended to build understanding and links that are relevant to their engagement roles with pastoralists, Aboriginal communities and state agencies. In describing the event, the two staff presented different perspectives. The perspective of one participant focused on officially representing SAAL as part of maintaining pre-existing relationships and being a visible member of the community in the region in which he worked. The perspective of the other representative focused on seeking to develop and strengthen ties with Aboriginal land managers and communities as part of his role as Aboriginal Engagement Officer.

This experience highlights two key dimensions to effective engagement in remote NRM contexts. The first of these is the importance of being involved in major activities outside of one’s immediate area of focus. Just by being there, the SAAL staff were building understanding and developing links with their communities of interest. Second, it highlights that engagement brings together different interests, and SAAL’s being represented by multiple staff was an effective way to engage with different interests at the same time without giving priority to one or the other.

### Box 2: Example of successful engagement – building relationships

#### 4.5 Comparison of workshop results

Workshop results showed differences in how forecast changes may play out depending on the sector and the region. In SA, it was generally perceived that future NRM issues would be largely the same as those today. For example, land holders would still be focused on day-to-day survival but the main difference would be one of recognition: NRM would be given a higher priority. By contrast in Qld, it was considered that climate change may place extra pressure on the region, and that global demographic trends might trigger increased population which would influence natural resource management leading to new issues for DCQ. In both SAAL and DCQ, it was considered that the increase of mining and petroleum industries would bring a considerable increase in population, but one with relatively little connection to the land and limited long-term commitment to the area. This would raise significant challenges for NRM and in particular for water resources; however, it could also bring advantages in terms of improved infrastructure.

The lack of reliable data on which to base projections was raised as a key concern in both regions due to the impact this has on the ability to plan for future change. In both regions, it was thought that the tourism industry is likely to increase with improved infrastructure. The increasing accessibility would not only encourage visitors to the region, it would also increase intra-regional tourism visitations by local (mainly mining) populations. This was supported by the trend for pastoralists to diversify income sources through running tourism ventures on their properties, and the increasing presence of conservation companies as land holders in the region.

Workshop participants from SAAL emphasised that successful engagement in their region currently requires a different approach from other regions in the state due to their small, sparse population. Being seen as part of the community and developing strong relationships with the community was very important. This involved taking a personal approach: linking SAAL with community events and being seen as members of the community rather than simply as government representatives living in the

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People, communities and economies of the Lake Eyre Basin  Desert Knowledge CRC  Ch 5: Sustaining successful engagement: responding to demographic changes in the LEB pp 171–216 193
region temporarily. An intrinsic part of this was having continuity of staff over the longer term to allow for these relationships to build. Perhaps one of the most challenging aspects of successful engagement raised was balancing the (nationally defined) outcomes and administrative requirements of the NHT with regionally specific community priorities and emerging issues.

Participants in both regions felt greater flexibility was needed to maximise meaningful engagement and limit community disenfranchisement with the process. In many cases, government-defined outcomes and timeframes of the program were inappropriate for the needs of desert regions and therefore limited the success of engagement. It was suggested that governments need to place a greater degree of trust in regions to deliver programs. NRM Boards should be able to apply for funding in such a way that allows flexibility regarding outputs so they can respond to changing circumstances and emerging priorities without compromising environmental outcomes. A degree of discretionary funding for regional NRM organisations would facilitate the ability to respond to community needs.

In the case of the DCQ workshop, a crucial factor affecting current engagement was how to successfully interact with government. Perhaps unsurprisingly, many features of good community engagement, such as developing strong relationships and understanding diverse perspectives, are equally important in the government sphere. Understanding the rationale and context for government policy and processes was seen as a key to negotiating meaningfully and avoid being stuck in an adversarial position. Maintaining a good relationship with government was seen to be important, and one way to achieve this is through hosting visits from government representatives and building their understanding of the region and its NRM issues. While maintaining a strong relationship with government was important, it was also noted that standing up to government is important in some situations. Another success factor was to discuss issues without polarising positions.

In both Qld and SA, the factors influencing the successful engagement into the future were seen to be largely the same as those that operate in the present. The changes that were thought to be relevant were that future generations will probably be more aware and educated about the environment and NRM issues, making the focus of engagement the building of knowledge rather than introducing basic concepts of NRM. In addition, the importance of expanding partnerships and building relationships with private industry, research organisations and private conservation companies was emphasised. In terms of engaging with the policy environment, participants felt that there would be an increasingly complex operating context for regional bodies, which makes transparency more challenging. DCQ noted that their experience of engaging with Aboriginal communities is influencing how they approach engagement more broadly, now and into the future. For example, they noted the importance of allowing adequate timeframes, communicating face to face and developing relationships and communicating in ways that are culturally appropriate.

The SAAL Board emphasised the need for a more tailored approach to engagement in the future through better defining and understanding who they were engaging with, why and the best mechanisms or approaches to achieve this. They were already attempting to achieve this through the development of the district groups which provide a forum for community concerns to be voiced to the Board. They also identified the need for clearer entry points to engage with Aboriginal communities in the future, along with the importance of understanding the priorities of Aboriginal communities.

4.5.1 Mining, energy and future engagement
Considering the forecast sketches presented and discussed in the workshops, the expansion of the mining and energy sectors represents a crucial issue for NRM in the LEB into the future. Yet, from an engagement point of view, it was evident that the NRM interface organisations are not currently engaged with the mining sector. Funded by the Australian and State Governments, the NRM organisations are affected by a broader governance context which tends to distinguish between mining and energy on the one hand; and on the other hand a broadly defined notion of NRM as issues relating
to agriculture, biodiversity, weeds, and water resources, and the Ministers and Departments responsible for these domains. For organisations that are already stretched to achieve the existing policy and community objectives, engaging with the mining sector represents a real challenge. Importantly, the in-depth interviews demonstrated that regional interface groups are attempting to engage, such as holding discussions with BHP and Santos; however, they had a limited capacity to extend these efforts. This is a crucial area for further consideration, given that the mining and energy sectors already play a huge role in the LEB economy and social profile and are likely to do more so in the future.

4.5.2 Monitoring engagement

Both organisations were conducting monitoring of their engagement process, such as commissioning surveys of community perspectives on NRM and the role of the Boards. At one level, the fact that these organisations commissioned their own monitoring and evaluation processes relating to engagement demonstrates the inherent value in these exercises for regional NRM organisations. However, these organisations emphasised that this value was strongly tied to making sure that survey questions reflected local information needs that helped them better target their activities. In contrast, both organisations had recently taken part in nationwide evaluations of NRM bodies organised by the National Land and Water Resources Audit, among others, and both noted their scepticism as to the relevance of these national studies to the local needs of remote NRM organisations.

Workshop participants in both regions were proud of their connection to the community and clearly understood the advantage this gave them in facilitating community interest and participation in their programs. The sparse population across both regions provided some challenges, but also gave staff the ability to develop strong relationships and pursue the face-to-face interaction that ensured success, as well as forging stronger relationships with other agencies and their staff.

4.5.3 Changes required to support successful engagement

Across both workshops, it was clear that flexibility in how to go about engagement processes is a crucial element to achieving meaningful engagement in different regional contexts. In some instances, the requirement to meeting narrowly defined outcomes prescribed by agency funding sources was inappropriate to the needs of the region. Effective engagement with land holders, and between NRM bodies and government agencies relies on trust, and it was suggested that funding programs need to place a greater degree of trust in regional organisations to deliver programs. The possibility of more discretionary funding in emerging funding environments would allow for more effective engagement processes and provide NRM bodies with the ability to respond to community needs as they change.

4.5.4 Additional insights from interviews

Due to the strong focus in the workshops on conceptualising future NRM engagement challenges as being very similar to those of today (except more intense), the individual follow-up interviews did not dwell on these future challenges so much as consider them in relation to current NRM engagement processes. In considering the interview results, one of the key themes was the lengthy timeframes required both to build up relationships with members of the community and to see evidence of environmental outcomes for a project. This strongly reinforces the issue outlined in the success factors concerned with respecting desert timeframes (Measham et al. 2009a).

Another theme arising from the interviews was that the LEB has had a highly varied history and this was perceived to have influenced the nature of engagement in NRM. For example, more remote areas that were opened up to settlement later and which are further away form regional centres tend to have fewer environmental problems, so there is less pressure or impetus for residents to engage with the NRM Board regarding the management of these areas. This reflects an overall lower level of engagement with
government agencies in these areas and lower community expectations for government support (c.f. Yelland & Brake 2008). Interviewees felt this history explained the lower level of awareness of publicly funded NRM programs and lower project participation rates in the more remote areas.

Specifically in terms of future NRM engagement challenges, the main findings of the follow-up interviews were focused on the short to medium term, rather than the medium- to long-term focus taken in the workshops. Given the changed policy environment since the workshops took place, it was not surprising that the main consideration for future NRM engagement processes was on the new Caring for our Country program, which recognises remote regions as priority areas. This was recognised as a potential opportunity, but what it means in practice was not clear at the time of the interviews.

The two stories presented in Boxes 1 and 2 demonstrate different examples of effective engagement in practice and highlight the importance of in-depth interviews to provide greater insight than the workshops alone. Box 1 clearly demonstrates the importance of taking advantage of situations as they arise. However, it is important to note three co-requisite factors for taking advantage of such opportunities. The first is being in an appropriate context where opportunities may arise. The second is recognising a potential opportunity that is present; in this case the staff member showed initiative and engaged with the situation effectively. The third is acting upon the opportunity, which includes having the capacity and resources to respond. The story in Box 2, by contrast, represents a targeted investment in engagement with current and potential collaborators. As demonstrated in the story, the event the staff attended was not one they were directly involved with; rather, they chose it as suitable context to maintain and build networks with targeted groups of stakeholders. The story also demonstrates the importance of acknowledging multiple perspectives in given NRM contexts and the need to act strategically.

5. Conclusions

Four conclusions can be drawn from the research presented in this case study. The first two conclusions are specifically relevant to the policy environment in which engagement processes take place. The third conclusion is of general relevance to NRM groups, and the fourth is specifically relevant to the staff and Boards of regional NRM interface organisations.

The first conclusion refers to the resources required for future engagement. The findings show that there is a widespread perception that over the next 20 years or so, engagement challenges for NRM organisations in the LEB are likely to be the same or very similar to those of today. However, it is considered that the intensity of those challenges will generally increase. This predicted increase relates to increasing pressures from mining and energy industries and the associated increase in population to service these industries. NRM organisations in remote areas are already stretched in terms of their capacity (to both engage and consider future engagement needs), so this increase in intensity would pose a major challenge in terms of the resources of NRM organisations to achieve effective engagement. Therefore, there is a need to maintain and increase resources for these organisations to allow them to achieve their objectives in the future.

Second, the report reinforces the findings that have been demonstrated elsewhere, namely that effective management of remote regions requires respect for these time lines, which are currently under-acknowledged by policy makers located exterior to the LEB. The data presented in this report provide an example of the inherent limitations in attempting to address long-term problems (such as feral animal control) with short-term programs. On the other hand, long administrative time frames (for example to appoint members of district groups) are at odds with community expectations and have the effect of draining momentum from community engagement.
Third, regional NRM groups currently have very limited engagement with tourism, mining and energy sectors. In part, this stems from differences in their operating contexts, where a dualism is maintained between the political environments for these domains. Different industries, different Ministers, different agencies, and different projects all serve to inhibit interaction between NRM organisations and the mining/energy sectors. However, overcoming this dualism is of crucial importance for managing the LEB in an integrated way.

The final conclusion reinforces one of the key ‘success factors’ from an earlier report in this project series, namely the importance of taking advantage of opportunities. However, upon closer examination, it is important to draw attention to three factors that assist the conversion of opportunities into outcomes. The first factor is context: it is only possible to be exposed to an opportunity by being in an appropriate context where an opportunity can present itself. This can be either serendipitous (as was the example presented in Box 1) or designed. The second factor is recognition: acknowledging an opportunity when it is there. The third factor is strategy: in order to take advantage of an opportunity, it is crucial to have a strategy and resources to respond to potential opportunities as they arise. These co-determinants of converting opportunities are particularly worthy of consideration in relation to the new Caring for our Country policy environment. This environment provides a potential opportunity for remote regional organisations by listing remote regions as a priority area. The question for regional NRM groups is how best to take advantage of this opportunity.
References


Appendix 1: A sample of workshop materials

SAAL Workshop

Industry Outlook: Tourism

SAALNRM Workshop Nov 2007

“South Australia should seek to position itself as the leader in sustainable tourism in arid environments.”

SATC and DEH 2003 p21

Industry trends

- Vulnerable to fluctuations due to factors such as fuel pricing and terrorism.
- Nationally anticipated decrease in domestic market with only slight increase in international market.
- Domestic market is main contributor to visitors in the region.
- Economic benefit largely outside the LEB.

Numbers of overnight visitors to Flinders Ranges and Outback Regions 2002-06 with projections to 2021.


Great Australian Cattle Drive. Source: SATC

“One of the most fundamental issues affecting tourism in regional South Australia is the availability of good quality accommodation.”

-SATC & DEH 2003
Industry Outlook: Mining

“The Olympic Dam expansion is the mothership of the mining boom that is coming”
- SA Premier Mike Rann,
- The West Australian 26 Sep 2007

Industry trends
- Increasing commodity prices
- Growing demand for uranium and gas
- Increasing market in China, Russia and India
- Increasing exploration and significant proposed investment in mining in region.

Olympic Dam Expansion:
- Currently one of the world’s largest copper mines
- More than doubling copper and uranium production by 2013.
- Open pit mine
- Expansion of processing plant
- Relocation of airport
- 6,000 extra jobs
- Increased energy and water demands
- Possible desalination plant in Point Lowly, upper Spencer Gulf.

Prominent Hill Construction:
- off-site facilities for power and water supply
- loading facilities onsite
- accommodation village and services
- access and site roads
- airstrip and tailings dam
- employment of up to 800 staff.

Moomba:
- Proposed $700 million development to allow large scale carbon storage

Index of base metals commodity price, 1991-92 to 2005-06.

Source: adapted from RBA (2007)

Employment in mining in LEB (Herr et al 2007).

Current view Olympic Dam mine site. Source: BHP Billiton

Escondida Copper Mine, Chile. Source: BHP Billiton

“The Olympic Dam Expansion project base case is an open pit mining operation that will be larger than any existing open pit mine operation in Australia and will rival BHP Billiton’s giant Escondida copper mine in northern Chile.”
- BHP Billiton
Pastoralism

"[Farmers] must be better equipped to deal with drought today, safeguard against climate change and future droughts, and lessen the severity of drought impacts on Australia – economically, environmentally and socially."

- David Crombie, NFF President

Industry trends

- A significant proportion of the population of the LEB is employed in agriculture.
- Average 2006-07 farm income in Queensland predicted to be $21,101.
- Average farm business profit this year is estimated at -$50,279.
- Predicted increases in annual temperature and decreases in annual rainfall due to climate change.
- Likely increase in heat waves and areas affected by drought:
  - Increased threat of livestock suffering heat stress
  - Reduction in pasture growth
- Possibility for benefits through participation in emissions trading, however it is unclear to what extent these opportunities will extend to the LEB.

Best estimate projected rainfall change (%) for 2030 relative to 1990. (mid-range emissions scenario).

Best estimate projected average warming (°C) by 2030 relative to 1990. (mid range emissions).

"The development and maintenance of key public infrastructure vulnerable to climate change relating to water storage, public lands and transport and storage will also be key to enhancing the adaptive capacity of regional communities."

- ABARE

Source: The Economist

Source: CSIRO & ABM 2007

Source: Eric Cullen

Source: DCQ Workshop Nov 2007
Over the last 20 years there’s been a steady decline in rural and remote communities with populations falling as governments and the private sector have adopted policies to centralise many basic services. 

- Benet, van Bueren and Whitten 2004

On average, the population is projected to increase slightly.

Slight overall decrease in proportion of Indigenous population although this varies from shire to shire.

Taylor, Brown and Bell predict an increase in Indigenous populations across arid and semi-arid Australia.

Diamantina, Boulia and Cloncurry have the highest Indigenous populations.

...a restructuring of the one that is predominantly youthful and non-Indigenous to one that is gradually ageing and increasingly Indigenous.

- Taylor, Brown and Bell 2006.
Appendix 2: SAAL NRM Workshop notes

These notes are the formal record of the workshop typed up from the butchers’ paper notes.

Part 1: Issues

What are the big issues in NRM today?

- Personalities
- Mining (exploration, uncertainty, trust, information provision)
- Faceless individuals/reps from agencies
- Drought
- Economic and emotional impacts making it hard to get participation in projects
- Survival mode – NRM not a high priority
- Differences in towns/populations > shift from industries to mining
- Communication and information dissemination
- Misinformation > resistance to projects
- Extra work to build up respect
- Turn over of management
- Aboriginal NRM – identifying who to talk to (esp. off parks), time to build relationships in short funding timeframes
- Long term on ground staff
- Trend for contractual work > difficult to build relationships and understand what’s going on
- Selling concept of NRM to land holders and how it relates to them
- Information overload
- Opportunity in size of community
- Attracting and retaining staff > less opportunity for change and staff development
  - Impact of mining on costs of living, etc.
- Community understanding of agencies and programs (constantly changing)
- Funding
- Burnout
- Design of programs doesn’t allow for different parameters/needs of region.

What are the big issues affecting NRM in the future (over the next 10 years)?

- Same, drought, more mines, less staff
- Social issues different
- Different pressures due to different industries
- More people but less land managers
- Fly-in/fly-out/phantom populations
- New populations with little/no connection to land
- Personalities
- Mining (exploration, uncertainty, trust, information provision)
- Faceless individuals/reps from agencies
- Drought?
- Economic and emotional impacts making it hard to get participation in projects
- Survival mode – NRM will be a high priority
- Differences in towns/populations > shift from industries to mining
- Communication and information dissemination will be targeted differently and use different types of communication
- Misinformation > resistance to projects
Present sketch of the big picture trends
What does this mean to the regional body? Feedback on big picture trends – challenges and opportunities.

- Availability of water/infrastructure key (questionable) assumptions to limit mining
  - Workforce
- Improvement in infrastructure opening region to new market
- Diversification of income sources
- Difficulty in employment/staff shortages
- Opportunities for employment restricted by other systems (cultural/welfare) (close of CDEP/Aboriginal)
- People leaving to mines not necessarily permanent or by choice
- Difficulty getting accurate information to know what is going on

Part 2: Engagement in regional NRM
What are the keys to successful NRM engagement at present?

- Need for long term staff
- Face-to-face/on ground
- Determination given amount of pressure
- Clear processes
  - Providing assistance to cut down bureaucratic work
  - Supporting through process
- Appropriate program design
- Manipulating projects to get project funding (Envirofund) > discourages participation/trust issues and resistance
- Availability of local assistance (currently limited)
- Difficulty of workshops compared to more densely populated regions > need different approach
- Need meaningful involvement of state government
  - [taking advantage of] high profile pressure, for example, big name mining companies, etc.
- Personal approach to doing business
  - Link to community events etc
  - Talking same language
  - Interest beyond immediate NRM concern
  - Human being rather than government representative
  - Demonstrate commitment to community
- One on one
- Officers in regions able to tackle head on
- Understanding the outcomes required by government
- Access to government/decision makers
  - Targeted funding
Comparison against ‘success factors’ from research

- Partnerships as assumed knowledge/background noise
  - Changing roles but keeping relationships
  - Personal relationships and networks
- Tapping into youth and education system
- Connections with local on ground staff flowing back to institutional level
- Knowing what other agencies are doing to get complimentary programs/projects, etc.
- Relationships at local level and office level (physical location)
  - To maximise resources and ensure programs work rather than against each other > mutual benefit
- Transparency: where it is lacking, acts as reason for disengagement. Need to have understanding/access to decision making process
  - Both in what external (government) agencies are funding and the Board
- Understanding what you can control and getting on with it
- Linking NRM issues with production for community
- Listening to landholders and developing their ideas (into projects)
- Large effort often with little direct benefit but worthwhile flow on effect
  - Strength of government to do this
- Finding different ways to communicate to ensure community representation
  - [community champions] Using community interest to advantage (as starting point)
  - [community champions] Perceptions of roles/people in community works both ways (lead or switch people off)
- Time to understand local workings > to listen
- Funding tied to (Australian Government) project > difficult to respond to regional issues but does assist in community perceptions of NRM Board as non-biased.

Which of the keys/issues could you deal with given current arrangements?

What would need to change in order to maintain successful NRM engagement in the future (focus on barriers and opportunities)?

- Discretionary funding for Board
  - Resources to respond to community needs
- Greater degree of trust from government in region to deliver
- Outcome emphasis rather than output
  - Flexibility to respond to community and NRM issues
    - Allows for negotiation with landholders
    - Greater ability/opportunity to incorporate learning from past projects
    - Board ability to respond in timely manner
- PLANNING
  - recognising different levels
  - who is planning for:
    - community
    - challenges in consultation and value of input
    - importance and impact of document
Part 3: Reflection and feedback

What will be the success factors for engagement in the future?

- Holistic approach
- Genuine integration
- District NRM Groups
  - Voice for the community
  - Vehicle for Board
- Tailored/marketed but not onerous
- Greater use of media especially radio (local) Email? Follow trends of community
- Links to education
- Consistency of message
- Staffing/resourcing
- Tailoring engagement process to region/community
- Working [the] system is a constant
- Trust in future depends on current actions
- Identify why engage with community and then targeting approach
- Need to get smarter with how we do it (organisational life, behavioural change)
- Continuity of positions and arrangements
- Learning from past engagement
- Increasing Aboriginal Land Use Agreements/parks arrangements
  - Increasing engagement/identification of people to talk to – difficult in short term funding
- Levels, that is, getting in at effective level in community
- Hampered by bulky framework > streamline in future?
- Use of experts to maintain community participation (knowledge of benefits)
- Simple on ground funding process.

What sort of monitoring would be useful (and what would you prefer to avoid)?

- So that know what can be improved or done differently
- Measuring community capacity to indicate engagement needs
- Practical rather than knowledge base
- Role of district and NRM boards
- Behavioural indicators
- **WHY** key question
  - For improvement of practices
  - To prove effectiveness of actions (justification) > limits the data given
- Tailored/marketed but not onerous
- [Indicators that would suggest successful engagement]
- Requests for more information
- Personal contact (more achievable in this area)
- Attendance/participation over time
- Personal feedback.
Appendix 3: DCQ NRM Workshop Notes

These notes are the formal record of the workshop typed up from the butchers’ paper notes.

Big issues in NRM today

- Vegetation management
  - Pasture management
- Weed management
- Carbon trading
- Total grazing pressure
- Control and access to water
- Inconsistency between government departments with policy
- Community engagement
  - Getting more people on board
  - Understanding NRM concepts
  - Trust
  - Hurdle to wider results
- Climate variability and change
  - Sustainable land/water management
  - Cost to people (social/economic) struggling with managing unsustainably (newcomers)
- Shifting goal posts (intra agency and across agency policy)
  - Political guidelines changing as process is being developed > community frustration
- Security of tenure for landholders
  - Impacts on long term viability
  - Leasehold land review
- Local government amalgamation
- Dryland aquatic ecosystems
  - Knowledge and perceptions
  - Understanding of uniqueness
- Balancing production and ecological values within inconsistent policy environment
- Possibility of high pressure projects (e.g. mining)
- Lack of data impacting on decision making across board.
- Understanding biodiversity (community and scientific) not considered as part of or related to other aspects (e.g. weed management)
- Level of coordination between regional bodies, government agencies (Australian and State)
  - How funding is released
  - How strategies and projects fit/work together
- Links with commercial industries, for example, nursery selling weed species
- Tourism
- Ferals (dog, cat, fox)
- Long timeframe for environmental feedback loop
- Shift in energy/energy use.

Shift in perspectives from restriction to benefits [in] landholders and community.
Big issues in 10–20 years

- Climate change and extra pressure on region from other regions
- Tourism
  - Little coordination across departments and industry
  - Competition across regions
  - Increased market
- Opening of region and nation to global pressure (climate, population)
  - Population pressure
  - Changes in resource use (sharing of wealth and resources)
- People less connected to environment and less aware of connection/impact NRM
- Increased population and development pressure
- Energy use
  - Shift in styles of industry
  - Change to agriculture/grazing lands
  - Services and infrastructure – changes in delivery and decision making
  - Alternative sustainable energy sources in LEB
  - LEB become carbon sink area with change in energy
  - Carbon trading
- New technology changing how things are done and how land holders use land (e.g. GBS, satellite, virtual fencing).
- Animal welfare and ethics methods (e.g. livestock transport)
  - Push to more local production and sale
  - Market demands (Europe, organic etc.)
  - Diversification to other animals (e.g. kangaroo)

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[‘Projections’ distributed]

- Mining – companies looking now for the next big thing
- Mining places significant pressure
  - Housing (pricing) – placement of employment due to housing restriction
  - Increasing population commuting
  - Workforce (pastoralism, local government) on top of skills shortage
  - Wages
  - Flow on effect/upward pressure
  - Positive diversification during drought (income)
  - Increase risk on roads
  - Mining companies getting preferential treatment with regard to environment (resource allocation etc)
  - Can fund/provide good data as required monitoring
  - ‘out clause’ negates total responsibility

- Aboriginal population change
  - Increase
  - Variability within regions
- Aboriginal communities facing many (high level social) issues
  - NRM not high priority
- Areas with lower population focus on cultural re-connection
• Significant demand on Aboriginal community – everyone is required to engage
• Influenced how engagement is conducted
  • Time
  • Face to face
  • Culturally appropriate
  • Product tailored to audience.

NRM engagement today

• Engagement through money > first step devolved grant process to connect with community and ensure organisation is known
  • Questioning if that is getting towards fundamental value/understanding goals
  • Provides ‘foot in door’ to talk about other issues (biodiversity, etc.)
  • Will get info/keep in contact with DCQ after grant, that provides scope for change in values (limited landscape change)
• Locally grown leadership
  • Sell to others in own terms (not in DCQ language)
• Other engaged people engaging others (neighbours > cluster > snowball effect) (Peer group pressure)
  • Providing solutions to local community addressing their local issues in their language
  • Financial incentive to participate due to geographic area
  • Visibility in community (e.g. Board meeting)
• Effective negotiation with government
  • Mediation entity
  • Maturation of relationship with government to get beyond adversity
  • Knowing/understanding needs of both government and community
• Community need to have capacity and desire to do NRM
  • Using attitudinal change to support project (market strategies on where to invest)
  • Educational strategy (longer term)

Dialogue with government

• Being prepared to stand up to government but continue good working relationship
• Build relationships (e.g. tour of region)
  • Allows for personal level of contact to smooth over differences
  • Not getting caught up in smaller issues
  • Ethos of organisation > putting people first
• Retaining staff by creating good place to work (environmental and workplace)
• Consistent leadership and Board membership
• Talking around questions > not polarising around positions
  • Ambiguous
  • Allows for negation and adaptation
  • Allows for diversity of views and operation in environment that isn’t able to measure work

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[Success factors distributed]

• Diversity of vision
• Finding clear, consistent business, for example, sustainability, and finding best pathway with community
• Recognition of organisational limits and contribution of community to finding answer
• Ownership and discussion of issues
  • Invest in program without being judgemental > flexibility and finding mechanisms that mean something to people
  • Clear, professional, innovative ways of selling organisation and programs
• Ability to talk and maintain staff relationships across agencies/NRM
• General consistency of vision across agencies (with own key areas)
• Negative impact of Commonwealth withdrawal from RCG (impact of understanding)
• Trust
  • Consistency/time to build trust within community and keep in sync with community
• Build trust relationships with individuals and government/organisations
• Taking advantage of opportunity
• Extension work constrained by other requirements (Ministerial/accountability)
• Challenge to maintain outside influence and not get engrossed in internal
• Maintaining good networks (external and other)
• Understanding the culture that you are engaging with
• Differentiating DCQ from government
  • Improving community relationships and perception
  • Still, perceptions based on funding/institutional set ups
  • Differences between states > different levels of constraint
  • Perceived as community not government
• Trust can overcome government/non-government perceptions
• One on one dealing with people > much more possible in this region
• Creative solutions
  • Communication
  • Value of culture in region
  • Bridging across different backgrounds
  • Creating environment that community feel comfortable in
  • Involvement in community outside work > way of drawing people in
  • Become individual
  • Participation in community
• [establishment of private, cost for service companies that are] Providing assistance to landholders (external business) in application/monitoring, etc.
  • Landholders must see purpose as worthwhile
• Longevity
  • People must see organisation as long term to be able to build trust
  • Particularly in Aboriginal community

---------------------------------------------------[facilitator began taking group through list of success factors]
• Transparency/accountability starting ethic of organisation
  • Upfront about costs – not hidden/acknowledge real costs of compliance
  • Manipulation to fit government requirements
  • Transparency facilitates trust with government and community
• Integrity and honesty as core process
  • Part of understanding organisation
  • Finding organisational benefit in process/compliance
• Continuity in programs possible (due to shift to region – buffer from politics)
  • Back to trust building.

**Supporting community champions**

• Friend Festival
  • Recognition of those who’ve helped/what they’ve been doing
  • Celebration of achievement/activity
• Sitting fee for Board.

**Taking advantage of opportunity**

• Maximising benefits to community and DCQ > most areas in DCQ faced difficulties since [DCQs] inception
• Targeted to plan outcomes
• Strategic wish list/’hot spot’ > clear vision to take up opportunity (e.g. Santos, portfolio, mutual benefit)
• Keeping on top of what’s happening (e.g. land tenure)
  • Potential to show independence
  • Good media, etc.
• Broader investment strategy (beyond NHT)
  • Finding links; positioning body with important regional issues
• Potential flexibility in contract variation
  • Better responsive capacity
  • Funding 3 years rather than 1 year buckets
• Seeing > vision planning parts to opportunity
• Responding
  • Flexibility
  • Better ability under NHT3
• Recognition of when to let opportunities go
• Finding alternative funding sources
  • Aligning with other areas (e.g. Aboriginal culture)
  • Spin off projects >building on current projects (leadership across regions)
• Leadership and Succession
  • Key risk/vulnerability in successful organisation
  • Articulating and recording what works
  • Embedding in corporate process/knowledge/structure and thinking

**Future engagement/timeframes**

• Time frame of:
  • Desert environment
  • Community engagement
• Desert timeframe won’t change
• Changes in how you engage with changing
  • Expanding towns
  • Shrinking rural population > big private companies
  • Expanding transient population
• Will depend on different scenarios
• Corporate and research collaborations appropriate with emerging industry (e.g. mining)
  • Capturing all levels (big and small companies)
• Emerging leaders with environmental education
  • Generational change
  • Better engaged
  • Downside = generic environmental not region specific
• Offer real financial incentive relevant to issues
• Inability of government to respond to longer timeframes
  • Must take advantage of a variety of external funding opportunities
  • External input into corporate strategy
  • Engage with external conservation groups (e.g. ABHF) > stewardship opportunity
  • Positioning to take advantage of opportunity (partnerships for carbon trading, stewardship, etc.)
• Communication of issues regarding time lag of environmental degradation
• Devolved grant
  • Creates dependency
  • Shifts responsibility (e.g. Qld soil conservation)
    • How is this avoided?
  • Future engagement wont rely so much [on devolved grant] as community already switched on
    • Can engage on different level
  • Input into project/management/outcomes may mitigate risks of shifting responsibility
  • Higher environmental awareness etc. built into ownership
  • Building pressure [act as] safe guard/encouragement
• Regional planning timeframes present challenge committing resources before plan
  • Negotiating flexibility key
  • Foresee problems to provide space to negotiate

**Future list**
• Pretty much the same
• Desert timeframes may change, for example, timeframe to engage increase with population increase
• Refocus engagement process to target properties that are sold regularly > more at risk environmentally
• Bigger, more complex operating environment and organisational structure
  • Significantly more difficult to demonstrate transparency
• Changing issues to address with community
  • ‘brown issues’ (dump burning, water management, etc.)
• Knowledge building rather than starting from scratch
  • Change is gradual.
Opportunities in 10–20 years (that can be planned for now/soon)

- Emerging energy
  - Solar
  - geothermal
- Clean green primary produce (organics)
- Carbon trading.

Partnerships

- Very important and will change with emerging industry
  - Big energy
  - Resource companies
  - Tourism
  - Local or regional governments
  - ABHF/Private conservation groups
  - Companies controlling pest species/monitoring
  - Technology companies (e.g. virtual fencing etc.)
Appendix 4: Interview protocol

Interview Guide: People, communities and economies of LEB project
12–16 May 2008

Background
This research is part of a case study conducted for the ‘People, communities and economies of Lake Eyre Basin’ project funded by DKCRC and the NHT. The project is about regional bodies and other organisations which act as the ‘interface’ between governments and community involved in NRM in the LEB. The purpose of this interview is to follow up on a workshop in November 2007 on the demographic and industry changes affecting the Basin and how this may influence successful engagement processes.

Information from these interviews will be grouped and reported thematically. Any direct quotes will be reported anonymously. To assist us with keeping a record of the discussion, we would like to record the interview. Please note that any recorded information will only be used for the purposes of research. If at any time you would like the recording stopped, please advise us to do so. Please also advise us of any information you would like to be kept out of the research process due to its sensitivity.

Do you agree to the interview being recorded?
Do you have any questions before we begin?

Questions
1. Can you tell me about your current role?
2. In what ways are you currently engaging with residents of the SAAL region?
3. In what ways are you currently engaging with other organisations/agencies?
4. Could you provide some examples of using the ‘engagement success factors’? (referring to handout)
5. How do you know when you’re engaging successfully in remote regions?
6. What do you see as the challenges and opportunities in the new NRM funding environment?
7. What do you think will be the key features of successful engagement over the next 10 years?

Do you have any other questions or comments?

Thanks for your time.
Appendix 5: Tools for Successful NRM Engagement in LEB
Source: Measham et al. 2009a, p. 4

1. Work strategically in the system

Successful NRM engagement relies on maintaining community trust while carefully navigating governance processes.

Learn how the system works
- Understand the rules and cultures and know how and when to use them.
- Ask about the meaning between the lines when policy is ambiguous.
- Be strategic: look for the right mix of regional independence and fitting in with federal and state government priorities.

Be adaptive
- Over time community perspectives and priorities change.
- Adapt to changing governments and processes.

Use partnerships effectively
- Recognise the value of long-term collaborations.
- Link with agencies, research and industry.
- Meaningful inputs require meaningful outputs.

Maintain transparency
- Let the public know about decisions taken.
- Publicise outcomes effectively e.g. online.
- Maintain necessary documentation.
- Keep people informed: knowledge is power.

Build and maintain trust
- Acknowledge, accept and respect different perspectives and interests.
- Negotiate fairly and openly.

Desert talk
- Face-to-face communication is best but expensive across large distances.
- Be flexible with technology when face to face is not an option.
- Plan to make communication inclusive.

3. Recognise desert champions

Remote NRM depends on key individuals. Recognising and supporting these people is crucial to successful engagement.

- Individuals can make or break NRM projects in remote regions.
- Build and support community advocates.
- Long-term staff are more likely to have the experience, respect and credibility.
- Encourage people who are good on the ground, natural communicators.

4. Take advantage of opportunities

Opportunities can be unpredictable and infrequent in remote regions. Like with desert rain, take advantage of circumstances when they come.

Access resources when you can
- Look out for changes in funding environments.
- Take advantage of visits – a friendly talk can make a big difference with the right people.

5. Focus on desert time frames

Thinking ahead and maintaining commitment are crucial to long-term survival.

Think of long-term results from short-term initiatives.
- Work towards an agreed vision.
- Plan for future opportunities.
- Call in a favour when you need to.

Be determined
- In remote regions, maintaining enthusiasm and commitment is crucial.
- Initiative and perseverance help get access to information and resources.

2. People play multiple roles in sparse populations

Recognise the different roles you play
- Interface organisations have different roles, from delivering government programs to eliciting community views.
- Wear the right hat for the job.

Develop community ownership
- If possible, avoid acting just as ‘another arm of government’.
- Listen to community perspectives and be mindful of community concerns.
- Engage community sectors in meaningful decisions that affect their interests.

Face-to-face communication is best but expensive across large distances.
Be flexible with technology when face to face is not an option.
Plan to make communication inclusive.
6. A broker diagnostic for assessing local, regional and LEB-wide institutional arrangements for Aboriginal governance of desert environments

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The work reported in this publication was supported by funding from the Australian Government. The views expressed herein do not necessarily represent the views of Desert Knowledge CRC or its Participants.

Citation


Acknowledgements

Funding for this study was provided by

• Natural Heritage Trust (NHT, http://www.nht.gov.au/)
• Desert Knowledge Cooperative Research Centre (DKCRC, http://www.desertknowledgecrc.com.au/)
• Commonwealth Scientific and Industrial Research Organisation Division of Sustainable Ecosystems (CSIRO CSE, http://www.cse.csiro.au/).

The authors wish to acknowledge colleagues who were involved in the broader research People, communities and economies of the Lake Eyre Basin project, in particular Mark Stafford Smith, Tom Measham, Tim Smith, Lynn Brake, Silva Larson, Alexander Herr and Carol Richards. Jocelyn Davies and Ryan McAllister were also very helpful. Finally, we would particularly like to thank the facilitators, community researchers, leaders and project officers who participated in this project.
Contents

Introduction ............................................................................................................................................. 221
1: Development of components used to inform the broker diagnostic ................................................. 223
   1.1 The Desert Syndrome and the Dryland Development Paradigm ...................................................... 223
   1.2 Frameworks to diagnose integrated regional planning responses and Aboriginal environmental governance ......................................................... 224
   1.3 Institutional integration and Aboriginal participation in the LEB .............................................. 228
2: Broker diagnostic development and application .................................................................................. 232
   2.1 Broker diagnostic development ..................................................................................................... 232
   2.2 Broker diagnostic application ....................................................................................................... 235
3. Brokers as a litmus test of the efficacy of institutional arrangements for Aboriginal environmental governance in the LEB ........................................................................................................ 243
4. Conclusions ........................................................................................................................................ 245
5. References ......................................................................................................................................... 246
Tables

Table 1: Brokers who participated in this research ................................................................. 234
Table 2: Summary of results from broker diagnostic ............................................................. 244

Boxes

Box 1: Drivers of the Drylands Development Paradigm ......................................................... 224
Box 2: The Lake Eyre Basin Community Advisory Committee ........................................... 229
Box 3: Factors that limit Aboriginal activity on country ....................................................... 235

Shortened forms

AK          Aboriginal Knowledge of Country
CAC         Community Advisory Committee
CSIRO       Commonwealth Scientific and Industrial Research Organisation
DCQ         Desert Channels Queensland Inc
DDP         Dryland Development Paradigm
DKCRC       Desert Knowledge Cooperative Research Centre
ILMF        Indigenous Land Management Facilitator
LEB         Lake Eyre Basin
NAP         National Action Plan for Salinity and Water Quality
NHT         Natural Heritage Trust (general reference)
NHT2        Natural Heritage Trust phase 2
NRM         Natural Resources Management
NRMB(NT)    Natural Resources Management Board (Northern Territory)
NT          Northern Territory
Qld         Queensland
SA          South Australia
SAAL NRM    South Australian Arid Lands Natural Resources Management
Introduction

This report contributes to the Desert Knowledge CRC’s ‘People, communities and economies of the Lake Eyre Basin’ project series funded by the Australian Government. The project is interested in the role and functions of local, regional and Basin-wide natural resources management (NRM) organisations operating in the Lake Eyre Basin (LEB) that act as the ‘interface’ between governments and community. The purpose of the project is to identify successful design and functional features of these interface organisations to ensure they are adaptive to the changing needs of LEB communities, economies and natural and cultural resources. Effectively engaging with Aboriginal communities in the LEB was identified as a continuing challenge for interface organisations, and is the focus of this report.

This report proposes a framework (referred to as the broker diagnostic) to assess and analyse the efficacy of institutional arrangements for Aboriginal people and their land management aspirations in the LEB. The framework focuses on the efforts of individual facilitators, leaders and community champions to broker the interface between Aboriginal communities and environmental programs and institutions. The term ‘broker’ is borrowed from social network theory and recognises the value of these individuals to act as bridges or ‘nodes’ between regional NRM organisations, government funding programs and Aboriginal communities. These brokers are therefore uniquely placed to act as a valuable ‘litmus test’ to critically assess the support provided to Aboriginal communities to manage the Aboriginal and shared lands, environments and natural resources of the LEB.

The broker diagnostic has been informed by research that has critically examined key drivers affecting sustainable development in desert environments (Reynolds et al. 2007, Stafford Smith 2008) and the emergence of local, regional and extra-regional integrated planning approaches to achieve sustainable development outcomes (e.g. Lane et al. 2005, Lane & Robinson in press). Of particular interest is research that has assessed Aboriginal participation in local and regional NRM programs in Australia (e.g. Robinson et al. 2005, Worth 2005, Lane & Corbett 2005, Howitt 2001, Lane & Williams 2008), and those authors who have analysed the role of brokers in regional NRM planning and implementation (e.g. Fenton 2007, Rixon et al. 2007).

This research has informed the development of the components of the broker diagnostic, which are as follows:

1. Brokers and organisations understand the key contextual issues affecting Aboriginal environmental governance.
2. Brokers have the individual and organisational capabilities to respond to key issues affecting Aboriginal environmental governance.
3. Aboriginal Knowledge (AK) is integrated into environmental planning and management.

The case study draws on interviews conducted with individual brokers (also known as facilitators, managers, project officers or leaders) who are employed by government agencies to manage the interface between Aboriginal communities, local and regional organisations and government agencies working on environmental management programs that involve Aboriginal people in the LEB. The individuals were chosen based on their formal roles established by the government environmental programs and their informal roles chosen by Aboriginal communities. Each broker was asked questions to obtain their perspectives on their role and how it fitted with the components outlined above. Their perspectives provide a pragmatic ‘litmus’ test of efforts to assist Aboriginal participation in sustainably managing LEB environments.
The justification for this approach stems from work done in collaboration with community researchers in the first phase of this project. This research highlighted that individuals – not institutions – are the critical link between government agencies and LEB communities in this remote region. Issues surrounding brokering efforts to enable Aboriginal people to participate in environmental planning decisions and management strategies were also identified as a critical area of concern (see Measham et al. 2009).

The application of the broker diagnostic is not intended to provide a single answer to the complex challenge of achieving ‘better’ Aboriginal participation in natural resource planning and management in the LEB. Rather, its intent is to facilitate the dialogue between government-funded groups and Aboriginal communities to help diagnose components of existing arrangements that are successful or unsatisfactory, and clarify what aspects of individual and organisational brokering roles can or need to change.

This chapter is divided into three sections

**Section 1:** Outlines the three key components used to inform the broker diagnostic and reviews the literature used to develop this framework. This includes a summary of LEB, regional and local-scale groups that form the foci for integrated environmental planning in the LEB. The section also reviews the role of brokers in this environmental planning context.

**Section 2:** Outlines the research approach used to test the broker diagnostic and provides a summary of results.

**Section 3:** Presents some preliminary conclusions and areas of future research.
1: Development of components used to inform the broker diagnostic

This section briefly summarises the literature used to form the components underpinning the broker diagnostic. These components reflect the reality that the LEB is one of the largest internally draining systems in the world and contains important areas and species that are internationally ecologically significant, critical for the sustainability of a range of livelihoods and industries, and culturally and economically significant for Traditional Owners and communities. Yet the protection of the ecological, economic and cultural values of the LEB and the use of regional ecosystem services are limited by the characteristics of these natural systems and the capacity and willingness of communities and organisations to invest and manage the wellbeing of these environments.

The section is divided into three parts. The first reviews the literature on the unique social and environmental processes in desert areas and why they demand different approaches. The second reviews the literature on integrated NRM and relates these to the diagnostic components put forward. This leads to a summary of integrated institutional arrangements that exist in the LEB, with particular interest in analysis of Aboriginal participation.

1.1 The Desert Syndrome and the Dryland Development Paradigm

Recent work undertaken in desert environments such as the LEB has emphasised the need to link the unique features and dependencies between human livelihoods and ecosystems in these areas to consider the consequences this has for sustainable development.

Stafford Smith (2008) argues that desert areas contain a number of features that are not in themselves unique, but in combination cause fundamentally different processes and environments than non-desert areas. These include:

- Climate variability (variable climate across both space and time scales)
- Scarce resources (low, patchy primary production)
- Sparse population
- Remoteness (distance from markets and decision makers)
- Social variability (unpredictability in labour, markets and policy)
- Local knowledge (lack of scientific research knowledge and the strength of local knowledge)
- Cultural differences (particular or distinct people, culture and institutions).

Combined, these features constitute a ‘desert syndrome’ (Stafford Smith 2008).

Previous stages of this research have highlighted the importance of these symptoms in influencing the management of ecological environments of the Lake Eyre Basin – in particular, in social variability and sparse populations which put high levels of expectation on key individuals (Measham et al. 2009).

Reynolds et al. (2007) have developed a Dryland Development Paradigm (DDP) which comprises five key principles, informed in part by these symptoms, to support the unique features of these human–ecological systems (Stafford Smith & Reynolds 2002, Reynolds et al. 2007) (see Box 1).
1. Ecological and social issues are fundamentally interwoven, and so are the options for livelihood and ecological management.

2. Short-term measures tend to be superficial and do not resolve persistent, chronic problems or deal with continual change.

3. Dryland systems are not in equilibrium, have multiple thresholds, and thus often exhibit multiple ecological and social states.

4. Problems and solutions at one scale influence, and are influenced by, those at other scales.

5. Local Environmental Knowledge and practice is central to the management of most drylands but is often undervalued.

**Box 1: Drivers of the Drylands Development Paradigm**

Source: Reynolds et al. 200_, p. 847

There is clearly a range of scientific approaches that could be applied to diagnose the state of the LEB in relation to these dryland development principles. We have chosen to borrow from the discipline of planning to assist our analysis, due to what Friedmann (1987) defines as the transfer of knowledge into action in the public domain and the translation of knowledge into management actions in a natural resource management context. Considered this way, these principles can be thought of as informing the development of public policy in relation to the use and management of the LEB’s natural resources. A critical dimension to such analysis is the translation of this policy into management action on Aboriginal people’s participation in environmental decisions and planning directions. Of particular interest to this body of work is the role and impact of brokers in this translation or facilitation process.

### 1.2 Frameworks to diagnose integrated regional planning responses and Aboriginal environmental governance

Fragmenting NRM policy development and implementation across multiple levels, jurisdictions and interests limits their effectiveness, including the support required for Aboriginal people to engage in decisions about the condition and required response for sustainably managing their traditional lands. Integrated and regional approaches to NRM have been embraced in Australia and have particular resonance in remote regional areas where limited resources often demand more outcomes from fewer human and financial resources. Regionalised NRM has been founded on the principles of institutional integration that transfers environmental planning authority and resources from centralised government agencies to regional- or local-level organisations and communities. It is argued this shift promotes planning decisions and solutions that are owned by the people who are affected by them, and therefore enable planning processes and outcomes to be more equitable, effective and accountable (Lane et al. 2004, Lane & Robinson in press).

The current regional NRM program reflects this ‘new’ planning approach and has been transposed over local-level decision-making arrangements that were supported that were supported through the Landcare program in the late 1980s and 1990s. Rather than ad-hoc localised on-ground environmental work, a regional approach has been promoted as offering a scale where voluntary (i.e. local level) and statutory (i.e. policy level) management directions and priorities can be coordinated and local industry and community sector aspirations and needs acknowledged (Robins & Dovers 2007). Importantly, this ‘new’ natural resource planning paradigm supports a multi-level approach to natural resource governance. Decision-making power and resources are shifted downwards to encourage ‘vertical’ integration between state and non-state actors and institutions, and regional NRM organisations are required

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1 The Landcare program was one of the first in Australia to focus on local community action to address local environmental issues (primarily focused on sustainable agriculture).
to coordinate efforts to set and achieve natural resource planning goals to encourage ‘horizontal’

THE ARCHITECTURE AND PROCESS OF INTEGRATION HAVE INFORMED THE VARIOUS FRAMEWORKS USED TO UNDERSTAND AND ANALYSE THE EFFICACY OF VARIOUS DEVOLVED PLANNING INITIATIVES. SOME SOCIAL NETWORK THEORISTS AND ENVIRONMENTAL PLANNERS HAVE FOCUSED THEIR ATTENTION ON THE UNIQUE FEATURES AND DIFFERENCES BETWEEN LOCAL, REGIONAL AND NATIONAL LEVELS OF COLLECTIVE ACTION BETWEEN INDIVIDUALS AND ORGANISATIONS. INFLUENCED BY THE WORK OF Ostrom (1990) THIS BODY OF WORK CONCENTRATES ON THE FUNCTION AND CHARACTERISTIC OF COLLABORATIVE STRATEGIES USED BY DECISION MAKERS WORKING AT DIFFERENT LEVELS OF ENVIRONMENTAL PLANNING AND MANAGEMENT HIERARCHIES (e.g. Margerum & Born 2000, Margerum 2008).

AS AN ANALYTICAL TOOL, THE FOCUS ON REGIONS HAS ENABLED ENVIRONMENTAL PLANNERS TO QUERY AND CRITIQUE THE COMPLEX SET OF RELATIONSHIPS, RESOURCES AND OPPORTUNITIES THAT EXIST AT A PARTICULAR SCALE (e.g. Healey 1997). THIS ANALYSIS HAS HIGHLIGHTED HOW MULTI-SCALAR GOVERNANCE NETWORKS EXIST AND AFFECT THE WAYS IN WHICH NRM DECISIONS ARE NEGOTIATED AND HOW POWER AND RESPONSIBILITIES ARE EXERCISED (e.g. Booher & Innes 2002, Morrison 2007). THIS BODY OF WORK HAS ALSO HIGHLIGHTED THAT THE SUPPORT REGIONAL NRM PROVIDES FOR SOME STAKEHOLDERS AND NRM ISSUES, INCLUDING THOSE THAT RELATE TO ABORIGINAL PEOPLE AND ABORIGINAL LANDS, CONTINUES TO POSE SIGNIFICANT CHALLENGES (i.e. Lane & Williams 2008).

THE ISSUE OF HOW ABORIGINAL ENVIRONMENTAL GOVERNANCE CAN BE SUPPORTED BY REGIONAL NRM PLANNING PROCESS IS OF CRITICAL CONCERN IN A MACRO-REGION SUCH AS THE LEB, WHICH HAS LARGE TRACTS OF ABORIGINAL LAND AND WHICH CONTAINS ABORIGINAL COMMUNITIES WHO HAVE ASPIRATIONS TO CARE FOR THEIR COUNTRY. IN THIS CONTEXT ABORIGINAL ENVIRONMENTAL GOVERNANCE CAN BE UNDERSTOOD IN TERMS OF SHARING AND RESOLVING NRM DECISIONS BETWEEN A WIDE SET OF ABORIGINAL, STATE AND NON-STATE ACTORS THAT OPERATE WITHIN AND BETWEEN NETWORKS OPERATING AT LOCAL, REGIONAL AND LEB-WIDE SCALES. PRINCIPLES FOR EFFECTIVE MULTI-LEVEL ENVIRONMENTAL GOVERNANCE, SUCH AS TRANSPARENCY, ACCOUNTABILITY, INCLUSIVENESS, FAIRNESS, INTEGRATION, CAPABILITY AND ADAPTABILITY ARE USEFUL FOR ANALYSING THE SUPPORT REGIONAL NRM PLANNING ARRANGEMENTS PROVIDE FOR ABORIGINAL ENVIRONMENTAL GOVERNANCE (e.g. Lockwood et al. in press). YET THE ISSUES SURROUNDING ABORIGINAL LAND JUSTICE AND ABORIGINAL COMMUNITY GOALS NEED TO BE CONSIDERED IF SUCH PARTICIPATORY PLANNING APPROACHES ARE TO BE EFFECTIVE IN CROSS-CULTURAL SETTINGS. AS LANE (2006) HAS ARGUED, NATURAL RESOURCE PLANNING HAS HISTORICALLY NOT SERVED ABORIGINAL PEOPLE OR THEIR INTERESTS IN THEIR TRADITIONAL LANDS WELL. IF THE PARTICIPATORY AND INTEGRATIVE DIMENSIONS OF REGIONAL NRM PLANNING ARE GOING TO SUPPORT ABORIGINAL ENVIRONMENTAL GOVERNANCE IT WILL REQUIRE SOME SERIOUS CONSIDERATION TO MANY COMPLEX ISSUES. SMITH (2005), FOR EXAMPLE, ARGUES THAT EFFECTIVE ABORIGINAL GOVERNANCE REQUIRES LEGITIMATE ABORIGINAL LEADERS AND REPRESENTATIVE ORGANISATIONS, STRUCTURES AND PROCESSES THAT ENABLE THE LEGAL AND CULTURAL AUTHORITY AND CAPACITY FOR ABORIGINAL GROUPS TO MAKE AND EXERCISE DECISIONS, SUFFICIENT RESOURCES TO ESTABLISH AND IMPLEMENT AGREED DECISIONS AND ARRANGEMENTS, AND PROVISIONS TO ENSURE DECISIONS AND ACTIONS ARE ACCOUNTABLE.

1.2.1 Broker definition and diagnostic analysis
The term ‘broker’ is borrowed from social network analysis that focuses on individual actors who act as ‘bridges’ or nodes between networks and groups – in this case, links between regional NRM organisations, government funding and policy programs, and Aboriginal communities (cf. Newman & Dale 2005). In this context, the term ‘broker’ refers to a range of individuals working across the Lake Eyre Basin: facilitators (e.g. working with the Indigenous Protected Area program or as Indigenous Land Management Facilitators [ILMFs]) and also state and regional liaison officers for a range of organisations. Often, these positions have been created in recognition of the difficulties and challenges in connecting communities and government programs. The establishment of the Indigenous Land Management Facilitators network, for example, was in recognition of the difficulty Aboriginal communities were having accessing Trust funding, and aimed to establish a practical link between Aboriginal communities and the Australian Government.

Reviewing the facilitator networks under the first phase of the Australian Government–funded Natural Heritage Trust (NHT), Hassall and Associates (2003, iv) wrote:

The ILMF network has been a catalyst to increasing Indigenous access to the NHT and NRM. The ILMF network is a significant asset for the Commonwealth and provides a communication link between Indigenous communities and Commonwealth and State governments.

While these networks are uniquely placed to comment on the effectiveness of regional programs and the issues encouraging or preventing Aboriginal involvement, no formal structure to tap into this resource exists. Formal evaluations have focused on facilitators or brokers as targets for evaluation (Hassall and Associates 2003, Fenton 2007) rather than to inform a targeted and extensive evaluation of Aboriginal participation.²

Alternatively, network analysis has focused on an individual’s linkage functions to measure the strength of the integration, or what Bodin et al. (2005) describe as its ‘score of betweenness’. This literature is concerned with a broker’s knowledge about different groups’ perspectives and structures, their ability to build trust between individuals and institutions, control and create linkages, and create new understandings between actors contained in multiple social networks (e.g. Folke et al. 2005).

Planning theory concerned with how environmental decision-making processes and rationalities are influenced by knowledge and power adds to the analysis (e.g. Leach et al. 1999, Lane et al. 2004). Such analysis can help to expose the racial and political drivers that affect what knowledge and decisions are brokered, how these decisions are made and who should make them. These drivers include prevailing western and scientific traditions that continue to affect assumptions that many aspects of Aboriginal knowledge, law and experiences are invalid (cf. Scott 1998). It also helps to explore the extent to which parochial behaviour of brokering individuals and supporting organisations impinge on effective and equitable cross-cultural environmental knowledge and management integration (e.g. Lane & McDonald 2005). In this sense, brokers cannot just be conceptually thought of as a ‘neutral’ bridge between social and institutional networks. Rather, like Morrison et al. (2004) have argued, this diagnostic is mindful of the influence of structural, procedural and informational dimensions of integration which need to be understood to assess the efficacy of institutional arrangements for Aboriginal participation in the sustainable management of the LEB deserts.

The application of this broker diagnostic is also mindful of the plethora of literature that has analysed Aboriginal participation in environmental management programs and processes. This includes how colonising planning and property allocation processes created colonial geographies that dispossessed Aboriginal people from their lands and environmental management practices (e.g. Dorset 1995).

² Lane and Corbett (2005) and Lane and Williams (2008) both undertook interviews with Indigenous Land Management Facilitators to gain an understanding of the extent of Aboriginal participation in the Trust and the constraints or enablers to this process. However, to our knowledge, there has been no extensive utilisation of informal and formal networks to provide information for evaluation.
There has been considerable inquiry as to how planning rationalities, arrangements and decisions have silenced Aboriginal voices and denied Aboriginal interests (e.g. Lane & Williams 2008, Dillon & Westbury 2007). Constraints on the capacity of Aboriginal people and communities to respond to the plethora of planning processes and decisions affecting their lives and lands have also been discussed (e.g. Gilligan 2006, Baker et al. 2001).

Taking all this into account and to develop a broker diagnostic that is useful, brokers’ nodal roles and functions need to be unpacked to help question the efficacy of current institutional arrangements for Aboriginal governance of deserts in the LEB context (a description of institutional arrangements is provided below). The following section draws on the body of research and briefly describes how brokers’ work can be analysed through three key diagnostic components. A central premise behind all three principles is that regional context is central, rather than simply an acknowledged part of understanding institutional integration in the LEB region (Morrison et al. 2004, cf. Bellamy et al. 1999, Margerum & Born 2000). As such, the components draw heavily on the dryland development paradigm work of Reynolds et al. (2007). This diagnostic of analysing institutional integration in this desert context seeks to unpack:

1. how well the context of Aboriginal environmental governance is understood
2. the strength or capacity of these brokerage nodes to respond to this complexity
3. the recognition and integration of Aboriginal Knowledge by brokers.

Understanding the context of Aboriginal environmental governance

**Component 1: Brokers and organisations understand the key contextual issues affecting Aboriginal environmental governance**

This element of the broker diagnostic is concerned with the unique context of both Aboriginal environmental governance (Robinson & Munungguritj 2001, Lane 2006, Smith 2005) and desert environments (Stafford Smith 2008). If government programs to support Aboriginal environmental governance are to be effective, then the underlying influences on current social and environmental realities need to be understood. Lane (2003) has argued that the character of institutional arrangements and the distribution of power in a planning context is a critical determinant of the style of planning (brokering) that may be used. In the planning context of regional NRM in the LEB, participatory decision-making arrangements have been established at particular scales in an effort to enable Aboriginal, non-Aboriginal and institutional actors to negotiate environmental management decisions and solutions. These arrangements are reviewed in more detail below. Scale is therefore important in this component and the diagnostic analyses these in terms of local, regional, and extra-regional (LEB-wide) contexts.

The strength of existing brokerage nodes

**Component 2: Brokers have individual, Aboriginal community and organisational capabilities needed to respond to key issues affecting Aboriginal environmental governance**

This principle recognises the importance of brokers in responding to, and managing change, and the inherent dangers of isolation, burn out and fatigue due to such an extensive reliance on individuals (Measham et al. 2009). As such, the diagnostic considers the capabilities of:

1. individual brokers
2. Aboriginal communities
3. institutions (government agencies and regional bodies)

to respond to the issues impacting on Aboriginal environmental management.
In distilling the analysis into these three parts, the diagnostic recognises that, while brokers are relied upon to secure environmental outcomes in remote areas, their success is heavily influenced by the capacity of communities to participate and the support offered by organisations, and the extent to which these are appropriate given the issues and drivers identified in Component 1.

Recognition and integration of Aboriginal Knowledge by brokers

Component 3: Aboriginal Knowledge is integrated into environmental planning and management

Planning theorists have differentiated between different types of information or evidence that is used to guide planning decisions and processes. This includes scientific, technical and pragmatic information which requires careful and considered integration (Friedmann 1987). Pragmatic, experiential knowledge – often referred to as *metis* information – is often associated with local knowledge which has been gained through social learning and information pertaining to local contexts and settings (Corburn 2003). The anthropologist Geertz, for example, emphasises how the *metis* of local knowledge is strongly rooted in particular place to form an ‘organised body of thought based on immediacy of experience’ (Geertz 1983, p. 167).

Component 3 of the diagnostic draws on the following categories of knowledge:

1. **Science categories:** This refers to the integration of Aboriginal knowledge that aligns clearly with western scientific knowledge, such as knowledge on native animal populations.
2. **Cultural categories:** For example, recognition of gendered knowledge and structuring of projects or programs to respect this.
3. **Contemporary categories:** This refers to integration of Aboriginal, scientific and other knowledge categories to tackle contemporary NRM and community goals and issues, such as the impacts and opportunities provided by feral animals and other introduced species.

1.3 Institutional integration and Aboriginal participation in the LEB

Recognising that there is no simple or single ‘silver bullet’ or technical fix to tackle the sustainable use of the LEB’s natural resources, governments have established a range of ‘scales’ through which integration arrangements and processes are managed. As outlined in this section, this includes the LEB regional and local natural resource and environmental management groups. In many cases there are specific program requirements for these groups to involve Aboriginal communities in environmental and natural resources decisions and management programs (outlined below).

Aboriginal Australians have been struggling to access adequate levels of funding and support to assist with management of their lands, despite considerable interests and rights to land and the conservation value of those lands (Altman et al. 2007, Lane & Williams 2008). Reviews across both phases of the NHT have shown funds allocated to Aboriginal organisations to be disproportionately low (Worth 2005, Hassall and Associates 2003, Lane & Corbett 2005, Lane & Williams 2008). Constraints on participation by Aboriginal communities have included:

- The complexity of application processes and lack of culturally appropriate advice (Lane & Corbett 2005, Lane & Williams 2008)
- Power and representation (Lane & Corbett 2005)
- Inappropriate levels of consultation (Lane & Williams 2008)
- The dominance of European values and concepts and the limited ability to include Aboriginal priorities or perspectives under the NHT (e.g. initial exclusion of projects dealing with traditional knowledge management) (Worth 2005, Lane & Williams 2008).
Perhaps the most persistent issue is the capacity of Aboriginal communities to participate, and the low priority of participation in NRM by Aboriginal people in the context of pressing and overwhelming social justice and welfare issues (Lane & Corbett 2005, Lane & Williams 2008). In the face of daily survival issues, there was the perception that Aboriginal communities simply could not compete with non-Aboriginal applicants who were better resourced and had far higher capacity and familiarity with application processes. This suggests that environmental management programs and institutions need to consider the particular needs and challenges facing Aboriginal communities, rather than assuming they will align with mainstream applicants competing in the same environment. It is not within the scope of this report to tackle how this is best achieved; rather, this report develops a mechanism to better understand the underlying processes that are shaping Aboriginal environmental governance in the LEB as a way of moving forward.

1.3.1 Integration and Aboriginal participation at the LEB scale

**Lake Eyre Basin Intergovernmental Agreement**

This agreement, between the Australian, Queensland (Qld), South Australian (SA) and Northern Territory (NT) governments, focuses on ‘water and related natural resources’ and seeks to ensure the long-term sustainability of the LEB through cross-border collaboration. The Lake Eyre Basin Ministerial Forum was established as part of the Agreement to develop policies and strategies for the management of the LEB. As a key driver providing advice and guiding policy development at the LEB scale, the Ministerial Forum must seek LEB community advice and may seek scientific advice. The Agreement requires that such advice will include ‘appropriate representation of Aboriginal interests’ (Commonwealth et al. 2000, 11).

**Lake Eyre Basin Community Advisory Committee (CAC)**

This Committee provides community advice to the LEB Ministerial Forum on water and related natural resources issues in the Lake Eyre Basin, and seeks to ensure continuing community participation in the Agreement (Box 2).

Since the CAC was formed, two Aboriginal forums have been held to discuss specific issues and concerns held by Aboriginal communities in the LEB. As a result of these forums, Aboriginal representation on the LEB CAC has increased to six, although one of these positions is yet to be filled (CAC member 2007 pers. comm.).

While the LEB Ministerial Forum and Community Advisory Committee play significant roles in policy development and advice, the implementation role is largely carried out at the regional scale by NRM bodies and is discussed below.
1.3.2 Integration and Aboriginal participation at the regional scale

Regionalised environmental policy and management in the LEB has been a central program strategy of the Natural Heritage Trust to improve levels of integration between government and non-government institutions and communities. Regional bodies (SAAL, DCQ, NRMB(NT)) have been established to coordinate and manage the interface between governments, industry and community institutions involved in NRM in the LEB.

Larson (2009) provides a detailed analysis of these regional institutions and their different operating environments across the LEB. In short, there are a range of factors that influence the structure and operation of regional bodies including state legislation, funding and priorities of regional communities. A common thread, however, is the federal government requirement that regional NRM bodies recognise Aboriginal communities as key stakeholders and ensure meaningful involvement in NRM processes. There has been widespread acknowledgement that this has been a challenging goal, and that often the interests of Aboriginal communities have been either intentionally or unintentionally sidelined in regional processes (Lane & Williams in press, Broderick 2005, Worth 2005).

This section begins by providing a brief overview of the NRM plans for the NRM Boards which cover areas of the LEB in SA, Qld and the NT, before examining the role of brokers at the regional level.

At the time of writing, the Australian Government had announced the cessation of NHT2 and the introduction of Caring for our Country from July 2008. The following overview is based on operations under NHT2; there is currently little detail available on how the picture will change under the new program.

**South Australian Arid Lands (SAAL) NRM Board**

SAAL’s regional NRM plan acknowledges that ‘many Aboriginal people live in townships, and, along with other traditional owners from outside the region, have a close connection with the landscape (SAALNRM 2007a, 4–5). According to the NRM Plan, SAAL contracted consultants to engage and increase involvement of Aboriginal communities during the development of the Plan and has incorporated previous Aboriginal NRM group plans into the investment strategy.

The draft investment strategy proposes five programs (SAAL NRM 2007b):

- Biodiversity
- Water
- Soils, land systems and land forms
- Community capacity
- Monitoring and evaluation.

As part of this strategy, SAAL have employed an Indigenous Engagement Officer from 2007–08 and have identified specific projects for pest management on Aboriginal lands and capacity building for Aboriginal communities. SAAL is also involved in joint projects with the Alintjara Wilurara Region (which covers Aboriginal lands in the north-west of the state).
Desert Channels Queensland Inc (DCQ)

The DCQ Regional Plan highlights that Aboriginal people in the region are seeking involvement in NRM (DCQ 2004a). Native title claim areas cover 50% of the region, and the Simpson Desert National Park is joint managed with its Aboriginal Owners.

Top issues identified in community consultation were:

- weeds and ferals
- vegetation management
- grazing pressure and pasture management
- surface water management
- land degradation
- viability/economics.

The DCQ Investment Strategy (DCQ 2004b) includes a specific Indigenous Land Management and Heritage Program, the key aims of which include engaging with the Aboriginal community and protecting Aboriginal cultural heritage, and establishing and supporting an Indigenous Leaders Group as a mechanism for broader Aboriginal participation in NRM.

Natural Resource Management Board (NT) Inc. (NRMB(NT))

In the NT, there is not only a significantly higher proportion of the population that is Aboriginal, but also a significantly higher rate of recognised land ownership or land rights. Recognition of Aboriginal values is woven throughout the NRMB(NT)’s plan, which covers the entire Territory.

Customary economy, local knowledge, wellbeing and the recognition of cultural, social and economic values in addition to ecological values are emphasised throughout the plan.

An example of some of the Management Action Targets include:

- recognising and supporting Traditional Owner groups, Aboriginal organisations and Landcare groups as key delivery organisations to manage threatening processes
- implementing collaborative, community-based, multi-tenure fire management projects in central Australia
- valuing non-scientific knowledge and enabling Aboriginal people to contribute ecological knowledge to planning and management.

1.3.3 Integration and Aboriginal participation at the local scale

While there is a significant institutional layer at the regional level, most NRM still necessarily focuses on the project scale. Projects often have local project officers housed at a variety of organisations including Greening Australia, Land Councils and Landcare groups. The planning may be regional in focus, but delivery is still achieved at a local scale.
2: Broker diagnostic development and application

This section is an overview of the research approach used to develop and apply the broker diagnostic in the LEB. It presents some key findings from applying this framework.

2.1 Broker diagnostic development

The research approach used to develop and apply this diagnostic framework was twofold. The first phase of the ‘People, communities and economies of the Lake Eyre Basin’ project was undertaken in collaboration with LEB community researchers (see Measham et al. 2009, and photo below). The general criteria for selection were those people who lived in the LEB, who were keen to participate in the research, and who available to be involved in workshops and conduct interviews in late 2006–early 2007. Workshops were held in Adelaide and Brisbane in late 2006 to discuss the project requirements and seek the input from community-based researchers. During this workshop, CSIRO and community-based researchers developed a short list of interview questions and piloted them in-house.

Community-based researchers then arranged and conducted interviews in the LEB region. Figure 1 provides a summary of how community-based researchers selected people to interview. Most researchers conducted between 8–12 interviews, depending upon logistical issues such as travel time, availability of interviewees, etc. The second workshop was held at the St Lucia, CSIRO office in Brisbane during April 2007. The purpose of the workshop was twofold. First, to assess the effectiveness of the community-based research model for understanding the social dimensions of natural resource management (NRM) in desert environments. Second, the workshop provided a forum for testing and verifying the key findings that emerged from the interview analysis.
Analysis of interviews done through this community researcher approach highlighted the importance of activities and support for individual brokers employed by organisations to manage the ‘interface’ between communities and natural resource users and government agencies. This work also highlighted that Aboriginal participation in environmental programs continues to be a critical challenge and priority for many interface organisations – such as DCQ and SAAL regional NRM bodies.

**Research approach to diagnostic application**

The second phase of the project captured perspectives from brokers who are funded by government programs to manage the interface between local, regional and LEB-wide interface groups and Aboriginal communities. Brokers were asked questions about their work and about the successes and the challenges they face working in the LEB. These questions were guided by the three components reviewed earlier in Section 2. As reviewed in the previous section, these components are:

1. Brokers and organisations understand the key contextual issues affecting Aboriginal environmental governance
2. Brokers have the individual and organisational capabilities to respond to key issues affecting Aboriginal environmental governance
3. Aboriginal Knowledge is integrated into environmental planning and management.

These perspectives are synthesised below to provide one pragmatic ‘litmus’ test of the Aboriginal participation in NRM and planning in the LEB.
Brokers funded to manage this interface at local, regional and LEB-wide scale (includes state and federal facilitators) were interviewed face-to-face or on the phone (currently n=27) between 2007 and 2008, and a few (n=5) responded to an internet survey. Table 1 shows how brokers have been categorised for this research.

Of the 32 informants, seven identified themselves as being of Aboriginal and/or Torres Strait Islander descent. When discussing this bias with those seven informants, some noted that this reflected a reality of the LEB. One Aboriginal facilitator interviewed succinctly outlined the dilemma: ‘Aboriginal leaders are busy being leaders for their own communities … there aren’t many left [who have the] time or skills needed to also work for the government mob’ (LEB interview 22). At the time of writing, regional bodies operating in the LEB approached for this study noted that facilitators who could broker their efforts with local Aboriginal communities in the region were either absent or precariously engaged, and they were overwhelmingly needed. Even so, this is an important bias in the results presented by this preliminary assessment.

Table 1: Brokers who participated in this research

<table>
<thead>
<tr>
<th>Brokers (n=32)</th>
<th>Not of Aboriginal descent</th>
<th>Of Aboriginal and/or Torres Strait descent Interviewed face-to-face or via phone</th>
<th>Participated in email survey</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEB-scale</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Region scale</td>
<td>4</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Local scale</td>
<td>21</td>
<td>2</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>5</td>
<td>27</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: Brokers were asked to identify the most appropriate scale of their work. LEB-scale brokers’ work spans across the LEB and largely involves LEB-wide knowledge brokering and engagement issues; Region-scale brokers’ work spans across NRM regions (but note, not necessarily employed through regional bodies); while local-scale brokers are focused on project-level activities.

Benefits and limits to broker diagnostic

The broker diagnostic outlined in this report provides insight into the experiences and perceptions of brokers’ efforts to work with Aboriginal communities to sustainably manage LEB environments and natural resources. In particular, its application can provide a valuable and pragmatic ‘litmus test’ to assess the support regional NRM arrangements and processes provide for Aboriginal people’s aspirations for sustainable lands and communities. There are however, some limitations on the diagnostic that need to be considered.

By focusing on people with specific positions (brokers), the diagnostic does not capture the voices of communities or organisations. We expect that brokers, by the nature of their role, will be able to represent these views; however, we cannot guarantee that the views provided would necessarily match due to politics, bias and differing perspectives, etc. Aboriginal voices in this diagnostic are conspicuously absent, and many of the local drivers affecting Aboriginal participation cannot be heard through broker voices (e.g. Box 3 below).

The diagnostic cannot fully capture if and how local, regional and LEB-wide organisations can respond to the complex regime of Aboriginal rights and responsibilities over particular areas of land and water. Nor does it inform judgements about the efficacy of the number of options available for Aboriginal people to enter into management agreements to care for Country and build sustainable economies for Aboriginal communities. Instead, the value of the diagnostic lies in harnessing the experiences of central nodes within these networks as a starting point for these discussions.
Economic factors

- Activity on country has relatively little economic value for Aboriginal landowners.
- Aboriginal people do not have the means to access their country (transport, fuel) while they have no viable economy.

Aboriginal human and social capital factors

- Ill-health
- The trauma and distraction of social stress (petrol sniffing, youth suicide, etc), loss of elders/teachers due to early death
- Other interests, commitments, priorities
- High mobility resulting from many factors including social stress, accessing health and education services, social obligations, and attractions of town life.

Physical capital/infrastructure factors

- Dysfunctional stores – irregular opening hours and poor quality food which complicate the logistics of getting out from settlements onto country
- Lack of appropriate (or any) vehicles
- Limited vehicle access to country, e.g. Rugged remote areas.

Box 3: Factors that limit Aboriginal activity on country

Note: factors as identified by Davies et al. that inform factors affecting Aboriginal engagement with NRM organisations and issues

Source: Davies et al. 2006, p. 23.

Interpreting the silence: all that is left unsaid

A critical issue that was apparent during some interviews was an apparent silence or resistance to discuss some issues. This would come across through glossing over or simplifying acknowledged difficulties facing Aboriginal communities. We cannot pretend to be able to correctly interpret these silences. However, the gaps in perspectives conveyed suggest that there may be an element of fatigue over talking about such issues. As one Aboriginal facilitator dryly noted: ‘We just want to keep focusing on the job at hand … [rather than] … endlessly thinking about what is good or bad about what we do’ (LEB interview 22). Talking has not helped in the past, so a weary silence descends along with a quiet determinism to get on with the job and (hopefully) overcome multiple challenges. Alternatively, it may indicate a wariness that ‘bad news’ stories are often used in media to paint bleak and simplistic pictures of Aboriginal communities, in which case the silence can be interpreted as protecting the vulnerable from unfair scrutiny and/or exposure. (Further discussion of silence and debate in regarding Aboriginal policy is provided by Neill 2002.)

2.2 Broker diagnostic application

A rapid application of this broker diagnostic was undertaken between late 2007 and early 2008 using the research approach summarised above. Key findings from this preliminary assessment are summarised below.

Component 1: Brokers and organisations understand the key contextual issues affecting Aboriginal environmental governance

Brokers at local, regional and LEB-wide scale were asked to identify key slow variables driving the health of the LEB’s NRM system.

Footnote: 3 ‘Slow’ here is used to emphasise that changes (ecological and social) often occur over long periods of time in desert areas. That is, the factors driving change (drivers) and resulting changes in the state of desert environments are often gradual and understood with long-term time frames. For a more detailed discussion of desert drivers, see Stafford Smith 2008.
• Some brokers who worked at the project level and had been working in the LEB for many years reflected on the inland characteristics of Aboriginal Country-based planning and management systems. This included the temporal and spatial dimensions underpinning Aboriginal Knowledge of local environments. Also noted were entrenched kinship structures and Aboriginal social networks that drive how Aboriginal people interact and move within the landscape, how they interact within and between Aboriginal communities and Country, and how they interact with each other.

• Slow drivers affecting the state of Aboriginal Country that were identified focused on degradation of management effort and relevant knowledge. Brokers reported that there were many critical areas that had received decades of limited or no management attention due to limited capabilities and resources for Aboriginal people to access and care for their lands.

• A long history of unequal power relations was the single key feature identified as a critical slow driver affecting the state of Aboriginal participation in natural resource planning and management. Power dynamics affecting Aboriginal participation included challenges Aboriginal people face to:
  - understand program requirements and expectations
  - deal with a myriad of confusing policies that impact on their communities and lands
  - be given the opportunity to learn and be resourced to participate
  - achieve mutually beneficial (vs. just government program) outcomes.

The state of Aboriginal people’s capabilities to participate in NRM decisions and solutions were also reported as affecting this power dynamic. The current state of health, education and political dysfunction affecting many Aboriginal people’s communities significantly affects their ability to manage their lands appropriately. A long history of troubling racial relations was also noted as a key long-term driver that infiltrated efforts to facilitate Aboriginal people’s aspirations with those held by other stakeholder groups within the LEB. Brokers described this experience as feeling ‘torn’ and in ‘constant conflict’. They said it required a process that reflected an ‘endless balancing act’ to mitigate conflict between groups who are jostling to get access to brokers and associated NRM funds. It required them to coordinate and combine the siloed support environmental programs – such as the Natural Heritage offer – for the holistic aspirations Aboriginal people have for their Country and communities.

Aboriginal people and land management: implications for brokering work

*The mix of working with Aboriginal people ... and NRM issues out here is tough.*

*(LEB interview 21)*

As Fenton (2007) has also reported, brokers who facilitate NRM projects with Aboriginal people note the unique nature of this type of work compared with facilitating efforts with other LEB communities and NRM users. Issues identified at the local scale included the huge expectations placed on individuals to act as a ‘community champion’ for a plethora of government programs and policies affecting Aboriginal communities and Countries. Many brokers working across all scales described a core part of their business in terms of ‘conflict management’ (LEB interview 17). A large part of brokering work in the LEB was described as ensuring Aboriginal people involved were ‘fully informed and owned project outcomes’ (LEB interview 18) and ensuring their efforts built on and developed existing and limited Aboriginal capabilities to participate in natural resource planning decisions.

In particular, Aboriginal brokers interviewed found these expectations to be significant and, as one put it, they ‘continue after 5 pm’ as part of meeting family and community obligations. Their views reflect those of Aboriginal people who work in other ‘hybrid’ institutions, such as Aboriginal rangers who have described the challenges of working across different knowledge and environmental management systems.
(e.g. Wallace et al. 1992, Robinson & Munungguritj 2001). As one interviewee explained: ‘Being an Aboriginal leader and working for the … mob is hard – huge expectations that I don’t know how I can deliver’ (LEB interview 3).

Brokers working on strategic LEB-wide NRM issues highlight the challenge of meeting government program expectations to ensure NRM projects engaged with Aboriginal people. Many local and regional brokers interviewed emphasised that geographical and political realities mean that national goals are difficult to achieve. Not surprisingly, trying to find Aboriginal brokers who are willing to work at regional and LEB-wide scale is difficult. As one broker put it: ‘It’s hard to get Aboriginal people to facilitate our efforts … probably in part because it’s such a difficult job’ (LEB interview 10).

Adapting to desert realities

It’s hard to show the impact of our work out here. (LEB interview 14)

I have to deliver cultural, environmental and livelihood outcomes on a shoestring budget. (LEB interview 17)

Efforts to show evidence of outcomes delivered from brokering work and the impacts of environmental management strategies is an enduring challenge facing individuals interviewed. Key issues identified included the length of time it takes to get a joint project established, how much it costs to undertake environmental strategies in distant regions, and how limited regional NRM and other environmental program project budgets are to do this work effectively. Brokers working on local projects described hours spent to get to meetings, establish relationships with Aboriginal communities and ensure Aboriginal people ‘keep the gate open so we can continue doing this work’ (LEB interview 3).

Another challenge identified was the need to broker a multitude of outcomes Aboriginal people seek from NRM activities and achievements. A common brokering response was to ensure brokering activities and purposes were flexible. As one Aboriginal broker put it: ‘It is important not to be fixed on a particular engagement approach or NRM project outcome’ (LEB interview 22). This flexibility required brokers to be open to ‘generally offering help to the Aboriginal people we work with’ – such as offering a lift back to town or bringing food to feed Aboriginal families who joined a fieldtrip (LEB interview 3). It also required a flexibility to balance a number of agendas that infiltrate broker’s day-to-day activities. As one broker described, a trip to protect a waterhole from feral camel damage also has to balance meeting participating Aboriginal peoples’ cultural obligations to areas of Country, their aspirations to share knowledge and find work for young Aboriginal people, and monitor the condition of this important ecological site. As a result, brokers working at regional and LEB-scale noted an enduring need for ‘imaginative reporting’ to describe small gains delivered from joint activities to reflect performance reporting requirements for government NRM programs.

One result of the challenge to ensure NRM projects are supported by government programs has been a regional NRM organisational and brokering strategy to focus on ‘win-win’ NRM activities. Brokers describe a funding and project bias to Aboriginal communities who are judged to be, in their words ‘capable’, ‘functional’ and have established ‘good working with relationships’ with other government funding projects. One broker working at the LEB-scale reflected on some of the challenges this posed for developing effective and equitable engagement strategies with Aboriginal communities:

It’s tough you know … [on the one hand] you have to be accountable to a government program interested in environmental outcomes … [on the other hand] it’s hard enough working with Aboriginal communities … but if I think about it … there are definitely ‘hot spots’ of Aboriginal engagement [currently] … in Lake Eyre (LEB interview 31).
Preliminary diagnosis: Understanding context

1. Local scale
2. Regional scale
3. Basin scale

Our analysis suggests that contextual issues raised by brokers interviewed suggest a strong bias towards Aboriginal participation in local NRM planning processes. LEB-wide arrangements have failed to take into account how broader planning decisions and outcomes can engage with Aboriginal people and accommodate the multiple outcomes that Aboriginal communities wish to achieve through NRM activities, partnerships and programs.

Note: green indicates a good understanding, amber fair and red poor.

Component 2: Brokers have the individual, Aboriginal community and organisational capabilities needed to respond to key issues affecting Aboriginal environmental governance

As a [broker] I often feel like my work is like a roly-poly tumble weed – moving from here to there ... often without direction .... hooking on to opportunities [to do projects] like a weed caught in the wind of a willy-willy. (LEB interview 27)

We have to facilitate a three-year [NRM program] with a culture and people ... [who have] worked with this Country for thousands and thousands of years ... How ... do you do that? (LEB interview 7)

The short-term operating time scale of NRM projects opposes the long-term natural resource planning and Aboriginal participation needs, and has triggered what was described as ‘crisis facilitation’ (LEB interview 2): ‘stressed out individuals who are overworked and trying to do too much’ (LEB interview 7) and ‘Aboriginal people who are and will remain unable to meaningfully participate in natural resource planning now or in the foreseeable future’ (LEB interview 28).

Individual capabilities

While brokers understood their jobs to ‘network with Aboriginal communities’ (LEB interview 13) ‘enable Aboriginal people to be involved in NRM projects’ (LEB interview 31) and ‘provide the linkage between Aboriginal capabilities and NRM project needs’ (LEB interview 23) many described frustration, burnout and stress in efforts to cope with what one broker described as ‘putting out spot fires in the current state of [Aboriginal participation in NRM] crisis’ (LEB interview 9).

Perhaps the most prevailing and worrying capability concern expressed by brokers was that it was their individual presence and work that were the critical mechanisms to enable Aboriginal governance of natural resources in the LEB. Rather than adopting strategies of institutional reform, brokers felt they were being used to implement policies and programs developed and displaced from the local context in which they were being delivered. As one broker argued, limited support offered to regional NRM bodies and the broader Natural Heritage Trust program made his job difficult. As he put it: ‘How can [the program expect that ] … me, a shovel, and my 4wd will be the key instrument … to help deliver a regional NRM program? (LEB interview 1)
Individual strategies

You are certainly not going to share the links you’ve made with an Aboriginal community with others who are competing for the same grants. (LEB interview 5)

Working with people I trust is critical to the success of my work ... For example, with the ... mob, I rely on sharing ideas and programs with the local teachers. (LEB interview 26)

All of us crazy bastards who work out here get great comfort from sharing our grief at the pub! (LEB interview 5)

The individual strategy to, as one broker put it ‘being in the know’ is a powerful tool that brokers use to ensure their hybrid roles are valued by government agencies and Aboriginal communities (LEB interview 14). ‘Being in the know’ describes an individual’s ability to ‘get gates opened’ on Aboriginal land (LEB interview 25), ‘know enough about government stuff that Aboriginal people want to know about’ (LEB interview 19) and equally ‘what other Aboriginal mobs are getting supported to do on Country’ (LEB interview 9). A broker working on Aboriginal Protected Area issues described his success in terms of being a ‘useful switchboard’ – a person who could communicate the right messages to the right people and be trusted that he was able to deliver these messages (LEB interview 29).

As the quotes above indicate, brokers adopt different strategies to ensure the success of their knowledge-bridging status. This includes competitive strategies that were particularly noted in terms of controlling access to Aboriginal people, communities and Country. Other strategies recognise the value of maintaining connections to ‘weak’ links in a broker’s social network – particularly with those who are not competing for the same grants (i.e. school teachers), or have knowledge that is required to do a particular brokering job or function (i.e. engage with a senior Elder) (cf. Granovetter 1983, Bodin et al. 2005).

A key strategy used by brokers is to lower their expectations to meet regional targets outlined in regional NRM plans, ensure that they are flexible with timeframes for project delivery, and work on projects that are considered to have potential, or, as one broker put it, ‘a chance of getting off the ground’ (LEB interview 14). A broker working in a local project in the north-east part of the LEB outlined the logic expressed by many brokers working in the LEB:

We tend to ‘dumb down’ [our NRM planning expectations and goals] and ‘brown-up’ [ensure that activities also meet livelihood/economic aspirations] with most of the proposals that we take to communities for sign up (LEB interview 21).

Working as an island

Most times I feel like I am alone, working as an island. (LEB interview 2)

There are not many brokers working at the local, regional or LEB-scale, compared with other areas of Australia. Aboriginal and non-Aboriginal brokers operating at local and regional scales describe their job as working ‘alone’, ‘feeling like a pioneer’, and ‘learning as I go’. Those who had arrived in the past two years described turning up to facilitate a local and regional planning process with ‘no guidance on what had been done before and no idea about what to do to get the job achieved’ (LEB interview 18). Very few brokers interviewed felt they have been given enough or any appropriate training to enable them to adopt appropriate ways to work with Aboriginal people or ensure their work could respond to the multiple dimensions of Country and Country-based planning.

A critical part of this ‘fragmented’ feeling was particularly apparent at the local and regional scale where brokers reported that they don’t believe regional (Aboriginal and non-Aboriginal) organisations are coordinated enough to set a strategic agenda desired by participating communities as necessary to guide their brokering efforts. An absence of local, regional and LEB structures to coordinate programs...
working in the same Aboriginal community and resolve issues of accountability when broker’s leadership or work is contested were identified as key barriers to efforts to work with Aboriginal people. LEB-scale brokers also described a general sentiment of being ‘unsupported’ and ‘alone’.

In part, a broker’s ‘island status’ is due to the spatial distance between government institutions, regional organisations and local communities that create challenging disconnections affecting their operating environment (cf. McAllister et al. 2008). It also reflects what brokers describe as limited political and public policy interest to ensure that regional natural resource planning can function. As one facilitator put it, lone individuals are operating as the arm of government agencies responsible for integrating a national program with local contexts and realities. Some brokers reflected on the government expectations of their role which ranged from grant administration, to policy advice, to communities to ensuring funding grant commitments were delivered. These people feel like ‘poor cousins’ (LEB interview 2) to their coastal and southern colleagues who had more resources to do their work and more government interest in outcomes achieved (cf. Dillon & Westbury 2007).

**Aboriginal community capabilities**

Most brokers interviewed discussed in general terms the challenges associated with language and cultural barriers, lack of resources, community dysfunction and a lack of familiarity by Aboriginal people with regional NRM or indeed other planning process that affected their lands and lives. Complex and prevailing politics within Aboriginal communities and between Aboriginal communities and government organisations were noted to be a key prevailing issue affecting the efficacy of brokering work. This was described in geographically specific terms that related to the various issues in brokering work with different Aboriginal communities within the LEB. Those brokers who worked at the LEB scale discussed at length how difficult it was to integrate Aboriginal agendas into water and other NRM decision-making processes that spanned across the LEB. Issues of ‘scaling up’ the complex and locally focused issues that Aboriginal communities and representative organisations were raised by brokers working at both the regional and LEB-wide level. For example, one LEB-wide broker interviewed noted how the agency he represented struggled to negotiate appropriate protocols with the many Aboriginal interest groups and organisations to enable equitable and appropriate knowledge sharing and participation in water decisions (LEB interview 12). As a result, he noted that the most effective mechanisms to enable Aboriginal people to make decisions about such issues were contained to local and specific water-sharing and quality issues (i.e. to achieve a healthy waterhole or access to water from a specific water source).

**Organisational capabilities**

Many brokers working at the local scale emphasised an institutional mismatch between their operational timelines and the needs of Aboriginal Country-based planning, the environmental needs of Aboriginal lands, and the drivers affecting Aboriginal participation in environmental programs (cf. Cumming et al. 2006). As ‘tumble-weeds caught in the wind’, brokers working for regional NRM organisations described their work as short-term, opportunistic and difficult to ensure that a strategic goal was being achieved. brokers working at all levels in the LEB worry that their engagement capabilities often failed to reflect or accommodate Aboriginal people’s long-term motivations to improve the economic, social and physical health of Aboriginal people and build capacity in their communities. As one broker put it: ‘Aboriginal people say to me: … “We want to be involved in meaningful work, not busy work” … Aboriginal people want to be involved in key activities that clearly lead to long-term change’ (LEB interview 8).
Our analysis suggests that local brokers felt they were doing their best to support Aboriginal community efforts to make sustainable NRM decisions and engage in partnerships to help them respond to issues affecting Aboriginal communities and lands. Perspectives offered by brokers working at each level also noted the lack of support provided by regional and LEB-wide organisations to support ‘vertical’ integration between local, regional and LEB-wide organisations and lack of ‘horizontal’ coordination between authorities working at the same decision-making level. As a result brokerage efforts to respond to the multi-level dimensions of Aboriginal environmental governance is weak.

Note: where green indicates a good capability to respond, amber fair and red poor.

Component 3: Aboriginal Knowledge is integrated into environmental planning and management.

Aboriginal people say again and again: Aboriginal knowledge is very specific to Aboriginal people and place. (LEB interview 9)

I really struggle [to know] what to do with Aboriginal knowledge about camels. (LEB interview 18)

Aboriginal brokers working at the local and regional level emphasised that there are limits on the degree to which Aboriginal Environmental Knowledge (AEK) can be integrated into environmental planning problem formulation and solutions. While brokers are aware that AEK was embedded in a system of Country-based planning and management, many felt that regional NRM bodies and government programs are really only interested in ‘certain bits of Country management’ (LEB interview 13). This includes capturing instrumental or factual components of AEK (such as knowledge of presence/absence of species, use of fire, location of waterholes, etc).

For brokers working at the LEB-wide scale, AEK was viewed as being only useful at the project level, particularly to ‘ensure that knowledge used to deliver a project can accommodate Aboriginal views and expertise’ (LEB interview 28). Two Aboriginal facilitators working at the LEB-wide scale felt that AEK was not an issue being addressed, as attention was focused on just getting Aboriginal participation to occur.

Science categories

Local and regional brokers interviewed recognised that some components of Aboriginal Knowledge (AK) offered a positive contribution to LEB environments and their brokering work. These contributions were understood as providing insights to ‘the state of country before [white] settlement’, ‘changes in the abundance and distribution of native species’, and ‘general health of Country that Aboriginal people live in and use’. The key dimensions of successful AEK integration that were drawn upon by brokers was the instrumental dimensions of AEK – such as identification of bush tucker and the interactive dimensions of AEK that were compatible to scientific epistemologies – i.e. geographical
locations and seasonality of using fire to clean up the country. Key Aboriginal people were also identified as providing a useful pragmatic perspective to environmental management objectives and pathways that were being facilitated by local and regional brokers.

**Cultural categories**

There is less interest in how to broker the interactive dimensions of AEK that require taking a more holistic view of the structural and functional dimensions of human–environment interactions. As various studies have shown these holistic dimensions of AEK and the relationships between Aboriginal people to their kin and country are critical building blocks to Aboriginal environmental governance (i.e. how gendered knowledge affected engagement strategies or environmental responsibilities, or how or why ceremonial responses and responsibilities affected waterhole maintenance) (cf. Scott 1998, Robinson & Munungguritj 1991). Many brokers noted that a large part of this challenge was due to what was described as ‘confusing and changing protocols to do with Aboriginal knowledge’ (LEB interview 6) which meant that regional NRM organisations and broker individuals shied away from many dimensions of AEK issues.

**Contemporary categories**

Not only are the holistic dimensions of AEK reported to be an ongoing challenge to integrating knowledge through regional NRM planning arrangements and processes, but the living and contemporary aspects of AEK were also raised as creating unique interface challenges and opportunities. The integration of Aboriginal people and AEK into contemporary environmental planning decisions and activities was reported as a particular challenge in an environment that is characterised by highly dynamic and diverse physical and cultural landscapes, including features which have changed dramatically over the past few hundred years. Examples of changes identified included altered fire regimes, introduction of new plants and animals, and an array of other threats to native plant and animal species. Brokers described how Aboriginal people they work with have seen and reacted to these changes in different ways, and this has promoted divergent views about the best approach to environmental management. Work by Davies et al. 2007 with the Anangu people echo the challenges faced by LEB brokers in their efforts to integrate AEK into contemporary environmental management priorities operating in the LEB:

Anangu don’t have a grasp of the significance of the numbers of camels and their impact. They don’t see camels as a problem because they keep moving and the grazing impacts are not concentrated in one place ... And nothing bad will happen if they do or don’t kill the camels. NRM issues like camels do not carry the same sort of duty [of care] that people have had since they were kids. Camels are more prevalent around rockholes and you can see the impact, for example, when camels get stuck in rockholes. Here it is the impact on the place that is significant, so Anangu make a concentrated effort to exclude camels from rockholes. This also relates to their fear that something bad will happen if the rockhole is not looked after (quoted in Davies et al. p. 45)

In some cases, brokers reported that there was a real interest by Aboriginal communities or partnering organisations and individuals to share and change knowledge bases and approaches – particularly on locally specific issues where the objectives were mutually beneficial (i.e. commercial harvesting of some introduced and native species). In other instances, Aboriginal responses to contemporary environmental issues were reported to be at complete odds to assumptions and findings provided by
scientific or other stakeholder modes of inquiry and it was here that brokering work was reported to being considerably challenged (i.e. the negotiation of the location and type of water values to base water sharing agreements in the LEB).

<table>
<thead>
<tr>
<th>Preliminary diagnosis: Knowledge integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Science category</td>
</tr>
<tr>
<td>2. Cultural category</td>
</tr>
<tr>
<td>3. Contemporary category</td>
</tr>
</tbody>
</table>

Our analysis suggests that knowledge integration with Aboriginal people, experiences and epistemologies is a key challenge and need reported by many brokers. Most of the effort to date has focused on the local scale and some success has been reported on instrumental dimensions of AEK – i.e. bush tucker and its uses, and interactive dimensions of AEK that can easily be used to inform other stakeholder practices (i.e. fire management strategies).

Note: where green indicates a good level of knowledge integration, amber fair and red poor.

3. Brokers as a litmus test of the efficacy of institutional arrangements for Aboriginal environmental governance in the LEB

This report presents the development and preliminary application of a broker diagnostic as one pragmatic ‘litmus’ test that can be used to examine the efficacy of institutional arrangements for Aboriginal land management in the LEB. A summary of preliminary results against each of the components is provided below.

Government programs are intended to ensure that Aboriginal people have appropriate opportunities to access their land, use and manage it sustainably, and collaborate with NRM institutions in natural resource planning decisions affecting this inland area. In the desert context of the LEB, the style of governance used to build these collaborative relationships relies heavily on a dispersed network of individuals. These brokers represent local, regional and LEB-wide efforts to facilitate decentralised environmental planning in huge regions with limited resources.

Perspectives collated from these individuals provide insights to a system that faces considerable challenges in sustaining Aboriginal involvement in environmental management programs and ensuring these programs respond to and give proper weight to a wide array of ecological, cultural and sustainable livelihood values. These individuals express a need for ongoing involvement and support from natural resource management organisations and government agencies. Results from the diagnostic indicate that without this support, and without changes to political, resourcing and program priorities, brokers’ work is vulnerable to ‘boom and bust’ cycles and unable to create long-term, enduring relationships. This environment has encouraged the targeting of ‘easy’ projects where program and funding requirement boxes can be easily ticked without confronting more complex and long-term issues.
Each broker was asked to provide a success story that highlighted the efficacy of the environmental management program they were facilitating. It is worth noting that success stories that moved beyond short-term and local-scale benefits were difficult to find. There are many local examples where – despite the distance, lack of resources and intense politics – a culture of trust and knowledge sharing has been developed to contribute to a pool of innovation. This was particularly evident when projects have been able to align Aboriginal aspirations for their own communities with government program funding objectives. Most of the brokers noted that this success is both worthwhile and fragile. Building community, organisational and institutional capital from these local experiments and interactions is an enduring challenge that must be addressed if long-term benefits are to be realised (cf. Putnam 1995).

While the application of this broker diagnostic is preliminary at best, the analysis to date does start to provide an assessment of the organisational support for Aboriginal environmental governance in this desert macro-region of the LEB (see Table 2 below).

<table>
<thead>
<tr>
<th>Component</th>
<th>LEB findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brokers and organisations understand the key contextual issues affecting Aboriginal environmental governance.</td>
<td>Varied</td>
</tr>
<tr>
<td>Contextual issues raised by brokers interviewed suggest a strong bias towards Aboriginal participation in local NRM planning processes. LEB-wide arrangements have failed to take into account how broader planning decisions and outcomes can engage with Aboriginal people and accommodate the multiple outcomes that Aboriginal communities wish to achieve through NRM activities, partnerships and programs.</td>
<td></td>
</tr>
<tr>
<td>Brokers have individual, Aboriginal community and organisational capabilities needed to respond to key issues affecting Aboriginal environmental governance.</td>
<td>Limited</td>
</tr>
<tr>
<td>Local brokers felt they were doing their best to support Aboriginal community efforts to make sustainable NRM decisions and engage in partnerships to help them respond to issues affecting Aboriginal communities and lands.</td>
<td></td>
</tr>
<tr>
<td>Brokers working at each level noted the lack of support provided by regional and LEB-wide organisations to support ‘vertical’ integration between local, regional and LEB-wide organisations and lack of ‘horizontal’ coordination between authorities working at the same decision-making level.</td>
<td></td>
</tr>
<tr>
<td>Program requirements encourage brokers to concentrate on ‘easy runs’ for projects rather than complex issues.</td>
<td></td>
</tr>
<tr>
<td>Brokers in the LEB are often isolated and lack supportive structures to assist with strategic direction.</td>
<td></td>
</tr>
<tr>
<td>As a result, brokerage efforts to respond to the multi-level dimensions of Aboriginal environmental governance is weak.</td>
<td></td>
</tr>
<tr>
<td>Aboriginal Knowledge is integrated into environmental planning and management.</td>
<td>Limited</td>
</tr>
<tr>
<td>Knowledge integration with Aboriginal people, experiences and epistemologies is a key challenge and need reported by many brokers. Most of the effort to date has focused on the local scale and some success has been reported on instrumental dimensions of Aboriginal Knowledge – i.e. bush tucker and its uses, and interactive dimensions of Aboriginal Knowledge that can easily be used to inform other stakeholder practices (i.e. fire management strategies).</td>
<td></td>
</tr>
</tbody>
</table>
4. Conclusions

Brokers’ accounts and experiences show that it is far from easy to achieve partnerships that seriously engage Aboriginal people in environmental planning, management and review while maintaining the support from all other partners (Aboriginal, non-Aboriginal and government). Engagement strategies often fail to reflect or accommodate Aboriginal people’s motivations to enter into partnerships which include efforts to improve the economic, social and physical health of Aboriginal people and build capacity in their communities (e.g. Whitehead 2002, Wondolleck & Yaffee 2000). Issues of unequal power relations within partnership agreements have also been identified, limiting Aboriginal people’s ability to achieve mutually beneficial outcomes (e.g. Lane & Corbett 2005, Robinson & Whitehead 2003). Integration of Aboriginal knowledge into NRM priorities and decision making can also be difficult and requires careful negotiation of appropriate protocols to enable equitable and appropriate sharing of knowledge with other stakeholders (e.g. Hill et al. 1999, Rose 1996, Smyth et al. 2004).

Results from the development and rapid application of the diagnostic provides regional NRM organisations with some insights into how to examine the current approach to integrate environmental management programs and activities with Aboriginal people and communities in the LEB. It is not intended to provide an ‘ideal’ solution for institutional arrangement design and activities. Rather, it is meant to support dialogue between local, regional and LEB-wide organisations and Aboriginal communities about how to best support Aboriginal people and their land management responsibilities in the LEB.

The diagnostic recognises the high reliance on brokers to achieve this integration and has dissected the context and organisational arrangements that support their work. This helps to determine the degree to which these ‘interface nodes’ achieve the integration needed for effective environmental and NRM.

Further areas for further consideration and exploration would be:

- To critically examine the reliance on brokers as a mechanism for integration, and, if these individuals are to be used, how they can be supported more effectively.
- To examine how broker work and supporting organisational functions and activities can be managed in a more coordinated way to enable integration across and between scales of NRM decisions and activities.
- To examine how local, regional and LEB-wide integrated environmental management can better respond to drivers identified in this diagnostic.
5. References


7. Monitoring the success of stakeholder engagement: Literature review

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The work reported in this publication was supported by funding from the Australian Government. The views expressed herein do not necessarily represent the views of Desert Knowledge CRC or its Participants.

Citation

Acknowledgements
Funding for this study was provided by
• Natural Heritage Trust (NHT, http://www.nht.gov.au/)
• Desert Knowledge Cooperative Research Centre (DKCRC, http://www.desertknowledgecrc.com.au/)
• Commonwealth Scientific and Industrial Research Organisation Division of Sustainable Ecosystems (CSIRO CSE, http://www.cse.csiro.au/).

The authors wish to acknowledge colleagues who were involved in the broader research People, communities and economies of the Lake Eyre Basin project, in particular Mark Stafford Smith, Tom Measham, Tim Smith, Lynn Brake, Silva Larson, Alexander Herr and Carol Richards. Jocelyn Davies and Ryan McAllister were also very helpful. Finally, we would particularly like to thank the facilitators, community researchers, leaders and project officers who participated in this project.
Figures

Figure 1: Progression of organisational levels of engagement ........................................................... 265
Figure 2: Flow of stories and feedback in MSC .................................................................................. 280
Figure 3: Component tree: Engagement in NRM ............................................................................... 284
Figure 4: A conceptual map of public participation evaluation ........................................................ 287
Figure 5: The building blocks of the participatory planning, monitoring and evaluation ..................... 288
Figure 6: Conceptual framework for monitoring of engagement ....................................................... 291

Tables

Table 1: Specific considerations of engagement in desert regions ...................................................... 259
Table 2: Principles informing a monitoring framework ....................................................................... 261
Table 3: Conventional and participatory monitoring and evaluation approaches ................................. 263
Table 4: A list of possible indicators of a process of participation ..................................................... 266
Table 5: Assessing the benefits and achievements of engagement .................................................... 272
Table 6: Examples of potential obstacles and ‘enablers’ of participation ........................................... 276
Table 7: Criteria for evaluation of regional NRM planning arrangements ........................................... 285
## Shortened forms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
</tr>
<tr>
<td>CSC</td>
<td>Community Score Card</td>
</tr>
<tr>
<td>CSIRO</td>
<td>Commonwealth Scientific and Industrial Research Organisation</td>
</tr>
<tr>
<td>DKCRC</td>
<td>Desert Knowledge Cooperative Research Centre</td>
</tr>
<tr>
<td>DCQ</td>
<td>Desert Channels Queensland Inc</td>
</tr>
<tr>
<td>ERI</td>
<td>Edelman Relationship Index</td>
</tr>
<tr>
<td>GAB</td>
<td>Great Artesian Basin</td>
</tr>
<tr>
<td>GRI</td>
<td>Global Reporting Index</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communications Technology</td>
</tr>
<tr>
<td>LEB</td>
<td>Lake Eyre Basin</td>
</tr>
<tr>
<td>LFA/LOG frame</td>
<td>Logical Frameworks Approach</td>
</tr>
<tr>
<td>NAP</td>
<td>National Action Plan for Salinity and Water Quality</td>
</tr>
<tr>
<td>NHT</td>
<td>Natural Heritage Trust</td>
</tr>
<tr>
<td>NLWRA</td>
<td>National Land and Water Resources Audit</td>
</tr>
<tr>
<td>NRM</td>
<td>Natural Resources Management</td>
</tr>
<tr>
<td>NRMB (NT)</td>
<td>Natural Resource Management Board (Northern Territory)</td>
</tr>
<tr>
<td>NRMMC</td>
<td>Natural Resource Management Ministerial Council</td>
</tr>
<tr>
<td>M&amp;E</td>
<td>Monitoring and evaluation</td>
</tr>
<tr>
<td>MEE</td>
<td>Monitoring and Evaluation of Engagement</td>
</tr>
<tr>
<td>MERI</td>
<td>Monitoring, Evaluation, Reporting and Improvement system</td>
</tr>
<tr>
<td>MSC</td>
<td>Most Significant Change</td>
</tr>
<tr>
<td>PM&amp;E</td>
<td>Participatory monitoring and evaluation</td>
</tr>
<tr>
<td>Qld</td>
<td>Queensland</td>
</tr>
<tr>
<td>SA</td>
<td>South Australia</td>
</tr>
<tr>
<td>SAAL NRM</td>
<td>South Australian Arid Lands NRM Board</td>
</tr>
<tr>
<td>SEIFA</td>
<td>Socio-Economic Indexes for Areas</td>
</tr>
<tr>
<td>SENCC</td>
<td>Social and Economic National Coordinating Committee</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
</tr>
<tr>
<td>WCMA</td>
<td>Western Catchment Management Authority (NSW)</td>
</tr>
<tr>
<td>YHYCYS</td>
<td>Your Health, Your Care, Your Say</td>
</tr>
</tbody>
</table>
Introduction

This is Chapter 7 in the Desert Knowledge CRC’s (DKCRC) ‘People, communities and economies of the Lake Eyre Basin’ project report.

The project examines the role of natural resources management (NRM) organisations that operate as an ‘interface’ between governments and community in the Lake Eyre Basin (LEB). It aims to identify the factors that support successful engagement in remote regions and develop a framework to help NRM bodies monitor and improve their engagement processes.

This project has been conducted in four stages described briefly below. All chapters are available from the DKCRC website, with brief overviews presented in sections below.

Stage 1 developed a broad profile of the LEB by drawing together existing bio-physical and socioeconomic data in a series of maps (Herr et al. 2009).

Stage 2 produced two reports. The first examined the different institutional arrangements that NRM organisations operate under across the LEB (Larson 2009). The second examined the characteristics of successful engagement in desert environments through a series of interviews with community residents and government liaison officers (Measham et al. 2009a).

Stages 3 consisted of two case studies. One focused specifically on the roles of Aboriginal NRM facilitators or ‘brokers’ and the constraints and opportunities they face in performing their roles (Robinson et al. 2009). The second case study examined the changing demographic and economic trends visible in the LEB and how NRM organisations are able to respond and adapt to these changes over the medium term (Measham et al. 2009b).

The key question resulting from these stages is how can NRM organisations, or indeed, any institution that works in the community–government interface, keep track of the processes that have been identified as essential to engagement, particularly in the context of remote regions in Australia?

Stage 4 of the project is developing a framework for the monitoring of engagement processes. This literature review, in conjunction with the chapters discussed above, forms the groundwork of this final stage (cite the specific reports from this stage).

Sections 1.1 to 1.3 present key findings of the project to date. Section 1.4 provides an overview of the structure of this chapter.

1.2 Lake Eyre Basin (LEB) Atlas

The LEB Atlas, compiled by Herr et al. in 2007 (Herr et al. 2009), provides an overview of the human, social, natural and built capital of the region.

Most areas in the LEB are classified as remote, and people living in the LEB have to travel large distances to the major health and service centres. The prevailing land use in the LEB is grazing, followed by conservation, with most land under leasehold tenure. Aboriginal tenures and native title determination cover approximately 2% of area and there is further Aboriginal involvement in NRM through Indigenous Land Use Agreements.

Conservation planning in the LEB has identified large areas that support healthy ecosystems and maintain important biodiversity. The major water supply for people and industries comes from the Great Artesian Basin (GAB) and periodic flooding. There are concerns for the sustainability of the ground water extraction, though the management of this is continually improving.
There are few urban locations in the LEB and population density is generally less than one person per 1000 square kilometres. For most of the area Aboriginal proportions are low, although there are 59 Aboriginal language groups recorded in the region. However, there are some settlements where Aboriginal people are the majority of residents.

Major employment sectors in the LEB are agriculture followed by government, retail, health, education and personal services and construction. The LEB scores low in all four socioeconomic indices (SEIFA indices) that the Australian Bureau of Statistics (ABS) developed to describe the wellbeing of the nation.

Tourism and mining are two locally important industries in the LEB. Tourism relies heavily on infrastructure, services and access to nature-based destinations, including waterholes and wetlands associated with GAB springs. Mining is a localised activity, and with the current commodity price boom, exploration and mining activity continues to increase in the LEB.

The LEB is unique globally as an inland catchment of unregulated, variable, arid zone rivers supporting a sparse and diverse human population. The report by Herr et al. (2009) clearly indicates that both the environment and, as a consequence, human endeavours in the LEB operate under drivers that are fundamentally different to other, more populated areas.

1.2 Natural resources management arrangements in the LEB

The LEB natural resources management institutions are organised into four state-based bodies:

- South Australian Arid Lands Natural Resources Management Board (SAAL NRM)
- Western Catchment Management Authority in NSW (WCMA)
- Desert Channels Qld Inc. in Queensland (DCQ)
- Northern Territory Natural Resources Management Board (NRMBNT).

Larson (2009) provides an overview of the NRM arrangements in each State/Territory that has an interest in the LEB region, as well as an overview of arrangements directly relevant to the LEB (current at March 2007). The chapter also discusses potential key challenges for NRM in the LEB.

1.3 Tools for successful NRM engagement in the LEB

The report by Measham et al. (2009) summarises the findings from literature on successful engagement, as well as several learnings from the on-ground research. Generic factors for achieving successful engagement were identified in the report, based on both on-ground research and the literature (Measham et al. 2009a, p. 53–54). These factors characterise successful engagement in a wide variety of contexts:

- developing trust
- adequate resourcing
- effective communication
- being inclusive
- being strategic
- promoting community ownership
- defining the appropriate scale for interaction.

In addition to these, important success factors were identified from a government perspective as:

- being transparent
- being determined to achieve NRM initiatives
• adapting as required to achieve outcomes
• aligning on-ground works with government priorities.

Finally, success factors from a community perspective focus on:
• being independent
• respecting the landscape
• getting on with the job
• avoiding burnout.

The notion of desert drivers (Stafford Smith 2008) was also considered in the report. It seems that even general factors play out differently in remote areas and that NRM governance in these areas requires innovative and creative responses. The key drivers as identified by Stafford Smith (2008) and their potential impacts and responses to the key engagement principles have been mapped in Table 1 below (based on Measham et al. 2009a). This report will specifically try to answer the question of how to monitor for engagement in remote regions.

Table 1: Specific considerations of engagement in desert regions

<table>
<thead>
<tr>
<th>Desert driver</th>
<th>Relevance to engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate variability at various scales in space and time (climate variability)</td>
<td>• Be very aware of the effects of drought (and floods) on engagement processes:</td>
</tr>
<tr>
<td>• The longevity of projects and detecting their success is also often dependent on climatic cycles</td>
<td></td>
</tr>
<tr>
<td>Widespread low and patchy primary productivity (scarce resources)</td>
<td>• Ability of people to find time to engage might be limited</td>
</tr>
<tr>
<td>• Realistic funding and support are needed</td>
<td></td>
</tr>
<tr>
<td>Sparse, mobile and patchy human population (sparse population)</td>
<td>• Be creative about partnership with stakeholders who are not very involved (but are possibly better resourced) to increase critical mass</td>
</tr>
<tr>
<td>• Use the small community size to get strong agreements quickly</td>
<td></td>
</tr>
<tr>
<td>• Allow for lots of travel in budgets and staff expectations</td>
<td></td>
</tr>
<tr>
<td>• Have local on-ground facilitators</td>
<td></td>
</tr>
<tr>
<td>Distant markets and decision-making (distant voice)</td>
<td>• Maintain some independence from government but respect the balance on both sides</td>
</tr>
<tr>
<td>• Be prepared to think through and articulate why the region may need different approaches to elsewhere</td>
<td></td>
</tr>
<tr>
<td>• Be aware of the potential for community distrust, but engage locally to overcome this</td>
<td></td>
</tr>
<tr>
<td>Perceived unpredictability in markets, labour and policy (social variability)</td>
<td>• Be imaginative and flexible in creating longer-term contracts and attractiveness in regional NRM jobs</td>
</tr>
<tr>
<td>• Value and train people for multiple roles</td>
<td></td>
</tr>
<tr>
<td>Limited research knowledge and persistent traditional and local knowledge (local knowledge)</td>
<td>• Ensure representative engagement with the community to gain true community ownership that allows access to locally relevant knowledge</td>
</tr>
<tr>
<td>Particular types of people, culture and institutions (cultural differences)</td>
<td>• Be flexible in how you operate (both within the organisation and with the communities)</td>
</tr>
</tbody>
</table>

Source: Based on Measham et al. 2007 and Stafford Smith 2008

1.4 Overview of the structure of this report

This literature review was performed in order to provide background information for the development of the monitoring and engagement framework for the remote regions. The question that the framework aims to address is how can NRM community–government interface organisations best keep track of the processes that have been identified as essential to engagement in the context of remote regions in Australia.
Section 2 of this chapter provides an overview of the considerations relevant to monitoring and engagement in general. Examples of frameworks/guidelines and the examples of tools used for monitoring and evaluation of engagement from the national and international literature are presented in sections 3 and 4, respectively. National and international experiences with engagement monitoring are presented in section 5, followed by a discussion and conclusions in sections 6. The chapter closes with the list of references used in this literature review and useful links.

2. General considerations on engagement and monitoring

Engagement as addressed in this report is understood as a pro-active approach for creating an enhanced understanding of objectives, problems and their solution (Appelstrand 2002). Engagement, as a philosophical and pragmatic framework, seeks to overcome alienation, foster communication and stimulate reform (Taylor et al. 2003). Successful community engagement in the Australian NRM context has been conceptualised as processes and practices in which different people work together to achieve shared goals (Measham et al. 2009a). Therefore, engagement does not only represent means, but also a model for involving those concerned. Optimally, engagement processes help to create more informed operative decisions, and thus provide a more solid base for policy outputs.

This section builds on ‘success factors’ summarised in the previous section (1.3) and provides an overview of several ‘best practice’ recommendations related to either monitoring or engagement. The section starts with discussions relevant to monitoring in general. Monitoring as an integral part of the adaptive management cycle is discussed in section 2.1, followed by general consideration (2.2) and approaches to monitoring (2.3). General approaches to engagement are then presented in section 2.4, with potential levels of engagement discussed in section 2.5.

2.1 Adaptive management and a whole-of-system approach

Monitoring is an essential part of the adaptive management cycle. Monitoring involves gathering information on the impacts of actions and progress towards objectives as a basis for future action (Jiggins & Roling 2002). Processes of learning and applying lessons are therefore essential for the improved management of natural resources in the future (Mahanty et al. 2007, Smith & Smith 2006). Thus, Mee (2005) describes adaptive management as a process of ‘learning by doing’.

Natural resources management is based on the management of the ecological, physical, social, cultural and other aspects of the environment; that is, on the whole-of-system approach. The complexity of the social, economic and ecological systems being assessed, and their interactions, should not be underestimated (Smajgl & Larson 2007). In order to have a chance to overcome the patterns leading to environmental degradation, all dimensions of change need to be understood in an integrated way (Keen et al. 2005). This requires integration across disciplines, especially in baseline and monitoring activities, as well as integration across value systems.

Creating opportunities to adapt to changing conditions requires not only continual involvement and monitoring, but also explicit incorporation of changing public values and priorities. The importance of public engagement in the modern, forward-thinking management system is therefore increasingly acknowledged (O’Riordan 2005). The focus of engagement monitoring is increasingly shifting towards design of processes that facilitate learning and joint action to determine agreed outcomes, rather than designing for a particular outcome (Mahanty et al. 2007).
2.2 Considerations for monitoring

Advice on basic requirements for meaningful monitoring is plentiful (e.g. Abbot & Guijt 1998, Brunner 2004, Estrella & Gaventa 1998, Krick et al. 2005, Mahanty et al. 2007, McAllister 1999, Pasteur & Blauert 2000). Like any other type of monitoring, monitoring of engagement needs to comply with basic requirements such as goals and objectives need to be established, targets and trajectories need to be set, financial contributions need to be committed, personnel need to be trained and made responsible for their duties. It is also important to remember that monitoring is a process. Therefore, monitoring can and should occur at different time-steps. For example:

- Monitoring of the engagement **process** itself: this type of monitoring can be initiated over the short term. The effectiveness of the engagement process can be monitored, and the process can be adjusted for improvement.
- Monitoring of **outputs**: this type of monitoring can be initiated at the end of the engagement process itself, as a tool for evaluation of the process completed.
- Monitoring of **outcomes** of the engagement process: monitoring of outcomes requires longer time lines as well as evaluation of a wider set of drivers and conditions. Longer time lines and increased complexity also mean increased funding requirements. However, this type of monitoring does allow us to track the actual effectiveness of the engagement process as an agent of change.
- Monitoring of **trends** (‘reach’): this type of monitoring is even more complex in nature. It also requires long time lines, but places greater emphasis on evaluation of wider sets of drivers and conditions and their impact on resource condition.
- Monitoring of **unintended consequences**: the monitoring system needs to be sufficiently flexible as to allow for and accommodate changes in context. The learning will be greatly enhanced if the system allows for monitoring of unintended consequences, as well as the expected ones.

The monitoring system should follow generic standards such as utility (that evaluation serves the information needs of users), feasibility (evaluation should be realistic and prudent) and accuracy (evaluation will reveal and convey technically adequate information about the features that determine worth or merit of the program(s) being evaluated) (MED 2004). A more comprehensive set of principles for informing the monitoring framework, as proposed by Mahanty et al. (2007), is presented in Table 2.

### Table 2: Principles informing a monitoring framework

<table>
<thead>
<tr>
<th>Principle</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social learning</td>
<td>Monitoring processes need to contribute to collective learning and action by stakeholders</td>
</tr>
<tr>
<td>Adaptive management</td>
<td>Monitoring processes should provide relevant feedback to inform decisions about future actions</td>
</tr>
<tr>
<td>Assess processes as well as outcomes</td>
<td>Document and share lessons on the process of monitoring plan development</td>
</tr>
<tr>
<td>Analyse change through dialogue and contextual understanding</td>
<td>Recognise it may not be possible to trace observed changes to project actions, but deal with this by collaboratively interpreting findings with project partners who have a rich understanding of the social and ecological context</td>
</tr>
<tr>
<td>Phasing of change processes</td>
<td>Focus early monitoring efforts more on process indicators, with outcome indicators becoming more significant during project implementation. Changes in environmental status are longer term</td>
</tr>
<tr>
<td>Fostering collaboration</td>
<td>Collaboration between stakeholders is important during design, implementation and interpretation of monitoring findings, and involves careful facilitation and negotiation</td>
</tr>
<tr>
<td>Integration</td>
<td>Monitoring plans should span the different aspects of projects (ecological, social, institutional and so forth), incorporate the knowledge held by different groups and address different scales of action and outcome</td>
</tr>
<tr>
<td>Workable</td>
<td>Plan is simple to grasp, ‘light’ to implement, produces useful information and meets reporting requirements</td>
</tr>
</tbody>
</table>

Source: from Mahanty et al. 2007, p. 399
With each step of the monitoring scale, the indicators can focus on either the completion of the stage and achievement of the milestone, or they can look into the quality or level of engagement. For example, the indicator might report on the number of public meetings being held, or attempt to assess the quality of participation and engagement at those meetings.

Monitoring, as referred to in this report, is understood as a process that allows observing of the progress and checking of this progress against pre-set parameters or objectives. Evaluation is understood as an activity that is performed by either the project team or groups of end users or by persons outside of the project team, where these groups come together and take snapshots of progress achieved to date and evaluate the extent to which objectives are met.

2.3 Is your approach to monitoring SMART or SPICED?

Two potential frameworks for designing sets of monitoring parameters are presented here. The SMART approach summarises the standard procedures that are to be used in any monitoring, while the SPICED approach is more participatory.

The SMART approach recommends that targets be set on what is going to happen, who is going to do it, when it is going to be done by, and how achievement will be measured (Krick et al. 2005). It advises that sets of monitoring parameters should be:

S  Specific: state what exactly is to be achieved
M  Measurable: make sure it is possible to determine whether or how far it has been achieved
A  Achievable: realistic given the circumstances and resources
R  Relevant: of relevance to the overall objective/strategy, to the stakeholders, and to the people responsible for achieving them
T  Time-specific: set realistic time-frames for achievement

The key characteristic of this approach is that it is set as a part of the planning process, and to large extent is centred on monitoring the process itself and its outputs and outcomes. Therefore, monitoring under this framework is often designed by the organisation initiating and driving the planning and the engagement processes. This framework does invite input from the stakeholders, but the extent of involvement can be varied and not entirely transparent.

Addressing some of the criticism towards the SMART framework is a SPICED approach (Roche 1999, Queensland Government 2007) which argues that targets or indicators should be:

S  Subjective: A special view-point, unique insight or experience expressed by a stakeholder might have a high value for the organisation. What might be seen by some as ‘anecdotal’ becomes critical data because of its source
P  Participatory: Indicators are developed collaboratively between the organisation and its stakeholders
I  Interpretable: Indicators need to be set as proxies for tracking of the achievements related to the specific objectives. Interpretation and translation of an indicator into a measure of progress towards the objective or goal needs to be pre-determined
C  Communicable and comparable: Indicators set need to be easy to communicate and relevant. They also need to be comparable over time and space, and between different groups of stakeholders
E  Empowering: Stakeholders are actively involved in the process of setting monitoring goals and assessing progress. This involvement and learnings from the process contribute to their empowering
D  Disaggregated: Different groups of stakeholders might be interested in different types of indicators. Therefore, sets of indicators might need to be disaggregated to allow for this pluralism.
The acronym SPICED reflects a shift towards placing greater emphasis on developing indicators that stakeholders can define and use directly for their own purposes of interpreting and learning about change. Furthermore, it challenges the traditional assumptions that the only valid and ‘rigorous’ indicators are those that are ‘objective’, ‘independent’ and deal with ‘facts’ rather than ‘perceptions’ of the facts (Esterella 2000).

The advantage of participatory approaches is that they can provide qualitative information that is locally meaningful, readily useful and context specific. Ideally, the SMART indicators can be used to assess the suitability of the indicators, while SPICED guidelines can ensure that the users get the most value out of the set (Queensland Government 2007).

The key difference between conventional and participatory approaches to monitoring and evaluation (M&E) are summarised in Table 3 (based on Guijt & Gaventa 1998). Although this table was originally developed in relation to ecological monitoring, the learnings are applicable and transferable to the monitoring of engagement.

**Table 3: Conventional and participatory monitoring and evaluation approaches**

<table>
<thead>
<tr>
<th></th>
<th>Conventional M&amp;E</th>
<th>Participatory M&amp;E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who plans and manages the process</td>
<td>Senior managers, or outside experts</td>
<td>Local people, project staff, managers and other stakeholders, often helped by a facilitator</td>
</tr>
<tr>
<td>Role of ‘primary stakeholders’ (the intended beneficiaries)</td>
<td>Provide information only</td>
<td>Design and adapt the methodology, collect and analyse data, share findings and link them to action</td>
</tr>
<tr>
<td>How success is measured</td>
<td>Externally-defined, mainly quantitative indicators</td>
<td>Internally-defined indicators, including more qualitative judgments</td>
</tr>
<tr>
<td>Approach</td>
<td>Predetermined</td>
<td>Adaptive</td>
</tr>
</tbody>
</table>

Source: Based on Guijt & Gaventa 1998

Emphasis in monitoring in general, as well as engagement monitoring, is therefore shifting from externally controlled, ‘objective’ data-seeking evaluations, towards locally-relevant or stakeholder-based processes for gathering, analysing, using and learning from different types of information.

According to Estrella (2000), participatory monitoring and evaluation:

... strives to be an internal learning process which enables people to reflect on past experience, examine present realities, revisit objectives, and define future strategies, by recognising different needs of stakeholders and negotiating their diverse claims and interests. The process is flexible and adaptive to local contexts and constantly changing circumstances and concerns of stakeholders. By encouraging stakeholder participation beyond data gathering, participatory monitoring and evaluation is about promoting self-reliance in decision making and problem solving, therefore strengthening people’s capacities to take action and promote change. (Estrella 2000, p. 4)

### 2.4 Approaches to engagement

Emerging themes in both theory and practice of engagement can be largely amalgamated within two bodies of knowledge (Buchy & Hoverman 2000):

1. Engagement as a method, a set of guidelines and practices of involving communities or the general public in specific planning or other activities
2. Engagement as an approach, an ideology, a specific ethos for community development.
Engagement can therefore be approached as either a method or as a guiding principle. The two approaches to engagement are also, to some extent, guided by the object of engagement.

In the cases where engagement is initiated for a specific issue, such as a specific planning processes or specific infrastructure development, it is typically treated as a method for involvement of stakeholders: method for elicitation of local values and knowledge; method of conflict resolution and trust building; method for increased public acceptance of the project or a plan. Conducting and monitoring issue-related engagement is relatively easy: the process is short-term and usually local in scale; the goals and objective are obvious or easy to set; and stakeholders are motivated to participate.

The other type of engagement is typically employed as a day-to-day guiding principle for interactions between organisations and their stakeholders. This type of engagement is more difficult to conduct and monitor: engagement times are long and often unspecified (‘forever’); scale of the engagement effort is regional to national; objectives of the engagement might not be obvious (‘because we should’) or they might be perceived as of little relevance by those approached; the outcomes are not necessarily quantifiable (‘better future’ or ‘better resource condition’). As a result of all these factors, motivation of stakeholders to participate might be, or might become over time, low or non-existent.

Creation of the ownership of the process and outcomes of the process (‘buy-in’) are very often key motivations for project or policy proponents to engage with the stakeholders. The approach to engagement employed will, however, play a significant role in determining objectives and indicators of its success.

2.5 Levels of engagement

Types and levels of engagement are many, varied and multifaceted. Stakeholder engagement in natural resources management has been increasingly seen as a basic human right: both as a result of the human right to a certain level of environmental quality, as well as a result of the human right to free political participation (Appelstrand 2002, Ebbesson 1997). However, levels to which stakeholders are engaged, as well as types and methods of engagement, are many. Warburton (1997) lists about 150 different techniques and approaches that can be applied depending on what the organisation is aiming for. Several hierarchies of engagement types and levels have also been developed. They range from low level of engagement (‘passive participation’, ‘tokenism’, ‘manipulation’), to a mid-range where participants are involved in decision making about largely predetermined questions; to higher end of the scale where stakeholders undertake their own initiatives or are enabled to develop strong leadership roles (‘partnerships’, ‘empowerment’, ‘citizen control’), (Buchy & Hoverman 2000, Stalker Prokopy 2005). This report deals with engagement practices at any level and does not necessarily differentiate between the types and levels of engagement.

Having clearly defined and communicated ideas on the level of engagement desired by the organisation is, however, an important step in later evaluation and monitoring (Krick et al. 2005). It can be suggested that, ideally, organisations would find and map themselves somewhere along the continuum of the engagement scales, and then, over a number of years and adaptive management cycles, aim at pushing their organisation towards the right-hand side, that is, towards the improved engagement practices (Figure 1, based on levels of engagement classification proposed by (a) Krick et al. 2005, and, (b) International Association of Public Participation (http://www.iap2.org/) as reported in Warburton et al. 2007, p. 7).
Figure 1: Progression of organisational levels of engagement

3. Examples of frameworks and guidelines for monitoring and evaluation of engagement

This section provides an overview of some of the frameworks and guidelines recommended for the monitoring of the stakeholder engagement processes. Monitoring and evaluation of engagement refers to efforts to monitor the development of people’s participation within the project’s activities; as well as to evaluate the outcomes and effect of engagement in terms of both the project’s progress and the development of people’s knowledge, skills and understanding (UNDP Guidebook nd.).

The section starts by presenting examples of frameworks and guidelines developed by international agencies, such as United Nations Development and Environment Programmes and the World Bank in section 3.1. Section 3.2 provides examples developed by national-level agencies from Australia, New Zealand and the United Kingdom. Section 3 concludes by presenting guides, frameworks and recommendations from network organisations and from academic literature in section 3.3.

There are several networks and organisations, both in Australia and internationally, that can provide advice on various aspects of engagement. A list of potentially useful links to their websites is provided at the end of this report, in section 8.

3.1 International agencies

Participatory monitoring and evaluation (PM&E) was developed by the World Bank as a process that would provide regular feedback from stakeholders to decision makers and service providers, as well as provide institutional mechanisms to learn from feedback and act on it. The process is designed to be results-focused and to increase the accountability and transparency in decision making (World Bank 2008). In many cases, PM&E is applied to monitoring and evaluation of ecological and physical impacts and changes and in the area of project management. However, PM&E is increasingly applied in the new contexts of social changes, organisational strengthening, social learning and participatory processes (Estrella 2000). As well as being used by funding and government agencies as a way of holding beneficiaries and other project participants accountable, PM&E can be used as a process that enables...
local stakeholders to measure the performance of these institutions. By creating space for engagement, PM&E has the potential to improve trust, negotiation and dialogue between the various stakeholders across power and other differences. Last but not least, PM&E also has the potential to build broader ownership of the process and therefore the commitment from all involved (Estrella 2000).

The UNDP (United Nations Development Programme) Guidebook on Monitoring and Evaluation of Participation presents key elements of and proposes indicators for the monitoring and evaluation of participation. The importance of monitoring and interpretation of the results are also discussed in the guide.

Several principles of ‘good practice’ are proposed in the guide (UNDP Guidebook nd, p. 3):

- Both qualitative as well as quantitative methods must be included in the evaluation in order for the outcome to be fully understood.
- Evaluating participation demands that the entire process be evaluated, over a period of time. The approach needs to be dynamic as opposed to static; conventional ex post facto evaluations, performed as limited snap-shots, will therefore not be adequate.
- Evaluating a process of participation is impossible without relevant and continual monitoring. Indeed, monitoring is of central importance to the whole exercise and the only means by which the qualitative descriptions can be obtained to explain the process which has occurred.
- The people involved in the project have a part to play in the entire evaluation process. It is not a question of an external evaluator solely determining the project outcome; the evaluation needs to be participatory, with people themselves – both organisational staff and stakeholders – having a voice.

It is also proposed that indicators selected for the M&E of a particular project need to be valid, relevant, specific, timely, reliable, sensitive and cost-effective. The selection of indicators is seen as a critical issue, ensuring that indicators selected are not over-complex, do not demand enormous amounts of staff time and are related to the objectives of the project. Furthermore, the guide argues that indicators of participation need to be both quantitative and qualitative. The quantitative indicators can be used to measure the extent and the magnitude of the results, while qualitative indicators can describe and explain the nature and quality of the participation. An exemplary list of possible indicators of a process of participation is summarised in Table 4 (based on the UNDP Guidebook p. 5). The list is by no means meant as a model list of indicators to be used, but rather, as an example of what has worked in various project settings.

Table 4: A list of possible indicators of a process of participation

<table>
<thead>
<tr>
<th>Quantitative indicators of participation</th>
<th>Qualitative indicators of participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Improved and more effective service delivery</td>
<td>· Organisational growth at the community level</td>
</tr>
<tr>
<td>· Numbers of project level meetings and attendance levels</td>
<td>· Growing solidarity and mutual support</td>
</tr>
<tr>
<td>· Percentages of different groups attending meetings (e.g. women, Aboriginal)</td>
<td>· Interest to be involved in decision making at different stages</td>
</tr>
<tr>
<td>· Numbers of direct project beneficiaries</td>
<td>· Increasing ability of stakeholders to propose and undertake actions</td>
</tr>
<tr>
<td>· Take-up rates of project recommendations</td>
<td>· Representation in other government or political bodies with relation to the project</td>
</tr>
<tr>
<td>· Numbers of local leaders assuming positions of responsibility</td>
<td>· Emergence of people willing to take on leadership</td>
</tr>
<tr>
<td>· Numbers of local people who acquire positions in formal organisations</td>
<td>· Interaction and the building of contacts with other groups and organisations</td>
</tr>
<tr>
<td>· Numbers of local people who are involved in different stages of the project</td>
<td>· People begin to have a say in and to influence local politics and policy formulation</td>
</tr>
</tbody>
</table>

Source: Based on UNDP Guidebook nd
The guide stresses that there are no generic indicators for the M&E of participation. The two issues seen as critical for the selection of the indicators are (i) to work with the minimum number of indicators that could give a realistic understanding of the evolving process of participation, and (ii) to determine the indicators on the basis of the characteristics and purpose of the project (UNDP Guidebook nd).

Another relevant discussion in the guide is concerned with the questions of:

- Who determines the indicators?
- Do they have to be determined externally?
- Do they have to be objective?

The guide acknowledges that local people should also be involved in determining how their increasing participation could best be monitored. Also, it is suggested that ‘indicators’ as a term may need to be translated in a different way in the local context.

The guide also suggests that tools other than indicators might be more suitable for the participatory monitoring of participation processes. Methods using open-ended questions, allowing for evaluation of change in a qualitative way, are discussed (please refer to section 4.3 for further details on one of those tools, the Most Significant Change approach).

As a result of this discussion, the key features of a monitoring system at the local level are summarised as (UNDP Guidebook nd, p. 6–7):

- **Participation of local people**: the monitoring system should be participatory and fully involve project participants and staff.
- **Integrated not separate**: the system should be an integral part of project staff’s work. It should not be seen as a tedious addition but as important as other project activities.
- **Developed not imposed**: the monitoring system should not be designed beforehand and given to project staff to implement. Where possible an appropriate system should be designed and managed by staff and project participants.
- **Continuous and regular**: the monitoring of participation must be maintained at a steady and continuous pace in order to ensure continuity in the data and information collected.
- **Recorded not remembered**: qualitative observations and descriptions must be recorded in written form and stored appropriately; it is good practice to record as quickly as possible and rather than to remember at a later date.

The monitoring of participation must be supported by a number of standard forms upon which recording can be made over a period of time, preferably at least monthly. In the report to the United Nations Environment Programme, Twyford and Baldwin (2006) suggest that where stakeholder participation is not being documented, it is an indication that evaluation of participation is not being undertaken, which in turn indicates that engagement with stakeholders is not of a high priority. Lack of M&E minimises the opportunity to learn from successes and mistakes, and to build skills and improve for the next time. Under these circumstances, Twyford and Baldwin (2006) suggest, stakeholder engagement is likely to be reactive and unlikely to generate significant benefits and learnings.
3.2 National government agencies

3.2.1 Examples from Australia

Engaging Queenslanders

Since the election of Premier Peter Beattie in 1998, the State Government approach to planning and governance has centred on community engagement and participation (Smyth et al. 2004). Programs such as the Community Cabinet and Community Renewal Program highlighted efforts to expand and encourage public participation in decision making, particularly as it related to local issues (Reddel & Woolcock 2004).

There appears to have been a strong emphasis on the evaluation (by government) of community engagement efforts. Published government handbooks provide guidance on how to design frameworks, identify data sources, report on results and monitor for long-term change (Johnson 2004). Describing indicators in terms of inputs, outputs, process and outcomes, emphasises accountability and easily quantifiable measures.

Johnson (2004 p. 7–8) outlines five key principles for developing evaluation frameworks:

1. Evaluation should be integral to planning and management of community engagement activities
2. Evaluation should be structured and planned (rather than ad hoc or informal)
3. The scale and scope of evaluation should be appropriate for the purpose, audience, scale and significance of the engagement project
4. Evaluation should be participatory where possible
5. Opportunities and risk assessment should be undertaken for all evaluation decisions.

In addition, Johnson (2004) outlines four steps to developing an engagement evaluation framework:

**Step 1. Articulate community engagement program to be evaluated**

- Identifying goals, objectives, processes and outcomes
- Understanding social, political, cultural and economic context of the program
- Developing program logic model or theory of change; that is, understanding and recording how the program is meant to function. It considers external influences, critical success factors, short-term, medium-term and long-term outcomes, activities and critical success factors.

**Step 2. Establish the purpose of the evaluation and who to involve**

- Is the evaluation aiming to meet accountability requirements, to ensure effectiveness, or to share experiences and improve practices across an agency or department?
- Who is the audience for the evaluation, and what information are they interested in?
- Who will be involved in the evaluation? That is, who will be conducting it, and who will participate in it?

**Step 3. Identifying evaluation questions and information requirements**

- Using the core questions of: what happened? What could be done better? Was the activity successful? and What lessons were learnt?, develop a set of more specific questions relevant to the program or project being evaluated
- Consider what information is needed to answer these questions
- Establish performance criteria, that is, standards by which to judge the practice and outcomes of engagement and then identify relevant indicators (inputs, outputs, process and outcomes)
- Agree on targets and milestones.
Step 4. Identify data sources and methods to be used

- Consider existing sources of information or data, relevant gaps, methods for collecting new data, timing and intervals of data collection, privacy and ethics considerations – is this all achievable and realistic?

Community capacity assessment tool: South Australia

The South Australian Department of Water, Land and Biodiversity Conservation developed a tool to help assess community, organisational and institutional capacity for NRM at the regional scale (Raymond et al. 2006). The framework of indicators used to conceptualise capacity are largely the same as those used by Fenton and Rickert (2008); however, the methodology and aims are distinctly different.

First, the tool is focused at the regional level and aims to assist with regional planning rather than national-level reporting. Second, it seeks to build capacity through the process of assessing it. Similar to Fenton and Rickert, workshop participants are asked to respond on a Likert scale to statements for each indicator. However, the process used by Raymond et al. requires a consensus response from participants. It can therefore be viewed as a dialogical process which seeks to allow learning and promote understanding between participants.

Third, the tool is used to assess capacity across three tiers: institutional (NRM body), organisational (non-statutory NRM-oriented groups) and individual. Participants are asked not only to assess their own capacity but the capacity of the other tiers. To complement this, they are also asked to indicate how important they perceive each aspect of capacity is for successful NRM and their level of confidence in assessing it.

The results are aggregated to provide a regional picture of capacity. This approach provides a relatively detailed picture, highlighting perceptions across groups and also indicating priorities for action. Monitoring capacity at the regional level under this tool allows for a large amount of contextual information and exploration of process. However, the aim of this framework is to assess capacity; it does not directly attempt to evaluate or track the processes of engagement. While the assessment of capacity may inform our understanding of engagement processes, the focus remains on providing a quantification of capacity.

3.2.2 Ministry of Economic Development, New Zealand

The guidelines developed by the New Zealand Ministry of Economic Development (MED 2004) deal mainly with engagement of government agencies with the various sectors of economy. The MED Cabinet Paper (MED 2004) proposes that there is no generic ‘one size fits all’ approach to engagement monitoring and evaluation, but rather that there is a set of guiding principles that should be considered when developing any engagement framework:

1. **Aspect of program/policy performance being evaluated:**
   The guidelines proposed that monitoring and evaluation can concentrate on implementation (has the program/policy been implemented as specified?), effectiveness (is the program/policy meeting its objectives?) or impact (broader outcomes); or can be devised as a combination of the above.

2. **Stability and maturity of the government’s policy framework and time lags:**
   Evaluation milestones must recognise the longer-term view. In the short term, evaluation activity is likely to focus on monitoring the achievement of engagement activities per se. In the longer term, evaluation, in conjunction with relevant research, is more likely to assess progress made towards policy objectives and broader outcomes.
3. **Attributability of the outcomes to the specific process:**
   Attribution of the success (or lack thereof) to a specific program or activity will be difficult given that multiple factors and multiple activities affect the performance and outcomes.

4. **Quantification and qualification of activities:**
   Evaluation activity does not need to be seen as an arbitrary quantification of ‘outcomes’. *Why* something is working might be more important and informative than *whether* something is working or to what extent; such as, for example, when we want to improve the instruments used in the engagement process.

5. **Wider context and clear strategic direction:**
   Wider context of other government policies, the strategic direction of the organisation and natural resources management arrangements overall, as well as the wider context of external drivers such as drought and commodity prices need to be considered.

6. **Use of appropriate existing sources of information versus new pieces of research and evaluation activities:**
   Ensure that synergies with information being collected by organisation for other purposes (i.e. by various projects and for all departments within the organisation) or by outside agencies and organisations (i.e. ABS, State agencies) are maximised, and new data collection exercises are undertaken only when appropriate.

7. **Balance of costs versus value added:**
   The approach used for evaluation of the engagement processes will need to balance any value added through evaluation and monitoring with the cost of doing so.

The Cabinet Paper (MED 2004) does not specify an evaluation methodology, as it is assumed that a specific evaluation and research plan needs to be initiated at the start of each planning process. It is suggested that this specific plan should consider, among other issues (MED 2004):

- the evaluation purpose, questions to be answered, and how the evaluation results will be used
- statement of outcomes to be assessed for the policy’s objectives, and related effectiveness measures
- statement of any aspects of delivery to be assessed, and related measures
- an indicative evaluation methodology (to show how added value from the policy will be evaluated)
- an indicative data collection and analysis strategy
- what reports are to be produced, who are responsible for these, and when they will be produced
- that the evaluation and research plan reflects good practice principles for evaluation planning and design.

### 3.2.3 Department of Constitutional Affairs, UK

In 2007, Diane Warburton and her colleagues developed a document titled *Making a difference: A guide to evaluating public participation in central government*. The guide was commissioned by the UK Department of Constitutional Affairs and mainly considers **how the public are engaged in policy making**. The guide provides specific ideas for using evaluation to set objectives for engagement, monitor progress and measure achievements and to identify lessons and help improve practice. The guide acknowledges that evaluation is a relatively new element of public engagement, but that it is seen as increasingly important as engagement becomes more widespread and larger in scale. Therefore, the need to assess the effectiveness of different approaches, to increase accountability and to learn from experience becomes more important. However, Warburton et al. (2007) maintain that evaluation does not have to involve a major research exercise, as long as it helps us answer three simple questions:
1. Has the initiative succeeded? (e.g. met targets, met objectives, resulted in other achievements)
2. Has the process worked? (e.g. what happened, what worked well and less well, and lessons for future participatory activities)
3. What impact has the process had? (e.g. on participants, on the quality of policy, on policy makers or on others involved).

The difference between evaluation as a simple audit tool and a learning tool is also discussed in the guide. Warburton et al. (2007) stress that the value of evaluation will be greatly improved if it goes beyond the simple audit questions, such as: have we done what we said we were going to do? have we met our targets?; to a much deeper examination that considers what happened and why, and what can be learnt for the future. They also stress that the content of each evaluation will be different, however, do provide a ‘basic checklist’ of aspects that need to be covered in most cases (Warburton et al. 2007, p. 13 & 14). The ‘basic checklist’ is organised around what they propose are four basic reasons why government might want to get the public engaged in a particular policy process (Warburton et al. 2007):

1. **Improved governance**: to do with democratic legitimacy, accountability, trust, citizens’ rights, empowerment, etc
2. **Social capital and social justice**: to do with tackling exclusion and increasing equity, and building relationships, networks and ownership
3. **Improved quality of services, projects and programs**: more efficient and better services that meet needs and reflect broad social values
4. **Capacity building and learning**: to build confidence, skills, understanding, awareness and knowledge.

Any single engagement exercise can achieve more than one of these purposes. However, in order to be able to measure the success, exact objectives of the particular exercise should be set. In cases where the engagement process is likely to run for a significant amount of time, the guide recommends staging the process with different objectives and exercises set for different stages and evaluating each stage separately.

The way objectives for the exercise are formulated, and thus the method to be used during the process, will depend most on the level of engagement that the policy-maker is willing to commit to (for levels of engagement, please refer to section 2.5). In Annex II of the guide, Warburton et al. (2007) provide a list of potential indicators for engagement. An good summary is presented in Table 5 (from Warburton et al. 2007, p.10; based on a healthcare policy example). As stressed before, the list is by no means meant as a model list of indicators to be used, but rather is an example of what has worked in a specific project setting.
Table 5: Assessing the benefits and achievements of engagement

<table>
<thead>
<tr>
<th>Goals/purpose</th>
<th>Possible indicators (examples)</th>
<th>How to get data (examples)</th>
<th>Important assumptions (examples)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved governance</td>
<td>Increased trust in government</td>
<td>Surveys before and after the engagement process</td>
<td>Trust may be affected by a wide range of influences; this process may only be one among many</td>
</tr>
<tr>
<td>Social capital and social justice</td>
<td>Increased equality of access to decision-making</td>
<td>Demographic analysis of participants + feedback from them on the difference made by the exercise</td>
<td>Social capital can be a difficult concept and is not always understood to operate beyond the local level, but the importance of increasing access to different people and new networks does work at national level</td>
</tr>
<tr>
<td></td>
<td>Developed new contacts/ given access to new networks</td>
<td>Questionnaires after engagement events, interviews later</td>
<td></td>
</tr>
<tr>
<td>Improved quality of services/projects/programs</td>
<td>Costs saved by people taking more responsibility for service outcomes and making less demands (e.g. healthy living)</td>
<td>Feedback from doctors and patients through surveys, polls, etc.</td>
<td>It is difficult to separate the impacts of engagement from other elements of service improvement</td>
</tr>
<tr>
<td></td>
<td>Quick decisions by avoiding conflict</td>
<td>Collecting costs of dealing with conflict (e.g. complaints, objections, campaigns, etc)</td>
<td>The costs of conflict are rarely recorded, so data would have to be collected from scratch</td>
</tr>
<tr>
<td>Capacity building and learning</td>
<td>Greater awareness and understanding of the issues</td>
<td>Questionnaires with participants after the process and follow-up interviews later</td>
<td>These are relatively straightforward issues to test with participants before, during and after the process</td>
</tr>
<tr>
<td></td>
<td>More confidence and willingness to get involved in future</td>
<td>Questionnaires with participants before and after the process and follow-up interviews later</td>
<td></td>
</tr>
</tbody>
</table>

Source: from Warburton et al. 2007, p. 10; based on a healthcare policy example.

3.3 Learnings from the academic literature and networks

3.3.1 Australian literature

Parkins and Mitchell (2005) compare deliberative democratic theory and NRM approaches to participation. They suggest that, since NRM circles have focused on participation as a mechanism to improve decision making, evaluations have been pre-occupied with decision making as an outcome, rather than examining the procedures and processes surrounding the decisions. Deliberative democracy on the other hand, is ‘interested in deliberative spaces’: the process of interaction rather than achieving pre-determined goals (Parkins & Mitchell 2005, p. 533).

Syme and Sadler (1994) argue monitoring and evaluation should be embedded within processes of participation with results used to continually improve the approach and methods used. They have defined principles to improve and guide evaluation of participation in NRM planning. The principles attempt to accommodate the needs of different actors interested in the process and therefore rely heavily on strong collaborative relationships between decision makers, community and researchers (Syme & Sadler 1994).

Proposed principles include:

- Objectives of participation should be agreed at the outset by planners and public
- Criteria to demonstrate if objectives were met should be agreed at the outset by planners and public (acknowledging there may be different criteria focused on process, others on outcomes, etc, to suit different needs)
- Evaluation should be planned to allow for changes in process if needed

2 For example, government officials who may be primarily focused on reporting for accountability, regional bodies concerned with effectiveness of a new approach, etc.
• Responsibility for evaluation should be established when objectives are decided
• Resources for evaluation are established at the outset
• Methodology for evaluation should be agreed, and generally should be as simple as possible.

These principles are then tested using an irrigation planning process in Western Australia. A combination of consultative committees, public forums (which sought immediate feedback), deb briefings with agency staff and other principles ‘inbuilt in the system’ were used to ensure refinement of the process (Syme & Sadler 1994, p. 357). This framework is designed to be iterative, collaborative and meet the needs of several different stakeholders.

Focusing on government agency engagement with the public in forestry management, Buchy and Race (2001) suggest the following four ‘principles of good practice’ as a framework to evaluate community participation:

• **Commitment and clarity**: defining and communicating the level of participation and resources available at the beginning of the process to avoid misleading community members;
• **Time and group dynamics**: time allocated is appropriate to the level of participation sought and reasonable considering the participatory context(s);
• **Representativity**: processes for identifying and determining participants is open and transparent and has considered power relationships and issues of equity
• **Transfer of skills**: the importance of transferring skills to the community is valued.

By having only these broadly defined principles, Buchy and Race (2001 p. 298) suggest the focus is on the ‘quality of the participatory process (rather than the nature of participation promoted)’. While allowing for the diverse needs, objectives and levels of participation from program to program, this approach provides no mechanism to assess whether the nature of participation is appropriate or satisfactory to those involved. Unlike Syme and Sadler, who also argue for clarity around the objectives and extent of community participation, Buchy and Race focus on government perspectives rather than acknowledging public perspectives.

The other end of this spectrum, which focuses principally on the perspectives of participants is explored by Lane et al. (2005) in the evaluation of youth engagement programs. The evaluation interviewed participants before, during and after the youth engagement program and focused on:

• the relevance of the messages for youth participants
• motivations for involvement
• aspects of the program participants felt were most engaging
• longer term and ongoing commitment to environmental issues
• students’ capacity for active involvement.

This aligns with Cuthill (2003, p. 385), who argues for a participatory evaluation framework where:

*Rather than a traditional focus on the end product of an initiative ... evaluation incorporates front end (at the beginning), formative (during) and summative (at the end) stages. It is people centred with stakeholders as the key actors in the evaluation process and not the mere objects of the evaluation.*
3.3.2 Integrated coastal management literature

The integrated coastal management (ICM) approaches have, over a number of years, provided literature related to engagement in general. An interesting related concept is Olsen’s (2003) four orders of governance outcomes for evaluating the performance of integrated coastal management initiatives:

1. creation of enabling conditions (process indicators)
2. achievement of changes in behaviour (change indicators)
3. achievement of change in resource use regimes (stress reduction indicators)
4. achievement of sustainable management involving improvements in social and environmental conditions (status indicators).

Olsen (2003) argued that these changes occurred in a phased way, where the initial program/action outcomes would relate to the first order, followed by the combination of the other three orders.

Another issue relevant to this review and discussed in the integrated coastal management literature is the issue of ‘causality gap’. This concept proposes that it might be very difficult to establish with confidence that changes, particularly delayed ones, result directly from a specific intervention or action; in other words, it might be difficult to establish or clarify the cause and effect relationships (Mahanty et al. 2007).

The time scales of the monitoring exercises greatly influence the potential for learning and adaptive management (Mee 2005, O’Riordan 2005). With longer project time frames, changes in stress reduction or status indicators are more likely to occur. In shorter projects, the information might be limited to the process level issues (Mahanty et al. 2007). Therefore, it is important to devise and implement a range of indicators that assess both shorter- and longer-term change processes, rather than focusing only on outcomes that may occur beyond the life of the project.

3.3.3 Institute for Food Research, UK

Nine evaluation criteria were proposed by Frewer et al (2001) as a basis to develop methodologies to assess the effectiveness of different public participation exercises. The criteria are grouped as:

- acceptance criteria (representativeness, independence, early involvement, influence, and transparency)
- process criteria (resource use, task definition, structure, decision making and cost effectiveness).

Frewer et al (2001) used these criteria to develop a toolkit for evaluation of engagement success, using a 5-levels scoring system from ‘++’, indicating that the exercise scored very well to a ‘--’ for a very poor rating.

3.3.4 Stakeholder Engagement Manual

The Institute of Social and Ethical AccountAbility was launched in 1996 as a network of businesses, academics and practitioners engaged in promoting accountability for sustainable development and in devising measures for reporting on the social and ethical performance of organisations. In 2005, AccountAbility, in collaboration with the United Nations Environment Programme and Canadian Stakeholder Research Associates, developed the Stakeholder Engagement Manual, a comprehensive set of guidelines for companies and organisations on planning for and assessing their stakeholder engagement. The Stakeholder Engagement Manual (Krick et al. 2005) arguably represents current best practice in the areas of engagement planning and monitoring.

Krick et al. (2005) advise that a decision on how to measure or monitor the success of the engagement exercise becomes part of the planning process. They term their targets ‘Signals of success’ and suggest that they should be set for various stages of the process, from inputs (i.e. Has the expected funding been
made available?) to outputs (Has the set number of public meetings been held? Have the numbers of participants been satisfactory?) to outcomes (Has the reaction/behaviour of stakeholders changed as a result of the engagement process? Was the media coverage generated? Was the consensus reached?).

The Stakeholder Engagement Manual (Krick et al. 2005) guides the reader through five distinct stages of the engagement process. The approach is based on the principles of adaptive management, and therefore monitoring is intrinsically linked to all stages of the process. The manual discusses key learnings expected from each stage and proposes guiding questions for evaluations. The relevance of each stage to the monitoring is discussed in the paragraphs below.

Stage 1: Set strategic objectives for engagement

The aim of this stage of the process is to identify and set the strategic priorities for stakeholder engagement in the organisation. Is the organisation planning stakeholder engagement as a result of the regulatory requirements, or are they seeking to improve their image? Krick et al. (2005) propose to develop a discussion around these objectives, using guiding questions such as: What are we trying to accomplish through stakeholder engagement? What would success look like?

The Manual proposes the use of the SMART framework when setting targets to engagement. The SMART approach targets set out what is going to happen, who is going to do it, when it is going to be done by, and how achievement will be measured (see section 2.3 for discussion on the SMART approach). As a result of the discussion, the Strategic Engagement Objectives should be specified and captured as brief declarations that link stakeholder engagement to strategic business objectives, for example: ‘To develop a new approach to …’ or ‘To learn more about …’

Stage 2: Analyse and plan

The aim of this stage is to build up a basis of knowledge about both the organisation itself and its stakeholders. This knowledge would allow the organisation to prioritise further, and develop a more specific rather then generic plan for engagement. Several ways of analysing and planning are discussed in the manual.

The organisation is also expected to decide at this stage on the level of engagement they are trying to achieve for each issue. The engagement levels can range from no engagement, where no active communication and no relationship occur; to empowerment, where stakeholders are integrated into governance structures on an equal footing (see discussion in section 2.5 and Figure 1 (a) based on Krick et al. 2005).

An interesting exercise proposed for this stage, and useable in the future for monitoring purposes, is mapping of the ‘Possible Outcomes of Engagement’. The best case scenario and the worst case scenario are developed as possible outcomes of engaging for each objective proposed in the engagement strategy. In addition to outcomes, the best and worst case scenarios also describe actions, abilities and resources available during the engagement.

Stage 3: Strengthen capacities for engagement

The main aim of this step is to develop the individual skills as well as organisational systems needed to engage effectively with stakeholders. An exemplary table of potential obstacles to effective participation, and the potential ‘enablers’ of engagement, both internal and external to the organisation, is presented in Table 6 (based on Krick et al. 2005, p. 91). An ‘enabler’ is defined as helping achievement of an action or goal by providing the means, knowledge or opportunity (AccountAbility 2005). Enablers are interesting not only as a planning tool, but also as a potential base for the future monitoring framework. For example, if the enabler is to ‘provide timely information’, that monitoring point can be ‘timely information (i.e. one month before the event) has been provided to stakeholders’: yes/no.
Krick et al. (2005) point out that some of the key enablers for stakeholders to engage revolve either around knowledge, access to information, finances or time (Table 6). They also point that some individuals and groups may find it difficult to take up the invitation to engage, or that circumstances may hinder their ability to fully contribute to the engagement processes due to, for example, language, literacy or cultural barriers; problems of distance; lack of time; or gaps in their knowledge about a specific issue. Therefore, the capacity gaps of stakeholders need to be seriously and carefully considered and addressed.

<table>
<thead>
<tr>
<th>Areas</th>
<th>Potential issues</th>
<th>Potential solutions/enablers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge/Ed/Comm</td>
<td>• Issue-specific knowledge</td>
<td>• Provide timely information</td>
</tr>
<tr>
<td></td>
<td>• Ability to use Information and Information and Communications Technology (ICT)</td>
<td>• Use different communication channels in parallel (e.g. print, online media, community radio, community functions, etc)</td>
</tr>
<tr>
<td></td>
<td>• Literacy</td>
<td>• Provide training</td>
</tr>
<tr>
<td></td>
<td>• Communication styles</td>
<td>• Provide information in various languages</td>
</tr>
<tr>
<td></td>
<td>• Language</td>
<td>• Hold ‘Open-house’ days</td>
</tr>
<tr>
<td></td>
<td>• Limited reach of press and media</td>
<td></td>
</tr>
<tr>
<td>Infrastructure</td>
<td>• Availability of ICT</td>
<td>• Choose accessible locations</td>
</tr>
<tr>
<td></td>
<td>• Means of transport</td>
<td>• Provide assistance with transportation</td>
</tr>
<tr>
<td></td>
<td>• Unreliable infrastructure (i.e. roads closed in wet season)</td>
<td>• Provide equipment and training for ICT if necessary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Choose the right time (e.g. avoid wet season if possible)</td>
</tr>
<tr>
<td>Social and Cultural Context</td>
<td>• Social hierarchies (e.g. cultural background, gender, wealth)</td>
<td>• Ensure anonymity if required</td>
</tr>
<tr>
<td></td>
<td>• Local conflicts</td>
<td>• Be aware of potential conflicts between stakeholder groups</td>
</tr>
<tr>
<td></td>
<td>• Lack of shared understanding of culture-specific customs and communication styles</td>
<td>• Ensure that timing and location of engagement processes takes into account stakeholder’s needs</td>
</tr>
<tr>
<td></td>
<td>• Religion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Family and other responsibilities (e.g. mustering times, childcare)</td>
<td></td>
</tr>
<tr>
<td>Location and Finances</td>
<td>• Do stakeholders feel comfortable?</td>
<td>• Be sensitive to stakeholder requirements regarding meeting locations</td>
</tr>
<tr>
<td></td>
<td>• Can there, if required, be adequate privacy or anonymity?</td>
<td>• Compensate for lost working time</td>
</tr>
<tr>
<td></td>
<td>• Costs of travel and accommodation</td>
<td>• Compensate for travel and accommodation costs</td>
</tr>
<tr>
<td></td>
<td>• Lost working time</td>
<td></td>
</tr>
</tbody>
</table>

Source: modified from Krick et al. 2005

**Stage 4: Design the process and engage with stakeholders**

At this stage of the process, the planning is completed and the engagement activities with stakeholders are carried out. The plan contains details of the most suitable level for engagement (i.e. consultation, partnership, etc); engagement approaches and methods (surveys; interviews, advisory panels, etc); as well as practical issues of funding, space, timings, etc.

The ways in which stakeholders themselves can be involved in evaluating the process will largely depend on the feedback methods set in the engagement plans, but can range from anonymous surveys to conversations with each participant about their perceptions of the process, for example, What worked and what did not? What can be done better next time? Was there a gap between the issues identified as relevant by organisation prior to the engagement process and what emerged during the process that was deemed relevant by the participant? How big was this gap and what are the consequences?
Stage 5: Act, review, report

This step of the process aims to translate new learning, insights and agreements into action. The main purpose of reviewing the engagement process is to understand how it could be better performed and developed in the future. The review can be undertaken by the internal team, or it might involve stakeholders themselves, either as part of the engagement process or after the process is completed. The internal team might revisit the best case and worst case scenarios developed in Stage 2 of the process and evaluate what really happened, place the real engagement on a spectrum between best and worst cases and record the learnings. Or the team might revisit the ‘signals of success’ identified in the stakeholder engagement plan. Did it happen? Was it better or worse than expected? Why? Were targets realistic? Did unexpected incidents/problems happen?

The most important thing to consider in evaluation of engagement processes is that it sometimes can take a long time before the ‘signals of success’, particularly those related to the outcomes, appear. Changes in the views and behaviours of both organisation and stakeholders, resulting from the successful engagement, might be slow, dependent on external, unrelated drivers, or occurring in increments over a long period of time. Therefore, the conclusions about the success of the particular engagement exercise need to be revisited periodically and reassessed as appropriate.

At the end of the cycle, Krick et al. (2005) stress the critical importance of reporting back to stakeholders the decisions taken as a result of the engagement. Demonstrating that due consideration was given to the outputs of the engagement process is important for the stakeholders who were engaged in the process, and it can also influence future decisions of stakeholders who were not involved in the initial engagement process. The reporting back to stakeholders can take various forms, from one-on-one or telephone conversations to formal regular reporting initiatives such as annual reports.

The most internationally recognised and the most comprehensive reporting guidelines are arguably those developed by the Global Reporting Initiative (GRI). An interesting concept with the GRI is the incremental approach to reporting which expands over time (GRI 2003). This approach allows for the reports to be submitted at three different levels of application. For example, the “beginners” are required to submit some information on their profiles, no information on their management approach, and to report on any 10 indicators from the list, as long as there is at least one from each social, economic and environmental area. At the second level, companies provide all this information, plus additional information on the profiles, some information on management approach, and report on a total of 20 indicators (at least on from each economic, environment, human rights, labour, society and product responsibility area). At the third and the highest level of reporting, companies have to report on all the aspects of the GRI framework (GRI 2003). It is acknowledged that it might take an organisation a number of years to move from its first report to full reporting status.

AccountAbility has also put forward the AA1000 series of standards that address various aspects of improving accountability and performance and learning through stakeholder engagement (Sigma Project 1999, AccountAbility 2005).

However, the organisation needs to bear in mind that any type of structured reporting is a time- and money-intensive exercise. Benefits of reporting need to be evaluated against costs before the commitments to reporting are made.
4. Examples of tools used in engagement monitoring

This section presents an overview of some of the tools used in the monitoring and/or reporting of the engagement activities. Most of the tools presented here have been originally devised as project monitoring tools, but have since been successfully used as engagement monitoring tools. The examples presented here are by no means an exhaustive list of tools available, nor do they represent ‘the best’ or ‘the most suitable’ tools. Rather, the objective of this section is to provide an idea of the breadth of the methods available both internationally and in Australia.

Logical Frameworks are presented in section 4.1, followed by an overview of Report and Score Cards in section 4.2. Sections 4.3 and 4.4 present two qualitative approaches: the Most Significant Change and Outcome Mapping. Section 4.5 gives an overview of the Relationship Index.

4.1 LOG frames

The Logical Framework Approach (LFA or LOG frame) is the ‘classic’, most widely used tool for project planning, design, implementation and M&E. The LOG frame discussion presented here is based on the process as described in Bond et al. (2006).

LOG frames are usually developed at the planning phase of a project, and can help to clarify the following important aspects (Bond et al. 2006, p. 66):

- what you are trying to achieve and how it will be achieved
- how you will know if you are achieving your objectives
- what are relevant conditions outside of the project – beyond your control – that are needed for the project to succeed, or that may pose a threat or a risk.

The LFA, as its name suggests, is the basic logical way of assessing and monitoring the activities. It therefore most often follows the typical planning stages of establishing scope, agreeing on the planning framework, etc. The resulting LOG frame is often presented as a matrix or a table consisting of summaries of what is to be achieved at each stage of the project (the objective hierarchy), the measures and indicators that will be used to monitor progress (measures of achievements), how the measures will be monitored (means of verification), and the assumptions behind the logic of how activities will eventually contribute to the overall goal (assumptions and risks). LOG frames are, however, not suitable tools for evaluation of the projects.

A LOG frame may cover a number of years and be linked to the annual work plans. It is important that the work plan covers in detail all the activities planned. That is, the work plan provides specific information on what is to be done, who is responsible, who will check it is done, when should it be done (start and finish) and resources needed (people, materials and finances) (Bond et al. 2006).

LOG frames are typically the planning and monitoring tool that most government agencies are familiar and comfortable with. However, its value and relevance as a tool for M&E, versus the costs of implementing such a comprehensive and time- and money-intensive method, needs to be individually assessed for each project or activity. The assessment of costs versus benefits should not include only funding agency representatives, but also representatives of the implementing agencies and communities in question. An example of experience with use of the LOG frame is presented in section 5.

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3 Comprehensive lists of potential tools for engagement monitoring can be found in several references (e.g. see Rietbergen-McCracken & Narayan 1998, or Involve 2005) and on the web site of most relevant organisations (as listed in section 8).
4.2 Report and Score Cards

Citizen Report Cards and Community Score Cards are proposed by the World Bank as potentially useful modes of data collection. Both methods are briefly presented here, based on the manual developed by Singh and Shah (2004). Historically, they were promoted as methods for assessing of public services (such as health provision), but have more recently been adapted for use in assessing public engagement itself.

Citizen Report Cards are participatory surveys that provide quantitative feedback on user perceptions of the quality, adequacy and efficiency of services or process under evaluation (World Bank 2004). The unit of analysis is the household or an individual, and the information is collected via a survey questionnaire (Singh & Shah 2004).

Community Score Cards, on the other hand, are qualitative monitoring tools that are used for local-level monitoring and performance evaluation of services, projects and/or processes. The Community Score Card (CSC) process is a hybrid of the techniques of social audit, community monitoring and Citizen Report Cards. The unit of analysis is the community, and the information is collected via focus group interactions. This method aims not only to collect information, but also to create grass-roots mobilisation and awareness. The method is very suitable for micro- to local-level (village or cluster of villages) and for rural settings (World Bank 2004). The feedback is provided via an interface meeting held between the community and the organisation at the end of the process.

4.3 Most Significant Change approach

The Most Significant Change (MSC) approach was developed in the mid-1990s by Rick Davies as a monitoring tool for a development program in Bangladesh. The method was based on monthly recording of the experiences of participants themselves, and included changes in people’s lives, in people’s participation and in sustainability of institutions and their activities (Abbot & Guijt 1998).

Simplistically, the technique involves the regular collection of stories to record what participants in a program perceive to be the most significant change as a result of their involvement. Stories are presented and discussed at regional meetings and those that are determined as the most significant are sent to funding bodies who are also asked to provide feedback on the stories (refer to Figure 2, from Dart & Davies 2003, p. 139). As well as capturing program impacts from participants, the process of discussion and debate for selecting the most significant stories is said to promote clarity of program vision and highlight unanticipated program outcomes (Davies & Dart 2005).

The technique is useful in capturing extraordinary events resulting from an intervention or program, but cannot be used alone to evaluate its overall impact (Willetts & Crawford 2007). The rich data collected aims to strengthen, rather than replace, more traditional, quantitative measures of program efficiency and effectiveness (Dart & Davies 2003).

Concerns over the use of MSC include:

- The representativeness of people approached to provide stories
- Inadequate skills of field staff in eliciting and recording stories
- Trust between program staff and participants, and how this influences stories
- Transparency of data collection (informed consent of story tellers)
- Significant time commitment for staff (both those collecting and those discussing and ranking at regional meetings)
- the over-interpretation of MSC data (Willetts & Crawford 2007).
The MSC approach is being applied in a range of contexts to bolster traditional forms of evaluation and monitoring, including education and NRM. MSC is being applied as a monitoring tool of performance and outputs of the engagement process, as well as a tool for evaluation of outcomes and impact (Davies & Dart 2005).

![Diagram of MSC process]

**Figure 2: Flow of stories and feedback in MSC**
Source: Dart & Davies 2003, p. 139

### 4.4 Outcome mapping

Outcome Mapping methodology focuses on one specific type of outcome: behavioural change. Outcomes are defined as changes in the behaviour, relationships, activities or actions of the people, groups and organisations with which a program works directly (Earl et al. 2001). The methodology was developed as a monitoring tool for international development programs. In this context, focusing on outcomes instead of impacts was seen as justified for two main reasons: (i) it is difficult to attribute an impact to a specific intervention; and (ii) long time frames (usually beyond project life) would be required for accurate assessment of impacts (see discussion in section 3 that addresses these and other issues with monitoring engagement). Therefore, the Outcome Mapping focuses on assessing how a program facilitates change rather than on how it causes change (Earl et al. 2001).

Outcome Mapping is divided into three stages. The first stage, Intentional Design, helps the organisation establish consensus on the macro-level changes it will help to bring about and plan the strategies it will use. It helps answer four questions:

1. **Why?** (Why is the program/action needed? What is the vision it contributes to?)
2. **Who?** (Who are the program’s partners?)
3. **What?** (What are the changes that are being sought?)
4. **How?** (How will the program contribute to the change process?).

The second stage, Outcome and Performance Monitoring, provides a framework for the ongoing monitoring of the program’s actions and stakeholders’ progress toward the achievement of outcomes. The third stage, Evaluation Planning, helps the program identify evaluation priorities and develop an evaluation plan.
This method is based largely on systematised self-assessment. The main tool used for monitoring and evaluation are journals. For example, in an ‘Outcome Journal’, the evidence of changes in the behaviours, actions, activities and relationships of stakeholders are recorded. The ‘Strategy Journal’ records the strategies that a program uses to encourage change, as well as changes and improvements of the strategy enacted as a result of the ongoing learning. Organisational practices are recorded in the ‘Performance Journal’, as well as learnings that the organisation is making from the engagement experience.

Earl et al. (2001) also discuss the issues of time, resources and the level of effort required to put into monitoring. They suggest that requirements be minimised by the incorporation of these activities into the overall monitoring system, where the information tracking and reporting already exists. They also stress that Outcome Mapping was designed primarily as a learning tool for an organisation to conduct its own monitoring. Although an external expert can be used to collect data, valuable learnings and feedbacks will be lost.

4.5 Edelman Relationship Index

A ‘Relationship Index’, developed by two commercial companies, Edelman and Strategy One, is a monitoring approach that tracks four key dimensions deemed to be determinants of the quality of relationships. Data for the collation of the Edelman Relationship Index (ERI) is typically collected via short in-person or phone interviews and uses a nine-point scale to evaluate the dimensions and their elements (from Morley 2003):

Trust – The trust is defined in ERI as ‘One party’s level of confidence in, and willingness to open oneself up to, the other party’. There are three elements of trust:

- **Integrity**: the belief that an organisation is fair and just
- **Dependability**: the belief that an organisation will do what it says it will do
- **Competence**: the belief that an organisation has the ability to do what it says it will do.

Mutuality of control – ‘The degree to which parties agree on who has the rightful power to influence one another’. Although some imbalance is natural, stable relationships require that organisations and the public each have some control over the other.

Commitment – ‘The extent to which each party believes and feels that the relationship is worth spending energy to maintain and promote’. Two dimensions of commitment are continuance commitment, which refers to a certain line of action, and affective commitment, which is an emotional orientation.

Satisfaction – ‘The extent to which each party feels favourably toward the other because positive expectations about the relationship are reinforced’. A satisfying relationship is one in which the benefits outweigh the costs.

The ERI can be used at the outset of a program to diagnose and benchmark the quality of the existing relationships between the organisation and its key stakeholders, and in the course of a program, to measure changes in the quality of key relationships so that program adjustments can be made.

Several large Australian corporations, such as the National Bank of Australia, use annual ERI surveys to measure and evaluate their engagement performance.
5. Experiences with engagement monitoring

Although public participation is largely acknowledged as central to planning theory, significant challenges remain regarding how success of such efforts is evaluated (Lane 2005). Little published information on actual evaluations appears to be available, both in Australia (Reddel & Woolcock 2004) and internationally (Abbot & Guijt 1998, Buchy & Hoverman 2000). Interestingly, a significant percentage of the international literature reporting on experiences with engagement processes used in the NRM sector seems to be from developing countries (Buchy & Hoverman 2000).

The majority of the literature found during the literature searches did not deal with the monitoring of engagement per se. Rather, the experiences reported dealt with engagement in the process of monitoring and environmental management (extensive literature review by Estrella & Gaventa 1998, O’Faircheallaigh 2007, Pasteur & Blauert 2000), engagement in the setting of sustainable development goals (e.g. Fraser et al. 2006, Jollands & Harmsworth 2007, Rosenstrom & Kyllo nen 2007, Parissi 2007), or engagement for evaluation of programs (Coupal & Simoneau 1998, Mahanty et al. 2007, Stalker Prokopy 2005). Examples of monitoring of engagement itself were rare and tended to discuss general aspects and provide rather general reinforcements of the importance of adhering with the principles of good practice. A few of the references providing more specific lessons are summarised in this section.

5.1 Australian NRM Context

The shift to regionalised environmental management in Australia has seen a broad recognition of the importance of social processes in NRM (Higgins & Lockie 2002). It is therefore unsurprising that the importance of community engagement and the consideration of social processes are strong themes in NRM literature (see e.g. Carr 2002, Aslin & Brown 2004, Nelson & Pettit 2004, Lane & McDonald 2005, Measham et al. 2009a).

Although community participation in NRM is strongly supported, and in some circumstances required to access government funding, until recently there has been a general lack of attention paid to the formal evaluation of these processes (Buchy & Race 2001). Where evaluation has occurred, it has often been empirical and focused on answering broader questions about the suitability of community-based or regional NRM arrangements in Australia (see e.g. Curtis & Lockwood 2000, Farrelly & Conacher 2007) rather than monitoring the effectiveness of engagement. Syme and Sadler (1994, p. 525–6) suggest this hesitation to deal with monitoring and evaluation of participation results from the complexity of values and absence of agreed criteria for determining success, evaluation methods or tools for measurement.

Instead, monitoring and evaluation of NRM programs in Australia has largely focused on biophysical measurements of on-ground change and efficiency of funding (Carr 2002, Wallington & Lawrence 2008) and struggled to influence program development (Bellamy et al. 2001). The traditional (and ongoing) focus on achievement of outcomes to evaluate programs is an uncomfortable fit for social processes due to the difficulty in meaningfully quantifying outcomes and the long time frames for seeing results (Bellamy et al. 1999) (see also discussion in section 2).

The adoption by the Natural Resource Management Ministerial Council (NRMMC) of a national framework for monitoring and evaluation of the NHT and NAP programs (NRMMC 2002) has seen a formalised, government-funded effort to monitor, evaluate and report on social aspects of NRM. This framework has since been reviewed and revised. The Australian Government has recently adopted the new NRM Monitoring, Evaluation, Reporting and Improvement Framework (MERI Framework), which includes social and sustainable industry outcomes. The national coordination of indicators has been delegated to the National Land and Water Resources Audit (NLWRA), which established the Social and Economic National Coordinating Committee (SENCC) in 2004 to provide advice and develop indicators for social and economic processes relevant to NRM.
National level: benchmarking social and institutional capacity

One aspect of social indicators targeted by the NLWRA is the capacity of NRM groups to make decisions relating to NRM. Fenton and Rickert (2008) have developed a national framework to evaluate this capacity by focusing on four core indicators: the capacity of regional bodies, engagement in NRM, partnerships in NRM, and recognition of the social foundations for NRM.

For each of these areas a ‘component tree’ articulating success statements and measures was developed. Telephone surveys were conducted addressing all indicators with four staff from each regional NRM body (including the CEO, Chair of the Board and two other staff). Regional stakeholders (nominated by the NRM body4) were surveyed regarding engagement capacity, and federal, state and territory government representatives were surveyed regarding partnership capacity.

Interviewees were asked to indicate the extent to which they agreed with a series of statements relating to the measures outlined in the component tree. Figure 3 shows the component tree relating to engagement (indicator E: Engagement – shared NRM vision and ownership at the NRM level). To explore each of the measures further, several questions are asked of respondents regarding issues such as: the influence of engagement activities in decision making, trust, transparency, inclusiveness, and the leadership of the regional bodies. In this manner the framework provides a snapshot of the perceptions of some stakeholders, and a self-assessment from staff; however, its scope is necessarily focused on analysis of the capacity of the NRM body.

The aims of this framework are to benchmark, and, over time, monitor the capacity of regional NRM bodies. While it does provide an indication of perceived success and appropriateness of engagement (as well as of broader factors contributing to successful engagement such as staffing levels and access to funding) this framework does not, and was never intended to understand the processes behind results.

While it is argued that reliance on indicators distracts from trying to understand the processes they are used to evaluate (Wallington & Lawrence 2008), it is hard to imagine, and perhaps inappropriate at this stage, for a national framework to delve into further detail on social processes.

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4 Eight nominations were sought from each NRM body in the areas of local government, agricultural industry, non-agricultural industry, conservation or environment groups, Aboriginal groups, state agencies, and two other stakeholder organisations, which may include those that have not been well engaged (Fenton & Rickert 2008, p. 7).
Regional level: Benchmarking NRM planning in Qld, the NT and WA

During the period 2002–2006, the Tropical Savanna CRC and CSIRO developed and applied an evaluation framework to assess the contribution of regional plans in tropical savannas to sustainable and healthy landscapes (McDonald et al. 2004). The framework necessarily takes a holistic approach, considering social, economic and ecological outcomes and involved interviews, participant observation in regional planning processes and review of regional planning documents.
Criteria developed as part of the framework are presented in Table 7. Importantly, the criteria cover context, structure, process and outcomes of the regional plan (McDonald et al. 2005). While evaluation of engagement structures constitutes only one piece of a much larger picture in this evaluation framework, many of the criteria reflect ‘success principles’ as described in section 1.3 (adequate resourcing, recognising diversity, being adaptive, alignment and scale, etc).

### Table 7: Criteria for evaluation of regional NRM planning arrangements

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Context criteria</strong></td>
<td>Recognises that implementation of regional NRM is affected by a wide range of environmental economic, social, policy/institutional and technological factors</td>
</tr>
<tr>
<td>C1 Thinking ‘regionally’</td>
<td>Regional stakeholders have a clear identification with the NRM region, an acceptance of its NRM issues and are generally thinking ‘regionally’.</td>
</tr>
<tr>
<td>C2 Stakeholder culture and commitment</td>
<td>Regional stakeholders recognise, practice and support participation and collaboration that generates willingness for learning and change. Political commitment is present among key regional stakeholders.</td>
</tr>
<tr>
<td>C3 Understanding NRM</td>
<td>Recognition by regional stakeholders of the ‘multi-dimensional nature’ of NRM, i.e. social, economic, environmental and institutional/political dimensions.</td>
</tr>
<tr>
<td>C4 Recognising regional diversity and complexity</td>
<td>Diversity and complexity of the social, economic, ecological and institutional characteristics of the region are recognised and widely understood.</td>
</tr>
<tr>
<td><strong>Structure criteria</strong></td>
<td>Addresses the rules and institutional arrangements relating to regional NRM</td>
</tr>
<tr>
<td>S1 Coherent policy and governance structures</td>
<td>The degree to which policy, program, governance (and legislative) structures agree in intent, are consistent and logically connected.</td>
</tr>
<tr>
<td>S2 Aligned institutions</td>
<td>Institutions have a high degree of integration and adaptiveness to support regional priorities.</td>
</tr>
<tr>
<td>S3 Roles and responsibilities</td>
<td>Roles and responsibilities in regional NRM arrangements are clearly defined and understood.</td>
</tr>
<tr>
<td>S4 Participation and engagement structures</td>
<td>Integrity and inclusiveness of participation and engagement structures is apparent.</td>
</tr>
<tr>
<td>S5 Adequate regional resourcing</td>
<td>Resources are adequate to support regional NRM planning and long-term certainty exists regarding future funding.</td>
</tr>
<tr>
<td>S6 Monitoring return on investment</td>
<td>Mechanisms are in place to monitor and assess returns on investment.</td>
</tr>
<tr>
<td>S7 Structures for integrating knowledge</td>
<td>Structures that support data and information sharing and integration in planning. Effective information and knowledge management arrangements including access to external expertise, science and science providers.</td>
</tr>
<tr>
<td><strong>Process criteria</strong></td>
<td>Addresses the activities, strategies, operations and relationships that define and influence regional NRM</td>
</tr>
<tr>
<td>P1 Processes for integrating knowledge and values</td>
<td>Regional processes and tools that support the integration of different types of information, knowledge and values including target setting, priority setting and engagement processes.</td>
</tr>
<tr>
<td>P2 Capacity to participate</td>
<td>Capacity exists for all players to participate in regional planning, management or implementation processes.</td>
</tr>
<tr>
<td>P3 Procedural fairness</td>
<td>Processes that support regional NRM are widely perceived as fair.</td>
</tr>
<tr>
<td>P4 Responsive and adaptive regions</td>
<td>Processes are adaptable and responsive to changes in understanding, values, priorities and external pressures. Strategies and approaches used to facilitate change.</td>
</tr>
<tr>
<td>P5 Linking scales and activities</td>
<td>Processes support and exhibit connectivity within and between scales.</td>
</tr>
<tr>
<td><strong>Outcomes criteria</strong></td>
<td>Reflects the outputs or deliverables produced and impacts from regional NRM to date</td>
</tr>
<tr>
<td>O1 Improved social capital of planners, managers and participants</td>
<td>Outcomes associated with enhanced individual capabilities, credibility, ongoing learning, networks for management and planning and ownership.</td>
</tr>
<tr>
<td>O2 Effective and connected institutions</td>
<td>Connectivity between state, regional, sub-regional and local activities; and effective and connected processes and structures at the regional scale.</td>
</tr>
<tr>
<td>O3 Improved resource condition</td>
<td>Condition of priority natural, social and cultural and economic resources in regions.</td>
</tr>
</tbody>
</table>

Source: McDonald et al. 2005 p. 16.
5.2 Case study from Finland: response to Aarhus convention requirements

A study conducted by Rosenstrom and Kyllonen (2007) sets out to evaluate the extent to which the Finnish process of setting and monitoring the indicators of sustainable development fulfils the requirements of the Aarhus Convention of being a ‘transparent and fair framework’ for participatory decisions.

One interesting point Rosenstrom and Kyllonen (2007) raise in their study is that of assessing what happens inside the participation process versus the learning taking place outside the process. Not every member of the community affected by the decision can be expected to participate, they argue, and thus the non-participating (outside) population can learn about what happened inside the process through, for example, press coverage or directly from participants. This link from inside the process to outside is seen as important for the success of the final implementation and take-up, which is seen as dependent on legitimacy in the eyes of people both inside and outside the process. Thus, it is not only important to evaluate who participated in the process and how, but also how the information was disseminated outside the process.

Rosenstrom and Kyllonen (2007) also argue that the success of a participatory decision-making process depends on the type of effect one primarily wants to achieve through participation, and they propose the following potential overall goal of engagement exercise: more fair and democratic representation of the existing interests of a society (fairness), citizen empowerment (social learning), the improvement of decision outcomes (competence), and/or more efficient implementation of outcomes.

5.3 Your Health, Your Care, Your Say – Department of Health, UK

Your Health, Your Care, Your Say (YHYCYS) initiative of the Department of Health was one of the largest and most ambitious public engagement exercises ever mounted in the UK. Designed to ensure public engagement in the development of a government White Paper on health and social care services, the initiative has received over 41,000 responses, with more than 1200 people attending deliberative events throughout the UK. The initiative is described in detail in Annex 3 of Warburton et al. (2007).

The main learning that came from the review of this process was related to the need to clearly set the objectives of the exercise and to clearly articulate how they are to be evaluated in the future. For example, although one of the objectives of the exercise was to enhance public trust in government, it was clearly recognised from the start of the process that it would be very difficult to find appropriate indicators, and therefore appropriately evaluate, this issue. The main reason for this difficulty was cited as an inability to identify clear cause and effect links between a particular exercise and such a broad, complex and long-term change in relationships. For other, ‘more measurable’ objectives, criteria on how to evaluate them was set in detail. First, aspects of each objective to be assessed were set, and then for each aspect several criteria for evaluation were established.

Setting of such clear goals and measures of achievement has allowed for the process to be evaluated by both the YHYCYS project team and an independent evaluator commissioned by the Department of Health later in the process. Thinking through the practical implications of evaluating specific goals had a large influence on the choice of methods as well as the overall design, timing and resourcing of the process (Warburton et al. 2007).

5.4 Canadian Policy Research Network (CPRN)

The Canadian Policy Research Network (CPRN 2003) has over years published a number of guides and frameworks for public participation.
A conceptual map of public participation evaluation, as developed by Abelson and Gauvin (2006) is presented in Figure 4 below. The map consists of three main spheres at which the engagement can occur: context, process and outcomes. Abelson and Gauvin (2006) reiterate that despite decades of documenting public participation experiences, the practice of public participation evaluation is still in its infancy. The progress is being made in the form of evaluation frameworks and criteria; however, they argue that more work is needed to reach agreement about a common set of evaluation criteria. In particular, they argue that balance is needed between generic and specific frameworks.

Poorly conceived public engagement initiatives and a lack of credible evaluation were identified as key reasons for diminishing value of the engagement activities (CPRN 2003). The importance of stakeholder mapping and engagement of all levels of society, in a cultural appropriate manner, are also stressed (CPRN 2003).

5.5 Evaluation of the engagement in development projects

A large body of literature deals with various aspects of engagement in development projects. It covers areas of engagement in implementing the projects, monitoring of engagement related to achieving project outcomes, as well as participatory monitoring. Some learnings from those experiences, deemed relevant to the context of this report, are reported here.

Throughout Central America, changes in legislative and international funding arrangements have opened opportunities for the communities to play a greater role in defining their own future and development processes. Four main impacts on the communities have been highlighted (Espinoza Alzate 2000):

- strengthening community participation
- increasing public accountability
- becoming better decision makers and managers
- changing power relationships and creating horizontal relationships.
Gaventa and Blauert (2000) argue that any process of learning and knowledge creation is deeply social and political, as it will eminently involve the questions of voice and power. Thus they argue that the success for the process lies in resolving sensitivities related to responsibility, accountability and performance in positive and learning rather than threatening ways.

The building block conceptualisation developed by Symes and Jasser (2000) is presented in Figure 5. The blocks sit on the foundation of the ‘culture of participation’ and build up, starting from the development of the appropriate methods, skills and team work. At the next level, the opportunities are identified and the framework is developed.

![Figure 5: The building blocks of the participatory planning, monitoring and evaluation](image)

Source: adapted from Symes & Jasser 2000, p. 140.

The elements of planning, monitoring and evaluation are then strengthened, leading to the ‘linking’ level. The linking level addresses both links within organisational operations and links between planning, monitoring and evaluation. This framework was developed in response to the frustration staff were experiencing on the ground using the LOG frames. The points identified as the main reasons for breaking away with the LOG frame were (Symes & Jasser 2000):

- LOG frames were found to be not very logical in practical situations: the way of thinking and looking into the issues required to successfully set up the LOG frames was often found to be alien to the communities. In addition, goals, outputs, etc, were often difficult to pre-define in the detail required for successful use of LOG frame approach.

- LOG frames promote M&E as a checking and auditing mechanism, rather than as a process of learning from the experiences. Change and adaptation are discouraged. Review of the projects implemented exactly as planned revealed that this ‘success’ had more to do with lack of monitoring than with reality.
Oakley (1991), in his comprehensive discussion of participation in rural development projects, stresses the importance of qualitative methods for evaluating participation. He argues that evaluating participation needs to be concerned with the analysis of a dynamic, qualitative process and not merely to measure static physical outcomes. He does, however, acknowledge the difficulty of achieving this, and thus proposes two broad outcomes of participation that could serve as foci for evaluation (Oakley 1991, p. 241):

- the quantitative and more tangible or physical outcomes which will be readily visible and are susceptible to statistical measurements, (the dimension of participation that can be easily evaluated by existing techniques)
- outcomes more related to participation as a qualitative process of change. These outcomes might be less visible, will be less tangible and will demand particular techniques for their evaluation.

Thus he argues that both the tangible changes (such as change in resource condition) and intangible changes (such as increased level of awareness) need to be monitored if we are to obtain a fuller indication of the success.

In addition to capturing both qualitative and quantitative dimensions, Oakley (1991) concludes that evaluation also needs to be dynamic rather than static; that it has central importance and assumes good monitoring; and that it should be participatory itself. He also proposes two sets of indicators that could be monitored:

- Quantitative indicators: economic, in terms of benefits from the projects; organisational, in terms of involvement in the organisational issues; and development momentum, in terms of involvement in and awareness of project activities.
- Quantitative indicators: organisational growth, in terms of emerging leadership structure, allocation of roles, etc; group behaviour, in terms of changing nature of involvement, emerging sense of collective, etc; and group self-reliance, in terms of knowledge and understanding of policies and programs, formalisation of identity, etc.

The evaluation of participation is presented as spidergrams with a 5- or 7-point scale on each leg, consisting of the various indicators recorded.

6. Discussion and conclusions

Key learnings from the literature discussed in section 6.1. The conceptual framework for monitoring and evaluation of engagement (MEE) in the remote regions is then proposed in section 6.2. This framework is based on the literature findings only. The proposed conceptual framework should be tested against on-ground findings of this project as a next research step.

6.1 Learnings from the literature for the LEB context

The very absence of monitoring in most participatory projects in the past has been identified as potentially the largest gap in the methodological knowledge about the engagement processes (Abbot & Guijt 1998, Guijt 1998, Buchy & Hoverman 2000, Lane 2005, Reddel & Woolcock 2004).

Four broad reasons why government might want to get the public engaged in a particular process can be summarised as follows (Lane 2005, Rosenstrom & Kyllonen 2007, Warburton et al. 2006): (1) fairness and improved governance; (2) social learning and improved social capital; (3) improved quality of delivery or service; and (4) improved competence and capacity building.
What we monitor in engagement will therefore fundamentally depend on core reasons for the engagement. In recent years, there is a notable shift towards monitoring of learning, in both communities and within organisations; applying of lessons; capacity or competence building; and joint actions to determine agreed outcomes (Mahanty et al. 2007). Reasons for engagement will play a large role in what is monitored, as well as in determining the level of engagement (Buchy & Hoverman 2000, Stalker Prokopy 2005).

It is also important to acknowledge that there are two general reasons for monitoring: monitoring for auditing purposes, where the funding body requires that the implementing body and/or stakeholders monitor the engagement process and output in order to ensure compliance with the finding contracts; and monitoring for evaluation and learning, where the implementing body and stakeholders are interested in monitoring the quality of their actions and deliverables in order to learn and improve in the future.

Monitoring is a process and not a single action, and therefore should occur at different stages of the engagement process. Stages in monitoring can be summarised as monitoring of inputs, process, outputs, outcomes, trends and monitoring of unexpected consequences (Bond et al. 2006, Cuthill 2003, Johnson 2004, MED 2004). Several cautionary notes have been raised on this subject. Most notably, there is a need to consider time frames, that is, separate between the shorter- and longer-term changes. Also, several authors have cautioned about the ‘causality gap’, that is, the potential difficulty of establishing with confidence that changes, particularly delayed ones, result directly from a specific intervention or action (Bellamy et al. 1999, Earl et al. 2001, Mahanty et al. 2007, MED 2004, Mee 2005, O’Riordan 2005, UNDP nd.).

However, there is a general agreement that any monitoring system, engagement monitoring included, needs to be valid, relevant, specific, timely, reliable, sensitive, feasible and cost-effective (MED 2004, UNDP nd.). Several ‘features of the system’ or ‘principles of good practice’ are proposed (Bond et al. 2006, Krick et al. 2005, MED 2004, Syme and Sadler 1994, UNDP nd., Warburton et al. 2006), such as:

- The monitoring and evaluation system itself should be participatory and should fully involve different project stakeholder groups and staff throughout the system stages. The system should be user friendly and culturally sensitive.
- Criteria to demonstrate if objectives were met should be agreed at the outset by all stakeholder groups concerned. The criteria should be well thought through: they should focus on both short-term and long-term views; should be both qualitative and quantitative; should consider wider context of external drivers, etc.
- The system should be planned for all stages of engagement and should allow for changes in process and methods if needed. Monitoring should be treated as an integral part of the projects, and evaluations should occur over the period of time as a continuous effort.
- Plans should include the purpose, process, responsibilities, resources, methodologies, etc.
- Findings should be recorded, communicated and used as a basis for future improvements. Principles of adaptive management should be followed.
- Efforts should be balanced in terms of costs versus benefits, and should concentrate on provision of useful information. The key achievement is to collect and analyse a minimum but sufficient amount of data and information.

The NRM bodies are likely to be familiar with and adhere to the principles of best practice as part of their overall monitoring, evaluation, reporting and improvement (MERI) system.

Several references stress that there is no ‘one size fits all’ generic approach to monitoring and evaluation of engagement processes, nor is there a generic set of indicators (MED 2004, Warburton 2007, Krick 2005, UNDP nd., Buchy & Race 2001). Rather, the above principles of good practice
should be used in development of the project-specific engagement process and monitoring and evaluation plan. Specific priorities for the monitoring need to be well thought about and set. The plan needs to target specific interests at the specific scale, and needs to monitor the specific stages of the activities. In addition, the specific circumstances of the organisation related to the human, financial and other capitals are crucial for creation of feasible plans.

6.2 Conceptual framework for monitoring engagement in remote regions

Generic principles of good practice for monitoring and evaluation of engagement (MEE) have been summarised in the previous section. However, several other aspects of planning should be taken into account when planning for engagement in NRM in remote regions. Figure 5 provides a conceptual framework developed to guide the planning process. The framework proposes to follow the principles of ‘good practice’, but also to take into account the variety of interests of different stakeholders and the specificities of desert conditions (desert drivers). The principles of good practice, stakeholder interests and desert drivers need to be viewed in the context of the three-dimensional system they reside within: the time scale, the geographic scale and the societal/institutional scale. Only by taking all of those into account can a tailor-made, efficient and effective engagement monitoring plan be created.

![Conceptual framework for monitoring engagement](image)

Note: Successful monitoring of engagement needs to take into account principles of good monitoring practice, the variety of stakeholder interests and desert drivers, and needs to address them at the right geographic, institutional and time scale.

Ways in which organisations can address their monitoring needs are many. The conceptual framework presented in Figure 6 provides a reminder of the issues that should be thought about and taken into account when devising a plan for monitoring of engagement.
7. References


Davies R and Dart J. 2005. The ‘Most Significant Change’ (MSC) Technique: A guide to its use. www.mande.co.uk/docs/MSCGuide.htm


Frewer L, Rowe G, Marsh R and Reynolds. 2001. Developing and testing a toolkit for evaluating the success of public participation exercises. Institute for Food Research, Norwich, UK.


Herr A, Smith T and Brake L. 2007) Regional Profile of the Lake Eyre Basin Catchments, Desert Knowledge CRC, Alice Springs.


8. Useful links

Further details and links to the international organisations/networks cited in this report or relevant to the subject of stakeholder engagement:

AccountAbility/Institute of Social and Ethical Accountability

http://www.accountability.org.uk/default.asp

AccountAbility is an international, not-for-profit, professional institute dedicated to the promotion of social, ethical and overall organisational accountability, a precondition for achieving sustainable development and the AA1000 Series of standards. Their AA1000 standards include specific criteria for stakeholder engagement.

Business for Social Responsibility

http://www.bsr.org

Business for Social Responsibility (BSR) is a global non-profit organisation that helps member companies achieve commercial success in ways that respect ethical values, people, communities and the environment. The site contains references on stakeholder engagement.

The Stakeholder Alliance

http://www.stakeholderalliance.org

The Stakeholder Alliance is an association of organisations and individuals that promote the interests of corporate stakeholders: the employees, customers, communities, stockholders, suppliers and the greater society. The alliance promulgates the Sunshine Standards for corporate reporting to stakeholders.

Eldis

http://www.eldis.org/

The aim of Eldis is to share the best in development policy, practice and research. The site contains a selection of publications related to all aspects of participation.

The International Association of Public Participation

http://www.iap2.org

The official website of the International Association of Public Participation provides a collection of useful links and references related to public participation, including international conferences, training opportunities and meetings. There is also an Australasian chapter of the organisation.

Canadian Policy Research Network - CPRN

A list of publications developed by the CPRN is available from their website, at:

Citizen Report Cards

Learning Course: http://www.citizenreportcard.com

or a print version of the manual (targeting public services provision):

Most Significant Change

Yahoo Group: http://groups.yahoo.com/group/MostSignificantChanges/

The Most Significant Change (MSC) Technique: A guide to its use. www.mande.co.uk/docs/MSCGuide.htm