

BRIDGING THE GAP: RECOGNISING THE ROLE OF COMMUNITY IN NATURAL RESOURCE MANAGEMENT

By

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PART 1

LOCATING THE PROBLEM

1 INTRODUCTION

Understanding the human dimension of natural resource management is a pressing research and management priority of almost every natural resource management policy and research and development agency (Roughley and Salt 2005:2)

1.0 Introduction

This study speaks of the social context of natural resource management (NRM). It reflects on the competing interactions of social sustainability and environmental management and considers the role of 'community' 'community engagement' 'governance' 'social capital' and 'sustainability' in rural natural resource management. Natural resource management is defined as "[T]he 'management' of 'natural resources on a sustainable basis' usually in ways that meet multiple objectives including the conservation of wildlife and ecosystems, and the minimising of environmental impacts and environmental change" (Dictionary of Environment and Conservation, 2008:229). Undertaking natural resource management is a fundamental requirement of the Commonwealth and State governments of Australia (NRM Act 2004) and a major contemporary focus has been to include communities (urban and rural) in decision-making and management of local natural resources.

Until recent times, the social context of natural resource management has taken a secondary place alongside the more biophysical scientific understandings of natural landscapes, focusing on characteristics such as poor soils, water scarcity and increasing numbers of some pests and weeds (Brunckhorst, 2005:2). However, traditional natural resource management strategies have arguably been constrained by a lack of understanding of the eco-social relationships (Mech, 2004a; Lawrence, 2004) and how these two are linked like a mosaic "of interacting human and natural systems operating at multiple scales" (Brunckhorst, 2005:2). Moreover, as issues of sustainability have become more apparent with time, so has a growing recognition that humans shape the landscape, influencing the current and future use of natural resources, including productivity with regard to yields, and patterns of restructuring and sustainability of regional landscapes (Lawrence,

2004; Brunckhorst, 2005; Tonts and Jones, 1999; Gray and Phillips, 1997). Noticeably there has been a convergence of ideas and institutional design by those engaged in the often dynamic and diverse institutional landscape of natural resource management, (Farrelly 2005). At the Federal level (under the auspices of the Natural Heritage Trust) this convergence, as is the case for South Australia, has centred on environmental planning and management through processes of civic engagement at the regional scale (Farrelly, 2005; Warburton, 1998; Lane and McDonald, 2005; Lane et al., 2005; Brunckhorst, 2005).

As a result there has been an increased emphasis on planning approaches that adopt a bottom up - sometimes described as “an ‘organic’ lexicon of methods such as collaborative environmental planning, co management of natural resources and community-based environmental planning as approaches to managing the environment” (Lane and McDonald, 2005:710). These approaches have paved a way for the integration of knowledge and skills across a mosaic of organised bodies – including rural communities involved in regional natural resource management.

One of the outcomes of this eco-politico-social model in Australia has been the decentralisation of authority and resources for environmental management to regionally organised NRM Boards and citizen-organised statutory committees and natural resource management groups (Natural Resource Management Council, 2002; Farrelly, 2005; Bellamy et al., 2005). These natural resource management groups regularly consist of (a) those people living in, and representing, local communities and (b) those peoples involved in policy and decision making and who regular live outside of the community. Another outcome has been a growing tendency for rural communities to initiate discussions with organisations responsible for natural resource management to work collaboratively on land and water reparation projects that will assist in aiding long term sustainability for these communities (Herbert-Cheshire and Lawrence, 2003; Stayner, 2003).

Lately rural communities across South Australia (and similarly across Australia) have come under intense political, academic and public scrutiny (Cocklin and Alston, 2003:1) since reports by the media and commentary by academics and governments stating that many rural communities are in a state of ‘crisis’ (Cocklin and Alston, 2003:1). Many factors have contributed to this image of a

crisis, including a pattern of socio-economic and natural resource decline across the rural landscape (Cocklin and Alston, 2003). Extensive literature on all three factors is replete with acknowledgements that while all three are complex, ambiguous and contested concepts they are not mutually exclusive and as such require a whole of community approach to explore ways to manage natural resources in a more sustainable way. It is with this in mind that this study compares two institutional approaches to community based natural resource management. First it examines the approach adopted by the South Australian Arid Lands Natural Resource Management Board's response to regional and community based natural resource management. Second, it investigates the interaction between a government organisation and a dairy industry when undertaking a rehabilitation project of dairy swamp lands located on the Lower River Murray, South Australia. Both studies consider such concepts as community, community engagement, social capital, values and governance as pre-requisites for successful community based natural resource management.

1.1 Aims and Objectives

While the contribution of social science to community based natural resource management has been significant over recent times, consideration of the links between government discourse and the generally less than favourable outcomes of community based natural resource management (Farrelly, 2005; Whelan and Lyons, 2005; Lane and McDonald, 2005) has been at the most, minimal.

This thesis grew out of three deficits. First is the notion often held by those agencies involved in natural resource management that the community consultation process is equivalent to a 'community engagement' process, and as such, when undertaken will assist with local governance and an integrated approach to decision making processes (Farrelly, 2005). All too frequently traditional forms of governance and the notions of 'community consultation' have failed to deliver sustainable development (Lawrence, 2004). While State and local governments are still required to administer land and water legislation and regulation, it is individuals, companies and community members who are viewed (by governments) as those who will be responsible for on-ground actions to improve the environment, and to promote regional sustainability (Lawrence 2004). Notwithstanding this position, "there are only limited powers being given to regional bodies to

provide leadership in natural resource management” (Lawrence, 2004:1). This situation significantly weakens any attempts to build long lasting community engagement strategies for managing the environment. As Lawrence notes, the Economic Union (EU) when considering global sustainability, raised concerns that “people are showing increasing distrust for 'distant' and faceless institutions making decisions about their lives” (Lawrence, 2004:1).

Second, while social capital, community capacity and civic governance are arguably critical components for ensuring long term community based natural resource management (Herbert-Cheshire and Lawrence, 2003; Tonts and Black, 2003; Lawrence, 2004; Smailes et al., 2005; Dibden and Cheshire, 2005; Lebel et al., 2006; O'Toole, 2006; Portes, 1998; Putnam, 1995; Coleman, 1988; Flora, 1998; Fukuyama, 1999) yet those agencies involved in natural resource management frequently struggle with the constructs of social capital on the one hand and community capacity on the other. This study seeks to make sense of the confusion that often leads to mixed understanding of what constitutes social capital and how it works within and between communities and what is community capacity and its significance when considering civic governance.

The third deficit is more complex since in many instances those government instrumentalities that are in the business of collaborating with communities often confuse the concept of community and the relationship between ‘communities of place’ and ‘communities of interest’. For example, by confusing the two community concepts, and then juxtaposing them out of ignorance, the engagement process is made more difficult since the networks that exist between these communities are arguably splintered, thus rendering the engagement process extremely difficult and providing little value for policy makers and communities alike. As observed by Lane and McDonald government instrumentalities in their attempts to minimise the complexities of natural resource management and subsequent community engagement often fail in their endeavour because of the “crude simplification of the local social, political and physical environment” they adopt for community based natural resource management (2005:710).

In order to address these three deficits, this study explores the concepts of social capital, community capacity, community engagement and civic governance and their relationship to building successful community based natural resource management. A key question of this study

is: What are the prerequisites to ensure communities and governments can work together harmoniously for the purpose of ensuring sustainable outcomes for community based projects? In order to approach the central question this study seeks to demonstrate the importance community, social capital, engagement, trust, values and civic governance as pre-requisites for ensuring sustainable outcomes.

The aims of this study are to:

- (1) *Investigate the belief that social capital – that is, strong networks, trust and transparency (Alston, 2002; Sharp and Smith, 2003; Aldridge et al., 2002; Lane and McDonald, 2005; Putnam, 2004; Offe and Fuchs, 2004) are prerequisites for the management of community based projects. By exploring two communities involved in natural resource management, this study provides two contrasting enquiries as to the significance of strong networks and relationships when undertaking community based projects.*
- (2) Examine the role of community engagement and civic governance as prerequisites for the overall success of natural resource management. By exploring landholder's views on community engagement (Aslin and Brown, 2004) and local governance (Bowles, 1999; Goodwin and Painter, 1996; O'Toole, 2006) this study seeks to understand why those institutions charged with the responsibility of managing regional natural resource management frequently have difficulties communicating to and recruiting communities (Herbert-Cheshire and Lawrence, 2003; Bjornlund, 2002; Mech, 2004a) to be involved in natural resource management.
- (3) *Explore the notions of “community” and investigate the “belief that if regions, or in this case communities are to work effectively they must mean something to the people both inside and outside of those communities” (Smiles and Hugo, 2007:4) By observing different community types, i.e. communities of interest, communities of place and communities of purpose, this study seeks to identify those challenges that these communities face when they are involved in community based projects.*

1.2 Community Based Natural Resource Management

Since the 1980s, environmental decisions (to varying degrees) have generally involved public consultation and community engagement (Whelan and Lyons, 2005:496). Community based natural resource management, is one of numerous approaches adopted by agencies to decentralise authority and resources to communities for the purpose of environmental management and planning (Lane and McDonald, 2005).

Notwithstanding these attempts to involve communities in natural resource management, there has been growing criticism that such endeavours have been less than satisfactory (Lane and McDonald, 2005; Whelan and Lyons, 2005; O'Toole et al., 2006). As Lane and McDonald point out “[A]n important source of failure in modernist planning is problems caused by the crude simplification of the local social and physical environment” (Lane and McDonald, 2005:709-710) ... and that often the “momentum is driven also by the realisation that centralised states simply 'do not know what to do' when the diversity of localities is too great for uniform policies to work everywhere” (Blair, 1996 cited in Lane and McDonald, 2005:710). Therefore, when addressing problems apparent at the local scale, there is a need for a sophisticated and nuanced knowledge of the local socio-economic and physical environment. As well, there is a need to recognise that perceptions, governance, engagement and resilience are concepts that are emerging as a valuable model for guiding and supporting more inclusive and effective approaches for managing community based natural resource management.

1.2.1 ‘Engaging’ With the ‘Community’

There are many theories of what constitutes ‘community engagement’ and ‘community’ (Cheers and Edwards, 2004; Cheers et al., 2005; Cheers et al., 2002; Warburton, 1998; Hugo, 2001; Aslin and Brown, 2004; Ramirez et al., 2002; Whelan and Lyons, 2005; Lane and McDonald, 2005; Putnam, 2004; Donlen et al., 2005). Community engagement is more than just organising a public meeting, it is an “ongoing interactive process characterised by bringing together community members for a common purpose – people and organisations who are sometimes not in the practice

of working with each other” (Ramirez et al., 2002:1). For community based natural resource management to succeed it is necessary to have community resolve to manage their natural resources in a sustainable manner. A major way to encourage community commitment is through transparent and ongoing community engagement practices (Flora, 1998) that are based on building partnerships with “community members, community organisations, businesses and local government” (Ramirez et al., 2002).

1.2.2 Community Engagement

The identification and description of community engagement (Whelan and Lyons, 2005; Lane and McDonald, 2005; Putnam, 2004; Aslin and Brown, 2004; Cavaye, 2005; Cavaye, 2004; Cavaye, 2000) has been considered an important component of community based natural resource management, yet concerns have been raised (Lawrence, 2004; Warburton, 1998; Cavaye, 2004; Lane and McDonald, 2005) about the negative impacts poor engagement has had on rural communities. It is argued that a mediocre understanding exists of what constitutes holistic engagement (Arnstein, 1969; Farrelly, 2005; Aslin and Brown, 2004) and it is this that has led to a less than satisfactory outcome for communities involved in community based natural resource manage.

Examples of engagement vary from one to another, but all place value on citizen participation (Aslin and Brown, 2004; Ramirez et al., 2002; Whelan and Lyons, 2005; Lane and McDonald, 2005; Donlen et al., 2005; Davidson, 2004; Lockwood, 2005a; O'Toole, 2006). For example Arnstein (1969) developed a ladder of citizen participation. The ladder juxtaposes powerless citizens with the powerful, in order to highlight the fundamental divisions between them. At one extreme you have those people/communities that can be manipulated to those who can be placated through tokenism consultation processes to those who have formed partnerships and have a strong sense of citizen governance (Arnstein, 1969).

Aslin and Brown (2004) have a different take on community engagement and talk about a holistic engagement process that involves bringing together people from various knowledge backgrounds that then form a community of interest for undertaking a specific function. Holistic engagement encourages all peoples with an interest to be involved throughout a project (Brunckhorst, 2005; Aslin and Brown, 2004). The level of engagement may increase and decrease, dependent upon

the stage of the project. As well, Pero and Smith (2006) suggest that improving multi-sector dialogue at a regional scale is important for engaging community members in ways that provides opportunities for greater knowledge exchange between groups.

Such philosophies of community engagement resound across all levels of governance and as a result there has been a major attempt to revive often quite “established and traditional local and Indigenous cultural and institutional mechanisms for managing and conserving the natural environment” (Kellert et al., 2000:706). The differences being, that these days those with the role of managing the natural landscape whilst espousing a community based approach to natural resource management often fall short of the mark. This is particularly so since regularly a blanket endorsement of community based natural resource management does not exist within all areas of governance. Herein lays perhaps the most important aspect of this new regime. A crucial flaw in thinking about efforts to achieve integrated natural resource management has been the remarkable assumptions that merely housing the concept of ‘collaborative natural resource management – or integrated natural resource management into a institutional framework, built on decades of beliefs that governance from above is going to succeed” (Lane et al., 2005). All too frequently those institutional bodies involved in managing regional natural resource management have difficulty with first engaging with communities (Farrelly, 2005; Lane and McDonald, 2005; Brunckhorst, 2005; Grant and Curtis, 2004) and second the associational role of governance that comes with community participation; one that emphasises the role of community and its networks of stakeholders in the development of policies for natural resource management.

1.2.3 The Meaning of Community

Communities and localities are constantly changing (Cocklin and Alston, 2003:204). Tonnies, a 19th century German, experienced the shift from rural to urban life and thought perhaps the shift romanticised communities in as much as he referred to them as “a close knit grouping of farmers – based on blood ties – and often given to intimacy among people and their land” (Bessant and Watts, 2002:11).

Currently communities are often described as communities of place – a geographical reference or communities of interest – a group of people that have a common interest. Smailes and Hugo (2003:66) recognise a “distinction between a) place linked communities of location – linked to particular places, and b) communities of interest. They also credit the later community with being

“aspatial in nature; with some people belonging to religious networks and that these networks may be much more important than any local attachment to place” (Smailes and Hugo, 2003:66).

In the case of this study, there is a merging of community concepts – one that adopts a community of place and a community of interest occurring in the South Australian Arid Lands. In the SAAL, the community consisted of people who were brought together from near and afar for a purpose of community capacity assessment. These people were conceptualised as a ‘community of interest’ by the government. Yet as this study will demonstrate such juxtaposed communities are often complex and diverse as the values and goals of community members vary significantly from one and another, and are often found to be challenging for respective community members (Aslin and Brown, 2004). For example, the dairy community located on the swamps of the Lower River Murray Reclaimed Areas organised themselves as a community of interest which happened to be located in a specific location along the River Murray. This community was more inclined to share similar values and visions for the future, but less inclined to relate to those members of government organisations whom they were dealing with throughout the rehabilitation process.

1.3 The Study Settings

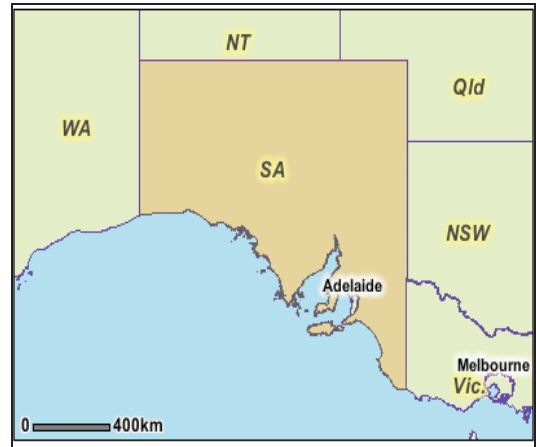
1.3.1 South Australia

South Australia with Adelaide as its capital city is one of eight states and territories (see Figure 1.1 and 1.2 below) which are governed autonomously and comprise the Commonwealth of Australia. On Census night (8th August 2006), there were 1,514,337 persons usually resident in South Australia: 49.2% were males and 50.8% were females. Of the total population in South Australia 1.7% were Indigenous persons, compared with 2.3% Indigenous persons in Australia (ABS 2006).

Figure 1.1: Australian States and Capitals Figure 1.2: South Australia



Source: ABS Census 2006



Source: ABS Census 2006

South Australia is anecdotally known as the driest state in the driest continent. While the bulk of the population reside in the south east corner of the State where Mediterranean and temperate climates exist, the remainder of the State live in what is known as the dry arid/remote region of the state.

Both studies are undertaken in rather unique geographical areas and these areas are located in specific NRM regions – the SAAL NRM Region (as mentioned above) and the South Australian Murray Darling Basin NRM Region (SA MDB NRM Region) (see Figure 1.3).

Plate 1.1: Blinman, Flinders Ranges



Source: Blinman Organisation (2007)

Plate 1.2: River Murray – Mannum

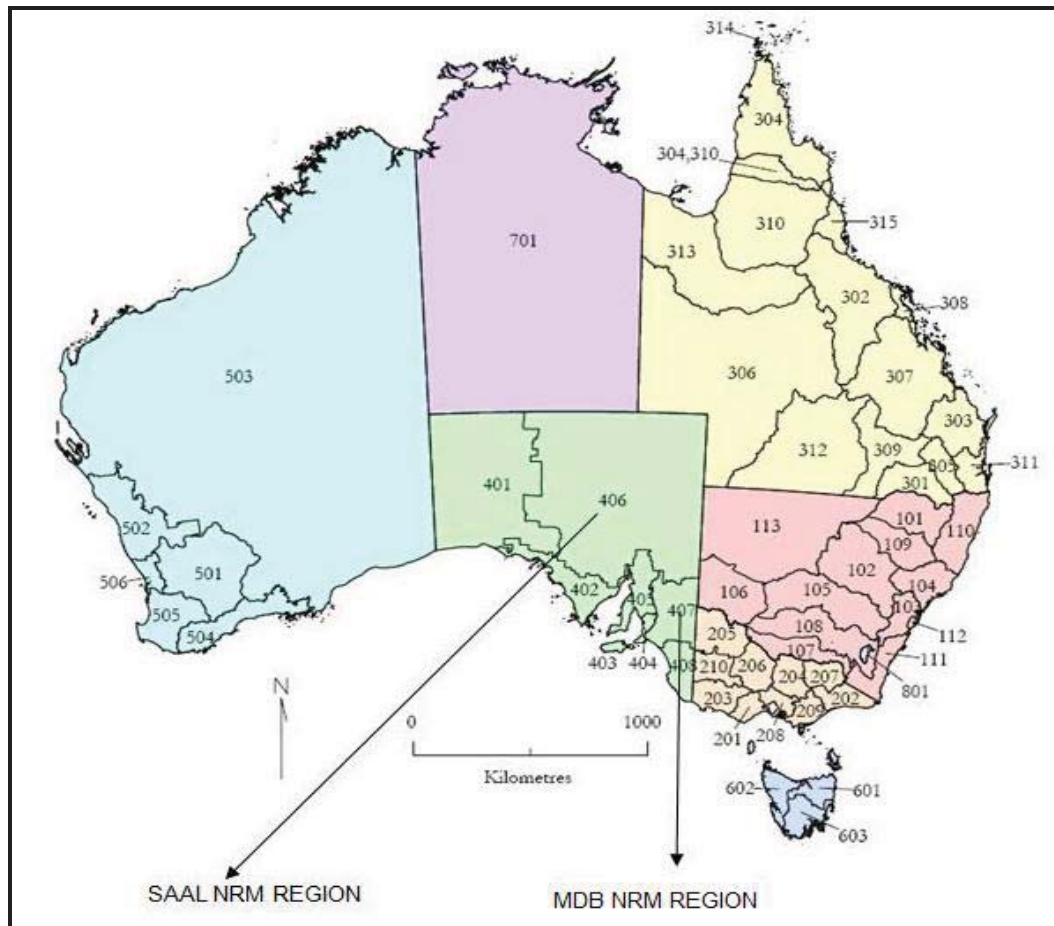


Source: River Murray Alive (2008)

What separates the two studies is the availability of water (but for different reasons) and the location of communities to regional centres (see Plates 1.1 and 1.2). For example, the South Australian Arid Lands NRM region has no prevailing rain bearing weather, hence a scarcity of water and what water is available, is mainly from artesian access. Despite the challenges of climate and terrain, there is a diversity of land uses across the arid lands, but the balance amongst them is changing with global market forces and community values. The pastoral industry is a major land user, producing mostly sheep, but overtime profitability has been declining. Mining is fast becoming a major source of land use and income for the region. Other land uses currently include Aboriginal cultural and subsistence activities, conservation, tourism, harvesting of wild animals and plant products (CSIRO, 2008:1). Some of these are growing rapidly. Newer developing industries include aquaculture, carbon sequestration and low intensity lifestyle activities (CSIRO, 2008:1).

In contrast, the Murray Darling Basin NRM Region comprises grazing of rangelands to the north of the River Murray (SA MDB NRM Board, 2008). Adjacent to the River Murray, within part of the Mallee and along the Eastern Mt Lofty Ranges, horticulture is a major industry for the area, consisting of wine grapes, citrus stone fruit and vegetables (SA MDB NRM Board 2008). Dairy production on the Lower Murray Reclaimed Irrigated Areas and the Lower Lakes (see Plate 1.2) also occurs, as well broad hectare agricultural production, mainly comprising mixed cereal, and livestock grazing (SA MDB NRM Board, 2008). Some pulse and oilseed crops are intensifying, particularly in the more reliable areas in the south (SA MDB NRM Board, 2008).

Figure 1.3: NRM Regions of Australia



Source: Adapted from Natural Resource Management Australian Farms Report (ABS 2006:35)

1.3.2 Arid Lands – An Institutional Response to Community Based Natural Resource Management

The process for achieving an integrated, coordinated, planning and management of natural resources is a complex process. In South Australia, regional NRM Boards and NRM Groups (as mentioned above) were formed to oversee natural resource management programs at the regional level (Cosgrove, 2008:49). One strategy developed as part of the 2005-2006 NRM Investment Strategy, of the South Australian Arid Lands Natural Resource Management Board (The SAAL Board hereafter) was to assess its' regional capacity to deliver its NRM Programs. Together with the Department for Water Land and Biodiversity Conservation (DWLBC) and the South Australian Department of Primary Industries (PIRSA), a project team comprising staff from Rural Solutions South Australia (RSSA) and DWLBC was commissioned to develop an integrated electronic tool for assessing regional natural resource management capacity.

The intent of the Natural Resource Management Tool (the Tool hereafter) is to provide a balanced discourse based valuation method adopting technical assessment approaches to rate community capacity strengths to deliver natural resource management programs (Cosgrove, 2008:49). The outcome was a number of community assessments were carried out across the SAAL, including an assessment of the SAAL Board. The result was a report was developed providing the SAAL Board with a benchmark of community strengths, including their own from which to later draw a gap analysis after conducting a further regional community capacity assessment analysis.

1.3.3 Lower Murray Reclaimed Irrigation Areas Rehabilitation Project – An Institutional Response to Natural Resource Management

The Lower Murray Reclaimed Irrigation Areas Rehabilitation Project was initiated to address water and land use by dairy farmers located on the twenty two (22) swamps that made up the Lower Murray dairy industry. Dairy farmers had approached the government in the mid 1990s with concerns regarding the dilapidated condition of the irrigation infrastructure and the subsequent increase in both nutrient and faecal contamination occurring along this stretch of water. It was not until June 2001 that the government acted on these concerns and contracted a consultancy to investigate a broad range of options for government to achieve in varying ways its objectives of:

- A significant reduction in the impact of irrigation on water quality in the River Murray
- The efficient use of the water available from the River Murray in value terms,
- A sound, sustainable regional economy, and
- The devolution of responsibility for management and ownership of government irrigation assets to the community

(Lower Murray Reclaimed Irrigation Areas Steering Group, 2001:2)

The result of this project was the Lower Murray Reclaimed Irrigation Areas Rehabilitation Project. The project was drawn out over a number of years and at the time of the study a significant number of farmers had still not entered into contractual agreements with the government over the management and maintenance of the infrastructure.

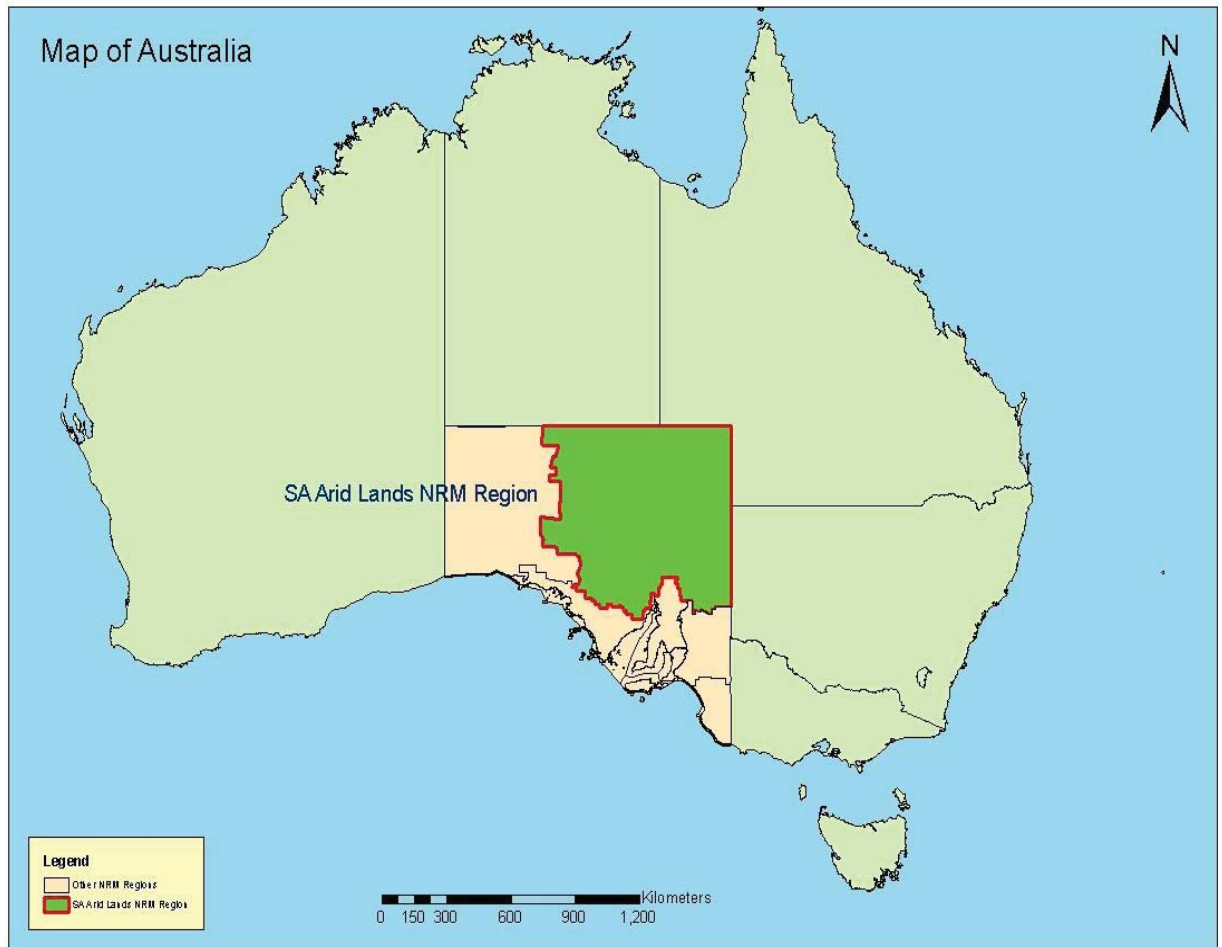
As mentioned above the study settings are located in two unique locations in South Australia and as such, have provided a platform from which to study (see below) community and NRM authorities' tackling the administration of community based natural resource management.

1.4 Study One - The South Australian Arid Lands

The South Australian Arid Lands (SAAL) Natural Resource Management region (see Figure 1.4) covers 538,000 square kilometres in the northern arid and semi-arid zone and covers almost fifty five (55%) percent of South Australia (Australian Government NRM Team, 2008). Its population of 25,000 of which approximately 10% are Indigenous Australians, represents 1.6 percent of the state's population which is scattered sparsely across the region (Australian Government NRM Team, 2008). Port Augusta with a population of 13,874 (ABS, 2006) is a regional service centre (Smailes and Hugo, 2007) within the SAAL region and is the base from which the SAAL Board office operates.

Save for some isolated mining areas like Roxby Downs, Andamooka and Coober Pedy, European settlement of the Arid Lands is synonymous with the spread of pastoralism which is identical to that which has occurred across Australia's outback (Holmes, 2002:365). The Arid Lands include such places as the Simpson Desert, the Coongie Lakes Ramsar-listed wetlands of international significance, lakes Eyre, Torrens, Frome and Gairdner, and the ecologically important Flinders and Gammon ranges (Australian Government NRM Team, 2008).

Figure 1.4: South Australian Arid Lands



Source: ABS (2006)

Overtime, the SAAL region has developed its own unique culture. For example, due to its remoteness and difficulty for the Commonwealth Government to distribute funds for development and community funding, the Outback Areas Community Development Trust Act 1978 (OACDT) was enacted with the subsequent inauguration of a Trust which was provided with a mandate to borrow and grant loans to community organisations. The Trust operates to a limited extent like a 'local government' through the provisions of some services, e.g. dog licences (Outback Areas Community Development Trust, 2008). The Trust has over the past three decades developed a strong relationship with arid land communities with many community members being involved in the day to day decision making regarding community funding, infrastructure development and community planning.

These communities stretch across the region and comprise of peoples who identify with a township or with a nearby mine site, cattle or sheep station (Australian Government NRM Team, 2008). For

example, Andamooka Opal Fields (see Plate 1.3) is located in the remote outback of South Australia and has a population of 528 persons of which 287 (54.4%) are males and 241 (45.6%) are females (ABS, 2006). Of the total population, 15 persons (2.8%) comprised of Indigenous persons. The nearest town to Andamooka is Roxby Downs which has a population of 4,055 persons of which 2,278 comprise of males and 1,777 females (ABS, 2006). Sixty seven Indigenous persons make up 1.7% of the total population (ABS, 2006). Oodnadatta which is located in the far north remote outback has a population of 277 persons (ABS, 2006). Here the population comprises 150 males (54.2%) and 127 females (45.8%) of which 103 (37.2%) comprise Indigenous persons (ABS, 2006). The citizens of Andamooka identify with their town site and that of Roxby Downs, whereas participants located in the Gawler Rangers tended to identify with cattle and or sheep stations in the near vicinity rather than townships that are located several hundred kilometres away.

Holmes (2002) makes the argument that Australia's most marginal lands consist of a delicate mode of "pastoral occupancy, which is being displaced by renewed indigenous occupancy, conservation and tourism, and significant changes in land ownership, property rights, investment sources and power relations but" (Holmes, 2002:362). Such externalities have also helped to shape the cultural and physical landscape of the SAAL region. For instance, there are a large number of people, particularly young single men and young families who have migrated to destinations like Roxby Downs, Andamooka and Coober Pedy (and the surrounding district) to take up employment in the burgeoning mining industry. Roxby Downs comprises of age groups 0-65 and over, with the highest number of individuals aged between 25-54 (ABS, 2006). For example of the 4,055 people residing between in Roxby Downs, 2, 226 are aged 25-54 years (ABS, 2006). Work undertaken by Smailes and Hugo (2007) indicates a significant number of "Roxy Downs workers who have a 12-day on 12-day off regime, spending the latter in the Eyre Peninsula communities where their families reside permanently" (Smailes and Hugo, 2007:23). Notwithstanding these fly in fly out arrangements the population of this township is growing steadily and the youthfulness of Roxby Down's demographic is realised when one considers that while the town has a cemetery, to date January 2010 - it is unoccupied.

Plate 1.3: Arid Lands South Australia



Source: SAAL Study (2008)

Notwithstanding the connectedness within communities, a major challenge for community based natural resource management in the SAAL region is the tyranny of distance between communities and communities and the Board. The ramification of this situation is a struggle for building reciprocal relationships and the transference of knowledge between communities and organisations involved in natural resource management.

1.5 Study Two - Lower Murray Reclaimed Irrigated Areas

The Lower Murray Reclaimed Irrigation Areas (LMRIA) case study is somewhat different from the SAAL, as it talks about a community based natural resource management project at grass roots level. Where the SAAL study considered the regional approach to natural resource management; identifying the need for community engagement and flexible networks, the LMRIA study considers a local approach to natural resource management, and the role which community and engagement play in project management. The LMRIA consists of a river corridor that flows through South Australia concluding at Goolwa, where the Murray opens into the ocean. The corridor is a part of the Murray River, which is Australia's largest river. The Murray River is 2, 575 Km (1,600 miles) long, rising in the Australian Alps and travels across three Australian states, New South Wales, Victoria and South Australia. The LMRIA corridor begins at Mannum on the River Murray, passing through the City of Murray Bridge and concludes south of Wellington (see Figure 1.5). There are

twenty-two swamps located along the corridor and each swamp at the time of the study had one or more dairy enterprises operating on them.

Figure 1.5: Lower Murray Reclaimed Irrigation Areas

NOTE:
This figure is included on page 18
of the print copy of the thesis held in
the University of Adelaide Library.

Source: (PIRSA, 2001)

The Lakes district, located south of Wellington includes Lake Alexandrina, Lake Albert and the township of Narrung are also included in the LMRIA. While there are a number of dairies located in the lakes district, only one participated in the study.

Figure 1.6: Narrung South Australia

NOTE:
This figure is included on page 19
of the print copy of the thesis held in
the University of Adelaide Library.

Source: Modified - (Murray Lakes Schooner Club, 2009)

Dairying is popular in this area given its ideal location to the nearby regional centre of Murray Bridge and within close proximity to Adelaide. The River Murray has provided the dairy farmers/irrigators up until recently with an opportunity to flood irrigate, thus having lush pastures all year round and reducing the need for grain feeding. Most of this land was developed for irrigation between 1880 and 1940, principally in the 1920s. A levee bank was constructed along the river's edge to hold back the water, particularly at times of flooding. Since construction of the barrages at the Murray mouth in 1940, the 22 reclaimed areas (swamps) have been 1.0m to 1.5m below the water level of the River (PIRSA, 2001). The dairy farms used channels from which to guide water from the Murray River to irrigate their pastures (see Plate 1.2 and 1.3).

This social catchment comprises mix small settlements whose numbers of those involved in agriculture varied from settlement to settlement. For example, in 2006, 49 people living in Jervois were reported to be involved in agriculture. Of these, 35 stated they were managers while 6 reported to be clericals and 8 were labourers (ABS 2006), whereas on census night 2006 Myponga had a population of 126 of which 19 reported as being employed as managers in agriculture.

In 2001 there were 22,251 (ABS 2001) persons counted living along LMRIA corridor ranging from Mannum to Wellington on Census night. Of this overall population 9,211 were employed and of these, 1,761 (or 19%) were employed in the Agricultural Industries (ABS, 2001). Four hundred and fifty eight or (26%) of those employed in Agriculture were employed in the dairy industry either as managers or farm hands. The remaining primary industries included vegetables (ex potatoes) (171, 10%) pigs (110, 6.2%) mixed farming - sheep, meat cattle and cereal (122, 7%) (ABS 2001). At the time of the study, 43 dairy families remained operating on the swamps. On census night 2006 there were 21,055 persons living within the river corridor. In September 2008 thirty (30) dairy farms remain operating on the swamps (see Plates 1.4 and 1.5).

Plate 1.4: Dairy Farm Jervois



Source: LMRIA Study

Plate 1.5: Irrigation Channel



Source: LMIRA Study

The definition “bounded rural locality” represents rural areas with a population of 200-999, (Hugo 2005). Importantly, with regard to this study the ‘bounded rural locality’ represents the total population of operational dairy farms located swamplands between Mannum and Wellington, South Australia. The significance of contextualising these community swamplands as ‘social catchments’ when considering social organisation becomes clear. As reported by Smailes (2000) in Hugo et al., 2001, elements such as “location, regional identity and feelings of common purpose and community can be potent forces in people’s consciousness in non-metropolitan areas” and were ever present in LMRIA.

A major challenge for community based natural resource management in the LMRIA district is ongoing water restrictions due to a prolonged drought. Add to this, soaring costs for grain and fluctuating milk prices as well as the associated high costs for rehabilitating dairy pastures and upgrading dairy infrastructure, dairying communities have become burdened with continuous adjustment and at times struggle to commit to ongoing natural resource management.

1.6 Organisation of This Study

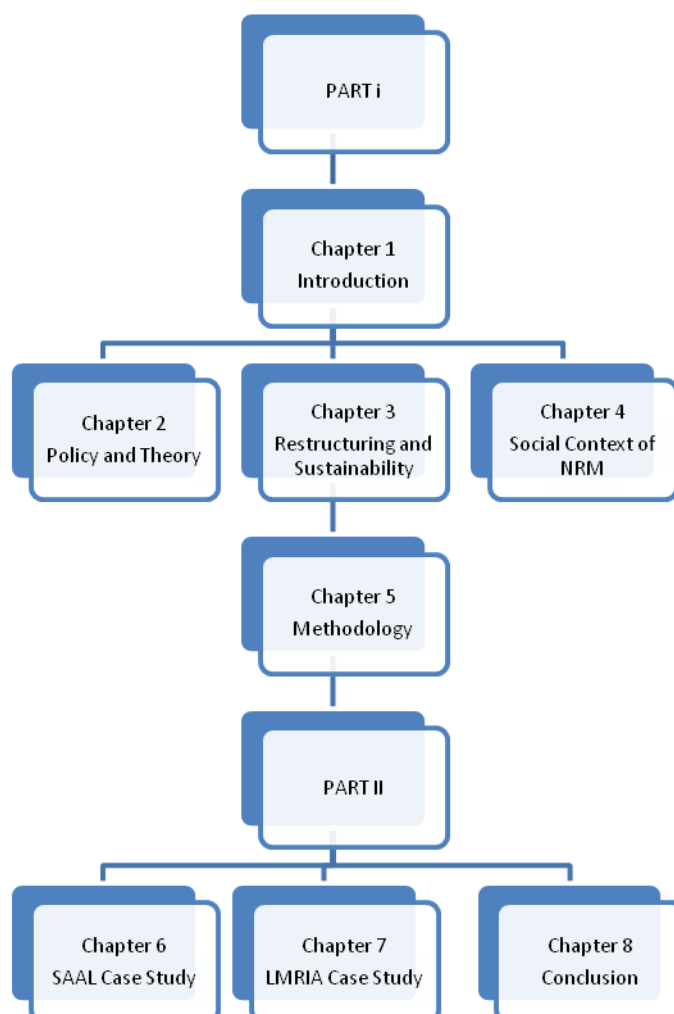
The chapters that follow consider the social context of natural resource management from an integrative perspective, including the social and economic implications of policy change, rural restructuring and how they, along with values and belief systems influence farmer decision making and their reactions towards natural resource management.

1.6.1 Thesis Framework

Part I of the thesis comprises of Chapters 1-5 which develops the platform from which this study evolves, including the methodologies used in this research. Part II of the thesis, Chapters 6-8 provides an analysis of the case studies and discussion, concluding with a conclusion, (illustrated in Figure 1.6 below).

In Chapters 2-4, the key conceptual and theoretical issues are elaborated. Chapter 2 conceptualises rural transition and provides a modest account the role that policy has played in shaping the rural landscape paying particular attention to agrarian policy of the 21st century and the reforming of environmental policy at the Commonwealth, State and regional level. This chapter also highlights the role of social science demonstrating how it has informed social theory over the past few decades; in particular how environmental sociology can play an important role in this genre from which to theorise the relationship between human beings and nature. Chapter 5 develops the thesis's empirical methodology and analytical framework and elaborates on the synthesis of methodologies used in this research and why they were adopted as the instruments for inquiry.

Figure 1.7: Thesis Framework



Source: Developed by Author

Emphasising the restructuring processes that farmers respond to on an ongoing basis Chapter 3 highlights a number key aspects that cause rural restructuring i.e. agri-food production including vertical and horizontal integration, globalisation, diversification, and to a minor degree, counter-urbanisation, and tourism and how these externalities impact on farmer/landholder behaviour and their relationships with the environment. The chapter elucidates the difficulties farmers have when faced with economic survival (often as a result of restructuring processes) on the one hand and environmental sustainability on the other. By examining briefly such issues as sustainability, resources and capitals it is possible to begin to understand the complexities farmers are faced with in relation to managing the natural environment in such a way that it meets the needs of the present without negotiating the capacity of future generations to meet their own needs. All three

concepts are related to the social context of natural resource management and are frequently raised by those people involved in the research of natural resource management and sustainable community development , (Herbert-Cheshire and Lawrence, 2003; Wilkinson et al., 2003; Smailes et al., 2005; Stayner, 2003). For example, sustainability is only possible when individuals and or communities shift from a reactive to proactive approach to natural resource management as a means to manage their endowment of resources or capitals as they are sometimes described..

Chapter 4 talks about the social context of natural resource management and provides an overview of social capital, community capacity, community engagement and governance. It provides a brief discussion on the contributions of Bourdieu, Coleman , North and Olson and pays particular attention to the works of Putnam and Granovetter who raise ideas about weak ties vis a vis building networks – social capital for the purpose of managing regional NRM. The chapter examines farming behaviour and raises the argument that social capital alone is not a panacea for building community capacity to respond to NRM. This chapter makes the argument that the capacity to undertake NRM is dependent on a number of variables: values, attitudes, goals and lifecycles. The Chapter considers community engagement and governance and raises the argument that if one's object is to achieve community based NRM then such elements as holistic engagement and local governance are necessary for dealing with the operational dilemmas associated with achieving sustainable outcomes.

Chapter 5 develops the thesis' empirical methodology and analytical framework and elaborates on the synthesis of methodologies used in this research and why they were adopted as the instruments for inquiry.

Part II of this thesis consists of Chapters 6, 7 and 8. Chapters 6 and 7 comprises a data analysis and discussion of the two case studies, while Chapter 8 presents a conclusion and recommendations for future research and development in community based environmental planning and management.

1.7 Conclusion

Understanding the social milieu of natural resource management is becoming increasingly important for long term sustainability. As this chapter has argued, the social context of natural resource management plays an integral part in strategic regional planning in the South Australian Arid Lands. Equally important is the necessity to recognise those postmodern conditions such as globalisation, differentiation, plurality, demography – including in and out migration and tourism and how these externalities are manifest in uncertain, complex and often contradictory modes of decision making (Holmes, 2002). For example, “decision making is regularly swayed by multiple interest groups, each with its own distinctive set of values and ideologies, not susceptible to swift resolution in multiple-values and multiple use contests” (Holmes, 2002:362).

The following chapters elaborate on the socio-economic and political environment (i.e. ideologies, policies, economic and rural restructuring, community development, community engagement and power relations) that influence community based natural resource management. When read in their entirety these chapters provide a unique discussion on a community based natural resource management processes occurring in the Arid Lands region and the Lower Murray Irrigation Reclaimed Areas of South Australia.

2 INTERPRETING AUSTRALIA'S RURAL TRANSITION THROUGH A POLITICAL AND SOCIAL LENS

2.0 Introduction

When considering the management of the environment it is important to not only think about environmental policy as a standalone strategy but it is also imperative to consider the fundamental tenets of public policy, in particular those standards that set economic policy as the dominant discourse from which other policies are developed. All too often policies are developed through an economic lens, one that tends to recognise predominance of economic capital over other capitals (Pusey 1993; Lawrence 1992; Koxchatzky 2003; Fenna 1997). Indeed in a bygone era cultural capital "informed and maintained the relationship between economic activities and natural resource use" (Stratford and Davison 2002:430). However, today cultural capital no longer has that mediating role as it once did, because economic capital is over privileged and natural capital is used up and degraded (Stratford and Davidson 2002:430). Successive Australian governments, commencing in the 1970s had committed themselves to focus on economic capital through neo-liberal policies of trade liberalisation, which in the agricultural context, had included the removal of import tariffs and the dismantling of statutory marketing arrangements (Halpin and Guilfoyle, 2004:94). How we make sense of the challenges facing farming communities as a consequence of these policies is open to interpretation.

The adoption of social theories is one method of understanding the impact of policies on rural communities and the flow-on consequences to the natural environment. Hence this chapter first presents a summary account of three ideological approaches to development that have influenced and shaped the socio-economic and physical dimensions of Australia's rural landscape over the past six to seven decades. The discussion then moves on to provide a brief overview of several of those social theories that have developed over time that help to guide "research and explain its outcomes" (Lockie, 2004:27) in terms of the socio-economic and political responses to environmental management. The chapter examines recent environmental reform and the delivery of regional natural resource management as one method for addressing some of the ecological stresses that have occurred as a result past and current policy decision-making processes. The chapter concludes by drawing attention to some of those major social theories that have helped

shape the social sciences over the years, before concluding with a discussion on the relevance of environmental sociology as a consideration of the social behaviour and relationship humankind has with the physical environment. Pritchard (2005) when discussing neo-liberalism claims such transition is necessary to ensure the livelihood of humankind. The following discussion talks about rural transition through the language of politics.

2.1 Rural Transition Through the Language of Politics

Ideologies exemplify the dominant discourse of the day, and policy making revolves around issues which are debated in the “language of politics - sometimes referred to as the language of ideology” (Fenna, 1997:2). Jeansch (1995:8) refers to an ideology as consisting of a “spectrum of beliefs, a continuum, which have vague internal boundaries” and \ is in essence:

a set of attitudes and beliefs about the nature of humanity, society and the State about what constitutes a ‘good society’ and prescriptions for getting there; and about the role of government and politics [and] in its ideal form, the set of attitudes and beliefs would be elaborate, wide ranging, consistent and internally coherent, explicit, and would serve as the guide for the actions of its adherents...[and] the labels in practice of Australian politics fall well short of the ideal form – but they do have elements that can be teased out.

Pritchard argues that neoliberal agriculture in Australia occurs because, “the discipline of agricultural economics in Australia (which has become more centred on the influence of the Chicago School paradigm), emphasises the social benefits of free markets” (Pritchard, 2005:1). He recognises that the “messenger is the message: one that legitimises policy through the lens of economic modelling” (Pritchard, 2005:2). Moreover, Australia’s agricultural policies legitimate economic ideologies which have a tendency towards a narrowing of bureaucratic discourse towards more technical and abstracted conceptions of “the national interest [or] the public good” (Pritchard, 2005:4).

Classical economic theory, recast as neo-liberalism has re emerged as the dominant discourse of Australian politics, central to which is a mode of representation that formulates new relationships between ‘state’, ‘economy’ and ‘society’ (Lawrence, 1992; Koschatzky, 2003; Boejlje and Doering, 2000; Fenna, 1997). The object of this overriding discourse is – competitiveness.

Competitiveness, Porter (1992:1) purports, “has become one of the central preoccupations of government and industry in every nation”. Overtime competitiveness and the idea of accumulation and the role of the sovereign state have been the tenets of the State for many centuries.

For example, early political philosopher John Locke put forth an influential defence of individualism and private property – referring to the fact that accumulation of money and the enclosure of land had lead to “more productive forms of property ... and ... led to the interpretation by others as providing a justification for the capital accumulation of an emerging bourgeois class” (Hampsher-Monk, 1995:93). Of course there were different interpretations of the social benefits of such socio-economic and political structures. Marx and Engles (1992) for example held an opposing position to that of Locke. Classical liberalism, Marx and Engels argued, served “the interests of the bourgeoisie (ruling class)” and any reforms to the system merely served the interest of the ruling class and prolonged the pain of the proletariat – the working class – those opposing the dominant class’ (Marx and Engels, 1992:12-13). This relationship required access to natural resources which Marx argued was a contradiction of capitalism - one that led to a tendency for “capitalism to create further barriers to capital accumulation, in effect ruining the very conditions it needs in order to expand” (Dickens, 2002:52). It may well be asked whether things are done any different today as they were in early capitalist years, given that both economies have placed enormous pressures on nature to produce for humankind.

2.2 Shaping Australian Politics

2.2.1 Classical Liberalism

Libertarian conservatism (otherwise described as classical liberalism politics of the late 19th and early 20th centuries) was grounded in the “belief of ‘economic individualism’ and ‘getting the government’ off the back of the ‘businessman’” Heywood (1992:72). The libertarian tradition was at its strongest in those countries where classical liberal ideas had the greatest impact i.e. Britain and the United States. For example, closed economies, like the United States of America were privileged with a large population and therefore able to keep their trade largely within their borders – unlike Australia who had a small population (in contrast to the United States) and survived on a staples economy. Normally at the turn of the 20th century, small economies, for example Sweden (and one would have thought Australia due to its small economy) opened their borders to trade,

since building tariff walls for small economies would have made little sense. The reason being is that small economies required an open international market, not a closed domestic one, to exist. It is at this point that Australia's approach to trade differed somewhat to other nations of a similar size. Australia traded in staples goods – not manufactured goods, and as such, Australia was able to employ the 'closed' economy option usually opened to countries ten times the population of Australia (Fenna 1997:99). The Fortress Australia policy fundamentally insulated Australia from the rest of the world by "protecting Australian workers from the outside influences and the full rigors of the market" (Fenna, 1997:97). Fundamental to the success of the Fortress Australia policy was the underlying ideologies of the Australian Settlement which may be summarised under five headings White Australia, Industry Protection, Wage Arbitration, State Paternalism and Imperial Benevolence, (Kelly, 1994:1-2).

2.2.2 Keynesian Economics

As mentioned above, since the early 1900s Australia was governed by libertarian politics, adopting a laissez-faire attitude of classical liberalism, and this was not seriously dented until the Keynesian Revolution of the 1940s. It was not until this time (post World War II) that the entire capitalist world collapsed, leaving an opportunity for Keynesian economics to become a global orthodoxy for managing economies. It was during these earlier years that two regimes of accumulation have been identified. The first was an "extensive regime – one that lasted to the end of the First World War and was associated with the opening of new frontiers for capitalism" (Lawrence, 1997:336) and the second, Keynesianism, occurring at the end of the Second World War, which was considered to be an "intensive regime", one that "required further technology rather than labour to increase the rate at which surplus value was generated" (Lawrence, 1997:336). It is around this time too that the label 'Fordism' was introduced. Fordism (Higgins, 1999; Goodwin and Painter, 1996) is a mode of mass production (primarily undertaken by factories) and was matched by mass consumption from those "consumers whose wages and social conditions were regulated via Keynesian economic policies" (Lawrence, 1997:336-337).

In principle, Keynesianism provided a theoretical revision of the assumption that the market was self-regulating and laid the basis for a governmental role in 'managing the economy' (Fenna, 1997:120). Rather than supporting existing ideologies about economic 'growth', Keynesian

economics challenged those ideologies and influenced the way nations entered into trade agreements with other nations. For example by the late 1940s, as a result of an extreme political climate for reform, Australian governments implemented policies that created and expanded state capacities to regulate market place behaviour and augment social support. The theory behind Keynesianism was in the event of a depression governments should stimulate the economy by embracing two approaches: the reduction in interest rates and government investment in infrastructure. For Heywood (1992), this reform was about the abandonment of the laissez-faire doctrine to one of managing the economy through influencing the level of aggregate demand and as such, government spending would in effect provide an “injection of demand into the economy” (Heywood, 1992:48-49).

Rather than slavishly adhering to ‘as little government interference as possible’, this shift in ideology guaranteed a more dominant role of government in managing the economy. It was at this time in history that protectionism became the overriding practice for managing the economy and problems associated with economic growth (scarcity) had all but lost their urgency (Fenna, 1998). There was however one exception and this related to future oil (fuel) supplies. For instance, it was believed by some reformists that ‘exhaustion of resources such as coal and oil might interrupt economic growth (Coombes, 2003:30).

Keynesianism was, however, not without its limits. For instance, Keynesianism assumes that changes to fiscal balance will be politically palatable, and that governments know exactly when to alter the fiscal balance and to what degree (Fenna, 1997:124). Notwithstanding such limits, Keynesianism remained unchallenged until the early 1970s when Western capitalism’s golden age came to an end (Fenna, 1998) and once more, supply side economics became increasingly influential in policy making. This renewed sympathy for the theories of classical political economy supported an end to a system that had experienced, under a Fordist regime of accumulation, profits shared by the various classes in a manner which gave stability to the system of production and yet stimulated further the use of intensive technologies (Lawrence, 1997).

2.2.3 Neo Liberalism and the Free Market

The late 1970s to mid 1980s was a period of renewed interest in 'innovation' as the engine for growth (Coombes, 2003:31). Innovations included new products, new methods of production and business organisations and new markets. It was around this time we note the commencement of modern economic theory, a philosophy which continues to inform economic policy today (Coombs, 2001; Monday et al., 2001; Boeijlje and Doering, 2000). From 1983 onwards, Australia experienced a 'radical' move away from what had been a traditionally conservative, yet 'paternalistic' and to a high degree an interventionist, State to a more 'corporatist - free market mix'. Once more Australia adopted a liberal approach to the market - one that emphasised the gradual removal of market distortions through trade liberalisation, financial deregulation, the reform of labour markets, tariff cuts, flatter government taxes and charges and fiscal restraint (Tonts 1998). In the case of agriculture the impact of this approach played out in a 'dual' dimension of industrialisation of agriculture. One that implements a "manufacturing approach to the food and industrial production and distribution chain, [and] one that negotiates coordination among the stages within the chain" (Boeijlje and Doering, 2000:53); the end result being an industrialised agricultural sector (Boehlje and Doering, 2000; Burch and Rickson, 2001).

The implications for economic rationalist approaches to agriculture are demonstrated by the way governments have, over time, become more ideologically driven in their approach to rural adjustment (Higgins, 1999, Lawrence, 1992). By effectively disengaging decades of direct government involvement in the agricultural sector across Australia, governments have left rural communities to manage the demands of the market virtually on their own (Lawrence, 1994; Lawrence, 1992; Lawrence et al., 2004; Lawrence et al., 1997; Gray, 1994; Rowe, 2000; Herbert-Cheshire and Lawrence, 2003; Qualman and Wiebe, 2002). It is an expectation of the state that those farm enterprises who find it difficult to respond to restructuring will adjust out of agriculture.

2.4 Adjustment Strategies

Adjustment, as the word implies, is an ongoing phenomenon and regularly most of the adjustment that takes place in agriculture is autonomous adjustment. Examples of adjustment range from structural adjustment programs that encourage marginal farmers to exit the industry to independent adjustment, for example taking off farm employment and /or diversifying production. The term

autonomous adjustment is used to refer to the adjustment that occurs independently of government assistance. Farmers more often than not respond by finding their own way through the adjustment process. For example, individual farmers may increase farm size and adopt new technologies, or they may prefer to augment farm incomes by taking off farm work, intensify current enterprises or enter into partnership, co-operative or share farming enterprises.

Adjustment processes occur at three levels:

- farm adjustment - adjustment undertaken by individual farmers on the family farm
- industry adjustment - adjustment undertaken by industries and governments (e.g. recent sugar and dairy industry adjustment), and
- rural structural adjustment - rural communities undergoing change as a result of in and out migration, change in development/collapse of industry.

The rationale in favour of adjustment is that Australian agriculture is to remain internationally competitive, and for this to happen it is necessary to ensure all aspects of production, particularly the natural resources, should be available and unhindered to enable efficient producers to expand their enterprises (Lawrence 1992). Consequently farmers who find themselves in a lose-lose situation are encouraged to leave the industry instead of undertaking alternative action to stave off the inevitable outcomes of global economics, restructuring and change (Lawrence, 1992).

In addition, the institutional explanation in terms of the interconnectedness of state and markets - the markets of politics - demonstrates the way by which States are inevitably drawn into solving problems of competition and market development. Just how much involvement is dependent upon the dominant policy of the day? On the one hand you have Lawrence's criticism of neo-classical theory, stating it is this theory that has placed agriculture in to what he claims is a 'dismal' situation.

Lawrence's three main criticisms of the conventional approach are that:

- the price signals facing farmers are not derived from a free international market,
- the existing pattern of farm adjustment is more severe as a result of the price distortions, and

- the existing production pattern of agriculture does not match Australian and overseas demand.

On the other hand Gow (1994) argues that Lawrence should have focused on the international trading conditions at that time. He asserts neo-classical economics opposes corrupt world markets, and concludes that neo-classical economics merely sets out the conditions under which the economic output of a nation can be maximised through the actions of individuals maximising their welfare – that is, free and open exchange by self-interested individuals (Gow, 1994).

Regardless of what account is used to explain the impact of ideology on markets, it is clear that the re-composition of agriculture has accelerated under the combined forces of structural adjustment, transnational corporate strategies such as global sourcing (with flexible subcontracting networks) and genetic patenting (McMichael 1999). Given this 'global face' of agriculture, farmers are encouraged by governments and industry alike, to change the way in which they view the market. This requires approaching farming from a more 'business orientation' rather than lifestyle focus. One such approach adopted by governments has been the implementation of structural adjustment policies.

2.4.1 Implementation of Structural Adjustment Policies

Based upon various evaluation reports (e.g. World Bank 1996), it is possible to define structural adjustment policies as a set of policies which combine short-run stabilisation measures and longer run adjustment measures, which are either applied sequentially or simultaneously or overlap each other. Stabilisation measures consist of the following elements:

- fiscal policies reducing the public budget deficit;
- monetary policies reducing the money supply either directly or through interest rate policy;
- wage and price policy to control inflation in support of the above policies (orthodox programs) or replacing these partly (heterodox policies); and
- exchange rate policies to reduce the balance of payment deficits.

(Van der Hoeven, 2000:2)

To manage market failure, successive Australian governments have introduced schemes to facilitate structural adjustment in the farm sector. While the objectives and forms of these schemes have varied, in all cases they have targeted farmers and not other rural businesses i.e. those in the value chain who find themselves in similar sorts of difficulties (Black et al., 2000). One such adjustment scheme is the Dairy Structural Adjustment Program.

2.4.2 Dairy Structural Adjustment Program

The removal of dairy farm-gate milk price regulatory arrangements in Australia in 2000 represented the single biggest adjustment process of any rural sector. An adjustment package was developed to facilitate better industry performance and would assist in the maintenance of, and in the long-term increase of job opportunities and wealth in, regional dairying areas. It was argued the package would deliver a major boost to rural and regional communities through a direct capital injection to dairy farmers in rural communities over eight years.

Additionally, it was recommended by government that the package would assist communities more broadly through the flow-on effects of farmer incomes remaining higher than they would have been in the absence of a package. The objective was to assist in maintaining the dairy enterprises and the jobs these provide, as well as other industries which service the dairy industry. Worth approximately A\$1.63 billion, the Dairy Structural Adjustment Program (DSAP) Scheme involved payments that reflected assistance obtained by individual farmers from two sets of regulations. Assistance was calculated to approximate the loss of income that would occur in the first three years of deregulation. Payments were fixed and based on milk produced in the 1988-99 season.(Harris, 2004). However, not everybody was eligible for this scheme.

The DSAP Scheme comprised of two components – 46.23 c/litre for market milk and 8.96 c/litre for manufacturing milk. The decline in prices and associated adjustment pressures were expected to be greater for market milk producers. DSAP payments were considerably higher in states where drinking milk accounted for a high proportion of farm output. Individual payments were capped at \$350,000 and treated as income for tax purposes (Harris, 2004).

In the first instance dairy farmers qualified for a DSAP entitlement if they could demonstrate they had an interest at 6.30pm on 28 September 1999 in a dairy farm enterprise, which delivered milk during 1998/99. They were also required to provide certification from an independent qualified financial adviser that they had carried out a farm business assessment. Special provisions would be made for eligible farmers who suffered a loss in production of more than 30% in 1998/99 as a direct result of a natural exceptional event. Exceptional events included storm, flood, drought, and disease suffered by livestock (Harris 2004).

Further, it is recognised there may be some dairy producers in 1998/99 who remained in dairying but did not, strictly speaking, meet the eligibility criteria because of sale or purchase transactions relating to their dairy farm in the period between 30 June 1999 and 28 September 1999. These producers could apply for an anomalous circumstances payment right. Exceptional events and anomalous circumstances payments were granted at the discretion of the Dairy Adjustment Authority (DAA). Farmers eligible to receive payments included owner-operators, sharefarmers, lessees and lessors.

2.4.3 A Dairy Exit Program – A Case Study of the Lower Murray River Swamps

A recent Dairy Exit Program was specifically developed to assist dairy farmers located on the Lower Murray Reclaimed Irrigation Areas (the swamps) who preferred to exit the industry rather than undertake a natural resource management project that required rehabilitation of their lands. The Lower Murray Irrigation Areas or 'swamps' as they are sometimes referred too (see Chapter 7) are former flood plains along the River Murray between Mannum and Wellington (plus one area on Lake Alexandrina at Finniss). Most of this land was developed for irrigation between 1880 and 1940, principally in the 1920s. A levee bank was constructed along the river's edge to hold back the water, particularly at times of flooding. Since construction of the barrages at the Murray mouth in 1940, the 22 reclaimed areas (swamps) have been 1.0m to 1.5m below the water level of the River (PIRSA 2001).

Dairy farmers are currently permitted to irrigate an area of swamp and in some cases the highland directly from the river. Prior to 1995 the irrigation water was allocated to government swamps based on the rateable area of pasture. For example, in the 1960s irrigated water was allocated to

private swamps on the basis of the area of fodder. The licence permitted irrigation of an area of swamp and an area of highland directly from the river. Irrigation of highland was authorised for water drawn from the back channel or main drain. In 1974 the rates were 20.6ML/ha for swamps and 14.7 ML/ha for highlands (PIRSA 2001). Then in 1982 the swamp licence was amended to 14.7ML/ha plus a 40 per cent conveyancing allowance, which was to be returned to the River Murray (PIRSA 2001). In January 1995 the then Minister issued water licenses to government areas. An interim cap on water diversion from the Lower Murray was set in 1993-94 based on a licensed allocation of 83.4GL, (PIRSA 2001).

2.4.4 Rationale for the Rehabilitation Exit Package

In 2000 the rationale for the rehabilitation of the dairy swamps was generated out of a commitment to water reform executed by the Council of Australian Governments (COAG). In addition to the COAG agenda, there were three other key institutional reforms, which had the potential to impact significantly on the current irrigators, located in the LMRIA:

- deregulation of the dairy industry
- introduction of much stricter environmental regulations, in particular relating to the discharge of drainage water into the River Murray; and
- the transfer of ownership of government owned irrigation assets to irrigators (which is also consistent with the COAG water reform agenda).

The government responded to this change by way of implementing irrigation reforms, thus creating new responsibilities for irrigators in the Lower Murray Reclaimed Irrigation Areas (LMRIA). These reforms were aimed at enabling sustainable primary production from these areas, while addressing significant issues arising from the way current arrangements and practices impact on water use, water quality and irrigation management (DWLBC, 2003).

In all, the South Australian government set out to achieve:

- a significant reduction in the impact of irrigation on water quality in the River Murray;
- the efficient use of the water available from the river Murray in value terms;
- a sound, sustainable regional economy; and

- the devolution of responsibility for management and ownership of Government irrigation assets

Initially Primary Industries and Resources South Australia (PIRSA) had carriage of the Rehabilitation project. However in 2002 there was a change in department structure and the Department for Water, Land and Biodiversity Conservation was established, and it took charge of the project, putting in place reforms that created new rights and responsibilities for irrigators in the LMRIA. These reforms were aimed at enabling sustainable primary production from the swamps, while addressing environmental issues arising from the way previous arrangements and practices impacted on water use, water quality and irrigation management. In 2001 it was estimated that:

- Irrigators currently divert about 173GL of water from the River Murray. These diversions are not metered, and are about 70% in excess of allocations. In future, the aim is for water use to be kept to within water allocations, and irrigation efficiency targets to be met (PIRSA 2001:1-4)
- Current irrigation and farming practices result in large amounts of waste water that contains high loads of nutrients and bacteria. The primary concern is irrigation and storm water runoff from farms, which is currently combined with intercepted regional groundwater and other storm water and discharged to the River Murray. In future, the aim is not to discharge polluted wastewater to the River Murray (PIRSA 2001:1-4)
- The State government owned and operated the irrigation and drainage infrastructure within irrigation districts that cover 2/3 of the LMRIA. In future, irrigators will be required to take responsibility for the provision of irrigation and drainage services to their areas (PIRSA 2001:1-4).

Dairy farmers who decided to leave the industry could apply for exit assistance under the Dairy Exit Program (DEP). A tax-free dairy exit payment of up to \$45,000 was made available to farmers who decided to leave agriculture and who had been granted a payment right under the Dairy Structural Adjustment Program (Harris, 2004). The outcome of rehabilitation process is the subject of one of the case studies presented in this research and is discussed in more detail in Chapter 7.

2.5 Natural Resource Management and Environmental Reform

Adjustment policies are not the only way governments address environmental challenges.

Natural resource management is one tool for managing the natural environment and has also been the focus for adjustment strategies and exit plans. Community based natural resource management attracts broad public interest, and more so when one considers the logical extension of natural resource management is arguably, sustainable development. Both concepts exercise the minds of policy makers, business and the community alike (Hodgson et al., 2005). The Dictionary of Natural Resource Management lists several definitions of NRM as:

- Natural resource management is an academic discipline which studies the management of natural resources such as land, water, soil, plants and animals, with a particular focus on how management affects the quality of life for both present and future generations.
- rational utilisation, renewal and conservation of natural resources; it consolidates all sectors of the economy of the respective territory.
- the management of the natural resource base (land, soil, water, vegetation) in a manner that maintains and/or safeguards its value for future generations.

(Dictionary of Natural Resource Management, 2000)

Similarly the Dictionary of Environment and Conservation defines natural resource management as:

[T]he management of natural resources on a sustainable basis, usually in ways that meet multiple objectives including conservation and wildlife and ecosystems, and the minimising of environmental impacts and environmental change.

(Dictionary of Environment and Conservation, 2008:299)

2.5.1 A National – Regional Approach to Environmental Management

Australia's most important national environmental management program, the National Heritage Trust which was introduced in 1986, made community-based environmental planning the dominant response to environmental problems (Lane et al., 2004: 710). The National Heritage Trust (NHT) and the National Action Plan for Salinity and Water Quality (NAP) programs are the Australian

Government's flagship environmental and natural resource management initiatives. The two initiatives devolve funding to local and regional environmental community groups to undertake on-ground work and awareness-raising to achieve targets in priority areas (NHT, 2002a).

Natural resource management has given rise to the notion of sustainable development and not unlike the term sustainability; natural resource management is a highly contested and malleable concept. Participants in the public debate often attempt to redefine the term in ways that best suit their existing agenda. The devolution of responsibility for natural resource management to regional bodies in Australia has also brought about an increased emphasis on civic participation (Lane and McDonald, 2005; Brunckhorst, 2005). Proponents for civic participation in natural resource management consider it is important that citizens whose everyday lives will be affected by natural resource management should be a part of the decision making process (Davidson, 2004; Lawrence, 2004; Warburton, 1998; Cavaye, 2004; Lane and McDonald, 2005). This new approach to managing the environment has brought about a shift in focus for governments who are now becoming increasingly interested in finding ways to identify the capacity of communities to adopt and promote natural resource management through capacity building exercises and community engagement.

This interest in capacity building which included community engagement was exemplified when the Australian government launched the National Landcare Program in 1992 to provide funding to community groups interested in the environment to undertake a range of NRM projects. Landcare policy emphasised "...'self-reliance' in a framework of partnerships with government rather than dependence upon government and is consistent with the otherwise potentially competing discourses of economic rationalism, community empowerment and environmental responsibility..." (Lockie, 2001b:249). In 1996, the National Landcare Program became one of 17 programs to be funded from the Natural Heritage Trust. The Natural Heritage Trust brought together former separate programs from the environment and primary industries portfolios, and amalgamated funding for the conservation and sustainable management of Australia's land, water and biodiversity.

By the early 2000s there was yet again another shift in thinking regarding the functions of Landcare and by 2002 most states and territories in Australia were reviewing, or had recently reviewed,

statutory and administrative arrangements for NRM (Bammer, 2005). An important aspect of this review was a consideration to devolve the responsibility for natural resource management from the local scale back to regional communities via a regional delivery model. The central argument for this approach stemmed from the complexity inherent in scale vis a vis funding and organisation. For example, Farrelly purports, “despite varying successes, reviews documented problems of accountability, project monitoring, evaluation, and reporting and an overlap in programs” (Farrelly, 2005:395). There are now 56 regional groups across Australia, with 8 being represented in South Australia (see Figure 1.4.1c, Chapter 1).

A report delivered by the Australian National Audit Office (ANAO) identifies that while there has been advancement in areas of outcomes-based reporting, monitoring and evaluation, further improvements were necessary leading into the NHT program (Australian National Audit Office 2008). The ANAO made four recommendations designed to improve the delivery of the regional model and these related to better risk management, greater transparency and efficiency in the management of funds, closer compliance with bilateral agreements and more accurate reporting to Parliament (Australian National Audit Office 2008:17-18). All four recommendations were supported by well “designed bilateral agreements between the Australian government and States and Territories and a comprehensive planning and accreditation process based on the best available science was undertaken” (Australian National Audit Office, 2008:15).

2.5.2 The South Australian Case

In South Australia, environmental reform occurred in 2004, when the South Australian parliament assented to the *South Australia's Natural Resource Management Act* (2004). This piece of legislation promotes sustainable and integrated management of the State's natural resources and makes provision for establishing an integrated scheme which promotes the use and management of natural resources in a manner that:

- (a) recognises and protects the intrinsic values of natural resources;
- (b) seeks to protect biological diversity and, insofar as is reasonably practicable, to support and encourage the restoration or rehabilitation of ecological systems and processes that have been lost or degraded;

- (c) provides for the protection and management of catchments and the sustainable use of land and water resources and, insofar as is reasonably practicable, seeks to enhance and restore or rehabilitate land and water resources that have been degraded;
- (d) seeks to support sustainable primary and other economic production systems with particular reference to the value of agriculture and mining activities to the economy of the State;
- (e) provides for the prevention or control of impacts caused by pest species of animals and plants that may have an adverse effect on the environment, primary production or the community; and
- (f) promotes educational initiatives and provides support mechanisms to increase the capacity of people to be involved in the management of natural resources.

By 2006 South Australia's first Integrated Natural Resource Management Plan was released by the then Minister for Environment and Heritage. The State NRM Plan is a key component of integrated natural resources management arrangements under the *Natural Resources Management Act 2004*. The plan was prepared by South Australia's Natural Resources Management Council, which purported to carry out extensive consultation with relevant agencies, peak bodies and the community. The five-year plan includes a fifty year vision setting out a landscape approach to managing South Australia's natural resources and the potential risks. The principal role of the council is strategic leadership and advice (Natural Resource Management Council, 2002).

A decisive factor of the NRM plan was to constitute NRM Boards and NRM Groups (as mentioned above) to develop these regional plans. To do this it was considered necessary that the Boards have at their disposal service providers including staff, contractors, councils, community groups and State Government agencies.

There are eight regional NRM Boards located across the South Australian landscape (see Chapter 4, Figure 4.5). The regions are:

- Adelaide and Mount Lofty NRM Board
- Alinytjara Wilurara NRM Board
- Eyre Peninsula NRM Board

- Kangaroo Island NRM Board
- Northern and York NRM Board
- SA Arid Lands NRM Board
- SA Murray-Darling Basin NRM Board
- South East NRM Board

This current trend in natural resource management has redefined yet again the relationship between society and the natural landscape. Functioning at the regional scale is not without restrictions, as recent critical reviews of regional delivery for environmental and nature resource management demonstrate (Farrelly, 2005; Cavaye, 2004; Lane and McDonald, 2005; Lane et al., 2005; Lockie, 2004). Ewing, 2003 cited in Farrelly (2005:397) points out, “[T]he regional scale will always incur tensions between being small enough to remain locally relevant and large enough to be strategic and targeted for government funding”. Notwithstanding, the momentum for changing attitudes to the environment has proved unstoppable and reaches into every area of human activity, including agriculture (Macadam et al., 2004:5).

The importance and necessity for including community perspectives in natural resource management has encouraged a range of approaches and methodologies to be developed to assist in the building of relationships (Fenton, 2005; Fenton, 2004; Flora, 1998; Cavaye, 2005; Cavaye, 2004; Cavaye, 2000; Aslin and Brown, 2004; Lynam et al., 2007). These approaches include capacity building exercises, community engagement and participatory action. However, there is a problem that exists which relates to institutional arrangements. As Macadam et al (2004:35) point out, a conflicting mix of mind-sets exists. For example, the “sustainability mind-set is apparent in the rhetoric of agricultural organisations, increasingly so in legislation, but less so in the practical reality, where a productivity mind-set (with a production undertone) still dominates” (Macadam et al., 2004:35). In spite of this barrier, effective civic engagement in natural resource management and conservation remains an effective means of identifying and managing environmental problems at the local and regional scale (Whelan and Lyons, 2005; Aslin and Brown, 2004; Lane and McDonald, 2005; Wilson, 2006; Gareau, 2007; Farrelly, 2005; Warburton, 1998; Lane et al., 2005; Bellamy et al., 2005; Kilpatrick, 2002; Pero and Smith, 2006; Cosgrove, 2008; Jones, 2006).

One way to understand the impact that policies have on the rural domain and how these impacts are managed, is through a social science lens. The social science lens is made up of a number of spectra – human geography, sociology, anthropology, history, economics and politics. Each spectrum offers its own valued opinions on the social context of rural life and as a result there is an increasing awareness of the relationship between man and his or her environment. It is these social theories, in particular those sociological theories on the rural domain and its natural environment which set the scene for the remainder of this chapter.

2.6 Social Theory – Rural Life and the Environment

2.6.1 Social Theory

Historically, theoretical issues about rural life have focused on concepts such as localisation (Goodwin and Painter, 1996; Dewees et al., 2003), uneven development (Coombes, 2001; Tonts and Jones, 1999; Tonts, 1998), gender roles and the farm business (Liepins, 1998; Shehan and Kammeyer, 1997; Alston, 2006) as well as broader concepts such as restructuring (Tonts and Jones, 1999; Higgins, 1999), adjustment (Rhodes et al., 2003; Lawrence, 1992; Gray, 1994; Rowe, 2000), globalisation, and demographic change (Panelli, 2001; Smailes et al., 2005; Hugo, 2001; Hugo, 2005; Smailes and Hugo, 2007). Of late, there has also been an increasing interest by the social sciences in the notion of social sustainability and the relationship between society and the environment. As a result many social scientists with an interest in community and rural life have turned their attention to the role of civic governance, community development, community sustainability, community capacity and community based natural resource management (O'Toole, 2006; Luckin and Sharp, 2004; Cocklin and Alston, 2003; Dibden and Cheshire, 2005; Lawrence, 1988; O'Riordan, 1988; Farrelly, 2005; Warburton, 1998; Lane and McDonald, 2005; Lane et al., 2005; Kellert et al., 2000; Bellamy et al., 2005; Lane et al., 2009b; Wallington and Lawrence, 2009). This interest mushroomed during the 1990s out of an interest in the environment, sustainability and community response to natural resource management and more recently, climate change (Garnaut, 2008; Adger, 2003).

Environmental sociology (a sub field of sociology) has grown considerably over the past two decades, as much as anything reflecting those “significant changes in the environment and in public consciousness of these changes” (White, 2004b:6). As an object of concern, the concept of

citizenship, social capital, sustainability and natural resource management has received ever-increasing attention by academic and political institutions alike. Not surprisingly, the volume of scholarly publications on natural resource management, ecological sustainable development and the role of community have accelerated since the 1980s. As Davidson purports:

Such theorising occurs against a backdrop of substantive change in political communities and political legitimacy is effected by an up-swing in globalising practices, structural crisis in the world economic system; increasing global risks and uncertainties, growing inequalities among rich and poor both internationally and nationally; environmental degradation and decline at both local and global scales; and greater ethnic diversity and multiculturalism in formerly homogenous populations.

(Davidson, 2004:168)

It is in the context of such shifts that the following discussion on social theory and the recent development of environmental sociology as a sub field of sociology unfolds.

2.6.2 Conceptualising Social Theory

Not one single individual can found a whole discipline and overtime there has been many contributors to early sociological thought. Different scholars have different views as to what constitutes the most appropriate way to analyse the relationship between society and the environment (White, 2004b:1). However, despite this, there is one person who takes pride of place, French author, Auguste Comte (1789-1857). Comte first coined the word 'sociology' and used the term 'social physics' to refer to the new field of study (Giddens, 1999 :691). Other writers were also beginning to use the term 'sociology' to distinguish their views from Comte's views (Giddens 1999:691).

So what is sociology? Sociology is about people, institutions and behaviours – it is about social interactions and social structures and ideally sociology consists in thinking about the nature of society, and comparing any particular society with what went before and what is likely to become (White, 2004b:2). Giddens (1999) provides an explanation as for the many perceptions about the nature of sociology. "Sociologists [he states] do not have an agreed theoretical standpoint; they

quite often argue among themselves about how we, society – human behaviour should be studied” (Giddens, 1990:290) He reports this approach is “bound up in the very notion of studying ourselves is the most complex and difficult endeavour [humans] can undertake” (Giddens, 1990:690). Adding to this complexity is the knowledge that theoretical disputes are always partly dependent on interpretation – in the case of sociology the “complications inherent in subjecting our own behaviour to study further complicate this problem” (Giddens, 1990:690-691). Hence, theoretical controversies and debates occupy a central place in the discipline of sociology (Giddens, 1990:690-691).

It is not surprising then that there are at least seven distinctive kinds of sociological paradigms from which to view the world (Bessant and Watts, 2002:37), and these are:

- Structural Functionalism
- Marxism – Conflict Theories
- Weberianism
- Symbolic Interactionism
- Feminism, and
- Post Modernism – post foundationalism

Arguably, of these paradigms, symbolic interactionism is an influential area of social theory and lends itself to first, studying relationships, norms, values and actions of individuals and groups and second, to interpret relationships between humankind and the environment.

2.6.3 Symbolic Interactionism

Symbolic interactionists, Bessant and Watts (2002:55) report “argue that social reality is not an objective or external fact, as the natural world may be regarded” and symbolic interactionists reject the “structural functionalists approach to ‘society’ and to ‘social facts’ as objective realities” Bessant and Watts (2002:55). In essence, symbolic interactionists assume that social action and social reality result from people:

- Giving meaning to events and objectives; and
- Agreeing about the meaning of these things and actions

Bessant and Watts, 2002:55)

In other words, human action is constituted in certain ideas, words, values and language. Language is identified as an important part of interaction as language is symbolic interaction (Bessant and Watts, 2002:56).

Moreover, symbolic interactionist theory has been the bedrock from which later studies on the sociology of networks and relationships came to the fore. Herbert Blumer (a student of Mead) argues that society must be seen as an ongoing process of interaction, involving actors who are constantly adjusting to one and other and continuously interpreting the situation (Haralambos and Holborn 1995:894). Similarly today we analyse those networks and relationships that exist between individuals and groups and we consider the strength of the interaction that occurs between these peoples – today we call it the sociology of social capital.

In terms of this research, symbolic interaction played a significant role in determining the methodology applied for undertaking the case studies, as symbolic interactionism is designed in such a way that researchers can obtain information about how people experience their lives at a micro-situation level. For instance Bessant and Watts purport, symbolic interactionists focus on “social reality in micro-settings e.g. doctors’ waiting rooms” (2002:57). Given symbolic interactionism emphasises the symbolic nature of social interaction and the idea that social reality is constructed by human beings (Blumer 1900:87 cited in Bessant and Watts, 2002:409-410) symbolic interactionism was considered an appropriate theory from which to consider small group behaviour i.e. workshop participants and dairy farming communities.

Mead’s interest in the symbolic interactionism has also provided a focus from which to consider society and how it relates to the environment. For Mead, “humans must classify the natural environment into categories of food and non food, in order to meet basic nutritional requirements” (Haralambos and Holborn, 1995). The need to classify the natural environment is quite significant for it influences the weighting (Shove and Warde, 2001) people assign to the environment as a whole and its parts e.g. water, land, flora and fauna. Consider for example, the values which are assigned to the environment or parts of it and how this will likely vary from one person to another. Importantly, by categorising consumption of the environment we assign a symbolic category and act accordingly. It is through symbolic interactionism that social scientists compile (one could

argue) a symphony of social facts that when aggregated, constitute a school of thought. This method of inquiry is important when one considers the role of environmental sociology. Dunlap and Catton refer to this new perspective as a “new ecological paradigm” (Buttel et al., 2002:37) and it is this model that has become a foundation from which to build methodologies for assessing the inter-relationships between humans and their environments.

2.7 Environmental Sociology

It was in the early 1970s when those pioneering environmental sociology tended to feel that the legacy of classical sociological theorists, and their quest to “distinguish sociology from rival disciplines” had “shifted the pendulum of scholarship too far in the direction of handcuffing sociology with the ‘social facts’ injunction” (Buttel et al., 2002:5). Buttel makes the argument that the classical tradition of social thought can be regarded “as ‘exemptionalist’ and exemptionalism was more a necessary step in the development of a nondeterministic sociological tradition and a creative synthesis of extant sociologies than a fatal flaw” (2002:43). This is to say the classical tradition represented the “liberation of social science from a series of reductionisms and chauvinisms – of biological analogies, utilitarianism, the German (neo classical economics) analytical school, psychology, clericalism, nationalism, and so on” (Buttel, 2002:43). Buttel contends, that by overcoming these reductionisms and prejudices, it has been possible to “develop of an overarching or encompassing social science discipline, one that would be able to accommodate a variety of explanatory schemes and methods, to explore a variety of empirical problems, and to do so while observing an ethic of objectivity” (Buttel, 2002:43).

Importantly for those involved in social research today, more than ever before there is a “growing acceptance of a need to bring nature into social theory” (Lockie, 2004:27). Modern environmental sociology is the study of the reciprocal interactions between the physical environment, social organisations, and social behaviour. An important development of this sub-discipline has been the shift from a ‘sociology of environment’ to an ‘environmental sociology’ (Buttel et al., 2002). While the former refers to the study of environmental issues through the lens of traditional sociology, the latter encompasses the societal-environmental relations (Dunlap and Catton, 1979; Buttel et al., 2002).

As White points out, “different writers have different conceptions regarding what constitutes the most appropriate way to analyse ‘environment and society’, and indeed what to include as part of such discussions” (White, 2004a:1). For instance White reports:

[F]or some, the important thing is to consider particular environmental issues such as soil degradation, declining biodiversity, solid waste problems, chemical pollution, global climate change ... and for others, the approach may be more conceptual, in the sense of locating debates over and above the environment within the context of social and political theory, such as analysis of different ways in which ‘nature’ is defined and perceived, theorising the relationship between human beings and ‘nature’ and human beings and non-human animals, examining the way in which industrialisation and globalisation impinge on environments, and exploring the agency of human beings in relation to their environments and as part of social movements about the environment.

(White, 2004a:1)

Hannigan’s (2002) interpretation of environmental sociology reflects recent conceptual and empirical advances in environmental sociology. His work provides a distinctive and holistic treatment of environmental issues and debates in particular, the cultural analysis and environmental theory (Hannigan 2002:311). For Hannigan (2002) a major influence has been the adoption of discourse analysis as a method for analysing the production, reception and strategic deployment of environmental texts, images and ideas of those people involved in managing the environment. This concept is particularly important as it sets the scene for Part 2 of this thesis.

2.8 Schools of Thought About the Rural Domain

2.8.1 New Rural Sociology

New rural sociology came to prominence in the 1970s and while it considered the growth of agribusiness on a global scale, the former Wageningen School which coined the term ‘new rural sociology’ tended to underplay the role of external factors, thus inhibiting their ability to theorise forces outside the farming sector. One example is provided by Buttel, who states:

... new rural sociology ... at a minimum was unable to directly theorise the forces external to the farming sector, i.e. non-farm labour market, state policy, and shifts in class diets that

shaped and changed farming as well as the food system ...and...tended to not give much attention to agro-ecological antecedents of diversity

(Buttel, 1996:22-23)

The Wageningen School was founded by Norman Long who initially tended to consider Marxist/class categories in the context of agrarian sociology but became increasingly sceptical of neo-Marxist development theories on account that they centered on structuralism, economism, and determinism (Buttel 1996). As a Latin Americanist and development studies scholar, Long came to advocate an 'actor centred' perspective in the sociology of development (essentially a neo-Weberian perspective) that incorporates elements of cultural studies and critical theory (Buttel, 1996). According to Buttel (1996:17) Wageningen theorists explored the ways in which farm families developed locally based adaptive strategies [that were] rooted in culture, local agro-ecology, and in household resources, in order to ensure their survival and persistence. For Localist's identify and focus exclusively on spheres of the farm enterprise, farm household, land ownership and, farm labour (Buttel, 1996:17). In time the Wageningen approach to theorising was superseded. The theory was proven to be limited in its ability to examine all factors impinging on rural socio-economic, political and cultural developments and the subsequent restructuring that occurs as a result of these events (see Buttel 1996; Tonts 1998).

2.8.2 Neo Marxism and Agriculture

A resurgence of neo-Marxist expression during the 1970s further impacted on the way social scientists viewed the rural sector, and more importantly, how they viewed the dynamics of capitalism and agriculture. Neo-Marxist accounts of capitalism and development within agriculture were further extended by Stinchombe (cited in Goss et al., 1980:83) to include 'agricultural enterprises' drawing upon the developing 'burgeoning corporate behaviour' in the agri-food business of agriculture (Sklair, 1996). According to Sklair (1996) it was around this time that Australian bureaucrats had been "persuaded that Australia's best interests lay in the accelerated growth of the global economy through unfettered competition and 'free trade' and that the only way Australia could benefit was if the old system of tariff protection and labour regulation were destroyed" (Sklair, 1996:12).

2.8.3 New Political Economy of Agriculture

Since the 1990s a shifting focus of research has increasingly been to understand, and make known, the effects external processes have had not only at a national level, but also at the local level. This process, termed the 'new political economy of agriculture' reflects a new organisational structure of agriculture (Whatmore, 1995). First, for example, is the reorganisation of capital accumulation in the agro-goods sector, in particular those stages of production between primary producer and the consumer and second, the role of space, in particular in relation to uneven development. The interconnectedness of space expressed in terms of globalisation and the struggle for power and resources at the end of the twentieth century is particularly relevant in terms of sustainability and the relationship between human kind and the natural environment and resurgence in environmental sociology.

2.9 Conclusion

This chapter began by presenting a synopsis of three ideological approaches - Classical Liberalism, Keynesian economics and neo-Liberalism - to rural development. These ideological approaches have influenced and shaped the socio-economic and physical dimensions of Australia's rural landscape over the past six to seven decades. The chapter goes on to argue that agrarian and economic policies have done little to consider the relationships between intensive primary production and environmental degradation and that through social theory we are provided opportunities to explore the nature of society and its relationship with the natural environment. The chapter recognises that the relationship between the state to private interests and the natural environment is ultimately contingent on baseline criteria. The chapter then went on to acknowledge the extent to which social theory goes to explaining these relationships and highlights those theories and the more recent contribution of environmental sociology as a platform from which researchers can use to direct their research, providing guidance to what sorts of problems and questions may be in need of investigation and the concepts and hypotheses that might steer that research and describe its results.

Chapter 3 talks about restructuring and sustainability. It focuses on those restructuring processes that occur as a result of the global market and public policies which were the foci of this chapter. Chapter 3 details the outcomes of such policies and market vagaries in terms of rural restructuring

and sustainability and draws attention to the extent to which restructuring processes impact on the natural environment.

3 RURAL RESTRUCTURING AND SUSTAINABLE OUTCOMES

3.0 Introduction

It is an argument of this thesis that it is necessary to consider 'restructuring and sustainability' from a holistic perspective, one that integrates those external and internal forces that shape the relationship between man and his environment; to do otherwise would be to undervalue the extent to which these phenomena are linked and impact on each other. Thus this chapter provides a summary of those restructuring processes that redefine the relations between farmers and the natural environment. For a number of decades now, proponents of restructuring have recognised the extent to which market vagaries and other externalities impact on farmer decision making regarding business and natural resource management (Marsh and Pannell, 1998; Passfield et al., 1999; Wilson, 2006; Farrelly, 2005; Lane and McDonald, 2005; Lane et al., 2005; Gray and Phillips, 1997; Tonts and Jones, 1999). If farming is to remain viable then not only do farming communities need to continue to restructure and adjust, they also need to be mindful of competing usage of natural resources, and manage this usage in a sustainable manner. Thus this chapter considers first the transformation of agricultural production over the past few decades, drawing attention to the types of restructuring processes that occur in the rural domain. The chapter goes on to discuss such phenomena as globalisation, chains of production including, distribution (vertical and horizontal), counter-urbanisation and tourism, all of which are recognised as rural restructuring processes (Tonts, 1998; Selwood et al., 1996) before discussing 'sustainability' and how current governments are increasingly adopting a 'capitals' framework from which to achieve sustainability (Goodwin, 2003; Warburton, 1998).

3.1 Restructuring and the Transformation of Agriculture

Resounding evidence demonstrates that the transformation of agriculture as a result of restructuring processes (McMichael and Lawrence, 2001; Borghesi and Vercelli, 2003; Mech, 2004b; Lockie, 2001a) has had an unfavourable impact on many rural communities and the environment (Tonts and Jones, 1999). Examples of restructuring result from the most obvious such as globalisation (Porter, 1992; Jussaume, 1998; Buttel, 1996; Page, 1996), industrialisation – chain of production and distribution (Burch and Rickson, 2001), to the less obvious (until recent

times) counter-urbanisation and its associated lifestyle changes (Cloke, 1996; Walmsley, 1998; Tonts and Black, 2003; Smailes and Hugo, 2003) and tourism and ecotourism (Selwood et al., 1996; Faulkner and Walmsley, 1998). It is the view of Mech that since the very nature of competitiveness in primary production is dependent on bountiful natural resources, unless the environment is managed from an ecological perspective, current farming customs have the potential to jeopardise the environment Mech (2004a). It is at this nexus that governments are presented with a problem about how to manage the environment. On the one hand governments have increased their efforts to promote free markets, while at the same time contemplating controlling the markets by introducing adequate regulatory instruments that will ensure some measure of social and environmental outcomes (Pretty, 1995; Bjornlund, 2002; Porter, 1992).

3.2 The Nature of Restructuring

The nature of restructuring is embedded in globalisation and transnational capitalism (Burch and Rickson, 2001; Borghesi and Vercelli, 2003; Jussaume, 1998) which emphasises the need for competitiveness, economies of scale over and above all, utilisation of the environment to support ongoing development. Proponents for reform tend to adopt an economic modelling approach for managing the economy (Stayner, 2005; Porter, 1992) since it provides a means for “removing the so called ‘pervasive influence of government in pricing, manufacture, distribution, and control of agricultural inputs and outputs” (Stanton, 2000:174). Such reforms alter the economic environment for producers and this adjustment is usually managed by phasing in more sensitive reforms, i.e. adjustment – exit programs for those farmers struggling to manage restructuring processes (Stanton, 2000:175).

These same proponents reason that ‘competitiveness’ has become one of the central preoccupations of government and industry in every nation. Yet O’Toole et al (2006) recognise the values of the policymakers and managers i.e. challenging productivity over sustainability, are often at odds with the values of farming communities. Gray notes that the “forces of change are best understood as processes of struggle for individual, family and community self-determination” (Gray, 1994:20). He notes that “farm people do respond to financial conditions, but they also “value their independence and self reliance... [hence] restructuring can be seen as a struggle for farm people” (Gray, 1994:20) who are challenged by ongoing market demands, lifestyle decisions and adopting

sustainable farming practices to ensure ongoing sustainability. Figure 3.1 illustrates those restructuring processes and fundamental causes that ultimately create pressure on the natural environment.

Figure 3.1: Pressures and the Environment

NOTE:
This figure is included on page 53
of the print copy of the thesis held in
the University of Adelaide Library.

Source: Monash Regional Australia Project and Centre for Research and Learning in Regional Australia (2001)

An outcome of these pressures has been, firstly, the increasing recognition that productivist approaches to agriculture in Australia have caused serious, and in some cases irreversible damage to the environment (Lawrence 2005:113). Secondly, farmers are angry that “their efforts to produce food for the nation and the world are being rewarded with accusations of environmental vandalism” (Lawrence 2005:113). The following discussion provides an overview of those major restructuring processes that influence farmer/landholder behaviour and their relationship with the natural environment.

3.2.1 Globalisation

Globalisation is characterised as an interpretive device for distinguishing the specific form of contemporary capitalism from previous forms of accumulation (Jussaume, 1998:401).

Contemporary capitalism or as some call it ‘virtual capitalism’ emerges as a “complex process involving contest and co-option of different interests generating a process of transformation on a global scale” (Burch and Pritchard, 1996:107). For instance, the world of commerce and trade has become so complex and interconnected as a result of hyper-mobility, that virtual capitalism

appears to have homogenised nation economies into one large economy – a global economy.

Giddens (1991) cited in Thrift (1995) highlights the telecommunications satellite as a characteristic of a “world whose economies, societies and cultures are becoming ever more closely entwined – a process which usually goes under the name of globalisation” (Thrift, 1995:18).

The concept of a global culture as a breeding ground for the expansion of a transnational capitalist class is yet another example of the globalisation process. Transnational capitalists need to ensure their power through normal processes of interaction, like consumption, while guarding against crises of authority, such as those represented by the environmental or anti capitalist movements. The degree to which the global culture is mediated within the corporate community itself is a key question, but one that due to its complexity is not considered in detail here, except for saying that the risks and opportunities associated with globalisation is also a field where corporate struggles are carried out on a day to day basis (Robbins, 2004).

In some corners it is argued that the globalisation process has in part caused a growing loss of national and regional identity and causes homogenisation (O'Hara and Biesecker, 2003:281).

Whilst there is credence to this claim in as far as advanced societies share common goals driven by a need to compete for resources, the linking of the local and global is arguably grounded in a 'universal' rather than 'local' framework. McMichael's version (cited in Lawrence, 1996:45-46) of such complexities as diversity, agro-food restructuring and global transformation recognises that the diversity of forms in which agro-good restructuring is expressed demonstrates at once its complexity and universality. McMichael purports:

The diversity of forms and contexts in which agro-food restructuring is expressed demonstrates at once its complexity and its universality. It is universal not simply because agricultural and food systems are being transformed globally, but also because this transformation implicates industrial, financial and service sectors. Arguably, the very definition and content of current restructuring involve a fundamental process of inter-sectoral integration, unconstrained by national boundaries. Accordingly restructuring redraws economic and political boundaries and transforms the spatial categories in which social scientists work.

(McMichael cited in Lawrence, 1996:45-46)

Ohmae (1990) develops this argument further and contends that “although regions may lie within the perimeters of an established nation state, they are also powerful engines of development because their primary focus is outward – and their primary linkage is with the global economy” (Ohmae, 1990:88). The emphasis is upon unrestricted flows of capital and economic deregulation, associated with technological innovation, all of which is realised with the shift towards post-Fordist methods of production.

The concept of ‘global localisation’ emphasises the importance of proximity. The dismantling of policies that served to regulate the flow of business activities, in this case agricultural production, and the associated effects of a shift towards a post-Fordist agriculture suggests that the global economy is moving away from mass production and mass consumption towards a system based on consumer demand for differentiated products, requiring more flexible modes of production (Jussaume, 1998; Gray, 1994; Tonts and Jones, 1999). Where once trade was motivated on a nation-to-nation basis, today hypermobility enhances the flow of capital on a global scale, making the globalisation process seemingly oblivious to state borders and cultures alike. The concept ‘thinking global’ and ‘acting local’ can be seen in the efforts of multinational corporations attempting to integrate into the community and be seen as part of the local social and economic system. The multinational corporation (MNC) is foremost a most complex production unit of globalisation processes.

The MNC consists of several archetypes of production units, the first and simplest – the workshop – involves a small number of people working together with very little specialisation by worker. Second, the factory - a large concentration of people who work together but on separate and specialised tasks: this involves a fine division of labour both within the labouring classes and between those who plan and those who work. Third, the nation corporation - which comprises many occupations, markets, units and places within a country. This type of enterprise includes vertical and horizontal sequence of operations. Such vertical linkages produce, at least multi location, and multimarket firms ... these corporations are involved with the development of a fourth manifestation – the multidivisional, corporation, wherein the horizontal integration and subdivision of

corporations has increased steadily to the extent that the multinational corporation at the end of the end of the 20th century is one of the most important forces creating large-scale shifts in global economic activity

(Barff, 1995:50-51)

It is also evident that increased international competitiveness requires the development of a new mode of production, one that incorporates an efficient and flexible food and fibre production delivery system that operates at the local level (Gray et al., 1993). As is pointed out, “smallholder agriculture is unlikely to achieve full market integration under reform conditions unless other aspects of the economy are simultaneously addressed” (Stanton, 2000:174).

3.2.2 Modes of Production

Fordism

As individual markets are opened up to increased international competition, farmers have been forced to either undertake intensive agricultural production, which falls under the Fordist food regime or become more flexible and specialised – enabling them to vary employment to suit their needs. As evidenced by Stanton (2000) unless farmers are persuaded to form co-operatives they are often powerless to overcome the rigors of competition.

Fordism is the name used to designate the system of mass production, tied to the cultivation of mass market, which Henry Ford developed in the early twentieth century (Hounshell, 1984 cited in Giddens, 1989:484-485). By joining forces in the “marketing, processing, or transport of crops, producers effectively mimic the circumstances of larger producers”- a Fordist mode of production - “often gaining access to credit, technology, and markets that were previously out of reach” (Stanton, 2000:184).

The system worked best for industries producing standardised products for large markets, for example, broad acre farming. Jessop in Goodwin and Painter, (1996:640) identifies four different meanings of the term Fordism:

- labour processes,
- regime of accumulation,

- mode of regulation, and
- mode of societalisation.

Jessop (1996) further purports that Fordism is most appropriately defined as a 'mode of regulation' and involves:

- a wage relation in which wages are indexed to productivity and growth and inflation,
- a key role for the state in managing demand, and
- state policies which help to generalize mass-consumption norms.

(Goodwin and Painter, 1996:640)

It is further suggested by Jessop (1996) that these regimes of accumulation and modes of regulation are the main features of Fordism. For example, modern poultry production occurs when individual producers are contracted by corporations to provide commodities to a specific market (Lawrence 1997:50). The process utilises assembly lines and economies of scale with the aim of maximising production efficiency. Burch describes the chicken industry as being modelled on a system of industrial "mass" production (Burch 2001:167-168). Similarly, Lawrence notes that those contract relations have "allowed producers to directly influence production in the farmer's paddock and to do so in a manner which increases profit for the company while leaving the problems of any subsequent environmental damage with the farmer" (Lawrence 1999:51).

The breakdown of the Fordist approach to regulation has reportedly produced a geographical unevenness in production (Smailes and Hugo, 2003; Coombs, 2001; Tonts and Jones, 1999). In terms of agriculture, Lawrence suggests that

By the mid 1970s consumers were beginning to demand more healthy (green and largely chemical free) products, the nation state could no longer guarantee profitability in a world of increasing competition in the production of foods and fibres, and the Keynesian policies which had placed a welfare net under rural people was being removed....hence the economic conditions of farm production and wider consumption, together with the reductions in state support for rural regions, became a catalyst for the restructuring of rural society.

(Lawrence, 1997:337)

The extent to which a Fordist mode of production still exists today is a debatable. Clearly mass production still exists since farmers are required to address competition by “increasing productivity through scale and abandoning products that continually fail to provide returns for capital” (Lawrence, 1997:332).

Post-Fordism

Post-Fordism is a mode of regulation which is characterised by flexible specialisation, flexible accumulation and is based on aesthetics (consumption) and production (Lawrence, 1999).

Post-Fordism is characterised by new industries and subsequent production methods as well as organisational forms, class relations and state policies (Gray et al., 1993). Flexible specialisation within agriculture provides the means for farmers to specialise in agriculture for a specific “niche” market or to diversify production to include off-farm employment. Lawrence (1999:56-57) emphasises the role of decentralised production units, stating they allow “small(er) scale capital to profit from more responsive production arrangements and from niche marketing”.

Perhaps the most important facet of post-Fordist production within agriculture is its characteristic of highly differentiated consumer styles and consumption. For example, boutique cheeses, exotic fibres associated with alpaca farming and emu oil are all produced for niche markets. There would appear to be growing evidence that while there is not a universal shift from Fordist to a post-Fordist mode of regulation, there is a clear indication that growing numbers of farmers are opting out of the Fordist mode of production, diversifying and producing for niche markets rather than vacating the land for others to optimise the a large scale Fordist production.

The importance of this shift lies in its capacity to explain why farmers resist the pressures of growing demands for larger land holdings to accommodate economies of scale and broad acre farming. Social dissatisfaction and agrarian political protests are symptomatic of structural change. It would seem farmers are willing to discard what have been traditional farming practices that are Fordist in nature to undertake a post-Fordist production that accommodates diversification, thus enabling farming families to remain on the land while at the same time considering varying ways to manage their resources for long term sustainability.

3.2.3 Vertical Integration

Vertical integration, otherwise described as corporate farming, occurs when “one company owns and controls the whole process of production and distribution” (Burch and Rickson, 2001:168). The concept of a vertically integrated multinational enterprise (MNE) structure was developed both as a solution to the rigorous quality control requirements along a complex logistic chain and as a means of sustaining entry barriers (Taylor, 1994).

Today there is a growing number of agri-food companies which prefer to minimise their direct involvement in commodity production to minimise their costs (Burch and Rickson, 2001:168).

These companies favour utilising a model of vertical coordination otherwise described as ‘contract farming’ (Boejlje and Doering, 2000; Marsh and Pannell, 1998; Burch and Rickson, 2001) which is a prevailing form of organisation in a number of sectors. Contract farming is “increasingly in use, especially on the production side of agriculture” (Harl, 2000:115). As Burch and Rickson (2001:169) point out “[A] food-based corporation (such as a processor, fast food outlet or supermarket chain) will contract with a farmer to produce a specified commodity, to an agreed and consistent standard and at a pre-arranged price”. They argue that the degree to which business contracts are successful in fulfilling the needs of the farmer depends on the level of trust between parties. Hart also recognises that contract farming causes a “tilt in market power with a shift in bargaining powers input suppliers and output processors (and first purchases otherwise) gain greater economic power (Harl, 2000:115) undoubtedly at the expense of producers. This is no doubt an issue for farm families since it is difficult to build trust when a power imbalance exists between parties.

Hefferman cited in Burch and Rickson (2001:170) suggests:

The control exerted by the global agri-food companies will only intensify in the future, and will impact on farmers and consumers everywhere. [N]ot only will farmers be reliant upon those companies for access to technology, but also the process of concentration means that farmers have fewer and fewer processing companies to deal with....the food systems can be likened to an hourglass in which farm commodities produced by thousands of farmers must pass through the narrow part of the glass that is analogous to the few firms

that control the processing of the commodities before the food is distributed to millions of people in this and other countries.

3.2.4 Pluriactivity

Apart from facing ongoing technological changes and contractual agreements, farmers and pastoralists are increasingly adopting work changes, i.e. pluriactivity, to remain on the land. Evidence abounds that on a global scale farm households are adopting practices that highlight certain trends of pluriactivity as they adjust to political-economic externalities (Marsh and Pannell, 1998; Passfield et al., 1999; Tonts and Jones, 1999; Rhodes et al., 2003; Lyons, 1997; Hungerford, 1996; Barr, 2002; Lawrence, 1999; Tonts, 1998). Pluriactivity, is often described as ‘diversification’ of farm production and is seen as a strategy for rural development as well as a strategy for gaining more value creation from the farm sector. Evidence provided by the Norwegian experience, indicates that “the majority of farm holds in Norway combine farm and off farm income and the proportion of off farm in the total home household continues to grow” (Jervell, 1999:101). Parallel situations are found elsewhere in literature, (Lawrence 1992, Carey et al., 2001 and Tonts, 2003). Governments have diverse views of farmer behaviour, in particular the adoption of pluriactivity. Unlike Australia where the smaller and/or marginal enterprise are encouraged to exit the industry to make way for ‘bigger’ enterprises, Norwegian farmers are encouraged to combine farming with other business activities (Jervell, 1999).

In many instances it would appear the challenge for farmers both here in Australia and overseas, is to accommodate change by developing strategies or pathways that help to ease ongoing financial pressures. Three such strategies are:

1. Maintaining a full-time, profitable food production element to the farm business.
2. Diversifying the income base of the farm business by redirecting resources into non-farm enterprises and or occupations, or
3. Surviving as a marginalised farm business at a lower level of income, perhaps supported by investment income, pensions, and other direct State payment.

(Ilbery et al 1996:301)

In Norway, for example, farmers are encouraged to engage in multiple business ownership, transferring their resources from their farm business into new ventures – this practice is called

'portfolio entrepreneurship' (Alsos and Carter 2006:313). Farmers in Australia also partake in off farm work to remain viable. However, unlike the Norwegian experience, Australian farmers particularly those small farm operators who struggle on a farm income, are often viewed by Australian governments as marginal, and unlike their Norwegian counterparts, they are not encouraged to remain on the land (Botterill, 2001a; Cahalan, 2005).

3.2.5 Migration and The Role of Counter-Urbanisation

In and out migration is particularly important at a time when rural/community development policies advocate an endogenous approach (Stockdale, 2006). A central feature of endogenous development is the need for suitable human capital to be present (Stockdale, 2006). However, in-migration will only be conducive to endogenous development if it is associated with individuals possessing, among other things, entrepreneurial skills and or a desire for an alternative lifestyle (Stockdale, 2006; Selwood et al., 1996; Hugo, 2005). While economic rationalism is arguably a primary mechanism behind out-migration in inland dry-farming areas, social awareness of environmental issues, changing social values and lifestyle issues, as well as retirement, climate and employment have contributed toward decentralisation and subsequent counter-urbanisation in parts of rural Australia (Selwood et al., 1996). This supports Selwood et al's (1996:215) argument, that the trend in counter-urbanisation is typified by one of more of a number of characteristics

- proximity to large metropolitan areas;
- attractive, scenic environment (example, coastal, riverfront, mountainous area etc.),
and
- areas of tourist potential.

(Hugo 1994:15 cited in Selwood et al, 1996:215)

Hugo states that "population change in non-metropolitan Australia is becoming, and is likely to become even more, diverse and perhaps less predictable than in the past" (Hugo, 2005:78-79). This may already be the case for there is now a patchwork of cultural landscapes appearing across rural Australia. The different ways in which people respond to the demographic trends, economic flows and physical developments, conservation and natural resource management that befall migration will depend on the way they see and think about these trends (Selwood et al., 1996). The nexus between population trends and the environment is important as research in this area brings a better understanding of the link between population trends and the environment. Just as

important is the need to recognise the environmental costs and benefits of population growth. As Betts reports, "it is fair to say population pressures on the environment pose serious problems both for nations and the world" (Betts, 2004:157) and it would seem today more than ever before, it is important to identify these costs at the community level.

3.2.6 Tourism

Along with population change has been the ability for tourism to stimulate economic growth across rural Australia which has been a piece of good fortune for many rural communities. Examples of burgeoning towns and districts that have built their economies wholly or partly on tourism are evident across South Australia today. There is also a growing appreciation of the direct relationship between tourism and in-migratory patterns occurring in regions elsewhere in Australia, particularly the eastern seaboard and south west Western Australia (Faulkner and Walmsley, 1998; Selwood et al., 1996). In South Australia increasing development has occurred in places like the Barossa Valley, Limestone Coast, and the Clare Valley where wine is produced. This type of development is unique and typifies what has been termed "special interest tourism – wine tourism" (Bruwer, 2003:423).

Special interest tourism – wine tourism

Wine tourism encapsulates "visitation to vineyards, wineries, wine and food festivals, and wine shows for which wine grape tasting and/or to experience the attributes of the grape wine region are the prime motivator for visitors" (Bruwer, 2003:423). While wine routes encourage visitors from all regions it does not mean that the tourist profile in one region reflects that of another. Bruwer makes the point that "in the Margaret River region in Western Australia, most wine tourists were 25-34 years, while in the Coonawarra region of South Australia most wine tourists were 18-34 years old, and of these 59% of them had tertiary level education and 31% had a total household income of more than \$100,000/yr" (Bruwer, 2003:431-432). Many businesses and segments of the local communities benefit from wine tourism. For example in South Australia a cooperation of associations between the State government, private enterprise and associations (Bruwer, 2003:428) has brought about the development of The Riesling Trail. The benefits to South Australia as a result of the many 'winescapes', i.e. Langhorne Creek (Lower River Murray district)

Coonawarra, Clare Valley, The Barossa and McClaren Vale Regions (Bruwer, 2003:424) has contributed to South Australia's burgeoning wine tourism industry.

The above discussion highlights the scale of restructuring processes whilst arguably uneven (Tonts and Jones, 1999), impact significantly on the natural environment, hence the need for the sustainable management of Australia's landscape. Issues associated with restructuring and climate variability – soil erosion, droughts, floods and pests etc influence the way governments and communities address sustainability. The following discussion focuses on the notion of sustainability and how those interested in sustainability are increasingly recognising that sustainability at a local community level, “depends not merely on the social capital and inner workings of the community, but also on the capital endowment and range of opportunities presented by the surrounding environment” (Smailes et al., 2005:80).

3.3 Addressing Sustainability

Over time it has become apparent that the forces of globalisation and the restructuring processes (Smailes et al., 2005:83), have impacted on the environment and as a result it has become increasingly evident that there is a need to understand the notion of sustainability and how to measure it, to ensure sustainable outcomes are met. Smailes et al suggest “[T]he prospects for sustainability of a local community depend not merely on the social capital and inner workings of the community, but also on the capital endowment and range of opportunities presented by the surrounding environment” (Smailes et al., 2005:80). They go on to say, “[I]t is important to identify a series of key elements of the physical environment and of a communities relative location in the space economy, that are likely to have a major impact on the economic and social functioning of a local social system” (Smailes et al., 2005:81). The remainder of this chapter addresses such matters as sustainability, risk, carrying capacity and resource capitals as features to be considered when considering natural resource management in an ever changing rural landscape.

3.3.1 Sustainability

Sustainability is the object of a process called ‘sustainable development’. While it is widely accepted that sustainability is an issue that requires societies’ ongoing attention, it is argued by some that “communities and societies will always contest the relative emphasis that is given to

economic growth, social justice and environmental protection” (Cocklin and Alston 2003, cited in Cocklin and Dibden, 2005:2).

The well-known Brundtland Report, also known as *Our Common Future*, highlights three fundamental components of sustainable development: environmental protection, economic growth and social equity. The report commonly refers to sustainable development as being the development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

For Diesendorf (1999), the Brundtland definition for sustainability is too limited. Diesendorf takes the view that sustainability and sustainable development are concepts, like democracy, truth and justice, stating “...they cannot be defined in the same way that physical scientists might define the standard metre” (Diesendorf, 1999:3). Moreover, he contends “the importance of ecological sustainability follows from the fact the economy and society depend ultimately on the integrity of the biosphere and ecological processes occurring within it” (Diesendorf, 1999:3).

O’Toole et al (2006a) are of the same mind as Diesendorf, emphasising the current concept of sustainable development is ‘ecologically sustainable development’. This term is defined by the Australian government as “using, conserving and enhancing the community’s resources so that ecological processes, on which life depends, are maintained and the total quality of life, now and to the future, can be increased”, (Commonwealth of Australia 1992 in O’Toole et al 2004:27).

Similarly, Black (2005:24) points out the term ‘sustain’ may include one or more of the following connotations: support, keep in existence, supply with the necessities of life, and continue without lessening”. The key issue here is that the ecosystem clearly has the potential to fulfil a range of uses from the common to very specific.

In 2001 the New South Wales Premier’s Department Strengthening Communities Unit (cited in Black 2005:27) had this to say about what constitutes sustainable communities:

Sustainable communities ... maintain and improve their social, economic and environmental characteristics so that residents can continue to lead healthy, producing and enjoyable lives. Sustainable development in these communities is based on an understanding that a healthy environment and healthy economy are both necessary for a healthy society. (Black, 2005:27)

According to Black (2005:25) the ecological dimension of sustainability has to do with “the extent to which ecological systems – on which all life depends- are capable of continuing to perform their essential functions into the future”. In addition, the economic dimension of sustainability i.e. systems of production, exchange and consumption will significantly influence the extent to how the environment is managed while the social dimension of sustainability will influence the extent to which social values, social identities, social relationships and social institutions are capable of being maintained into the future (Black, 2005). How these contestations are managed will depend largely on the level of commitment by governments and organisations and more importantly, how the social-environmental dialectic processes are managed throughout the life of a project. As this thesis will demonstrate, this is easier said than done.

It stands to reason that the observations, beliefs and values held by stakeholders vary from one individual to the next and similarly, community responses to sustainability may change from one community to the next. Wallis, cited in O’Toole et al (2006:25) claims “This may explain one of the reasons as to why governments so frequently fail to successfully engage with communities in the sake of natural resource management capacity building exercises”. He further argues (2006:25) argues “[W]hat constitutes sustainability at a regional scale will depend on the views and values held by the communities of interest within the local region”. Similarly, O’Toole et al (2005:25) report that “[U]nless the values of the policymakers and managers that develop strategies for sustainability coincide with local public perceptions of sustainability there is little likelihood that such strategies will contribute to sustainability in a meaningful way”. This may explain one of the reasons why governments so frequently fail to successfully engage with communities for the sake of NRM capacity building (Cavaye 2004; Lawrence 2004; Lane 2005; Brunckhorst 2005) exercises.

Indeed there can be little hope that appropriate policies will be implemented, unless there is a good understanding of the nature of the farm sector, and the people who operate the farm businesses within the sector. Notably, current research points to how essential it is that policy makers gain a better understanding of individual and community behaviour in relation to their environment and issues of sustainability (Lawrence, 2004; Lane and McDonald, 2005; Lane et al., 2005; Pero and Smith, 2006; O'Toole et al., 2006; O'Toole, 2006; Farrelly, 2005; Warburton, 1998).

Similarly, Seyfang and Smith (2007) reason that it is necessary to understand more about the social and cultural influences which shape our consumption, including choices, habits and impacts. It is after all the socio-economic dimension of sustainability that can influence behaviour, constrain individual choice sets and limit transformative potential of the markets (Seyfang and Smith 2007).

3.4 Dimensions of Sustainability

According to Black (2005), the three dimensions of sustainability are ecological, economic and social. The ecological dimensions of sustainability, it is reported, have to do with the extent to which all life depends, for example to the extent to which:

- ecosystem integrity is preserved;
- biological diversity is maintained;
- rates of use of renewable resources do not exceed regeneration rates;
- rates of waste generation or pollution emission do not exceed the assimilative capacities of the environment

(Black 2005:25)

The economic dimension Black (2005) argues has to do with the extent to which economic systems are capable of continuing for the long term. Black reports examples of this dimension to be:

- systems of production, exchange and consumption can continue;
- satisfactory standards of living for all are being achieved now and can be maintained;
- rates of use of non-renewable resources do not exceed the rate at which sustainable renewable substitutes are developed;

- economic systems are able to adapt to various contingencies, such as fluctuating environmental conditions (for example, rainfall, temperature, geothermal activity), demographic changes and technological developments.

(Black, 2005:25)

The social dimension of sustainability, Black (2005) notes, has to do with the extent to which social values, social identities, social relationships and social institutions are able to be maintained into the future. This dimension of sustainability can be demonstrated by the extent to which:

- there are some widely expected and enduring norms and values, such as reciprocity, procedural equity and respect for the law,
- both individual identity and cultural diversity can be maintained,
- social institutions are able to make a continuing contribution to the fulfilment of people's needs, and
- social institutions are able to adapt to various contingencies, such as fluctuating environmental conditions, economic changes and technological developments.

(Black, 2005:25)

These dimensions of sustainability are interrelated and found in rural communities, albeit to varying degrees. A description proposed by Richardson (1994) cited in Black (2005:26) integrates all three dimensions: ecological, social and economic, and is described as an ideal to which a community might aspire.

A sustainable community has a stable, dependable and diversified economic base that does not over-stress the carrying capacity of natural systems, maintains the supply and quality of renewable resources, and strives continually to reduce its demands on non-renewable resources. Its economy provides both a range of opportunities for rewarding work, and a level of prosperity on the basis of which, equitably shared, the community actively and continuously works to satisfy the basic needs of everyone of its members and to provide each with the opportunity to fulfil his or her potential, within a supportive social environment, a safe, liveable physical environment, and a clean, healthy, vital natural environment. A sustainable community does not achieve or maintain its own sustainability

at the cost of the sustainability of other communities/ecosystems, including that of the broader community/ecosystem of which it is a part.

(Richardson 1994 cited in Black 2005:26).

As this description illustrates, sustainability is a complex process. In light of the adoption of natural resource management plans to help ensure long term sustainability it could be argued that the best course of action is to promote a steady shift in confidence from economic necessity, through stewardship, and a whole of society approach to sustainability.

3.5 Issues of Scale

Issues of scale are critically important when examining the dynamics of communities and their capacity to undertake sustainable natural resource management. Socio-ecological systems exist at a number of scales in time, space and levels of organisations. For example, and as was the case for this study, pastoralists and dairy farmers have a very intimate and different relationship with their land, than that of those policy officers and natural resource managers who have an interest in the same resources, but for different purposes. The fact that two or more parties do not share the same intimate knowledge or attachment to the land, can pose problems for long-term sustainable development and scale presents a particular set of challenges in identifying appropriate indicators for sustainability (O'Toole et al., 2006:25). Cross-scale effects are of great significance in the dynamics of socio-ecological systems. Where it is not possible to understand a system at only one scale...aspects of resilience and capacity to change are influenced by what is happening not only at the local scale but scales above and below the scale of interest (Marshall et al., 2007). In this study, it is the Board who is influencing change at the local level, but how successful this change will be will no doubt be influenced by what is happening on the ground at that time and if the on ground dynamics and social resilience are not factored in, then the upshot of change is inherently unpredictable (Marshall et al., 2007).

The suggestion that scale factors heavily in the successful development of sustainability indicators is addressed by O'Toole et al (2006a) when canvassing the idea that sustainability needs a multidimensional approach that does not start with a preconception as to the importance of any one domain (Pearson, 2003 cited in O'Toole et al, 2006a:38). A major concern for their study was

the lack of integration, i.e. where knowledge is synthesised for arriving at a consensus or conclusion as to how best address the problem.

Another issue of scale that has the potential to cause problems is the development of sustainability indicators. How one community contextualises sustainability to that of another, will likely influence the way they proportion significance to sustainability indicators. As O'Toole et al (2006a:40) report, "...building indicators that have meaning over different scales requires understanding of the ways that resource indicators are perceived at the small scale or local level". This concept is discussed in more detail below.

3.6 The Notion of Risk and The Carrying Capacity of The Environment

The notion of risk is 'ambiguous'. If asked to name a situation which involves risk, most people would probably think first of situation which entail physical dangers, e.g. mountain climbing or skydiving, others might cite gambling situations such as horse racing, poker games or playing the stock market (Bell and Bell, 1993). Taking a risk, can thus be seen as a selection of one particular option amongst many in which the consequences of that choice result in the individual being placed in a worse position if he or she had selected otherwise or not selected at all (Bell and Bell, 1993). For many farmers' sustainability and natural resource management translates into the adoption of strategies to reduce risk to the carrying capacity of their land while at the same time capitalising on opportunities through increasing production including a diversity of outputs.

The implications of 'risk taking' vis a vis increasing intensive production places an ever increasing burden on the environments' 'carrying capacity'. The expression 'carrying capacity' has its basis in physical-biological literature. It is reported that as early as 1929 the concept 'carrying capacity' began to be applied to human-environmental relationships (Taylor et al 2004:42). Catton (1980 cited in Taylor et al, (2004:42) in his attempt to define 'carrying capacity' states "...carrying capacity is the amount of use (of a given kind) a particular environment can endure year after year without degradation of its suitability for that use". Bryan, 1983 (cited in Taylor et al., 2004) broadens Catton's characterisation, by introducing the concept of carrying capacity to the social dimension of environmental management. It is assumed here that carrying capacity should be linked to user satisfaction in relation to the activity of different social groups. This argument raises dual concerns,

one being “that the amount and type of use of the environment should not impair continuing use if sustainability is to be maintained”, and second “the physical-biological limits set carrying capacity of sustainable use, social carrying capacity sets limits for human satisfaction” (Bryan 1983 in Taylor et al., 2004:42-43).

Given that there is a high expectation today by governments and society that rural communities should adopt strategies to tackle sustainability (Pretty, 1995; Herbert-Cheshire and Lawrence, 2003; Lawrence, 2004; Cocklin, 2005; Black, 2005; Dibden and Cheshire, 2005; Cheers and Edwards, 2004) then, how best do they go about doing this? One way, it is claimed, is through the adoption of a resource capitals framework (Herbert-Cheshire and Lawrence, 2003; Wilkinson et al., 2003; Stayner, 2003; Goodwin, 2003) – one that compels us to “consider the wide range of human, economic, natural, and institutional resources that contribute towards rural community sustainability (Herbert-Cheshire and Lawrence, 2003:12).

3.7 Resource Capitals – Measuring Sustainability

The objective of sustainability should be to pass on to future generations a composite stock of capital that is at least equal to that which exists currently (i.e. intergenerational equity) (Smailes and Hugo 2003). Other factors that require consideration are the qualities and properties of the community itself, and that “is not just a matter of maintaining stocks of capital, but also requires understanding of the flows and dynamics of linkages (Smailes and Hugo, 2003:65). Hence while the notion of ‘sustainability’ requires that there is a ‘stock’ of resources for people to utilise to secure their livelihoods and that of future generations it is also important to expect that there is no common currency in which the different types of capital can be measured (Smailes and Hugo, 2003:65).

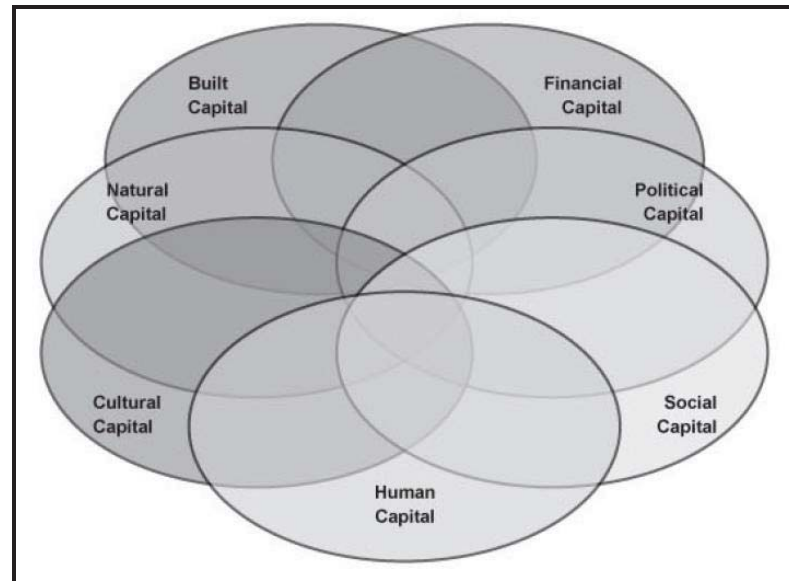
So how do we translate sustainability in such a way that we can measure sustainable outcomes, including sustainable community development? For example, how does one define how farming communities maintain sustainable economic growth in a manner that increases individual and community well being without investing in non sustainable, destructive environmental activities: Or put another way, how is capital distributed equitably within a community today so that it is available for future generations i.e. the issue of inter and intra-generational equity.

From a sustainability perspective, the objective should be to pass on to future generations a composite stock of capital that is at least equal to that which exists currently (i.e. intergenerational equity). Other factors that require consideration are the qualities and properties of the community itself, and that “is not just a matter of maintaining stocks of capital, but also requires understanding of the flows and dynamics of linkages” (Smailes and Hugo, 2003:65). Hence while the notion of ‘sustainability’ requires that there is a ‘stock’ of resources for people to utilise to secure their livelihoods and that of future generations it is also important to expect that there is no common currency in which the different types of capital can be measured (Smailes and Hugo, 2003:65).

Although the application of a stock of capitals is useful, since it makes us consider the wide range of human, economic/produced, natural, social and institutional resources that constitute rural community sustainability (Wilkinson et al 2003) it is recognised that the concept of capitals is no more than a “set of intellectual categories used for convenience in analysis” (Smailes and Hugo, 2003:65). Importantly, as Smailes and Hugo (2003) argue, the concept of capitals is, “no more than a set of intellectual categories used for convenience in analysis”. They recognise that others “may examine the sustainability concept with justifiably other sets of categories” (Smailes and Hugo, 2003:65). For example, Copus and Crabtree (1996) cited in Smailes and Hugo (2003:65) view the three main dimensions of socio-economic sustainability as “structure, performance and dependence”.

Moreover, there are those who report that the stock of capitals consists of five capitals: human, social, institutional, economic, and natural (Stayner, 2005; Herbert-Cheshire and Lawrence, 2003; Wilkinson et al., 2003; Emery and Flora, 2006; Goodwin, 2003) or in some cases, built/produced rather than financial or economic capital. Others make the argument that the stock is interchangeable and can consist of up to six or seven capitals by including cultural capital and political and entrepreneurial (Coombs, 2001; Emery and Flora, 2006).

Figure 3.2: Community Capital's Framework



Source: Emery and Flora (2006:21)

Figure 3.2 illustrates a community capitals framework (CCF) developed by Emery and Flora (2006:21). Emery and Flora (2006:21-22) state they adopted the CCF to analyse community and economic development from a systems perspective by “identifying the assets in each stock of capital [stock meaning – a stockpile] , the types of capital invested (the flows), the interaction among the capitals, and the resulting impacts across capitals” (Emery and Flora, 2006:20)

When we talk about capitals, for example, a stock of capitals, it is usually with reference to sustainability and so when considering capitals and sustainably we need to recognise two things. First the term ‘capital’ is sometimes seen as a metaphor to allow the exploration of a system approach with three fundamentally different, but nevertheless interrelated clusters of variables: ecological, economic and socio-cultural. Second, sustainability can be judged in terms of whether various ‘stocks of capital’ are declining or growing: for example, a community in which stocks of capital are running down might not be considered ‘sustainable’. In addition, a community that is weak in one or two capitals may still be considered sustainable if it has a strong entrepreneurial culture and adopts methods for exploiting its resources while developing others.

3.7.1 Stocks of Capital – Categories for Measuring Sustainability

Different forms of capital can take a number of different forms:

- human capital - includes knowledge, skills and competences;
- social capital- is the networks, levels of trust and reciprocity ;
- natural capital – includes clean air, water and other natural resources;
- institutional capital - includes government, private sector and non-government organisations;
- financial capital - includes finance, acquire or invest in other forms of capital;
- produced capital/built - includes, dwellings, roads, infrastructure and communication systems;
- cultural capital - includes familiarity with society's culture and the ability to understand language and symbols;
- political capital – refers to the access of power, organisations, connection to resources and power brokers. Political capital also relates to the ability of people, community to have a voice;
- critical capital - a form of capital that is threatened , for example, in years 2007 to 2008 in South Australia, water resources would be considered a 'critical' resource due to ongoing drought conditions and the impact of irrigation up stream.

(Herbert-Cheshire and Lawrence, 2003; Emery and Flora, 2006; Stayner, 2003; Goodwin, 2003)

Despite the composition of capitals there has been little consideration given to the concept of a 'critical capital'. Taken to its natural conclusion, when considering the concept of a 'stock of capitals' as a means to measure a community's capacity or level of sustainability, then one might consider the loss, decline or vulnerability of a capital would be suitably considered as a 'critical resource' or a 'critical capital'. The ability to consider a capital in terms of its current status i.e. as an indicator of strength/weakness or its importance is a practical application when considering the value assigned to the stocks of capitals, as a whole, is not only important, but necessary for assessing levels of sustainability.

Of the suite of capitals listed above, four were adopted to develop a model for assessing the capacity of NRM communities (Cosgrove, 2008) in the forthcoming SAAL Case Study (see

Chapter 6). The capitals included social, human, cultural and produced/financial capital. Indicators of natural capital were not considered in the model for assessing community capacity. Produced capital (as mentioned above) refers to those commodities that have been created through human endeavour (Castle, 2002). It includes products that are harvested and manufactured, the built environment and as was the case for the development of the model for assessing community capacities to undertake natural resource management, financial resources were considered to be a component of produced capital.

An overarching aim of practicing sustainable development is to “maintain and or increase all productive capital stocks, including natural capital, which is currently often depleted through economic production” (Goodwin, 2003:1). Recent works of O’Toole et al recognises that a “key factor impacting upon sustainable development are the perceptions people hold of their local social, economic and ecological environment” (2006:25). In the context of natural resource management, those very perceptions that people hold regarding sustainable development – including those restructuring processes that occur at the grass roots level has implications for regional natural resource management and are likely to influence the progress of the natural resource management agenda.

3.8 Conclusion

This chapter introduced the notion that natural resource management does not occur in a vacuum, void of those restructuring processes that impact on farming communities and their relationship with the natural environment. The chapter recognises that farming communities respond to declining terms of trade of world markets, rising production costs, increasing indebtedness, tourism and the emergence of migration patterns i.e. counter-urbanisation, by utilising such strategies as consolidation of farms and commodity diversification including on farm pluriactivity to remain sustainable. An outcome of such restructuring is the contestation over access and use of natural capital has repercussions for the integration of regionally administered, community based natural resource management. Often the pressure to remain sustainable in a climate of ongoing restructuring places a heavy burden on rural communities. Evidence exists today that demonstrates a clear connection between economic integration, environmental degradation and social and cultural fragmentation (Marsh and Pannell, 1998; Passfield et al., 1999; Pretty, 1995;

Jussaume, 1998; Bjornlund, 2002; Mech, 2004a; Mech and Hugo, 2004). Whilst humans are an obvious part of nature they too are, clearly instrumental for the problems facing nature.

This chapter also illustrates that the increasing human demand for declining or damaged natural resources such as water, agricultural land and/or pasture is a major cause of social and industrial tensions. The stock of capitals was raised as one methodology for critiquing the capacity of a community to manage community development and natural resource management in a sustainable manner. By adopting a capitals framework it is argued that it is possible to assess the distinctions between economic activity and human/social wellbeing, thus providing a useful linkage between social and ecological imperatives while still recognising those influences that ongoing restructuring has on rural and outback communities and how actors' interests and perceptions are influenced and to varying degrees, governed by such enduring externalities. The following chapter looks at the social context of natural resource management. The chapter implies that community based natural resource management is a very complex process and requires a holistic approach to project management to achieve suitable outcomes.

4 THE SOCIAL CONTEXT OF NATURAL RESOURCE MANAGEMENT

4 0 Introduction

This chapter investigates the social context of natural resource management. Mounting evidence shows that in order to understand how rural communities regard the natural landscape, including land use and biodiversity, one needs to recognise the extent to which social elements influence sustainability initiatives. Sustainability requires a holistic reasoning and planning and hinges on individuals, communities and society's broad understanding of sustainability dilemmas. However, harnessing the social momentum necessary to address sustainable development and community based natural resource management is easier said than done. Evidence shows that on the whole, the regional experiment (Lawrence, 2004:1) in South Australia, to address natural resource management has had limited success in addressing the conflict between increasing human demand and nature's supply (Mech, 2004a).

The South Australian experience illustrates the shift toward regional scale delivery of natural resource management has been less than successful (Farrelly, 2005; Cosgrove, 2004; Cosgrove, 2008; Lane et al., 2009a). This, it would seem, is due at least in part to a lack of understanding by authorities as to how to build the type of 'relationship' with landholders and the broader rural community that is necessary to promote successful natural resource management. It is an argument of this thesis that limited understanding of the social elements i.e. community engagement, social capital, values and civic governance by government has resulted in mistrust and alienation by communities of government instrumentalities charged with managing the environment (Cosgrove, 2004; Cosgrove, 2008; Lockie, 2001b; Farrelly, 2005; Lane and McDonald, 2005; Lane et al., 2005; Wilson, 2006; Gabrynowicz, 2003).

In order to appreciate how communities regard the environment and natural resource management it is first necessary to understand the community. Understanding the community involves recognising the community's strength – its networks and infrastructure comprising resources available to the community (Cheers and Edwards, 2004), and the extent to which community members are connected. It also means recognising the impact of diverse views, values and

assumptions held by community members as to the need for natural resource management. Evidence shows that community engagement that is built upon the principles of an 'organic' or bottom up engagement process (Aslin and Brown, 2004) provides an opportunity to work with communities on an equal footing, and by adopting an interactional approach organic engagement helps to build trust which in turn leads to more sustainable outcomes (Aslin and Brown, 2004; Whelan and Lyons, 2005).

This chapter outlines those social dimensions that influence human behaviour and shape the way rural communities identify with the natural landscape. First the concepts of social capital and community capacity are identified as being essential components for managing the environment before second, addressing the significance of social values and belief systems, community engagement and civic governance as being instrumental in and components of the broader social capital and a community capacity framework.

4.1 Social Dimensions of Natural Resource Management

Mounting evidence shows that a significant source of failure in community based natural resource management planning has been caused by a crude simplification of the local socio-cultural and physical environment of communities (Lockie, 2001b; Farrelly, 2005; Lorch et al., 2004; Lane and McDonald, 2005; Lane et al., 2005; O'Toole et al., 2006; Lockie, 2004; Wilson, 2006; Gabrynowicz, 2003). Despite the long held and widely promulgated tenets of governments that an integrated approach to community involvement including capacity building and local governance are important for addressing and progressing natural resource management, a significant body of literature attests to the fact that their attempts have been less than satisfactory (Lane and McDonald, 2005; Lane et al., 2005; Kilpatrick, 2002; Wilson and Howarth, 2002; Kellert et al., 2000; Grant and Curtis, 2004; Bammer, 2005). Important among these works has been a subtle shift to include concerns to understand the cultural differences including those values and belief systems and complex relationships that exist within and between those groups of people involved natural resource management (Roughley and Salt, 2005). Aslin and Brown recognised that critical to any development process is the acknowledgement of the different knowledge systems and cultures and their belief systems, associated languages, including symbolic interaction (Aslin and Brown, 2004). Yet even armed with this knowledge, this study demonstrates that challenges still exist for

those instrumentalities charged with making the new regional approach to natural resource management work. For example Lane and McDonald (2005) identified six key problems that exist for the administration of community based natural resource management in South Australia. These are:

- the conceptualisation of 'community' which poorly accounts for difference;
- problems of inequality;
- the organisational capacity and efficacy of community groups;
- the scale of CBEP (community - based environmental planning);
- the types of knowledge utilised by communities in environmental management; and;
- the potential for parochial concerns to dominate the priorities and agenda of community organisations.

(Lane and McDonald, 2005:709)

As well, all too regularly natural resource management and sustainability are addressed by adopting an economic model over and above a more integrated model for sustainability. As critics, Roughly and Salt have noted, "natural resource management problems are rarely the domain of a single discipline due to their scope and diversity" (2005:3). Those using a single approach - a one dimensional model - often fail to recognise that natural resource management is enhanced by incorporating an integrated knowledge and skills base from which to address multi-dimensional issues. Thus, addressing problems manifested at the local scale requires a sophisticated and nuanced understanding of the local human, social and cultural features of the community as well as the physical and economic environment.

4.2 The Role of Social Capital in Natural Resource Management

It is accepted these days that community participation in project delivery of environmental management is desirable since it has the potential to produce significant benefits for the community (Jones, 2006; Farrelly, 2005; Warburton, 1998; Lane et al., 2005). However, apart from the demanding task of encouraging public participation, an interesting and challenging aspect of community based natural resource management is the study of the social conditions which influence the level of community participation and commitment in community projects. These conditions include among other things, density of networks and relationships; the level of trust,

norms and reciprocity and the level of 'conformity and support of rules that promote collective action' (Jones, 2006:163). All these elements are regarded as 'social capital' – the glue that holds society together. Put another way, social capital refers to the processes between people which establish networks, norms, social trust and facilitate co-ordination and co-operation for mutual benefit (Bullen and Onyx 1995). A defining feature of social capital is its function – “a function that constitutes a particular kind of “resource available to an actor” Coleman (1988:98). For instance social capital is not a single activity, but a variety of different entities with two elements in common: they all consist of some aspect of social structures and they facilitate certain actions of actors, whether persons or corporate actors within the structure.

(Coleman, 1988:98)

For many who are interested in the concept of social capital, a major approach has been to identify and categorise social capital in three basic forms:

- *Social bonds* - Bonding refers typically to relations among members of families and ethnic groups.
- *Bridging* - Bridging social capital refers to relations with distant friends, associates and colleagues.
- *Linkages* - Linking refers to relations between different social strata in a hierarchy, where power, social status and wealth are accessed by different groups.

(Portes, 1998; Putnam, 1995; Cavaye, 2004; Macgregor and Cary, 2002)

Another unique characteristic of social capital is that it is different from human and physical capital in a number of respects since it is:

- relational rather than being the exclusive property of any one individual;
- mainly a public good in that it is shared by a group;
- produced by societal investments of time and effort, but in a less direct fashion than is human or physical capital (OECD, 2007).

An example of strong social capital would be the number of volunteers actively involved in community projects and the breadth of local clubs and voluntary organisations found in a community. In contrast, examples of weak social capital is provided by Fukuyama who raises the

argument that occasionally social capital differs from other forms of capital because it can lead to bad results like hate groups or inbred bureaucracies. For example, the Ku Klux Klan and the Mafia achieve cooperative ends on the basis of shared norms, and therefore have social capital, but they also produce abundant negative externalities for the larger society in which they are embedded (Fukuyama, 1999).

Another distinguishing feature of social capital in comparison with human capital is its public good quality. That is, those benefits brought about through social capital are more likely to advantage all members of the particular group, whereas any investment in human capital usually benefits the individual (Coleman 1988:116). Social capital is embodied in the notion of community capacity.

The concept of community capacity is often applied when promoting civic empowerment. Research highlights the importance of civic participation, the power of social capital - strong networks and relationships - as a structure from which to build strong community capacity. However, while it may encourage shared learning, "solutions based participation have been accused of representing untested systems of governance" (Lawrence 2004) where the responsibility for public resources is handed over to local elites (Yandle, 2003). Such systems of governance are highly localised and lack representativeness (Lane and McDonald, 2005). Notwithstanding this, the general consensus is that participatory process which support communication between community members – in this case NRM stakeholders, is a valuable process; one which engenders a whole of community participation/engagement process, hence building community capacity. Before addressing the importance of social capital as an enabler of community capacity it is helpful to consider the origins of the concept of social capital.

4.3 Theory of Social Capital

As a concept, social capital has been around for some time and its origins can be traced back to as early as the 1910s (Stimson et al., 2003). There are however, differences of opinion as to the time when the first contemporary analysis of social capital was produced. Some would have Hanifan as producing the first analysis, when he used the term to describe those social interactions that are significant in the daily lives of people (Putnam and Goss, 2004). Hanifan, was particularly concerned with the cultivation of good will, fellowship, sympathy and social intercourse among those that make

up a social unit (Putnam and Goss, 2004:4). Hanifan, Putnam and Goss report, was no radical, but overtime he conceded that the “grave social, economic and political problems of the communities in which he worked could be solved only by strengthening the networks of solidarity among their citizens” (2004:4-5). Indeed while Hanifan’s account of social capital “anticipated virtually all of the crucial elements of later interpretations of this concept (Putnam and Goss 2004:5) his conceptual invention apparently “attracted no notice from other social commentators and disappeared without a trace” (Putnam and Goss, 2004:5)

There are others, for example Alejandro Portes who argue that the first systematic contemporary analysis of social capital was produced by Pierre Bourdieu, who he says defined the concept as “the aggregate of the actual or potential resources which are linked to possession of a durable network or less institutionalised relationships of mutual acquaintance or recognition”(Portes, 1998:4).

Notable contributions of more recent times have come from Jacobs (1961) in relation to urban life and neighbourliness, Bourdieu (1983) with regard to social theory, and Coleman (1988) in his discussions of the social context of education and that of Putnam (1995, 2004) whose earlier works embraced the notion that social capital consists of features of social organisations such as networks, norms and trust that facilitate action and cooperation for mutual benefit. Putnam’s later works addressed the concept of bridging and bonding capital and also considered the decline or the redefinition of social networks as symptomatic of modern society.

Social capital, from Bourdieu’s perspective, is a tool for explaining stratification and the mechanisms of inclusion and exclusion. It stands to reason that the quality of relationships based on trust and reciprocity evident in the degree of interactions between individuals is shaped by the character of the environment in which they live, (Mohan and Mohan, 2002). This would explain to some degree why some rural communities experiencing the effects of external processes have survived changing organisational composition of capitalist agriculture, while others have not.

Coleman put the notion of social capital firmly on the intellectual agenda, arguing that it is embodied in the relations among people, and that it can facilitate productive activity, and that it is manifests in trust. According to Coleman (1988:98)

Social capital is defined by its function. It is not a single entity but a variety of different entities with two elements in common: they all consist of some aspects of social structure, and they facilitate certain actions or actors.... within the structure. Like other forms of capital, social capital is productive, making possible the achievement of certain ends that in its absence would not be possible.

Coleman's earlier works engaged in the development of theories adopting two streams of thought, social man and economic man. For Coleman, 'social man' is characterised by "an actor who is first and foremost 'socialised', whose activities are governed by social norms, rules and obligations (Coleman, 1988:95). 'Economic man', on the other hand, is characterised as acting independently – individualistic in composition, and is motivated by 'maximising utility' (Coleman 1988:95). Coleman purports that social capital is embodied in the relations among people, and that it can facilitate productive activity, and that it is manifest in the trustworthiness and trust (Coleman, 1988:97). A major contribution of Coleman's notion of social capital is that it broadens the concept of earlier works (notably Putnam's) to include vertical as well as horizontal associations. For example, vertical associations are characterised by hierarchical relationships and an unequal power distribution among members (Grootaert, 1998).

In addition, Coleman recognised the positive and negative virtues of vertical and horizontal associations. His theory asserts that social capital should be considered in the context of the setting in which it exists and operates and moreover that one must recognise that social capital may be beneficial in one context and yet harmful in another. Unless there is social cohesion, and a strong sense of fellowship and good will, social intercourse may not always run true to plan, resulting in less tolerance and varying degrees of doubt of one and other within the community. Notwithstanding this, Coleman (1988) pointed out one distinctive feature of social capital and that is, it often takes the form of a public good. His later works have focused on the role of social capital in relation to economic development, turning his attention to social capital being a resource for persons.

A third, but less recognised view of social capital is put forth by North (1990) and Olson (1982) and discussed by (Grootaert, 1998). Here another element is introduced into the equation, and that is

the role of 'political environment'. It is argued, social capital and the political environment enables norms to develop and shape social structure.

In addition to the largely informal, and often local, horizontal and hierarchical relations of the first two concepts, this view also includes the more formalised institutional relationships and structures, such as government, the political regime, the rule of the law, court systems and civil and political liberties

(Grootaert 1998:3)

North and Olsen, cited in (Crabbe, 2007), liken social capital to natural and human capital, because it is at the same time, an input and an amenity. As an input, it enhances the benefits of investments in other factors and, thereby, shares. It is considered a public good and suffers, therefore, from underinvestment. Examples of social capital are mutual credit which is said to (increase capital mobility and insurance associations (spread risk), co-management (lower information costs) to mention a few.

Although the works of Bourdieu and Coleman and others offer significant contributions to social capital, it is Robert Putnam who made the term widely-known. Putnam provides a major contribution to the theory of social capital introducing the concept of civic society and social capital, emphasising the importance of a strong and active civil society to the consolidation of democracy (1995). He illustrates social capital as the 'norms and networks' at community level that create trust. Social capital is simultaneously an economic, sociological and political concept; it is also a geographical concept. Much of the work on social capital employs Putnam's formulation of the concept that social capital produces generalised benefits for all.

For a variety of reasons, life is easier in a community blessed with a substantial stock of social capital. In the first place networks of civic engagement foster sturdy norms of generalised reciprocity and encourage the emergence of social trust. Such networks facilitate coordination and communication, amplify reputations, and thus allow dilemmas or collective action to be resolved. When economic and political negotiation is embedded in dense networks of social interaction, incentives for opportunism are reduced. At the same

time, networks of civic engagement embody past success at collaboration, which can serve as a cultural template for future collaboration. Finally, dense networks of interaction probably broaden the participants' sense of self, development the "I" into the "we" or (in the language of rational-choice theorists) enhancing the participants' "taste" for collective benefits.

(Putnam, 1995:67)

Social capital, Putnam argued, consists of the stock of active connections among people; the trust, mutual understanding and shared values and behaviours that bind members of human networks and communities and make cooperative action possible. The thrust of his argument was that social capital consisted of social networks "networks of civic engagement" all of which have a positive effect on the productivity of the community (Grootaert: 1998:2).

This view, however popular, was arguably a narrow view, in as much as Putnam observed social capital as a set of horizontal associations that works for the betterment of all (Grootaert: 1998:2). At this point in time, Putnam had not considered the principles of bonding and bridging or the less positive aspects of 'social capital' and how these components are of major importance to the success of building sustainable outcomes – more about this later.

The idea that social capital greases the wheels that allow communities to advance smoothly was evident throughout Putnam's earlier works. Often drawn to the mechanisms of civic engagement and connectedness, Putnam argued that every day business and social transactions are less costly when people are trusting and trustworthy, and where they are subject to continual interaction with their neighbours and fellow citizens (Putnam, 1995).

4.3.1 The Notion of Trust

Employing the notion of trust as an indicator for social cohesiveness Putnam, through his research, demonstrated that citizens interested in politics and who actively participated in the local political processes were directly proportional with 'civicness' of a particular region (Putnam, 1995). For example, he used his research on civic participation, to draw comparisons from that of Northern Italy with its successful regional governments' to that of crumbling Southern Italian regions which

demonstrated burgeoning apathy and boredom towards politics and active political – civic participation (Putnam, 1995). Drawing from his observations, Putnam contended that ‘trust’ is the primary element that connects people with others. Such vast differences in social /civic responsiveness towards governance was considered to be the result of strong social capital and this was observed in the form of good will – where economic and political dealing is embedded in dense networks of social interaction (as found in the Northern Italy) that occurs on a regular basis, Leaving incentives for opportunism and malfeasance reduced (Putnam 2004:7). Putnam contends that the norm of reciprocity grows out of dense networks of social interaction.

When people interact frequently with one another, they tend to develop strong norms regarding behavioural expectations. At the same time, repeated encounters across projects and activities decrease the likelihood that people will engage in opportunistic behaviours because this would put at risk the benefits that expect to receive from future transactions. ...and finally a dense network facilitates the flow of information and gossip about the trustworthiness of its members ... this is what Putnam terms – social trust.

(Bridger and Alter, 2006:8)

4.3.2 Linking Social Capital

Later works of Putnam (for example Putnam and Feldstein, 2004; Putnam and Goss, 2004) explore the concept that some networks link people who are similar in crucial respects and tend to be inward looking, hence the term bonding social capital, while others encompass different types of people and tend to be outward looking – bridging capital (Putnam and Feldstein, 2004). For Putnam networks remained a critical component for building social capital, since “dense networks of social interaction appear to foster sturdy norms of generalised reciprocity” (Putnam and Goss, 2004:7).

4.3.3 Bonding and Bridging Networks

Both bonding and bridging networks have their uses and come to the fore when considering the elements of civic participation and holistic engagement practices. Bonding social capital for example “brings together people who are like one another in important aspects (ethnicity, age, gender, social class and so on), while bridging social capital refers to social networks that bring together people who are unlike one another” (Putnam and Goss, 2004:11). Not only has Putnam

broadened his outlook by adopting vertical and horizontal aspects of social capital he has also noted that 'forms' of social capital vary greatly, and indeed he posits, that we cannot assume that social capital is everywhere and that it is always a good thing" (Putnam and Goss, 2004:8). For example, "although the phrase 'social capital' has a felicitous ring to it, we must take care to consider its potential vices, or even just the possibility that virtuous forms can have unintended consequences that are not socially desirable" (Putnam and Goss, 2004:8).

4.3.4. Weak Ties and Strong Ties

Granovetter (1983) raises the idea of weak ties and strong ties. Weak ties are the bridges between internal and external agents. Moreover, weak ties are those loose networks of acquaintances, who are much less closely linked than the strong ties between friends and family. In weak ties, few if any people will know each other, and between whom, "social, cultural and economic differences may be quite diverse" (Granovetter 1983:201). It is these networks Granovetter (1983) argues that form the bridges between existing capacity within a region and sub regions and by doing so have the potential for strengthening capacity through the development of stronger entrepreneurial social infrastructure (ESI).

Flora (1998) builds on Coleman's and Putnam's perception that social capital is inherent in the structure of relations between and among actors, claiming social capital can be manipulated to bring about desired outcomes. Preferring to adopt the marriage between embeddedness and conflict theory Flora introduces the concept of entrepreneurial social infrastructure (ESI) as an alternative to social capital (Flora 1998:481). Flora purports that ESI is a particularly useful format for developing organisational forms that encourage action to achieve tangible goals (Flora, 1998) i.e. economic and/or sustainable development. For example it is argued "social capital places emphasis on the will and capacity of people to solve problems and improve livelihoods in a joint enterprise", (Flora 1998:503).

As illustrated above, social capital is a useful concept for considering those relationships between people in communities and between communities. High levels of social capital are associated with high levels of trust, unity and reciprocity in informal networks, such as family and friendship networks, and in formal networks such as the community at large, local groups and associations

and institutions (Stimson et al., 2003:17). How one identifies the depth and extent of social capital in terms of community and community strength is explored in the following sections.

4.4 The Social Composition of a Community

The term community is the subject of much debate. A community can mean a group of people who interact directly, frequently, and in multifaceted way (Bowles, 1999). Communities are commonly described as communities of 'place' or 'interest'. For example Smailes and Hugo recognise the distinction between what they term "place linked communities of location that are linked to particular places and communities of interest" ((2003:66). The latter, they report, may be aspatial in nature; for "some people they purport, belonging to important collectives that lack a spatial frame of reference (e.g. religious movements, professional networks) may be much more important than any local attachment to place" (Smailes and Hugo, 2003:66). Yet another type of community is a 'community of practice'. A community of practice relates to organisational learning and concentrates on the notion of power relations (Fox, 2000:853) within the community. The main contributions to the community of practice (COP theory) grew from Foucault's work on actor network theory (ANT).

Regardless of community type, communities comprise people who often share similar values and goals; they frequently work together or share a common interest. Examples of communities are townships, neighbourhoods, groups of friends, professional and business networks, corporate groups, gangs and sports leagues to mention a few. While community is clearly a malleable concept and open to new interpretation, there can be little doubt that communities, whilst similar in terms of social composition, are frequently different in space and time. For example, while Hiller (1955) reported in Black (2005:20) identified 94 definitions of community and found many inconsistencies and differences of emphasis between them most definitions did refer to a "collectivity of people engaged in social interaction within a geographic area, having goals and norms in common", Black (2005:20).

Not surprisingly, proponents of community studies have regularly identified community members feel, to varying degrees, a sense of 'belonging' to a place – a location (Cocklin and Alston, 2003; Cheers and Edwards, 2004; Cheers et al., 2002; Cheers et al., 2009). For instance, communities

are composed of “social relationships that are real and not merely symbolic, where people share common experiences that lead to an attachment or bond among the members” (Colclough and Sitaraman, 2005a:477). Indeed, it is reported that people in rural communities (like communities elsewhere) share common life experiences and form social relationships that over the decades, lay the foundation for sharing a single dimension of everyday life (Colclough and Sitaraman, 2005a). These social relationships foster a sense of belonging and social identity that constitute fundamental characteristics of community found in literature from classical to postmodern (Delanty 2003 cited in Colclough and Sitaraman, 2005b). This is particularly important when considering the capacity of rural communities to respond to change. For example in relation to managing natural resources “collaboration has been institutionalised in many forms of local association, through clan, kin groups, traditional leadership, grazing societies, youth clubs, farmer experimentation groups and church groups” (Pretty and Ward, 2001:209). Rules and norms are embedded in and between community organisations and the importance of local groups and social organisation in the area of community development, sustainability and natural resource management is only now being recognised as critical to the success community based natural resource management.

4.4.1 Community Capacity

Before we can determine the capacity of a community, we first need to understand what constitutes community capacity. Capacity is the ability of people to take action to achieve an outcome. Cheers et al 2009 adopt a sociological concept of community capacity, stating it is a “relational phenomenon ... and consists of the skills and resources of individuals, organisations, businesses, and networks. They are not community capacity in themselves; they become so when residents engage with them for the benefit of the community” (Cheers et al., 2009:4). For Cheers et al (2009:4) community capacity is defined as, “The resources a community has that potentially can be used for growth ... and the community’s ability to use these for changing economic, social, and environmental contexts”.

Similarly, Cavaye (2000) recognises that capacity consists of the networks, organisation, attitudes, leadership and skills that allow communities to manage change and sustain community-led development. In the NRM context capacity involves the capability of regional communities to work cooperatively, apply economic resources, use networks and gain knowledge to manage more

sustainable resource use (Cavaye, 2005). Community capacity is not only concerned with the connections between people but also the ability of communities of people to take action to achieve an outcome (Cavaye, 2005). For example, how communities remain vital in the face of ongoing adjustment depends not only on their ability to maintain infrastructure, employment and income, it also depends on the capacity of the community to anticipate change, address foreseeable problems and mobilise their community, engage widely, think strategically and make informed decisions (Cavaye, 2000). Capacity therefore refers not only to skills and abilities but how these are applied collectively and collaboratively for community betterment.

Growing evidence highlights the adoption of capitals as a mechanism for measuring capital assets of communities (Black and Hughes, 2001; Fenton, 2004; Corpus and Crabtree, 1996; Fenton, 2005; King and MacGregor, 2000; Pepperdine, 2000). These capitals comprise of a 'stock' or 'suite' of capitals, which are considered essential for ensuring sustainable development (Herbert-Cheshire and Lawrence, 2003; Wilkinson et al., 2003; Smailes et al., 2005; Warburton, 1998; Cavaye, 2004; Stayner, 2003; Goodwin, 2003). A community comprises a number of sectors: industry, finance, business, education, health services, recreation and sport, arts and entertainment and religion (Cheers and Edwards, 2004; Cheers et al., 2002; Cheers et al., 2005). These sectors form a pool of capitals and it is the 'human dimension', identified as the social, institutional, economic and cultural capital, that have historically been neglected when addressing sustainable development. There is however a growing recognition that human relationships, whether they be social, institutional, economic or cultural are complex, and more importantly, fundamental to the success or failure of structural adjustment and sustainable nature resource management policies (Murray Darling Basin Initiative, 1999).

Interestingly, as argued by Chenoweth and Stehlik cited in Herbert-Cheshire and Lawrence (2003:22) even though communities may show a degree of capacity to unite in the face of adversity, it is evident that sustainability is only possible when residents shift from a reactive to a proactive form of conduct to engage in a collaborative process of community development. The 'strength' of a community's capacity is a strong indicator as to whether the community can manage change or not. For example, Cavaye (2005) argued that communities with high levels of various forms of capitals are well positioned to achieve community development and sustainable natural

resource management (Cavaye 2005). However, it must be emphasised that there are “a number of obstacles in resource-dependent communities that are likely to undermine a community’s capacity to respond to adjustment in an effective and sustainable manner, regardless of their overall community strength. For example, Herbert-Cheshire and Lawrence (2003:23) purport:

the cumulative effects of instability in the primary industry sector,
and the declining stocks of human, social and institutional capital that frequently characterise resource-dependent communities can limit the capability of the local community to even react to problems associated with either growth or decline, much less to act in an organised proactive manner to stimulate desirable change.

Cheers et al (2002) define community strength as “people (encompassing groups and organisations) in a locality engaging with each other and the social infrastructure for community betterment” (2002:17). An understanding of the elements of community strength can facilitate identifying the components that have advantageous implications for natural resource management and developing strategies for strengthening them (Cheers et al., 2002).

4.4.2 A Capacity Building Framework

Capacity building has been defined and evaluated using a variety of concepts and methods. These include community strength (as mentioned above) (Cheers and Edwards, 2004) community resiliency (e.g. Harris et al, 1990), community sustainability (Cocklin and Alston, 2003; Williamson et al., 2003) and, more recently, community capacity (Dibden and Cheshire, 2005; Rogers and Spokes, 2003; O'Meara et al., 2004); Despite the different approaches, several consistent themes emerge in the community capacity literature. Community capacity is associated with: 1) commitment or community wide will to act, 2) financial, natural and human resources to deploy assets, and 3) skills to address problems and build on community strengths (Black and Hughes, 2001; Cheers and Edwards, 2004).

Similarly, McGuinty (2002) when giving an interview on the environment and the economy, defined capacity development in the following way:

Capacity-development, like sustainable development, encompasses a wide range of aspects, including the human, technological, organisational, financial, scientific, cultural

and institutional. It is not easy to define. Indeed, most discussions on the topic quickly tend to broaden out to deal with the overall process of developmentcapacity-building is the process and means through which national Governments and local communities develop the necessary skills and expertise to manage their environment and natural resources in a sustainable manner within their daily activities (National Round Table on the Environment and the Economy, 2002:1).

Definitions provided by McGuinty in an interview for the National Round Table on the Environment and the Economy are useful because they recognise that community capacity has the potential to contribute to a range of outcomes, and it implicitly distinguishes between resources and the community's capability to use them. The main ideas behind these concepts are based on:

- a. Strengthening peoples' capacity to achieve sustainable livelihoods;
- b. A cross-sectoral multidisciplinary approach to planning and implementation;
- c. Emphasis on organisational and technological change and innovation;
- d. Emphasis on the need to build social capital (i.e. voluntary forms of social regulation) through experimentation and learning;
- e. Emphasis on developing the skills and performance of both individuals and institutions.

(National Round Table on the Environment and the Economy, 2002:1)

It is these characteristics that help communities adapt to, manage and/or create change that will have a desired outcome for all stakeholders. For example, each community's endowment of capital is of course unique, but many show close similarities (Smailes et al., 2005). Yet how these communities deal with change, or in this case natural resource management, may vary from region to region. When considering viticulture in the South Australia, Smailes et al (2005) for example, note that some Riverland communities have similar interests to those communities involved in viticulture located elsewhere in South Australia, i.e. the Barossa Valley, the Coonawarra and Padthaway yet they do not always respond to change in the same way. Why so? It is because the cultural and topographical differences between these regions has dictated to some degree the way humans have utilised the land and how their practices have impacted on the natural features and carrying capacity of their lands (Smailes et al., 2005). Uneven development (Coombs, 2001; Tonts and Jones, 1999; Tonts, 1998) as it is referred to, reflects the differential pace of change across

different countries (Coombs, 2001:21) The same unevenness it could be argued, may apply to natural resource management since in almost all cases, farmers respond to natural resource management by adopting a course of action that offers least conflict with their current farming practices and their values and belief systems.

4.5 Approaches to Measurement

In terms of measurement, understanding social capital as a resource to action leads immediately to the need for empirical clarity about measures of social capital and measures of its outcomes (Stone, 2001:4). Traditionally social capital has been measured in one of two broad ways, either by the physical structure of the network or by its normative attributes (Stimson et al., 2003). Measuring the size of social capital is done by measuring attributes such as size, openness, capacity, homogeneity and density.

The work of German sociologist Tonnies (1855 – 1936) seems relevant to discussions about the spatial features of social capital. Tonnies developed terms to describe cultural relationships within communities:

‘Gemeinschaft’ refers to relationships that are intimate and durable; where the individual is considered more important than what is achieved by that individual. In contrast

‘Gesellschaft’ refers to relationships that are impersonal, fleeting and contractual.

(Macgregor and Cary, 2002:106)

Other descriptions such as ‘inward looking’ and ‘outward looking’ have been used when articulating the distinction between types of social capital. Inward looking is yet another example that tends to promote the material, social or political interests of their own members, while outward looking tend to concern themselves with public goods (Putnam and Goss, 2004:11). Bridging and bonding capital is yet another way to define those strong and weak ties (inward and outward looking) between friends and strangers.

4.5.1 Mapping the Structure of a Network

Mapping the structure of a network is done by measuring attributes such as capacity, openness, homogeneity, density and size (Stimson et al., 2003; Coleman, 1988). Capacity relates to the

quality of the network and to the ability to draw favours from people within a given network or to sanction those who behave inappropriately (Stimson et al. 2003).

Figure 4.1 Community Network Structure

NOTE:
This figure is included on page 93
of the print copy of the thesis held in
the University of Adelaide Library.

Source: Coleman, J. (1988) Social Capital in the Creation of Human Capital. *The American Journal of Sociology*, 94, 95-120.

To understand better the concept of social structure and how it facilitates social capital – in particular norms and sanctioning individual or group behaviour - Coleman (1988) devised what he called a 'community network structure'. A community network structure comprises open and closed networks which provide avenues for having relations with others while at the same time, in some cases imposing sanctions on the actions of those in the network. The types of networks are described as either, open or closed. Openness of a network is probably best understood by its opposite sense, closedness (Stimson et al., 2003:15). A closed network is one in which social relations exist amongst all members of the network and is particularly effecting in creating a strong sense of culture, and shared norms and sanctions amongst group people (Coleman cited in Stimson et al., 2003:15) Figure 4.1 illustrates what Coleman refers to as 'closure' and 'open' community.

In Figure 4.1 example (1a), illustrates Actor A, having relations with actors B or C both, can carry out actions that impose negative externalities on B and C or both. Since they have no relations with one another, but with others instead (D and E), then they cannot combine forces to sanction A in order to constrain the actions (Coleman, 1988:105-106). Unless either B or C alone is

sufficiently harmed and sufficiently powerful vis a vis A to sanction alone, A's actions can continue unabated (Coleman, 1988:106). In contrast, in a structure with closure, like that of example (1b) B and C can combine a collective sanction or either can reward the other for sanctioning. A closed network is one in which social relations exist amongst members of the network and is particularly effective in creating a strong sense of culture, and shared norms and sanctions among members (Coleman, 1988).

Homogeneity is also a useful indicator, since it evaluates how similar network members are on a social construct such as class, gender, age, ethnicity, wealth and alike (Stimson et al., 2003). Density relates to intersect of networks and the affinity of members of a network to the part of other networks (Stimson et al., 2003). And finally size relates to the number of people that are a part of a network and even their geographical dispersion.

It is important to recognise that there are those who do not necessarily agree with the current concepts used for measuring social capital. For example, DeFilippis (2001) argues that contemporary interest in social capital by community development theorists, funders and practitioners is misguided and needs to be thoroughly rethought. He argues that social capital, as understood by Robert Putnam (and people influenced by Putnam's work), is a fundamentally flawed concept because it fails to understand issues of power in the production of communities and because (he states) it is divorced from economic capital. This, DeFilippis argues, is the basis for why current community development practices based on Putnam's (and those of his ilk) understanding of social capital is and will remain flawed (DeFilippis, 2001). This view is, however, limited since DeFilippis does not recognise Putnam's interest in technological innovation and the entrepreneurial behaviour of individual and leaders – all of which have the capacity to actively encourage strong economic development for the betterment of community sustainability (Putnam and Goss, 2004:16-17).

4.5.2 Capacity Indicators

There is further evidence that demonstrates components of capacity can be identified by way of indicators (Lockie et al., 2002; O'Toole et al., 2006; Fenton, 2005; King and MacGregor, 2000; Pepperdine, 2000). Triple bottom line indicators (as mentioned above) are often adopted for

measuring sustainable development. Until recent times, the emphasis has been to develop economic- environmental indicators in order to “rationalise the collection of data and facilitate comparative analysis and priority setting at a variety of scales” (Lockie et al., 2002:813). However, as Lockie et al report, “more work is necessary to understand the social context within which natural resource management decisions are made” (2002:813). This point has not been lost on those interested in the social context of natural resource management. The development of a suite of social indicators is a first and important step for helping one understands the state of a community’s capacity to undertake change, in particular, issues regarding sustainability and natural resource management.

To this end there are a number of empirical studies that have analysed the benefits that derive from elements of social capital for NRM (Lane et al., 2005; Raymond et al., 2006; Fenton, 2004; Grant and Curtis, 2004; Bammer, 2005; Jones, 2006). The acceptance of the benefits of social capital is evident in the number of attempts to formulate programs of collective management (e.g. Community engagement, co management and joint management) which aim to strengthen social capital for the achievement of sustainability (Pretty and Wood 2001:214).

Table 4.1 presents a list of subjective social indicators which reflect social issues which were identified by Pepperdine when undertaking a study in the Woody Oak Catchment in Victoria. The fifteen key indicators which emerged from Pepperdine’s study provide a system which can be useful to develop and monitor a local information system to guide planning (Pepperdine, 2000:2). Specifically, this systematic approach can be applied to assist the inclusion of social issues, which underpin the community and broader sustainability, in planning and decision-making (Pepperdine, 2000:2). As well, the indicators can be used to gain an insight into the key issues challenging the social wellbeing of rural communities. As Pepperdine states “ an understanding of the priority of issues provides valuable insight in goal setting for planning as the significance of each indicator may vary spatially and temporally...and the significance of each factor can also be determined by applying these indicators” (Pepperdine, 2000:5).

Table 4.1: Social Indicators that Reflect Social Issues

NOTE:
This table is included on page 96
of the print copy of the thesis held in
the University of Adelaide Library.

Source: Pepperdine (2000:3)

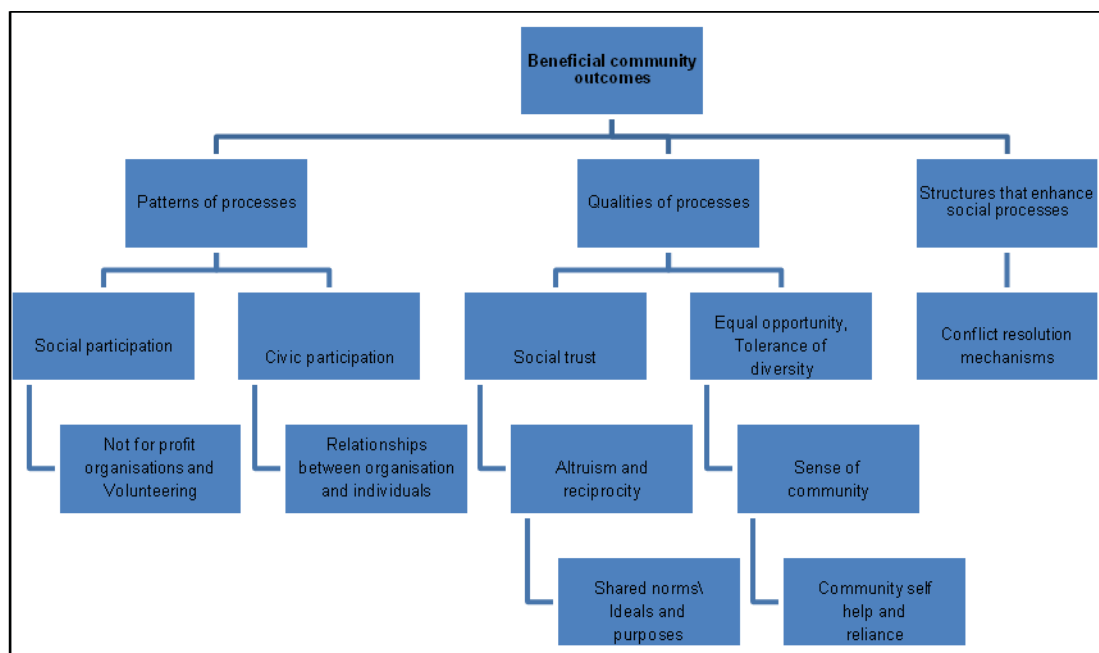
Macgregor and Cary (2002) noted the one dimensional character of indicators of social and human capital and reported that often it 'appeared that indicators are often selected because they appear to have some link' (Macgregor and Cary, 2002:105). As a result of their studies they decided upon an approach that would address these issues. The Social/Human Capital Rapid Appraisal Model (SCRAM) was developed as a means to this problem.

Black and Hughes (2001) cited in Macgregor and Cary (2002:105) undertook a comprehensive review of indicators associated with social capital (Figure 4.2). Their report suggests that indicators of social capital need to be considered across and within three discrete patterns of processes (a)

patterns of processes (b) qualities of processes and (c), structures that govern or enhance social processes (Macgregor and Cary, 2002:107).

Similarly, research undertaken by Bullen and Onyx (1998) involved five case studies whereby social capital was measured across five communities located in New South Wales. The goals of their statistical analysis were to identify which sets of attitudes; behaviours and knowledge were related to social capital, (and which ones were not). Among other things, Bullen and Onyx wanted to identify the elements of social capital, identify a good set of questions for future measuring social capitals in other communities and identify whether or not social capital was correlated with gender and other demographic variables (Bullen and Onyx, 1998).

Figure 4.2: Primary Indicators (Constructs) Associated With Social Capital



Source: Adapted from (Black & Hughes 2001 cited in Macgregor and Cary 2002:107)

The principal findings of Bullen and Onyx's study highlighted social capital as being an empirical concept which is possible to measure in local communities, as well as incorporating a generic factor that is also measurable. For example, elements of social capital as described by Bullen and Onyx (1998:29) consist of:

- Participation in local community;
- Proactivity in a social context;

- Feelings of trust and safety
- Neighbourhood connections;
- Family and friends connections;
- Tolerance and diversity;
- Value of life; and
- Work connections.

Bullen and Onyx (1998) claim the four elements of social capital: participation in local community; neighbourhood connections; family and friend connections; and work connections is. These four elements relate to the building blocks of social capital which they argue comprise: (a) proactivity in a social context; (b) feelings of trust and safety; (c) tolerance of diversity; and (d) value of life (Bullen and Onyx, 1998:29). Putnam in contrast hand argues there are two aspects to social capital (a) social structure or social networks; and (b) the norms governing behaviour, and went about conceptualising social capital in terms of a four-fold classification of: norms and structures, and formal and informal networks.

Notwithstanding the subtle differences between concepts used for measuring social capital and community capacity, a resounding agreement exists that elements such as trust, networks and relationships, reciprocity and norms are the building blocks of social capital (Portes, 1998; Putnam, 1995; Grootaert, 1998; Putnam, 2004; Coleman, 1988; Flora, 1998; Fukuyama, 1999; Portes, 2000; Colclough and Sitaraman, 2005b). Such elements are valuable indicators for evaluating strengths and weaknesses of a community's capacity engage in a particular process. But what of the behaviour and or relationships of individuals and organisations that may weaken the quality of social capital?

Recent studies undertaken in Sweden indicate that breakdowns in social capital often result from a situation metaphorically known as a 'social trap' (Rothstein, 2004). The logic of a social trap is as follows:

1. Everyone stands to gain if almost everyone chooses to cooperate.
2. But if one person doesn't trust that almost everyone else is going to cooperate, it becomes meaningless for that person to cooperate, because the good that is to be brought about demands near-universal cooperation.
3. The implication is that it is rational not to cooperate if one does not trust that almost everyone else is going to cooperate.
4. Thus, effective cooperation for common purposes will occur only if one trusts that almost everyone else will choose to cooperate.
5. Without this trust, the social trap will prevail, implying that the agents will be in a worse situation even though they all realise that they would gain if they cooperated.

(Rothstein, 2004:290)

4.5.3 Breakdown in Social Capital

Social traps, it is argued, cause social dilemmas. As Rothstein (2004) points out, social dilemmas occur frequently. For example protecting the environment (or not) in one's community can lead to a 'social dilemma'. The dilemma occurs when the expectation of what others are going to do becomes the choice to whether to co-operate or not - in this case protect the environment. The dilemma is: can one afford not to cooperate? A question of trust and the amount of social interaction comes into play as well as the norms of practice, cooperation and the stigma associated with non-cooperation (Rothstein 2004:292).

The breakdown of organised social capital occurs when networks and organisations become fragmented. One argument is that of the recent changes in the Swedish organisational landscape. Rothstein (2004:292) proposed a 'speculative' explanation for the demise of the Swedish Model. Here he argues that the demise of the Swedish social-democratic model resulted because of changes to the organisational landscape of the labour market (Rothstein, 2004). Another explanation proffered for the breakdown in organisational social capital in Sweden are the changes that have occurred in production, technology and international trade and finance (Rothstein, 2004) over the past few decades.

4.6 Social Capital and the Role of the State

From the 1950s until the early 1990s, Swedish society in general and its system of industrial relations in particular was branded by many observers with a special name: the “Swedish Model” (Rothstein 2004:289). An important feature of this model was an unusually close collaboration between the state and major organisations in the preparation as well as in the implementation of public policies” (Rothstein, 2004:289).

Similarly, studies in Australia (in particular a study undertaken by Cox in the late 1990s) illustrates that whilst there is increasing involvement in politics (via the media) there is a decrease in the number of people who trust politicians. Moreover, there has been a significant fall in trust overall during the twelve years from 1983-1995. Cox’s study on trust in strangers and other people (outsiders) considered the capacity of society to build bridges with those not perceived as ‘like us’. The evidence was mixed – on the one hand there was a wide perception that racism was rising and there were indications of increasing objections to immigration, particularly from Asia (Cox, 2004:349). On the other hand, there was little evidence of “increased anxiety about outsiders... in fact some outsiders (outgroups) had increased in acceptability”, (Cox, 2004:349-350). Cox indicated that the data collected in her study showed some contradictory indicators. Nevertheless, the data did show rising distrust and disengagement from political and formal community processes (Cox, 2004).

Importantly, Cox makes the connection between the roles of state and civic governance as being crucial creating sustainable outcomes. Cox recognises how policy makers are now actively naming ‘social capital production’ as part of their mission statements (Cox, 2004). These days, public servants seek out policies to increase social capital, with a view to ultimately building strong community capacity to adopt change. The implication is that social capital is good, and that if a community is struggling then it is the responsibility of that community to build their social capital so that they can respond to change in a positive and productive manner. These implications raise issues as to how far opportunities for participation and involvement may need to be generated, rather than assuming they spring to life, spontaneously.

Pretty and Ward (2001:209) make the argument, that for as long as farming households have managed natural resources, they have engaged in forms of collective action at the local level.

Farming households have collaborated on water management, labour sharing and marketing; pastoralists have co managed grasslands; fishing families and their communities have jointly managed aquatic resources and such collaboration has been institutionalised in many forms of local association.

This type of collective behaviour has helped rural communities to survive over the centuries. Yet, in both developing and industrialised countries, policy and practice has tended to be preoccupied by adopting a top down approach to governance and not considering whether such an approach will likely cause conflict and or alienate existing social capital and governance structures within the community. So how do governments and/or other instrumentalities charged with undertaking community based natural resource management bring about a change in practice in communities without disenfranchising those communities they are engaging with? An answer to this question is the undertaking of community engagement. Community engagement, one that is driven from the bottom up, is essential for engaging communities (Aslin and Brown, 2004; Ramirez et al., 2002; Donlen et al., 2005) in natural resource management.

The remaining discussion examines current engagement processes being adopted by government authorities and highlights those different knowledge bases and cultures, including values and belief systems that are not only critical to success of an engagement process, but which are amplified in the engagement process.

4.7 Engagement

The most important mechanism for engagement is building the necessary trust that will ensure high quality engagement from the outset. Sampson (1993:98) cited in Dodds et al (2002:209) said “that the most important thing about people is not what is contained in them, but what transpires between them”. For example, Hannifan (nearly a century ago) - on returning to West Virginia concluded, “that the grave social, economic and political problems of the communities in which he worked could be solved only by strengthening the networks of solidarity among their citizens”

(Hannifan cited in Putnam 2004:4). He observed that older customs of “rural neighbourliness and civic engagement, such as debating societies, barn raisings, and apple cuttings” (Putnam, 2004:4) which had been the glue of communities had all but been abandoned. In the same way, Putnam (2004:4) makes the observation that “these customs have become almost wholly abandoned, with the people becoming less neighbourly”.

Moreover, all too frequently engagement is viewed as a consultation process – a process for involving people for a single purpose without little recognition of their values, belief systems and without building trust. Consultation is used loosely to describe the process of community engagement. For example, Aslin and Brown refer to consultation as a means to illicit information from people without telling them what will be done with that information (Aslin and Brown, 2004:5). Similarly, consultation falls within the ‘degrees of tokenism’ on Aronstein’s Ladder of Participation (Van der Lee, 2000:4). Interestingly, Putnam and those of his ilk, Coleman, Bourdeau, Portes, Fukuyama to mention a few, see a direct link between social capital and civic engagement built on trust and acceptance of peoples values which extend to bridging and bonding capital.

4.7.1 Terms of Communication

Many terms are used to describe public involvement in policies, programs and decision-making processes. This involvement may relate to planning new developments, designing new policies or responding to government’s proposed laws and regulations. Some stakeholder groups consider consultation to be a subset of participation and engagement, while others see it as a process that involves greater interaction with citizens than information provision without providing further detail. Consultation processes incorporates a broad range of methods. Among the most popular are surveys and focus groups, public meetings, interviews and submissions are also common.

4.7.2 Consultation

Consultation occurs when a company, agency, group, community or individual goes out to seek advice /information from someone else (Aslin and Brown, 2004:5). Another way of describing ‘consultation’ is an ‘information seeking exercise’ since it implies a purpose-driven process in which someone takes the initiative to seek advice. It does not necessarily imply anything about what will be done with the advice when and if it is received. In some instances information gleaned from the

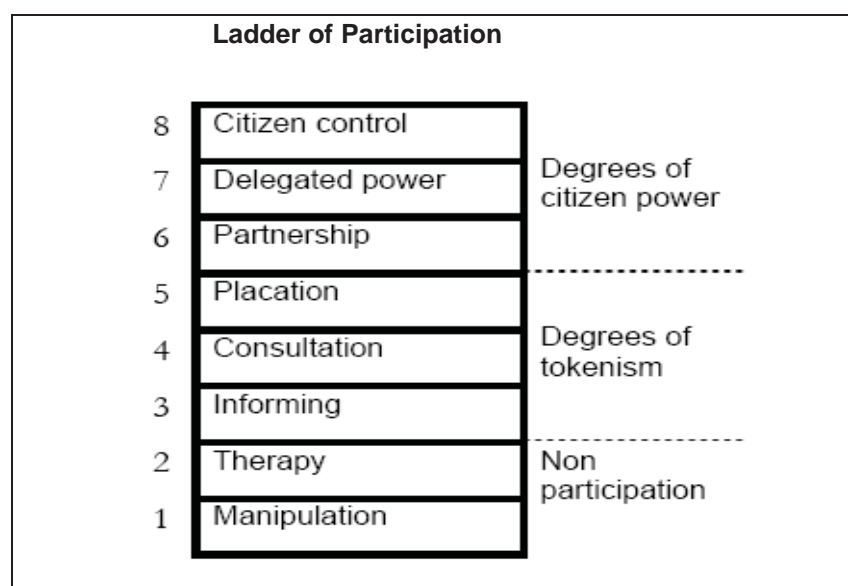
consultation process may be used to disadvantage groups or communities, in particular when used as an instrument to influence and dictate terms of engagement and project development (Aslin and Brown, 2004:5).

4.7.3 Participation

Participation simply means the act of participating, in whatever form (Aslin and Brown, 2004:5).

Participation is the process through which stakeholders can influence and share control over priority setting, policy-making, resource allocations and project development. Perhaps the most influential model of participation is the continuum model developed by Arnstein (1969). The model features a 'ladder of participation' (see Figure 4.3) ranking instances of interaction between the community and the industry/government according to the levels of influence, which citizens have in decision-making. The continuum of consultation activity is understood in hierarchical terms: the ladder's rungs represent increasing involvement in decision-making or citizen power. At the lower rungs, there is no participation. At the middle rungs, citizens are provided with information and are heard, but there is no guarantee that their views will have any impact. At the top rungs, citizens have some control and decision making power or are in partnership with industry/government. The aim is to pass the power from the industry/government to the citizen.

Figure 4.3: Arnstein's Ladder of Participation



Source: (Arnstein, 1969)

4.7.4 Engagement

Engagement, as Aslin and Brown (2004) report, goes further than participation and information seeking. It involves capturing people's attention and focusing their efforts on the matter at hand – the subject means something personally to someone who is engaged and is sufficiently important to demand their attention (Aslin and Brown, 2004:5). Engagement implies commitment to a process which has decisions and resulting actions (Aslin and Brown, 2004:5). The act of engagement empowers stakeholders through a 'democratic participatory process' to contribute to projects in a meaningful way.

Positive results from engagement will only occur if those in power (e.g. governments, organisations, NRM Boards etc.) seek to understand the past behaviour of individuals and communities affected by their actions as well as to understand the community's values and visions for the future. It is these elements of human nature that will determine individual and community behaviour and their willingness, or resistance, to working with others throughout the project cycle.

As is demonstrated in this study, organisations risk causing mistrust and alienation as a result of not engaging with, and encouraging, participation by community members in managing their natural resources. One of the main obstacles that influence an effective partnership is the power imbalance that exists between communities and government bodies. This is usually the case, as communities frequently lack the technical, economic and, sometimes, organisational capacity including the negotiation skills to make informed decisions about natural resource management.

4.8 Good Practice Community Engagement

Aslin and Brown (2007:4) make the argument that while engagement, dissemination and adoption of strategy for good practice, community engagement is imperative for delivering sustainable outcomes, it is an exercise that can be fraught with difficulty and destined to failure unless four distinctive knowledge bases are involved in the decision making process. These are:

- 1 **Local Community Knowledge** – provides a valid and reliable construction of local reality, developed over time through lived experience, memories and shared events, and the emergence of locally specific people-place inter-relationships.

- 2 **Specialised Knowledge** – Constructed by expert disciplines. Strong reliance on written and specialised verbal forms of communication, specialist journals, formal academic training and education, lectures and seminars, websites and purpose-designed list-servers and ‘chatrooms’. Attention needed to the major disciplines involved and details of their specialised forms of communication (e.g. engineering, ecology, sociology, planning).
- 3 **Strategic Knowledge** - Political and administrative interpretations of the practical possibilities for action together make up the strategic knowledge of the possibilities for the future of the region. There is an reliance on professional communication within the workplace (written and verbal), organisational intranets and websites, formal training and development courses that can be undertaken from the workplace, formal committees and group meetings. Attention is needed to get material into workplaces and on to agendas of relevant standing committees and regular forums.
- 4 **Holistic Knowledge** – Preference for integrative forums, and subject matter crossing formal disciplinary boundaries and focusing on underlying frameworks or principles. Attention needed to including concepts, visions and values that link material with other sources, and to presenting material in the form of designs, diagrams and patterns. The use of forms of communication that are both visual and structured.

4.9 Barriers to Successful Engagement

Dialogue requires the willing participation of all participants; even one person whose primary orientation is towards getting his or her own way can destroy the entire engagement process. For successful project management there is a need for active collaboration between knowledge cultures as vital to the coordinated engagement processes. It is reported the way to do this is to identify an agreed set of values which will apply to the engagement process, (Liepins 2000, Panelli 2001, O’Toole et al 2006, Botteril 2001, Lawrence 1988). The following values and criteria are recognised by Aslin and Brown (2004) as being necessary for ensuring successful community engagement:

- Courage: vision, leadership and making difficult decisions;
- Inclusiveness: trust, partnerships and ensuring full engagement;
- Commitment: long-term view, stability, and a non-partisan perspective;
- Respect: toleration, honesty, and acknowledging partners’ realities;

- Flexibility: reform, change and continuous improvement;
- Mutual obligation: shared responsibility, accountability and supporting each other through change;
- Practicability: long – term outcomes, viable solutions, and making equal contributions.

(Aslin and Brown, 2004:17)

As ecological and social systems are complex and intertwined, they interact in a multitude of ways at many spatial scales across time (Marshall et al., 2007). So when people are asked to consider natural resource management it is necessary to bear in mind the many different meanings people associate with natural resource management. If we take into account Marshall et al's (2007) argument, then it is likely the meanings of natural resources will vary from one knowledge culture to the next and meanings frequently comprise a complex set of ideas and understandings difficult to define (Kilpatrick 2002). For example, some people consider natural resource management as 'nature' and consider nature as being useful as it provides a living for farmers and staples for society. Others may consider the environment in terms of devastation e.g. floods and famine or in terms of aesthetics and beauty. Further, the manufacturing of nature through the adoption of agricultural practices – has been interpreted as a form of freedom (Modelmog, 1998) since through chemical or technological interventions, as well as genetic manipulation, farmers are able to optimise their yield providing them with an existence they aspire. People's views about purpose of the environment and how they use it is wrapped up in their beliefs and values systems and is these phenomena that support their views and make their actions palatable.

Understandings and beliefs which underpin opinions about the environment range from being strongly conservation-based with the emphasis on protecting natural resources for their intrinsic, cultural and ecological value through to production-based values with their focus on ameliorating land degradation while successfully maintaining production outputs for economic benefit (Stratford and Davidson, 2002). For example, pastoralists located in the north of South Australia perceive natural resource management from the perspective of maintaining sufficient pasture cover for their stock, whereas park managers in the same region consider NRM from the perspective of preserving or enhancing diversity of native plants and animals (Cosgrove 2008). Moreover, it is seen that all too often the relationships between rural communities and the environment are not

well recognised because of the focus on economic capital (Stratford and Davidson, 2002). In many instances natural resources are valued largely as inputs (Stratford and Davidson, 2002) and consequently their non-economic values for example, aesthetic attraction, are accorded minimal consideration.

4.10 Belief and Decision Making

Our values, dreams and beliefs about the world, and the actions we take, reflect our culture (Sarkissian et al. 2009:25). For example, through the work of authors such as Gasson (1975), Phillips (1996) and the current works of Oxley et al, (2002 and Lockwood (2005) it has been made clear that decision-making is based on beliefs which are the product of individual experience, predisposition and understanding. It is through culture that we can articulate and make known the social meanings we assign to social behaviour. As Sarkissian et al. (2009:26) purport “[C]ulture is not about creating communities of sameness, where everyone believes the same things or holds the same vision; it is about people sharing value-based ideals that inform their participation in their geographical communities and communities of interest”. Yet at the same time it is important to remember (and as reported in Chapter 2), that such phenomena as adjustment, globalisation, diversification and land use also impact on the ‘relationship farmers have with the land i.e. farm business, size and competitiveness (Lawrence, 1992; Porter, 1992) all of which have the capacity to influence decision making.

In relation to natural resource management, it is widely appreciated that choices and decisions concerning natural resource management involve multiple actors, imparting an interpersonal dimension to the required value integration (Lockwood, 2005a). Overtime very difficult public policy decisions have been made over contested land, and or management of land and waters. Lockwood (2005:8) recalls:

the flooding of Lake Pedder in Tasmania, to rainforest logging in northern New South Wales to wood chipping in the south east and south west of the Australian continent through the more recent issues of biodiversity conservation on private property and establishment of marine protected areas.

Lockwood recognised that “numerous methods have been used to inform and assist in decision making...and that to understand the types of decisions being made it is “necessary to consider two or more values, either by type of between holders, in the construction of a decision” (Lockwood 2005:8). Moreover, Lockwood recognised that decisions concerning the future of the environment involve a “selection of one or more choices from a pool of options, each of which may comprise ends: goals, visions and objectives and means: actions, strategies and policies” (2005:208). Similarly, Aslin and Brown (2004) recognise that “enduring long-term decision-making for natural resource management depends on reliable collective decision making process and robust decisions result from involving those who need to be there” (2004: iii). Like Lockwood, Aslin and Brown (2004) recognise that decisions will be made by persons who are beholden to different knowledge systems i.e. policy makers, ‘specialist academics’ and local residents, all whom come from different perspectives and likely are driven by different and or opposing values and beliefs on matters to do with natural resource management.

4.10.1 Decision Making Criteria

Choice Modelling

According to Oxley et al (2002), in order to represent interactions between these human characteristics and dynamics and their natural environment context, three categories of criteria (identified by adopting a choice modelling framework) which influence farmers actions can be broken down into three categories:

- The *Soft Criteria* – these criteria may describe the degree of pluriactivity, cultural preferences, wealth, average land parcel size, labour availability or type, perceptions of crop diseases and new technologies, etc;
- The *Natural Criteria* – characterises the environmental constraints within which the farmers are required to make agronomic and economic decisions; and
- The *Dynamic Criteria* – can be changed by the farmer as a result of addressing specific decision issues. These represent the key linkage between the opportunity , environmental constraints and the characteristics of the farmers involved (socio-cultural predispositions)

(Oxley et al., 2002:40)

Moreover, choice modelling (CM) as reported by McDonald and Morrison (2005) is based on the idea that 'the individual derives satisfaction from the properties or attributes of consumer goods and experiences' (McDonald and Morrison, 2005:3). In the case of environmental application a process of choice concerning changes in environmental qualities is used to generate data - choice will inform decisions to be made (McDonald and Morrison, 2005). Additionally choice experiment will, according to McDonald and Morrison (2005), convey the information in a way that minimises bias and engages the individual in a process of trading off outcomes against cost. Figure 4.4 presents a conceptual process of choice modelling developed by Louviere et al cited in McDonald and Morrison (2005:10).

Figure 4.4: Choice Modelling

NOTE:
This figure is included on page 109
of the print copy of the thesis held in
the University of Adelaide Library.

Source: Based on Louviere, Hensher & Swait (2000) cited in McDonald and Morrison (2005:10)

In an environmental application a process of choice concerning changes in environmental qualities stakeholders will also draw on embedded values. These values are reported to govern decision making and thus, are the starting point for the following discussion.

4.10.2 Values

In contrast to adopting choice modeling as a means for making choices, evidence from Gasson (1973) and Lockwood (2005) illustrates that decisions and choices to be made, involve at least, an

embedded integration of values. For example, it is argued that decisions concerning the future involve the selection of one or more choices from a pool of options, each of which may comprise ends i.e. visions, goals, objectives (Gasson, 1973) and means, actions, strategies, and policies, (Lockwood, 2005b).

By analogy, farmers who are most economically deprived might value their occupation primarily as a means of subsistence and security and, being fully involved in making ends meet, will give little thought to the environment (Gasson 1973). Whereas those who are financially secure may tend to disparage instrumental values but place most emphasis on recognition as a member of a farming community and a 'valued' custodian of the land. Farmers who are both 'economically and socially established may attach greater importance to higher, expressive and instrumental values' (Gasson, 1973).

More so, values are a more permanent property of the individual, and less liable to change with time and circumstances (Gasson, 1973:524). A value Gason reports 'is a conception of the desirable referring to any aspect of a situation, object or even that has a preferential implication of being good or bad, right or wrong" (Gasson, 1973:524). Values are felt to be justified by reason, moral or aesthetic judgements and are ends in themselves, pursued for their own sakes; they serve as standards and are cultural products, held by members of a social system (Gasson 1973:524). Importantly, values do not exist in isolation but are organised in systems of value orientations. Typical values include, honesty, humanity, success, progress, freedom, and democracy (Gasson, 1973:524) Behaviour is the outcome of values – since value orientations determined desired ends of behaviour and prescribed norms or socially acceptable means of attaining them, it follows that appreciation of value systems is necessary in order to predict behaviour. Goals on the other hand are defined as ends or states in which the individual desires to be or things he wishes to accomplish. Some goals are sufficient or an end in themselves; others are only instrumental to gaining more desired end. It is thought that most individuals subscribe to most of the dominant values most of the time, their behaviour being an expression of not one but all the value elements (Gasson, 1973).Gasson (1973:527) talks about 'dominant values' and argues that farmers arrange dominant values in a logical order so as to maximise coefficients between them:

- security;

- money;
- status and prestige;
- working with people;
- using abilities and aptitudes;
- being creative and original.

Moreover, it is considered that most individuals subscribe to nearly all of the dominant values most of the time, and that their actions are an expression of not one but all the value elements.

To appreciate the significance of values for behaviour it is necessary to know where they stand relative to one another. Variations in the rank order of common value components, all of which may be present, cause value systems to differ between individuals and between sub-groups in society (Gasson, 1973:525). The following list developed by Gasson (1973:527) represents dominant values that are likely to be associated with the farming occupation.

Instrumental

- Making maximum income
- Making a satisfactory income
- Safeguarding income for the future
- Expanding the business
- Providing congenial working conditions – hours, security, surroundings.

Social

- Gaining recognition, prestige as a farmer
- Belonging to the farming community
- Continuing the family tradition
- Working with other members of the family
- Maintaining good relations with workers.

Expressive

- Feeling pride of ownership
- Gaining self-respect for doing a worthwhile job

Exercising special abilities and aptitudes

Chance to be creative and original

Meeting a challenge, achieving an objective, personal growth

Intrinsic

Enjoyment of work tasks

Preference for a healthy, outdoor, farming life

Purposeful activity, value in hard work

Motivation too, is embedded in passionate beliefs which are symbolic in nature, about matters, including family, business, and more recently environmental matters. Described by Cary et al., (2001) the simplest form of symbol is a “sign revealing a one-to-one relationship” Carey et al., (2001:4). He argues in a psychological sense, symbolising provides individuals with the ability to process and transform transient experiences into internal models allow abstract though processes Cary et al., (2001). For example, farmers symbolise work ethic – as a farming ethic – built on values and belief systems.

The nature of links between beliefs, values and attitudes and behaviour (Botterill, 2001b; Gasson, 1973; Lockwood, 2005a; Gareau, 2007) are complex and open to debate. However, by not recognising the extent to which values play in decision making, governments run a risk of developing policies that do not have the uptake they desire. As Botteril (2001:9) illustrates, “the failure to take account of a sufficiently broad range when formulating policy can undermine policy objectives from the outset. The natural tendency for individuals, in the absence of constraints is to seek consistency between attitudes, beliefs and behaviours.

Elaborating on the idea of personal and community values is the distinction raised by Tajfel (cited in Haslem et al 2003:84) between personal and social identity. Tafel argued that “intergroup behaviour was associated with social identity, that is an individual’s “knowledge that he or she belongs to certain groups together with some emotional and value significance to him or her of the group membership” (Haslam et al., 2003:84). So, for example, once a person defines themselves as a member of a specific group i.e. a natural resource management Board or natural resource management community, they will regularly seek to increase prestige exclusivity and stature of that

group (Haslam et al., 2003:84). This is particularly helpful when considering the role of governance, including the role of elites and leadership.

4.11 The Role of Governance

Governance in its broadest sense illustrates the “processes by which institutions, both state and non state; interact to manage the affairs of a community or nation” (Weller 2000 cited in Brown et al 2006:283). Recently, in Australia as elsewhere there has been a much stronger focus on the roles of individuals, interest groups and networks to manage the affairs of a community (Brown et al 2006:283) – and this can be clearly demonstrated in rural governance and regional natural resource management (Lawrence, 2004; Dodson and Smith, 2003; O’Toole, 2006; Cuthill and Fien, 2005). Indeed, the meanings and interpretations of rurality and rural governance in Australia are being expanded through the current natural resource management regional arrangements (Pero and Smith, 2006:236). Indeed part of these interpretations is the perception of inclusive natural resource management decision-making in rural communities through “multi-sector dialogue (e.g. between primary producers, local government, conservation, Indigenous and other community interests)” Pero and Smith 2006:236).

However, promoting the acceptance of community based natural resource management and governance is a difficult task and until such time as the barriers between communities and governments are broken down, the likelihood of creating sustainable local governance structures is still discounted by some. For instance, Lane and Mc Donald examine the frequently invoked "bottom-up" verses "top-down" dichotomy and argue that “environmental governance is more complex, dynamic and multi-scalar than this dichotomy implies” (Lane and McDonald 2005:710). Lane and McDonald argue that six key problems exist with the "community based environmental planning approach:

- (i) the conceptualisation of 'community' which poorly accounts for difference;
- (ii) problems of inequality;
- (iii) the organizational capacity and efficacy of community groups;
- (iv) the scale of CBEP (community - based environmental planning);
- (v) the types of knowledge utilised by communities in environmental management; and
- (vi) the potential for parochial concerns to dominate the priorities and agenda of community

organisations.

Interestingly, Pero and Smith (2006) argue (based on a study of both decision making philosophies), that bottom up decision making is prone to community members meeting on a quarterly basis and therefore “decisions including day to day operational decisions were made often by general managers” (Pero and Smith 2006:242). Top down decision making philosophies can be criticised Pero and Smith argue on the basis that they “ contributed towards the organisation being perceived as controlled by community elites i.e. atypical community members who were politically savvy, better educated, financially better off, or had some other advantage over the rest of the community” Pero and Smith (2006:242). However, the role of decision making left in the hands of the elites is an important concern with community based natural resource management (Lawrence, 2004; Lane and McDonald, 2005; Kellert et al., 2000).

A practical response to such criticisms would be to adopt a more pragmatic civic engagement process one that incorporates a knowledge base system, comprising individual, local, specialist and professional knowledge is an impetus for bridging the division between top down and bottom up approaches to regionally organised natural resource management and governance, (Lane et al., 2005).

Despite such differences in opinions, the expressions of community based natural resource management seem to include certain characteristics:

- A commitment to involve community members and local institutions in the management and conservation of natural resources.
- An interest in devolving power and authority from central and/or state government to more local and often indigenous institutions and peoples.
- A desire to link and reconcile the objectives of socioeconomic development and environmental conservation and protection.
- In some cases a tendency to defend and legitimatise local and /or Indigenous resource and property rights, and
- A belief in the desirability of including traditional values and ecological knowledge in modern resource management.

(Kellert et al., 2000:706)

What is certain is that community based natural resource management and including governance necessitates a careful but complex blending of local, regional and state interests. Interestingly, there is evidence today that the direct state management of natural resources whilst fraught with a myriad of difficulties and with little evidence of broad based success, is often less complicated and difficult than the preferred, community based natural resource management (Kellert et al., 2000:707). This is because it is difficult for local governance to control the behaviour of complex organisations, particularly bureaucratic and state institutions (Kellert et al., 2000:713) who have over the years, placed a great deal of emphasis on a top-down approach to natural resource management. Indeed, the very nature of governance reform is to increasingly understand in terms of partnerships, flexibility and growth in the 'non institutional' forms of decision making" (Brown et al., 2006:283). To this end, it is interesting that a study undertaken by Brown et al., 2006 on attitudes to institutions, governance and reform in Australia, identified Australian citizens favouring a two tier method of governance, one that recognises regionalism and federalism over the current federal, state and local governance structure Brown et al.,(2006). For example, their study which included surveys conducted in New South Wales and Queensland of preferred federal systems, demonstrated "strong support for the idea of a general constitutional rationalisation in the direction of a 'two tiered' system" Brown et al., (2006:291). The implications of such reform would likely satisfy the current national trends regarding natural resource management, as it would provide a strong platform for local governance as identified by Brown et al., (2006) to burgeon, one that emphasises a bottom up approach as crucial to the process of in this case, natural resource management.

4.12 Conclusion

This chapter argues that the concepts of social capital, community and community capacity as well as engagement, values, belief systems and local governance are components to be considered when developing policy for and/or engaging in community based natural resource management. Notwithstanding the advances in the theory of social capital and community engagement, there is still a lot of work to be done identifying suitable ways to incorporate a more in-depth understanding of social capital and community development, including the complex relations of community

participation in the development regional approaches to natural resource management. For example, one needs to take into account that the cultural, economic, institutional and social structure of each community, its organisations and social groups since it is not always suitable to apply the same engagement processes across such diverse social-economic, cultural and environmental landscapes. Similarly, and as illustrated in Chapter 3, external influences, e.g. globalisation, intensity of production and climate change affect an individual's and/or community's partiality and capacity for undertaking natural resource management. One challenge is to find suitable ways to incorporate a multifaceted social approach – including one that endorses social capital, holistic engagement, value components (e.g. instrumental, social, expressive and intrinsic), attitudes and motivation (which is embedded in belief systems).

This chapter further highlighted that a new regime that has been established for managing the environment incorporates a transition from natural resource management to community based natural resource management, including civic governance. A principle tenet of this new regime is the role of community engagement and associational governance (Brown et al 2006), where the responsibility for managing the environment is shared between a network of stakeholders, including non-government organisations and governments. The rationale for building engagement strategies built on local knowledge, experiences and values is integral to the new regime for natural resource management in South Australia. Yet, while this approach to natural resource management is recognised by governments as essential, the reality is, that in many cases a difficulty exists for “reconciling the differences and harmonising the objectives of community based natural resource management, biodiversity protection and sustainable resource utilisation” (Kellert et al 2000:713).

This chapter and the previous chapters covered a broad range of literature, talking about ideology, policies and restructuring processes and the social context of natural resource management. As important as it is to introduce these concepts so it is important to discuss the research methodology adopted for undertaking the two contrasting studies which form the basis of this study. Thus, the following chapter talks about the techniques adopted for undertaking the research as well as highlighting the limitations and problems that arose while undertaking the two case studies.

5 RESEARCH METHODOLOGY

5.0 Introduction

The purpose of this chapter is to discuss the research methodology adopted for undertaking two contrasting studies of communities involved in the delivery of natural resource management. The purpose for undertaking these two studies is to examine the ways by which government instrumentalities charged with managing the environment went about conducting community based natural resource management projects in South Australia. The first study, the South Australian Arid Lands (SAAL) case study investigates six communities of interest located across the arid lands region of South Australia who were involved in a community engagement process for assessing natural resource management in the region. The second study, the Lower Murray Reclaimed Irrigation Areas (LMRIA) case study, investigates the capacity of government authorities and community members to engage and embark on natural resource management at the local level.

This chapter also provides an account of the methodology behind the development of a Natural Resource Management Tool (a component of the SAAL study) and its functions. The chapter then goes on to illustrate in more detail the range of research methods adopted for undertaking both case studies. Finally, the chapter closes with a discussion on the limitations and research problems associated with undertaking these studies.

5.1 The Research Design

This study has adopted a comparative case study approach to investigate community based natural resource management. By undertaking a study of two communities that are geographically disparate, yet both involved in community based natural resource management, it has been possible to investigate two community types undertaking natural resource management.

As mentioned above, the overarching methodology for this study was a 'case study' approach. A common concern with case studies is the external validity of patterns identified in particular cases, i.e. how the validity of such patterns be generalised to other cases. To contend with external validity of propositions developing from a case study the findings are corroborated by other case

studies. This method is referred to as data triangulation. Corroboration can come from a single project involving multiple case studies as was the strategy pursued in this study. To ensure external validity of case findings for example, ensuring correct measures are used for the concepts of interest, a methodological triangulation was adopted, involving the application of quantitative and qualitative methods of data collection.

By being flexible in its use of investigative techniques for addressing a range of research questions that arose throughout the course of the study it was possible to study not only frequencies and their associations but also what people think and feel about a particular social phenomenon (Brannen, 2005; Onwuegbuzie and Leech, 2005). By adopting a triangulated methodology it was possible to consider what Silverman (2006:13) describes as “reality” – in short, what the ‘reality’ is for the respondents involved in both case studies.

5.2 The South Australian Arid Lands Study

5.2.1 The NRM Community Capacity Tool

As discussed in Chapter 2, the devolution of responsibility for natural resource management to regional bodies in Australia has seen an increased emphasis on civic participation (Lane and McDonald, 2005; Brunckhorst, 2005) in natural resource management. The aim is to “achieve integrated, coordinated and collaborative planning and management close to the multitude of stakeholders involved as was evidenced in South Australia” (Farrelly 2005:393). As a result eight regional NRM Boards (see Figure 1.3) and their associated NRM groups have been formed to oversee NRM programs at the regional level throughout South Australia. The peak NRM body for the South Australian Arid Lands (SAAL) NRM Region is the SAAL NRM Board. The Board is tasked with managing the natural resources within the South Australian arid lands region which is shaded in green in Figure 5.1 below. As reported in Chapter 1, the SAAL covers a vast area of South Australia yet is sparsely populated, making it a somewhat unique environment. Pastoral properties are separated by hundreds of kilometres of dirt roads, with one or two larger communities and the remainder, small communities that dot the landscape.

Figure 5.1: Arid Lands NRM Region

NOTE:
This figure is included on page 119
of the print copy of the thesis held in
the University of Adelaide Library.

Source: Australian Government NRM Team (2008)

During 2005 - 2006 the South Australian the Department for Water, Land Biodiversity and Conversation (DWLBC) through the NRM Secretariat undertook a project to promote and support NRM monitoring and evaluation within regions and to develop community capacity. An outcome of the project brief was the requirement to build the capacity of communities to undertake for NRM. Development of a process and guidelines for capacity building for NRM requires coordination at the State level. This included a review of existing capacity (through case studies), and the development of a capacity building strategy and planning for evaluation of investments in building regional capacity.

Simultaneously, as part of its 2005-2006 Investment Strategy, the SAAL Board identified the need to undertake a strategic review of capacity building needs within its region. Outputs of planned activities included:

- Catalogue of community skills and knowledge, training opportunities and providers, and
- Report on identified skills / knowledge gaps and possible activities to fill them.

The SAAL project provided an opportunity for DWLBC to identify and test the rigor of indices for capacity building across six communities while the SAAL Board was able to ascertain and benchmark those communities' skills, knowledge and capacities for current and future project management.

Earlier, during 2003-2005, Primary Industries and Resources South Australia (PIRSA) Rural Affairs, Rural Solutions South Australia (Rural Solutions SA) and the University of South Australia worked collaboratively on a project for developing a community capacity assessment tool (CCAT) which enables communities to measure their existing community strength, capability and capacity to adjust to change. At the time of the development of the NRM Assessment Tool the Community Assessment Tool (CCAT) had been piloted with two communities and was undergoing further refinement under the auspices of an Expert Panel. It was during the first stage of piloting that I became involved in the development of the CCAT. The refined model was then tested on a third community, under the auspices of an Expert Panel¹ and then further modifications were carried out before making it available to communities to assess their capacity to adjust to change.

As part of a 2005-2006 NRM Investment Strategy, the SAAL NRM Board sought to assess its' regional capacity to deliver its NRM Programs, and together with the Department for Water, Land and Biodiversity Conservation (DWLBC) and the South Australian Department of Primary Industries (PIRSA), commissioned a project team comprising staff from Rural Solutions SA (RSSA) and the Department of Water, Land and Biodiversity Conservation to develop an integrated tool for assessing regional NRM capacity. The original concept for what constitutes a community was

¹ Members: Brian Cheers, Uni SA; Jane Edwards, Uni SA; Sarah Wendt, Uni SA; Lib Hylton-Keele, PIRSA Rural Affairs; Greg Cock, PIRSA; Karen Cosgrove, RSSA; Hilton Trigg RSSA; Jenny Cleary, RSSA

then applied for the development of the NRM Tool. Theoretically the aim of the NRM Tool is to aid the delivery of a balanced discourse-based valuation approach that incorporates a technical assessment – adopting both quantitative and qualitative methodologies of enquiry.

To this end, a positivist approach was adopted when using the Natural Resource Management Tool for scaling participants' responses to sixty one capacity statements (see Appendix 2) as well as capturing verbatim, the discourse around each capacity statement. Positivist methodology assumes the ability of science to explain the world in terms of what “causes things to happen” (Harvey and MacDonald, 1993:210), and is an approach that treats ‘social facts’ as “existing independently of the activities of both participants and researchers” (Silverman, 2006:403). Since positivism does little to interpret the meaning of social, economic and environmental processes and how communities translate these meanings into their day to day lives, a humanistic methodology was also adopted for gaining the meanings of participants than just a scaling exercise. The stories behind the scaling process were captured qualitatively and it was from this data that it was possible to develop categories, and themes emerging from the assessments.

Humanistic methodologies lean more to phenomenology (Harvey and MacDonald, 1993; Hakim, 1987), and as such, allow for an integration of findings, in this case, on such topics as community engagement, social capital and civic participation. Silverman provides an account of how a student presented his data analysis, defining his works in terms of discourse analysis, as does the SAAL study. As Silverman points out, “discourse analysis is a complicated methodology which has quite a specific approach to data and as such he had concerns regarding the student’s approach to the data analysis” (Silverman, 2006:7). However, as it turned out, the student “scanned his interviews without any prior hypotheses and sought to develop a set of categories to illuminate his data” (Silverman, 2006:7) – it is this approach that Silverman claims is associated with, ‘grounded theory’ and that was adopted (to a certain degree) throughout the assessment process, for the SAAL study.

5.3 The Lower Murray Reclaimed Irrigation Areas: Background to the Study

In 2000 there were, as mentioned in Chapter 1, 120 dairy farms operating in the LMRIA (or swamps as referred to, by the locals) with farm gate value of milk production of around thirty million dollars (Manson et al 2004:2). These dairy farms were situated on the former flood plains along

the lower reaches of the River Murray. In 2000, water from the River Murray was used to irrigate pastures on these dairy farms, usually by opening gates in the levee bank along the river to flood irrigate swamps or by pumping water up to highland areas (Manson et al 2002). The swamps were flood irrigated due to the nature of the soils and the requirement to apply sufficient water to leach salt from the paddocks.

A significant amount of run-off water from the swamps was returned to the River Murray. This excess water carried with it nutrients and bacteria from paddocks (as well as salt that would have eventually been returned to the River irrespective of irrigation) (Manson et al., 2002) causing significant environmental damage to the river system.

The irrigation infrastructure for many of the swamps was reportedly inefficient (Manson et al 2002:2). Contributing factors included, poor design or condition of infrastructure, poor management practices and uneven paddocks. Irrigators had also had little incentive in the past to effectively monitor and control these water diversions (Manson et al 2002:2). After undertaking a desktop consultancy the South Australian government proposed a 'rehabilitation project, and its primary objectives were to

- achieve a significant reduction in the impact of irrigation on water quality in the River Murray Interviews;
- the efficient use of the water available from the river Murray in value terms;
- a sound, sustainable regional economy; and
- the devolution of responsibility for management and ownership of Government irrigation assets.

(PIRSA, 2001:2)

At the commencement of the LMRIA study, dairy farmers were being encouraged by the Department of Water, Land and Biodiversity Conservation (DWLBC) to undertake the 'rehabilitation process without delay.

5.3.1 Research Methodology

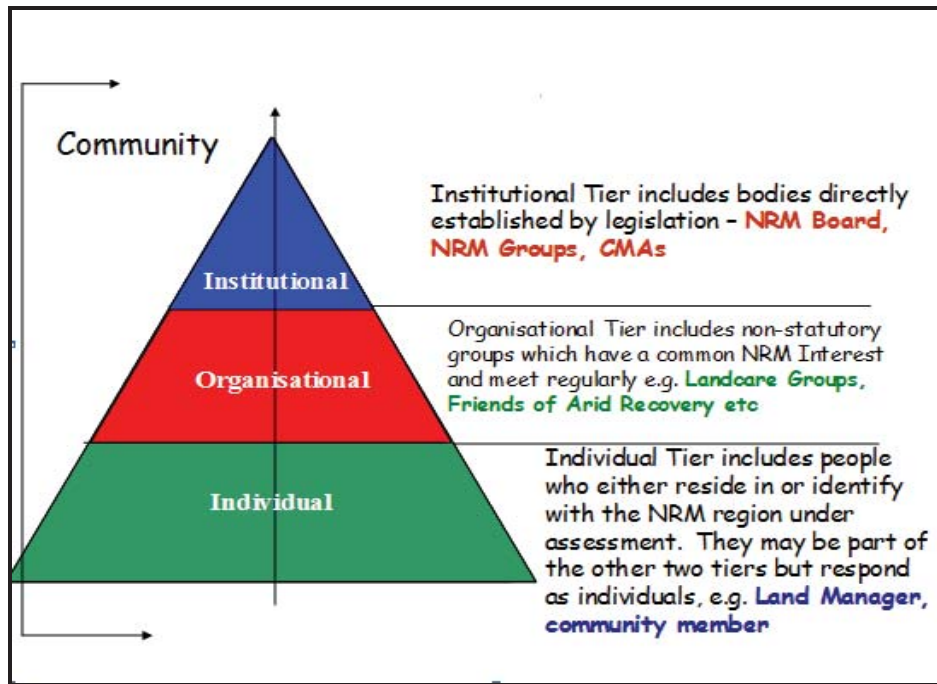
To uncover the human and social dynamics of the LMRIA study, humanistic methodologies (similar to those adopted for the SAAL study) were applied. Dairy farmers were asked to tell their stories about the LMRIA rehabilitation project. Interviews were conducted with dairy families living on the Lower River Murray swamplands as well as a number of interviews were conducted with farmers who had left the region as a result of the rehabilitation project. Field trips were also attended including community meetings held by farmers and meetings held between government organisations and farmers, provided opportunities for participant observation and observation.

5.3.2 The Development of the Natural Resource Management Tool and Process

The tool comprises a MS Access database containing nine capacities derived from rural sociologists (Webb and Curtis, 2002; Fenton, 2005; Cavaye, 2005). The tool operationalises elements of capacity using 61 statements and a suite of social indicators linked to a four-point likert scale. It measures participants' perceptions in relation to nine elements of capacity that span four types of capital, and generates both quantitative and qualitative results in the form of graphs, and matrices that show the relative strength and importance of each capacity as well as the participant's confidence in responding to the statement. This process is carried out across all three tiers, providing a gap analysis of mapped perceptions.

Figure 5.2 illustrates the Natural Resource Management Community framework and reflects those bodies who are involved in natural resource management at the regional level. The institutional level (the apex) has fewer numbers of individuals involved in regional natural resource management. The Individual tier (the base) on the other hand is made up of those people who live in the area and are involved in or have an interest in natural resource management. The numbers of organisations involved in regional natural resource management vary considerably from one region to another. Often members from the individual tier are also represented in the organisational tier.

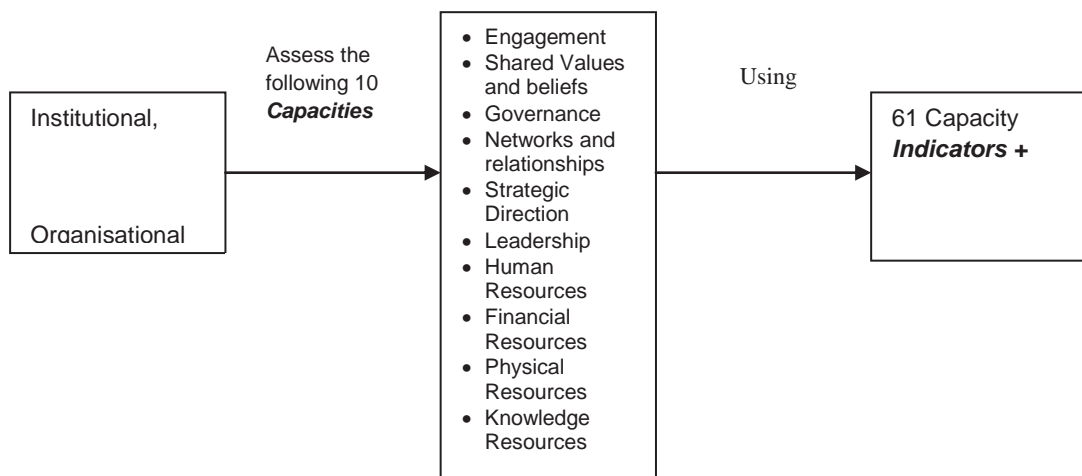
Figure 5.2: Natural Resource Management Community Framework



Source: Raymond, Cleary and Cosgrove (2006)

The schematic framework (Figure 5.3 below) illustrates the basis for which the tool framework was developed. In recognition that capacity is vested in different parts of the NRM community, the Tool assesses ten elements of capacity (Appendix 1) across all three community tiers. For example, Figure 5.4 illustrates the capacities which are assessed across all tiers of the NRM community.

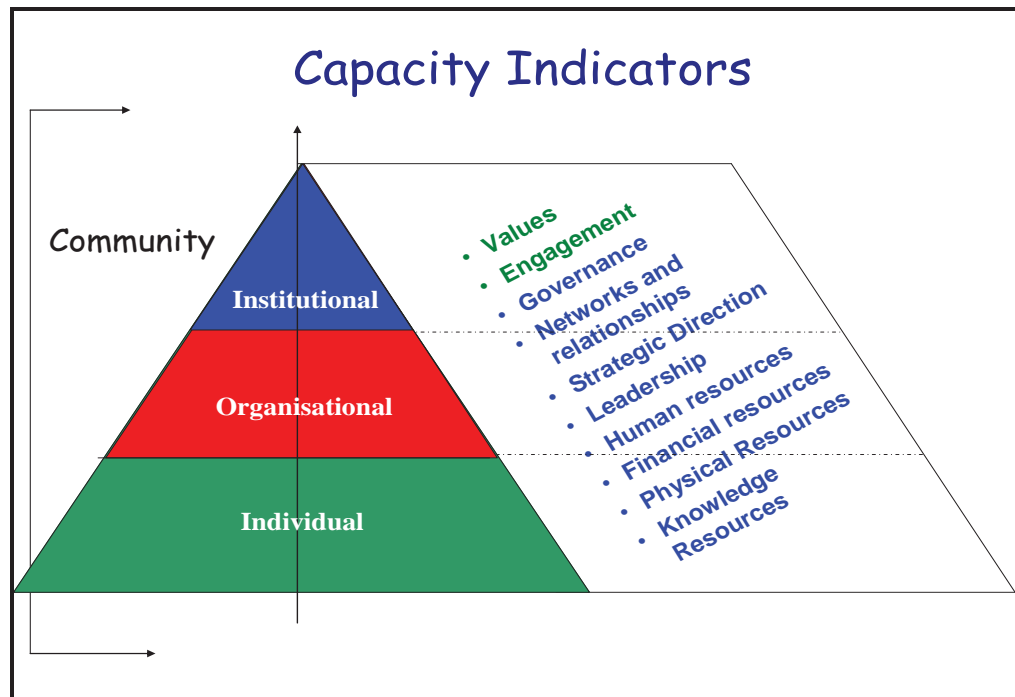
Figure 5.3: Natural Resource Management Schematic Framework Capacities



Source: Study 2008

The development of the capacity indicators for the Tool was guided by recent works on the capitals framework and the development of social indicators for monitoring community capacity (Wilkinson et al., 2003; Smailes et al., 2005; Cavaye, 2004; Fenton, 2005; Fenton, 2004; Smailes and Hugo, 2003; King and MacGregor, 2000).

Figure 5.4: NRM Community Capacity Indicators



Source: Raymond, Cleary and Cosgrove (2006)

The capacity indicators are set out as statements (e.g. The NRM Board has the networks and relationships to deliver its NRM Plan) on a statement page (see Figure 5.5 below) which are linked to 4-point capacity strength, capacity importance and response confidence scales on a database form embedded within the NRM Tool.

The statement page is projected onto a screen for the participants to read and make comment on – there are 62 statement pages (illustrated below in Figure 5.5). A list of statements can be found in Appendix 2. Participant discussion is captured in the commentary box and is later used as qualitative data in the analysis process.

Figure 5.5: Capacity Indicator Statement Page

Collective Statement: Culture
1

What is your assessment of your community's capacity in the collective statement's culture using the indicators provided? Indicate your assessment by clicking whether you 'strongly disagree', 'disagree', 'agree', or 'strongly agree' with the following statements using the indicators provided.

There are organised opportunities for engagement of NRM stakeholders

Strongly Disagree
 Disagree
 Agree
 Strongly Agree

	Strong Capacity	Moderate Capacity	Basic Capacity	Needs Strengthening
•Public meetings – number	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
•Public meetings – access	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
•Meetings via alternative technologies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
•Workshops – number	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
•Workshops - access	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
•Survey mail outs – frequency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
•NRM Board presence at community functions/events - frequency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Additional Comments: (no more than 5 brief dot-points)

Community Group: xy

Note

CONFIDENCE LEVEL

How confident are you in this assessment?

Extremely Confident
 Confident
 Some Confidence
 Not Confident

IMPORTANCE

How important is this capacity in auditing your community's total capacity?

Extremely Important
 Important
 Minor Importance
 Not Important

Source: Raymond, Cleary and Cosgrove (2006)

Note: For each indicator there is an additional comments box for recording contextual information. This box is where the qualitative comments are written which are later used in the assessment analysis.

5.3.3 Recruitment of Participants for Workshop Attendance

Recruitment of participants for the NRM Board assessment was straight forward. As the Board was gathering for its monthly meeting it was organised to undertake a workshop with the Board members on one of the days that all members met to discuss business. Conversely, recruitment of participants for the community workshops less straight forward and was at times, difficult and time consuming. For example, since all most all of the participants were community - farm based or mining - and were frequently away from home or locked into seasonal timeframes, i.e. shearing, reaping and or mustering, it was, at times difficult to arrange workshops.

The natural resource management community workshops were undertaken across the arid lands: Gawler Ranges – Mt Ive Station and Paney Station – Gawler Ranges, Blinman located in the Northern Flinders Ranges, Roxby Downs, Oodnadatta and Mannahill located in the North East District.

Figure 5.6: SAAL NRM Community Workshops



Source: SAAL Study 2008

At the time of the assessments NRM Groups had not been formed. However these groups now exist and they operate as the coalface when it comes to coordinating community based natural resource management. The Groups represent local community interests and are actively engaged in natural resource management delivery across the arid lands. Members of the NRM Groups (who report directly to the NRM Board) are selected on their skills and the fact that they live locally. All six workshops (see Figure 5.7) were undertaken in what are now the NRM districts within the SAAL NRM region.

Figure 5.7: SAAL NRM Groups Districts

NOTE:
This figure is included on page 128
of the print copy of the thesis held in
the University of Adelaide Library.

Source: South Australian Arid Lands Web Page (September 2008)

5.3.4 Locating Participants

A snowball sampling technique was used when identifying people within each of the districts seeking further nominations through these people, ensured reasonable community representation at each assessment workshop. As Harvey and Mc Donald (1993:120) point out “snowball samples occur when the researcher makes contact with a suitable subject and is then directed to, or makes contact with, other members in a network of contacts”. This sampling methodology ensured participants were connected to the local community and could represent the views of a particular sector involved in NRM issues. From this list, the project team invited people from a mix of sectors and where possible included:

- NRM community groups and volunteers;
- Other community organisations;

- State Government;
- Primary producers.

Distance was another obstacle. Quite a number of the participants had to travel long distances to attend the workshops, often incurring an overnight stay. A juggling and re-negotiating workshop time with participants was necessary to maximise the number of participants attending the workshops. For example, as was the case for one workshop, dates had to be changed numerous times due to unforeseen circumstances as a result of shearing commitments for a number of landholders hence several changes to times and venues occurred over a three week period.

5.3.5 Workshops

Each workshop commenced with refreshments as people gathered. The social time enabled the facilitators to meet participants individually and to begin the process of establishing rapport with the group members, many of whom were unknown to the facilitator prior to the workshop. Using a PowerPoint presentation, the facilitator outlined the process to be undertaken and explained elements of the tool and the concepts and language used within it.

At each workshop, the discussion began with the 'collective' indicators (statements) relative to engagement and shared values and beliefs. This was found to be the easiest way to build familiarity with the tool and process before adding the complexity of the requirement to respond by community tier. Generally, much discussion occurred during this phase of the process and it could often take up to thirty minutes to move from one statement to the next. However, it was considered important not to rush the participants as this familiarisation process was critical to ensuring participants were comfortable with the process and able to move on to the next statement.

Different ways of presenting indicators within the community tiers were trialed, and it was found that participants in community groups were most comfortable beginning with the Individual Tier, responding to statements most relevant to them. The Board too, was most comfortable to begin with the indicators at the Institutional Tier.

Given that the Arid Land region is so sparsely populated, there was concern that organisations relevant to NRM were almost non-existent, or difficult to identify as having a particular NRM focus. Before commencing indicators at this Tier, the facilitator would ask participants to think about and identify groups and organisations in their area, and the kind of NRM roles that these organisations had. This ensured that, where possible, responses could be captured at this Tier. Unlike the communities who identified numerous organisations involved in NRM, the Board reported that there were no 'NRM organisations present in the region'.

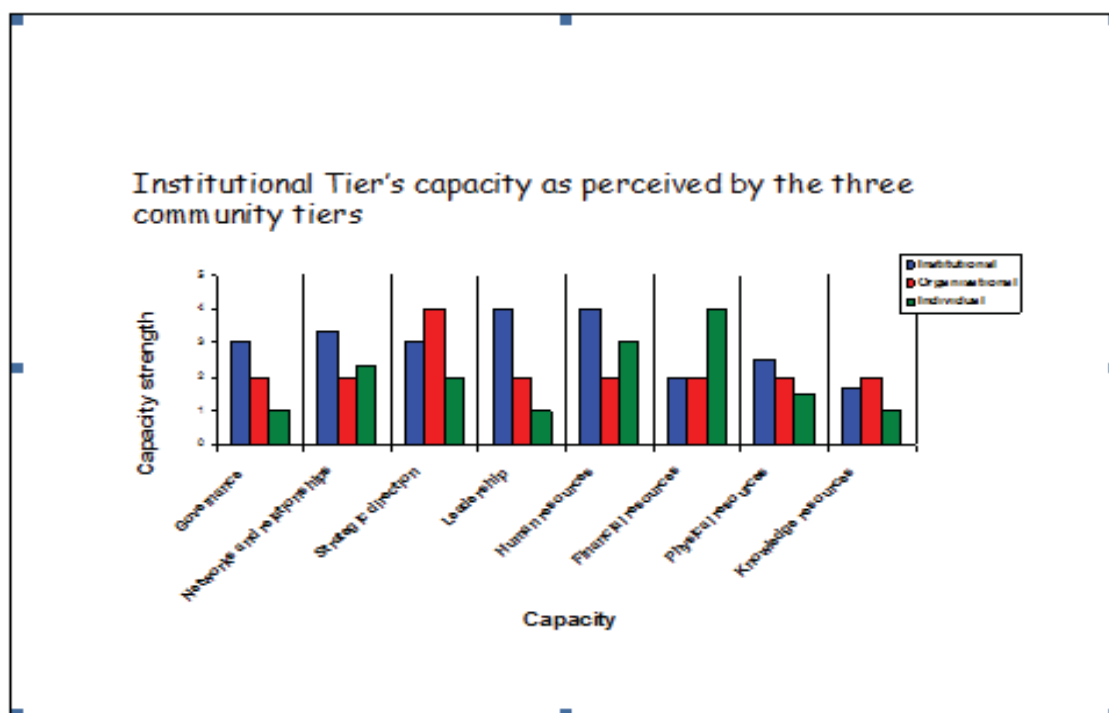
Participants worked through each indicator at each Tier, and the process took been 3.5 – 4 hours in total with each group, dependent upon the number of participants. Facilitated discussion ensured that a range of views were expressed and free-flowing discussion ensued. In some instances, participants needed to be encouraged (those new to the Board and the odd community member) to contribute, but the creation of a comfortable, and informal environment helped to promote strong discussion.

5.3.6 Workshop Process

The participants were asked to respond to each statement on a likert scale from 1 = Strongly Disagree, to 4 = Strongly Disagree. Facilitation was an important factor in the assessment process. Since it is necessary that all responses are reached through consensus, it was extremely important to ensure equal participation by all group members.

Each element of capacity was quantified using capacity indicators and capacity indicator sub-measures. The capacity indicators and scoring rubric were established from work by Cheers et al., (2002) and Cheers and Edwards (2004) who when considering the notion of 'community strength' reporting "community strength and community wellbeing are conceptually different" ...citing for example, that "community strength is related to a number of social and economic indicators of community and individual wellbeing" (Cheers and Edwards, 2004:2).

Figure 5.8: Capacity Strength

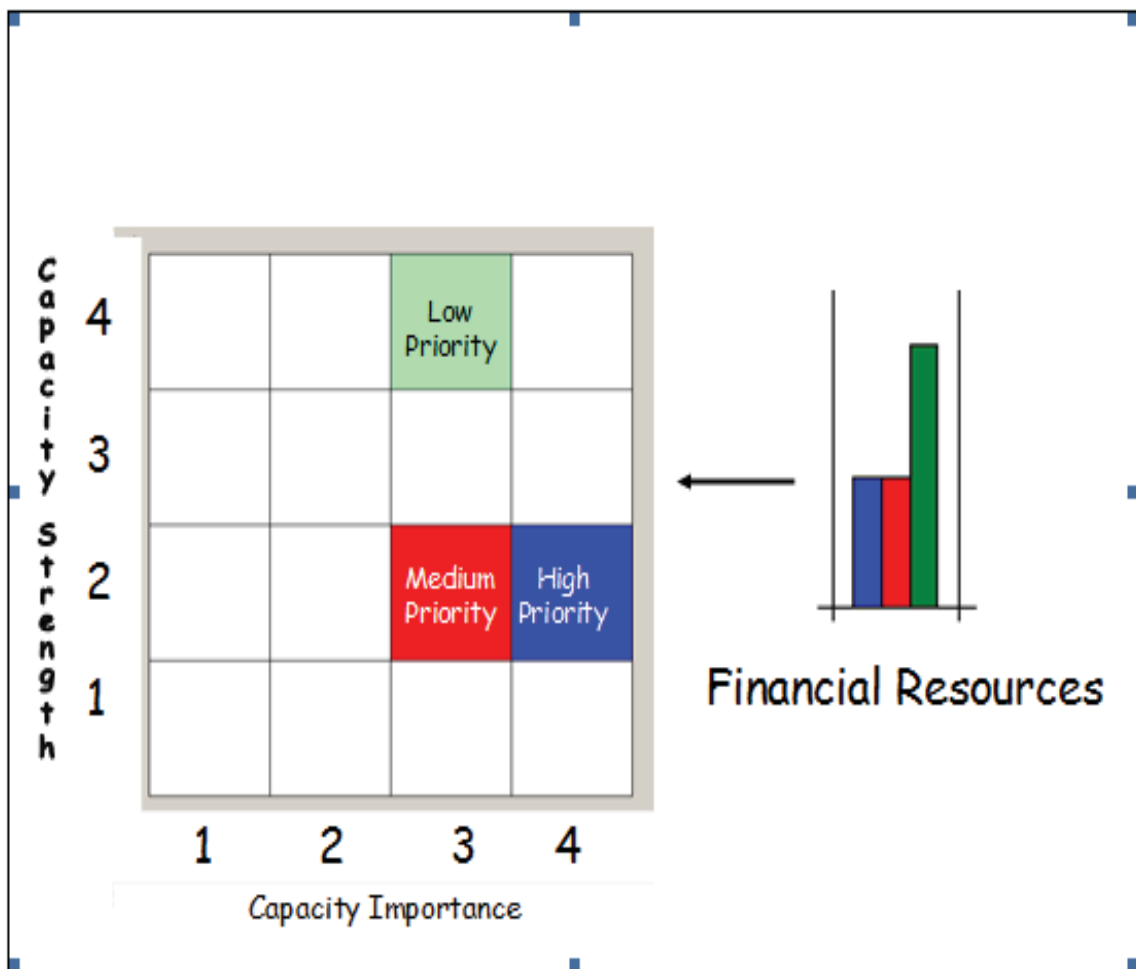


Source:: Raymond, Cleary and Cosgrove (2006)

Figure 5.8 (above) provides a 'mock' snapshot of the NRM Board's Capacity as perceived by three community tiers. Histograms show the capacity strength score for each community tier undergoing assessment (e.g. Figure 5.8). The capacity strength agreement scale was recorded into the following hierarchy (1) Weak Capacity, (2) Moderately Weak Capacity, (3) Moderately Strong Capacity and (4) Strong Capacity.

Action codes have been assigned to each matrix cell according to the relationship between capacity strength and importance. Colours in the matrix (Figure 5.9) represent the tiers. Blue represents Institutional tier perceptions; green represents Individual tier perceptions and red represents Organisational tier perceptions.

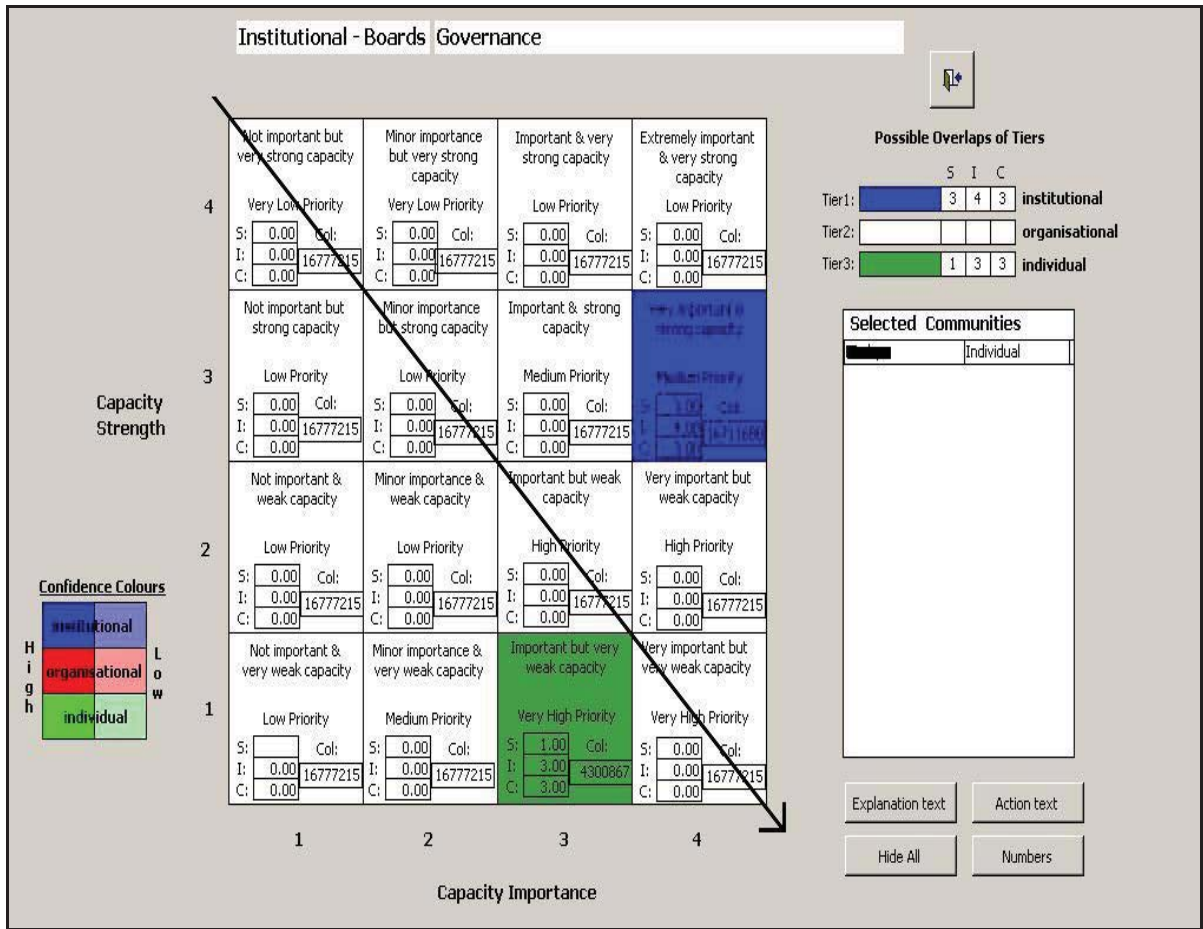
Figure 5.9: Matrix Cell



Source: Raymond, Cleary and Cosgrove (2006)

The matrix also shows a priority rating scale, e.g. very low priority; low priority, medium priority, high priority, and very high priority (see Figure 5.10 below). Assignment of matrix square priorities is based on the assumption that a capacity is a very high priority to build when its perceived as weak and very important, but very low priority to build when it is perceived as strong and not important.

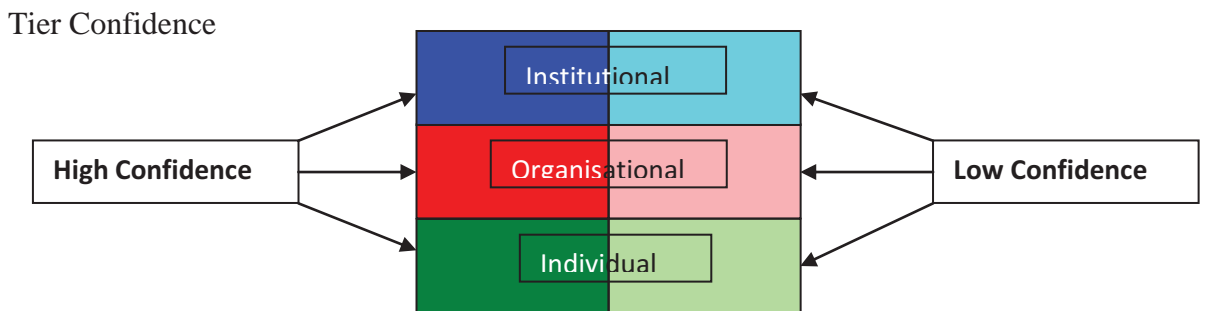
Figure 5.10: Priority Rating of Each Capacity



Source: Raymond, Cleary and Cosgrove (2006)

The level of the participants' confidence (Figure 5.11) to responding to each capacity statement is captured in a matrix, either in bold or light shades, depicting the confidence level for each community tier. Bold shading indicates confidence and light shading indicates a lack of confidence.

Figure 5.11: Participant Confidence Level of Each Capacity



Source: Raymond, Cleary and Cosgrove (2006)

5.3.7 Arithmetic Calculations for Each Report Tier

To obtain a regional view of capacity strength and importance across report tiers (Institutional, Organisational and Individual/Community), the Tool performs two main arithmetic calculations for each report tier:

1. It calculates the mean capacity strength, capacity importance, and confidence scores across 'n' indicators within a community group.
2. It calculates the total mean capacity strength, capacity importance, and confidence scores across community groups that form part of the same community tier (e.g., 3 groups of land managers may undertake the assessment separately and the aggregated results of the three assessments form the Individual Tier response).

An example of this twostep calculation is shown for the Individual/Community Tier in Table 5.1 (below). Firstly, within each community group (report tier), the mean capacity strength score is calculated across the three indicators, and this is repeated for the mean capacity importance and confidence scores. Secondly, the total mean across the individual 1, individual 2, and individual 3 groups (which are all part of the Individual Tier) is calculated.

Table 5.1: Calculating Capacity Strength, Capacity Importance and Capacity Confidence Scores for the Individual Tier

Community Group	Capacity Strength (CS)				Capacity Importance (CI)				Confidence (C)			
				Mean				Mean				Mean
Individual 1	2	3	3	2.7	3	3	2	2.7	4	4	4	4.0
Individual 2	1	2	2	1.7	3	3	2	2.7	4	4	4	4.0
Individual 3	4	3	4	3.7	3	3	3	3.0	4	4	4	4.0
	Total	CS	Mean	2.7	Total	CI	Mean	2.8	Total	C	Mean	4.0

Source: Raymond, Cleary and Cosgrove (2006)

1. Capacity Strength (CS) - Refers to how strong a particular capacity is in the community. Respondents indicate the extent to which the community group agrees or disagrees with

each statement on a 4-point Likert scale from “1 = Strongly Disagree” through to “4 = Strongly Agree”.

2. Capacity Importance (CI) - Even if all capacities are strong in a community, each of them does not contribute equally to total community capacity. Some will be more important for this purpose than others according to the community’s assessment. On the template, the community group indicates the perceived importance of each capacity on a 4-point scale from “1 = Extremely Important” through to “4 = Not Important”.
3. Capacity Confidence (CC) - Reflects the response-confidence of participants in assessing the community’s total NRM capacity. On the template, the community group indicates their level of confidence in providing their responses to the indicators on a 4-point scale from “1 = Extremely Confident” through to “4 = Not Confident”.

The participant comments provide further insight into the capacity strength response. In Table 5.2 (below) the Board suggests there are areas for improvement in the number of public meetings and workshops, community access to public meetings and workshops, and the ability to hold meetings via alternative technologies. Similar tables can be generated for the Individual Tier’s perception of the Institutional Tier’s capacities.

5.3.8 Discourse-based Evaluation

During the assessment workshops (as mentioned above) qualitative responses were captured by adopting a discourse-based valuation approach to community capacity assessment (Wilson and Howarth, 2002; Wilson, 2006) process. Discourse-based valuation is a method for groups to develop consensus for multiple attributes such as the strength and importance of different elements of community capacity. The method requires careful facilitation to ensure a free and fair system of discourse prevails, where participants are free to express their own attitudes, wishes and ideas. It is the assertion of this thesis that a discourse-based valuation of community capacity supports ‘neo-populism’ that is, it is a processes which recognises the importance of local and the sharing of knowledge across knowledge systems (Aslin and Brown, 2004).

Theoretically, discourse evaluation evolved from a convergence of points of view from “economics, social psychology, decision science and political theory” who argued “small groups of people can render informed judgements about public goods not simply in terms of their own personal utility, but also in terms of widely held public values” (Wilson and Howarth, 2002). Implicit in the role of discursive based evaluation is the role of small citizen / stakeholder groups and their ability to make decisions – by engaging and deliberating in a deliberative process. A small group is generally defined in the social psychological literature as “more than two individuals, and no more than twenty whose dynamic interrelation with one and another and common purpose leads to the shared perception by participants and outsiders alike – this collective of individuals is a social unit” (Wilson and Howarth, 2002).

In most cases, participants reached consensus but this was not necessarily in the affirmative. At times participants felt a statement carried no weight and was not relevant to their circumstances and therefore agreed that they would not respond to the statement. This agreement was captured in the commentary box. On the odd occasion participants could not come to a consensus. For example, at times a division between group members would occur over one statement, and this too was captured in the commentary section for later analysis. In all cases where this occurred the division was only over the statement at hand and participants continued to engage in a deliberate dialogue for each capacity statement.

5.3.9 Capturing Participants Comments

The statement page has a section for collecting participants’ comments were captured in the discourse process for further analysis. The purpose for the qualitative comments is to first provide background to each scaling process. Talk as Silverman points out, is “understood first and foremost as a vehicle for human action. The capacity of language to convey ideas is seen as a derivative from this more fundamental task (Silverman 2006:210). Second by capturing the ‘discussion’ had by participants as they undertake the scaling process (Likert scale), it is possible to provide a more integrated and critical approach to the analysis. An example of a qualitative response captured by the facilitator is illustrated in Table 5.2 below.

Table 5.2: Qualitative Comments

Scale data	Qualitative comments
Moderately Strong	While there were some organised opportunities for engagement of NRM stakeholders, there were areas for improvement in the number of public meetings and workshops, community access to public meetings and workshops, and the ability to hold meetings via alternative technologies. Board members noted the lack of engagement opportunities related to distances between arid land properties. A number of landowners need to travel large distances to attend meetings in regional centres.
Extremely Important	
Confident	

Source: Raymond, Cleary and Cosgrove (2006)

While the following discussion emphasise other methods that were utilised for capturing respondents' stories in both studies, the primary focus of this discussion is the LMRIA study. For example, participant observation and interviews were used in both studies. However, while open ended interviews (similar to chats) were carried out in both studies, in-depth interviews were the primary source of investigation for the LMRIA study.

The LMRIA case study adopted a more traditional phenomenological approach to the research process. It was imperative that this study not only identified causes, but that it also considered the social meanings of the farmers' action in order to identify "what sense" the respondents made of their circumstances. By doing so, it was possible to discover the sometimes-subtle relationships between value orientations and actions which provided a platform for understanding what the farmers brought to their experience, and how their experiences influence decision-making. Overall, by using different research methods it was possible to uncover relevant conditions as well as determine how the actors in both case studies respond to changing conditions and to the consequences of such change.

5.4 LMRIA Methodology

5.4.1 LMRIA Pilot Study

In order to investigate the behaviour and feelings of dairy farmers, I undertook a pilot interview with a gatekeeper to the dairy industry which provided me with an opportunity to become acquainted with a number of specific research objectives which were then explored in more depth when undertaking the in-depth interviews with the dairy community. I was also invited to a meeting held by a group of dairy farmers where I was given an opportunity to discuss the purpose of my proposed study. The feedback from my initial interview with the gatekeeper and the subsequent meeting with dairy farmers helped me to prepare an interview prompt schedule or interview guide (see Appendix 3) as described by Harvey and MacDonald (1993:204).

The prompts were used first as an aide to ease the respondents into the interview process and second as a method for capturing certain information, for example family demographics and farm size etcetera. In a sense this qualified as 'pre-pilot' work since interview prompts or questionnaires do not emerge fully-fledged; they have to be created or adapted, fashioned and developed to maturity after many abortive test flights (Oppenheim, 199:247). At the close of the meeting I arranged to return to the region in several weeks time to conduct twenty in-depth interviews with dairy farming families. At the time of the study there were 41 of the original 120 dairy farms still operating in the LMRIA. As the study progressed and the interview process was underway, four dairy families that had indicated their interest in being interviewed withdrew from the process due to health related issues brought about by the rehabilitation project resulting in two exiting the industry and relocating elsewhere in South Australia and one being institutionalised as a result of going missing for a number of days, hiding from his perceived enemies.

5.4.2 Grounded Theory

The LMRIA study adopted a grounded theory approach since the rehabilitation of swamp lands in the Lower Murray Reclaimed Irrigation Areas were new and not a great deal was known about them from a social science perspective. Grounded theory is defined by Strauss and Corbin as a:

[G]eneral methodology for developing theory that is grounded in data systematically gathered and analysed. Theory evolves during actual research, and it does this through continuous interplay between analysis and data collection. A central feature of this analytic approach is a general method of [constant] comparative analysis; hence the approach is referred to as the 'constant comparative method'.

(Strauss and Corbin 1994:273)

A well constructed grounded theory that meets its "four most central criteria: fit, work, relevance and modifiability" (Glaser, 1992:15) was initially developed by Strauss and Corbin, to deduce from the topic area categories and their properties, while explaining the major variations in behaviour in the area. However, grounded theory is not written in stone. It should be "readily modifiable when new data present variations in the emergent properties and categories [thus] the theory is neither verified nor thrown out, it is modified to accommodate by integration of new concepts", (Glaser 1992:15). Moreover, grounded theory includes the study of abstract problems and their social contexts (see Strauss & Corbin 1990; Strauss and Corbin 1994 in Denzin and Lincoln, 1994), not units ... unit analysis is for description" (Glaser 1992:24).

Grounded theory involves three stages:

- an initial attempt to develop categories which illuminate the data;
- an attempt to 'saturate' these categories with many appropriate cases in order to demonstrate their relevance; and
- an effort to develop these categories into more general analytic frameworks with relevance outside the setting.

Silverman (2006:402)

Grounded theory requires the researcher to produce concepts from data and to relate to them according to the standard models of theory and with a degree of theoretical sensitivity – not an easy task. As raised by Glaser, "A researcher may be very sensitive to his [sic] personal experience, his area in general and his data specifically, but if he does not have theoretical sensitivity, he will not ended up with grounded theory" (Glaser 1992:25).

Grounded theory's systematic techniques and procedures of analysis enables researchers to develop a substantive theory that meets the "criteria for doing 'good' science: significance, theory-observation compatibility, generalisability, reproducibility, precision, rigor and verification" (Strauss and Corbin, 1990:24). Importantly, for the LMRIA study, the data for grounded theory came from various sources "...the data collection procedures involve interviews and observations, as well as government documents, video tapes, newspapers, letters and books – anything that shed some light on the research question" (Corbin and Strauss, 1990:4-5). Because grounded theory lends itself to "the study of abstract problems and their social contexts, and not units [since] unit analysis is for description" (Glaser 1992:24) it was possible to study dairy farmers' level of involvement, attitudes and behaviours to the rehabilitation project.

A particular strength of grounded theory is the way in which data is collected. By using convergent interviewing (open-ended questions) the person being interviewed will be able to tell his or her story without being led by the interviewer. This is a very open-ended approach to seeking information, with little pre-empting provided by the researcher, thus reducing researcher bias (Bewell et al. 2007). Predetermined questions are not used, but often questions emerge during the interview process through a constant comparative analysis of the data (Newton & Ellis 2005). This is then considered to lead to either a convergence or divergence of views that can be explained (Stokes 2003). As the interview process continues, questions can become more specific as an interpretation of the situation emerges (Gatfield et al. 1999), resulting in a gradual build up of common themes and relationships.

Specific themes that emerge from the interview are then noted by the researcher, with these themes then being continuously compared with others that emerge with subsequent interviews. In instances where there is disagreement between the themes, questions are then posed in order to explore such differences (or disagreements) in opinions.

According to Dick (2005), explanations emerge gradually from the study, with later interviews becoming more probing, with the theory emerging from the interviewees. In order to fully explore disagreements between interviewees, it is helpful to return and seek further information and probing from the respondents.

5.4.3. Participant Observation

As the process suggests, 'participant observation' involves the researcher becoming part of the group or situation that is being studied (Corbin and Strauss, 1990). It is a technique used by researchers in a variety of ways..."sometimes it is seen as just a descriptive tool, sometimes the basis for testing theory" (Harvey and MacDonald, 1993:229). By adopting this style of enquiry, it is possible to study social life in almost any cultural setting and allows the observation of a group in constant dialogue. This type of observational research is not structured on 'hard and fast rules' as it places the primary researcher in direct contact with the people/scene being studied as they interact. For this reason the researcher is availed a holistic advantage, where he/she can describe who is in the group and why they are there. As the researcher describes the setting he/she looks for the underlying structure e.g.: making comparisons, ascertaining the functions and meanings behind the scene.

However, participant observation, as the term implies, is where the researcher is directly participating in the event. Unlike most participatory observation methodologies that assume an "ethnographic approach in order to understand the world firsthand" (Silverman 2006:403), I was first involved as a facilitator/observer in the SAAL study and did not contribute to the discussions, and in the LMRIA study I was an observer at community meetings held by the dairy community and government organisations.

Nevertheless, regardless of what level of involvement in participant observation, it was imperative that I was aware of ethical issues pertaining to invasion of privacy, and betrayal of confidence, with regard to the written report. At all times I was aware of the purpose for being there; there are advantages and disadvantages for using participant observation as a method of social inquiry. My focus was on 'acquiring meaningful data' by observing normal competing dynamics of a group/scene. It was therefore important that I was aware of my own values, and make a conscious effort not to corrupt my data by preconceived expectancies of that group. The ability to document from an emic account of group interaction and discourse is both inspiring and a rewarding experience.

5.4.3 Interviews

Unstructured interviews

In the case of the SAAL study, unstructured interviews were undertaken with participants at the close of the assessment workshops. The purpose of these interviews was to elaborate on their feelings about natural resource management and their relationship with the Board in a more private and perhaps less intimidating circumstances. I say this, for while the participants were involved in the workshops they were more inclined to provide insights from the targeted statements. This supports Harvey and Macdonald's theory, that "participant observation usually also includes the use of interviews, normally informal chats or in-depth interviews.." (Harvey and MacDonald, 1993:152) as a way of gaining insight into the relationships between participants and the Board. In particular it was a time that participants could elaborate on their feelings in private about the SAAL NRM Board, and the level of communication that had occurred between Board members and the communities. By undertaking informal unstructured interviews it was possible to compare and critique the responses gathered by the more formal assessment process.

Similarly, unstructured interviews occurred at community meetings and social events in the LMRIA study. On numerous occasions I was invited by dairy farmers to attend community meetings and several semi businesses' social functions to meet with and talk to dairy farmers and their families who had been affected one way or another by the rehabilitation project. For positivists, this type of interviewing technique sometimes causes concern since interviews, positivists report, are about "ascertaining facts or beliefs" (Silverman, 2006:123) and unstructured interviews tend to fit an emotionalist perspective, which is about accessing the "subject behind the person give the role of interview respondent" (Silverman, 2006:123).

In-depth interviews

In-depth interviews were carried out with dairy farmers in the LMRIA study. The purpose of in-depth (exploratory) interviews is basically heuristic: to develop ideas and research hypotheses rather than gathering facts and statistics (Oppenheim, 1992:67). The process is concerned with attempting to comprehend how people think and feel about the topics of interest to the research. This flexible approach was appropriate, especially with the early interviews since the topic area was broad and the interviewer could simply let the conversation develop within this area. I was

thus able to modify the interview to suit the context of interviews, particularly in following up the concerns of the dairy farmers.

Interviews ranged from 40 minutes to 2.5 hours. On all but three occasions both husbands and wives participated in the interviews as both parties felt they had something they could contribute to the study. One interview consisted of a father and young son of 17 years. In the shortest interview the informant was noticeably uncomfortable. However, as the interview progressed the informant became more at ease and talkative, and a great deal of additional information was collected. While some of the respondents were at first uneasy in the formal interview setting, they were more relaxed and open during walks around their properties. On realising this predisposition, when arriving at the farm I would suggest a walk around the dairy and immediate surrounds to 'break the ice' which made for a far more relaxed environment for the pending interview.

Overall the in-depth interviews were a productive tool for conducting the LMRIA study. As a result of adopting this methodology, there was an abundance of material garnered from the study participants, which comprised one corporate dairy and fifteen dairy farm families.

A major disadvantage of using interviews over other methods is their cost. In this case, the logistics associated with travel costs and the follow up in some cases were more expensive than the materials for the interviews, paper, printing, duplicating.

5.5 Writing Up of Observational Data

Keeping to the theory that it is important to "write up your observation as soon as possible" (Harvey and MacDonald, 1993:151), when the evening came to a close, I went back to my room (or in one case the station's kitchen) to write up my observations and elaborate on notes that I had made while they were still fresh in my mind. This was a particularly useful exercise for the SAAL project since on almost all occasions I had noticed discrepancies between the values ascribed to each indicator and the general conversation around each indicator – this is discussed in more detail below. By chatting with individuals around a barbecue later in the evening it was possible to glean from them how they felt about the assessment process and whether the values ascribed to each statement by the community group were a true reflection of their individual perceptions.

5.5.1 Transcribing

In the case of interviews, as soon as possible after an interview (in most cases every evening after returning from the field), I transcribed the audio-tapes verbatim although I was selective to a point. Straus and Corbin (1990:30) state ‘the general rule of thumb is to transcribe only as much as is needed ...but that it is not necessarily an easy decision to make, nor can it be made sensibly until you are well into the course of the study itself’. This was true for this study. After transcribing the first three or so interviews it became clear what could be deleted. Another advantage of transcribing the tapes as soon as possible is the ability of the researcher to identify certain trends that were developing through the interviews. This can be a very exciting aspect of the research process. Some of the points raised by the respondents were brought up in subsequent interviews to be discussed by the interviewees.

5.6 Questionnaire

Following the interview process and before leaving the farms I left each family with a questionnaire. The questionnaire consisted of open and closed questions and questions based on a Likert-scaling exercise (Appendix 3). Likert scaling (sometimes described as ‘summative scaling’) is a uni-dimensional scaling method. Scaling is the assignment of objects to numbers according to rule and in most scaling exercises the objects are text statements, usually statements of attitude or belief and they are usually measured on a variant scale.

The respondents were asked to fill out the questionnaire and to return it within two weeks. By leaving the questionnaire with the respondents it provided them with an opportunity to consider the questions and their responses to the questions at their leisure and in the privacy of their homes. This proved to be helpful as the interview process was notably distressing for some of the respondents who became tearful when talking about the experiences with the rehabilitation project. The purpose of the quantitative data was to triangulate the findings with the data gleaned from the qualitative research i.e. interviews and observations from meetings (Silverman, 2006). A major benefit of triangulation is it provides the researcher with the “ability to cross-check research findings by using more than one data collection method” (Harvey and MacDonald, 1993:233), as was the case for this research.

As mentioned above the objective of the postal questionnaire was to collect data pertaining to the overall structure of the dairy industry located on the Lower Murray Reclaimed Irrigation Area and respondents' feelings about their community, the industry and the rehabilitation project. It was essential that the questionnaire be, as much as possible, 'user friendly' and therefore simple questions were placed at the beginning of the questionnaire. By doing this I hoped that the respondents would 'warm to the survey' – particularly since they had had an opportunity to talk about their experiences previously in interviews. Harvey and MacDonald (1993:109) refer to these latter question styles as "classifactory questions" for they relate to the respondent's perceptions, which require more time and thought before answering".

As such the collection of quantitative data in statistical form is time and cost effective as the responses can be quickly codified. However, the disadvantages of using questionnaires lie both in the interpretation of the questions and the way in which the questions are designed and posed. For example, some respondents may have difficulty interpreting the questions, and moreover, they may perceive the wording of a question differently from another respondent. For this reason the questions were developed from the prompts used during the interview process.

A major disadvantage of using a postal questionnaire is the response rate. To reduce the possibility of a low response rate to the questionnaires, I provided a stamped self-addressed envelope and hoped this would encourage a greater response rate. Having done the best to maximize the response rate, I was pleased by the return rate. Of the 16 family farm enterprises who received the questionnaires, 10 responded, a response rate of 63%. It is possible the high response rates were due to the degree to which the respondents wanted to have a 'voice', and they saw the interview and questionnaire process as an avenue for 'airing' their stories.

5.7 Reflections, Limitations and Research Problems

The complexity of this study necessitated a research strategy that was comprehensive, dynamic and methodologically sound. While each research method has advantages, they also have limitations and so the choice of method comes down to "what needs to be done". In both case studies it was considered a triangulation method was best suited to gather data. By utilising a variety of data collections methods and instruments for the SAAL study (i.e. nominating responses

and identifying strengths by using scaling process as well as, capturing dialogue between participants and by participant observation – sitting back from the group and making notes on the interactions between participants, their gestures, body language and nervous behaviour) I was not limited to a one dimensional snapshot of the research scene. Similarly for the LMRIA study I was provided with an opportunity when interviewing respondents to capture their views about the rehabilitation project as well as observe them interacting with each other and government officials at community meetings and community field days.

When undertaking the research it was also necessary to be aware that recollection of past events may have been distorted and or coloured as participants' memories may have faded overtime (Harvey and MacDonald, 1993; Corbin and Strauss, 1990; Strauss and Corbin, 1994). Also, in some circumstances participants may have felt a need to include self-justificatory reports of present or past events and, as such, taint or give biased accounts if they felt it was in the interest of their group (Hakim, 1987). This was certainly the case for the SAAL NRM Board as they were conscious of how they may look to others outside of their immediate network. Whilst this behaviour had a potential to influence the outcome of the values ascribed by the Board to the individual indicators – thus limiting the credibility of some responses, it was an extraordinary entry into the world of Board behaviour, in particular 'face saving exercises' the likes of what Goffman refers to as 'managing self', particularly in the public arena (Goffman, 1963; Goffman, 1971).

The study also highlighted a weakness in the NRM Tool's ability to provide necessary feedback on participants' beliefs, values and their willingness to commit to natural resource management. Whilst the Tool allows for prescribing values such as how important a particular indicator is in relation to the communities' immediate needs for undertaking natural resource management, the indicators do not capture the values and beliefs and the willingness of participants to undertake natural resource management. This factor could be dismissed as a minor detail, except for the fact that the Tool is theoretically supposed to deliver such information. This weakness is due to the 'framing' of statements and not the function of the Tool. Due to the funding body's criterion, it was particularly difficult to persuade those not involved in social research that social-behavioural indicators would be best used in some instances to glean information regarding the relationships participants have with the environment. Putting aside this flaw, it was possible to develop

indicators based on the principals of the five capitals and thus capture to some degree, a social and cultural perspective of natural resource management by the community. Analysis of the data (including the indicators and tool process) showed a strength in the ability to identify the level of capital assets existing within communities but a weakness in providing 'in real terms' the values ascribed by participants for the environment, including their commitment to managing the same.

5.8 Conclusion

This chapter has examined the different methodologies adopted for gleaning information from participants in relation to their ability and desire to engage in regional natural resource management. It has shown that a triangulation of methodologies offers a platform from which to undertake complex and dynamic research. The chapter talks about the importance of understanding what drives human behaviour so as to ensure that the research takes into account any ethnocentricity of the researcher and participants alike. It also refers to the need to understand the setting one is observing, more specifically, understanding participant inter-relationships so that you are able to note the subtle ways in which they interact with each other - without the use of language. The chapter describes the difficulties experienced when recruiting participants for the workshops, and highlights the degree to which space – in terms of the distance which people need to travel to attend workshops has the potential to exclude those who would otherwise like to attend. Importantly, this chapter recognises that because of externalities such as weather and business/family commitments an extra burden is subsequently placed on participants when they are approached to be involved in, regional natural resource management.

The following Chapters, 6, 7 and 8 make up Part II of this thesis. Chapter's 6 and 7 provide accounts of two case studies, including an analysis and discussion. Chapter 8 consists of a conclusion and makes recommendations for community based natural resource management.

PART 2

FROM THEORY TO PRACTICE

6 A TALE OF TWO TIERS – ASSESSING COMMUNITY BASED NATURAL RESOURCE MANAGEMENT CAPACITY

6.0 Introduction

The focus of the comparative studies reported here and in Chapter 7 are inspired by work conducted by Gasson (1973) who speaks of goals and values in shaping farmer decision making, and the more recent work of Lane and McDonald 2005, Cavaye (2004) Jones (2006) Lawrence (2004) O'Toole (2006) and Farrelly (2005) who discuss the role of community capacity, social capital, governance and community engagement as instrumental in shaping landholder behaviour and community based responses to natural resource management.

The two case studies are contrasting in nature. However comparisons can be drawn with the way government instrumentalities have engaged with individual communities, in particular their approach to the administration of community based natural resource management and the impact their preferred approach to community engagement has had on community–government relationships and project outcomes.

Two common threads run through both case studies – the actions of instrumentalities in the administration of community based natural resource management and the impact that poor governance, in particular a top down approach to natural resource management, has had on the relationships between government instrumentalities and rural communities. This is where the studies diverge. The South Australian Arid Lands study (examined below) considers the capacity of the South Australian Arid Lands Natural Resource Management Board to engage with communities and administer natural resource management programs at the regional level. The second case study (discussed in Chapter 7), considers the attempt by a South Australian government body, the Department of Water, Land and Biodiversity Conservations to engage dairy farmers located on the Lower Murray Reclaimed Irrigation Areas who were compelled by compliance, to be involved in the rehabilitation of the swamplands.

The following examination firstly provides a brief overview of the region's governance and primary education structure, as it is these two structures that have arguably influenced the arid lands

unique cultural capital and the socio-political relationships that exist within it. The chapter then goes on to explore the communities (including the NRM Board's) perceptions regarding their ability to engage in natural resource management. The chapter synthesises the empirical data collected from six community capacity assessment workshops with insights from the literature and analyses the common ground and divergence between them. In doing so, this chapter identifies the challenges that lie ahead for the SAAL NRM Board and the arid land communities.

6.1 South Australian Arid Lands Study

In Chapter 1 it was reported that the Arid Lands cover 538,000 square kilometres and has a population of 25,000. The chapter provided a brief account of the remoteness and sparsity of population across the Arid Lands, claiming isolation has been the basis for the development of a unique service provision system. For example, two distinctive features of service provision in this remote and lightly settled area are education and governance.

Children living in the Arid Lands are educated through the School of Air. This program is one of the more popular ways children can access education in this region – it is also arguably responsible for the development of strong networks and relationships that have developed over the years and still exist within the region. This is an important point as it is these networks and relationships that bond this otherwise sparse community together. Since its inception in 1944 in Alice Springs (situated in the Northern Territory of Australia), the School of the Air has refined its services from its meagre beginnings of providing a two-way radio service to children in the region to a regional service adopting a new software program known as REACT (Remote Education and Conferencing Tool). This tool is a piece of software that is designed especially for distance education and is effectively used by those State education departments that service outback education. A by product of this creation is the development of a hub for children to share their views with other children across the region on a daily basis – something they would otherwise not do (Northern Territory Education, 2009).

The school of the air exemplifies the uniqueness of Australia's outback and is fundamental to the education and socialisation of children throughout outback Australia. Predictably these children mature, and the learning and relationships built over the years through this teaching apparatus has

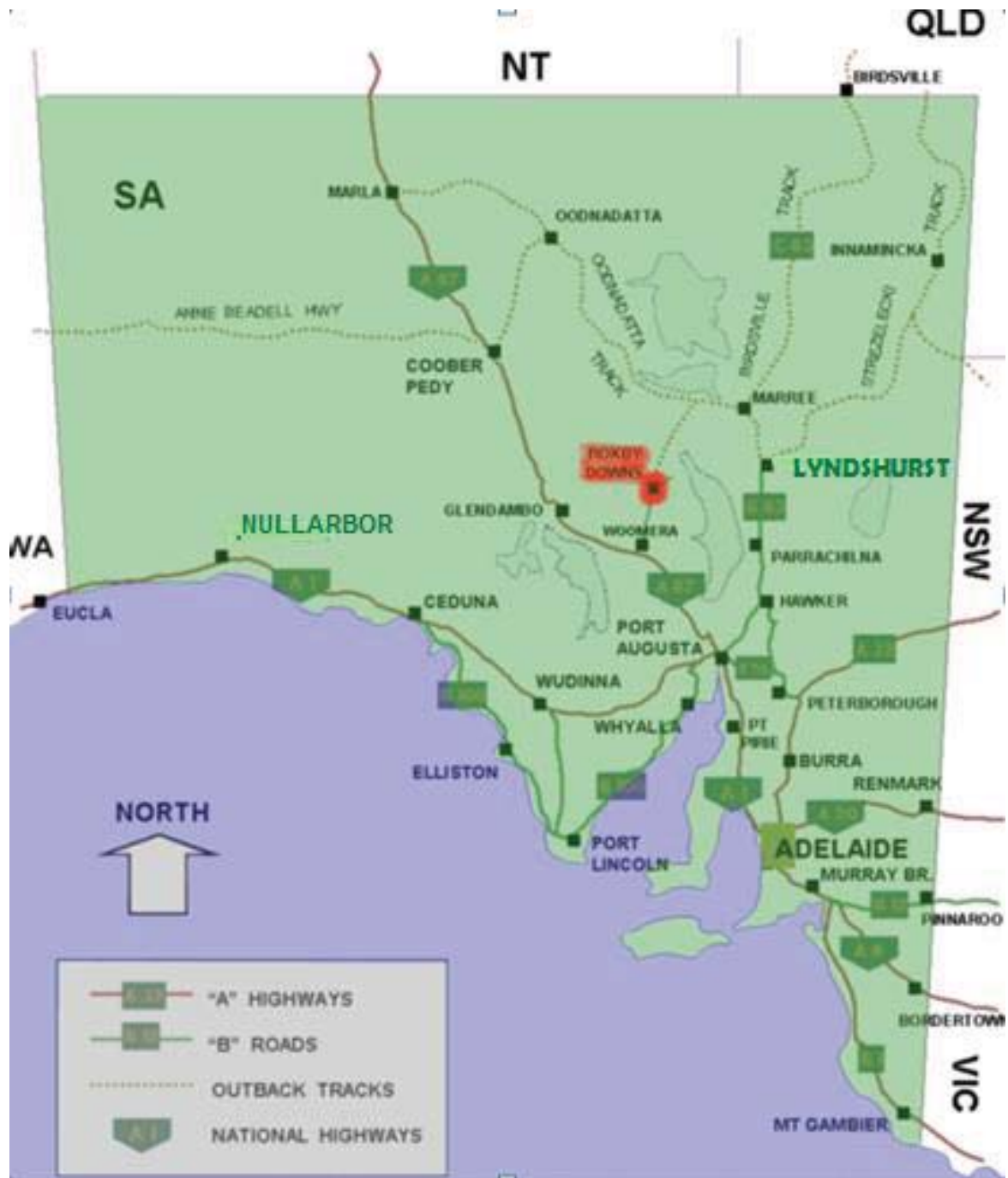
fostered a way of life that conveys strong community spirit. This sense of community has played a vital role in building the necessary strength and resolve for those pastoralists living in such remote areas like the South Australian Arid Lands, as well as being an impetus behind the regions unique governance system.

Yet another phenomenon distinctive to the Arid Lands is the absence of local government. In lieu, local governance is provided by the Outback Areas Community Development Trust (OACDT) and particular to Roxby Downs, is a piece of legislation, the *Roxby Downs (Indenture Ratification Act) Act 1982* that was developed for dealing with local governance matters. Roxby Downs is a purpose built town, constructed in the 1960s to service the large Olympic Dam copper uranium mine now owned by BHP Billiton (then WMC Resources Pty Ltd).

Roxby Downs (highlighted below in red), is not located in a normal local government area, and for this reason it has a unique arrangement established under the *Roxby Downs (Indenture Ratification Act) Act 1982*. (Minerals Council of Australia 2006). The Act was developed to ratify and approve a certain indenture between the State of South Australia and others; to make special provision for local government in relation to part of the State subject to the agreement. Among other things the Act ensures support for mining to continue in the region. The Act provides for licences required in respect of mining and milling of radioactive ores and the application of Aboriginal Heritage Act to the Stuart Shelf Area and the Olympic Dam (Minerals Council of Australia, 2006).

The *Roxby Downs (Indenture Ratification Act) Act 1982* was revoked by the *Roxby Downs (Local Government Arrangement) Regulations 1997*. This piece of legislation provided the Administrator and Municipal Council with the powers to act as a body corporate with perpetual succession and a common seal – in short, to provide the Administrator with the means to exercise all the powers and discharge all the functions of the municipal council in the name of and on behalf of the council.

Figure 6.1: Roxby Downs, South Australia



Source: Wikimedia 2009

6.2 The Role of the Outback Areas Community Development Trust

As mentioned above, historically people living in the South Australian Arid Land region formed community based committees and worked together in an effort to keep abreast of community and economic development and environmental management. It was not until the early 1970s that the

Commonwealth Government introduced an amended income tax assessment notice that showed the proportion of tax revenue that went to the federal government, State government and local government. The lack of reference to the SAAL region drew a sharp reaction from people living in the unincorporated outback areas of South Australia (OACDT 2007). Initially the proposal by concerned peoples for a trust via the Local Government Grants Commission be established to operate in the outback to distribute funds was quashed by the then government but by mid 1978 after winning the State election, the Labor Government gave consent to the development of a Trust and on the 20 May 1978 the Outback Areas Community Development Trust was proclaimed (OACDT, 2007). The Trust continues to work closely with communities today.

The functions of the Trust as defined in section 15 of the *Outback Areas Community Development Trust Act 1978* are to:

carry out development projects and to provide services for local communities within the area; to make grants and loans to community organisations within the area and otherwise to foster the development and work of such organisations; to exercise such powers and carry out such functions of a local government body in relation to its area or any part thereof, as may be conferred upon, or assigned to, the Trust under the Act; and to carry out works to improve, or otherwise promote or facilitate the improvement of, communications to country districts (whether within or outside the area).

In all, the Trust has, to a significant extent, fulfilled the role of a local government authority through the provision of some services (e.g. dog registration) (OACDT 2007). The scope of involvement is generally limited by the needs of each community and the working relationship the Trust has with these communities (OACDT, 2007). The governance structure of this region has a strong bearing on the networks and relationships that are developed within and between these communities and the Trust. Overtime these communities have worked closely with the Trust to deliver community development programs and on ground works – through necessity, acts of reciprocity have a major influence across this region. The *Outback Communities (Administration and Management) Bill of 2009* will supplant the Outback Areas Community Development Trust with the Outback Communities Authority. An outcome of this governance structure has been the breadth of community involvement in decision making and the richness and diversity of networks and

relationships that have been forged over the years. These relationships continue to influence community and hence are a major consideration when taking into account the perceptions of participants in relation to their role and that of the South Australian Arid Land NRM Board, in community based natural resource management.

6.3 NRM Workshop Attendees

The following analysis is of the South Australian Arid Lands NRM Community which consists of the SAAL NRM Board and five regional NRM communities. The communities are described as NRM communities because they identified an interest in natural resource management and members of each community wished to be involved in the NRM assessment workshops. The workshops consisted of:

- The NRM Board - Board members along with the General Manager and two observers were present for the Board workshop.
- Roxby Downs and Andamooka - Twenty two community members from both Roxby Downs and Andamooka and the surrounding pastoral properties were contacted and invited to the Roxby Downs and Andamooka workshop. Twelve people representing a reasonable cross-section of these communities participated. Participants included members of local organisations including a Progress Association, NRM-focussed bodies, mining industry employees, landholders and local government representatives and one locally-based Board representative.
- Gawler Ranges - Fifteen community members were contacted and invited to the Gawler Ranges workshop. Invitees included local landholders, members of the local Progress Association, former Soil Conservation Board members and people who had expressed an interest in becoming part of the sub-regional NRM Group. Six people responded, and participants represented landholders in the sub-region and members of the local Progress Association. A community member not drawn from either of these groups was also present for part of the workshop. Participants included both males and females. No people identifying as Indigenous were present.

- Oodnadatta District - Twenty six community members from Marla, Coober Pedy, Oodnadatta and surrounds were contacted and invited to participate in this workshop. Invitees included former Soil Conservation Board members and people who had expressed an interest in becoming part of the sub-regional NRM Group. Members of the Dunjiba Aboriginal community were also invited to participate. Twenty two participants responded and seventeen people attended comprising a mix of male and female landholders in the sub-region. No people identifying as Indigenous were present.
- Northern Flinders - Eighteen community members from this district were contacted and invited to participate in this workshop held at Blinman. Invitees included local landholders, members of local Progress Associations, former Soil Conservation Board members and people who had expressed an interest in becoming part of the sub-regional NRM Group. Of the eighteen persons contacted, seven attended the workshop. Participants included local landholders, former SCB members, one person who identified as Indigenous and members of a local Progress Association. This group comprised both males and females.
- North Eastern - Nine community members from Mannahill and surrounds attended the NRM capacity assessment workshop. The group consisted of an equal mix of land managers representing pastoral and conservation interests. Seven males and two females were present.

The perceptions of participants and their capacity to either administrate or undertake community based natural resource management were analysed. The following analysis consists of two parts, first a brief description of each workshop assessment outcomes before a more in-depth discussion of the findings. It is worthy to note that the notion of 'community' in this instance denotes a community of interest. Furthermore, in the case of Roxby Downs and Andamooka the community is identified as 'one NRM community of interest' as members from both townships regularly worked together to address matters relating to natural resource management.

6.4 The SAAL NRM Board– Perceptions Of Self and Community

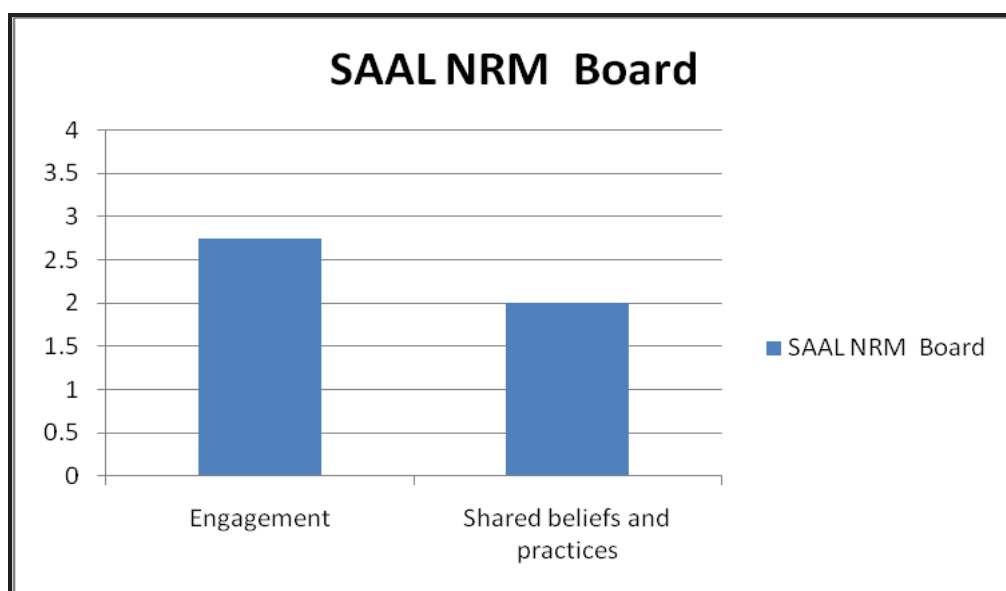
Eight Board members along with the General Manager and two observers were present for the NRM Board capacity self-assessment conducted at Paney Station. Five of the Board members had

been involved, in one way or another (e.g. the Integrated Natural Resource Management Groups or the previous Soil Board) in natural resource management for a number of years. The remaining three Board members while not having been involved in natural resource management per se, had an interest in the environment. Team members facilitated the workshop which was undertaken over four hours. Of interest is the reaction of the Board when asked to respond the second tier statements. The Board contended they could not respond to the Organisational Tier – claiming they did not know of any “organisations that existed in the region that were involved in natural resource management”. Accordingly, the assessment process does not include the Board’s perceptions of the capacity for Organisations located within or who have an interest in natural resource management in the SAAL region.

6.4.1 Participatory Culture

Participatory culture for the purpose of this study is the capacity of communities to engage and share similar beliefs and practices in relation to natural resource management.

Figure 6.2 SAAL Board Participatory Culture



Source: SAAL Study

Figure 6.2 indicates the Board’s capacity to engage with the NRM community as being moderately strong. The Board reported being confident in their assessment and reported that engagement is an extremely important process. However, they also recognised that while some organised

opportunities for engagement of NRM stakeholders existed, Board members reported there were areas for improvement in the number of meetings and workshops as well as the need to hold meetings via alternative technologies. Board members contended the lack of engagement opportunities related to distances between Arid Land properties.

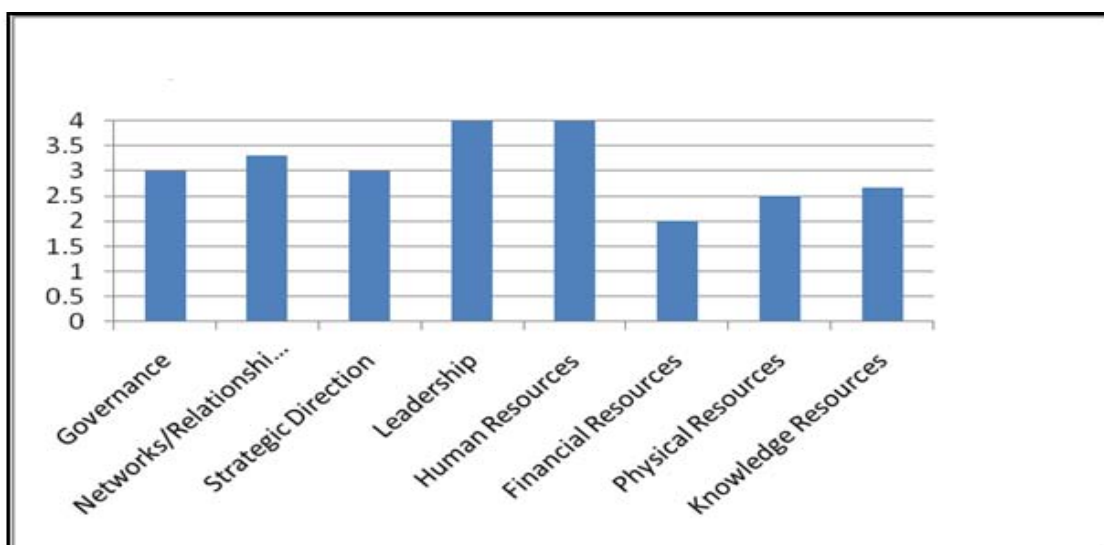
Board members were not confident in responding to the shared values and beliefs statement and were less inclined to rate this indicator as important, as they did the engagement indicator. The Board reported they shared a vision for NRM, but Board members questioned whether this vision carried across all the community tiers. For example, one Board member claimed the “Conservation Council may have a different vision to pastoralists”. Overall, Board members believed there was some common ground on issues of natural resource management across the region.

6.4.2 Board Perception of Institutional Tier

Figure 6.3 illustrates the Board perceived they had strong capacities in all areas, with the exception of financial resources (moderately weak). On the other hand financial resources were considered a high priority for building, and physical and knowledge resources are medium priorities.

Leadership and human resources were considered strong attributes of the Board. Governance was considered extremely important and a strong capacity with one exception, it was thought they were weak in their monitoring and evaluation process – this Board reported was because “processes had only recently been established. Human resources was assigned an equal value (to that of Governance) of 4 by the Board – indicating a considered strong capacity and one that is extremely important for the success of administering natural resource management. Board members were extremely confident in making the assessment.

Figure 6.3: The SAAL Board Perception of Institutional Tier



Source: SAAL Study

The Board assessed governance as being extremely important and it was considered a strong capacity with one exception; the Board thought they were weak in their monitoring and evaluation process – this, the Board reported, was because “processes had only recently been established.

Financial resources were also considered a high priority by the Board for building, and physical and knowledge resources were medium priorities. In relation to information, while the Board considered there was a large amount of accessible NRM information, it questioned the quality and relevance of the information. For example it was claimed “A lot of information was either not available or was irrelevant to the local context “and “ the Board does not have adequate access to local Indigenous knowledge”.

In addition, it was recognised that the Board had strong connections with universities, state and federal knowledge brokers, and external advisory panels yet they reported being concerned about what they deemed was “inadequate number and range of training programs to support its NRM program.

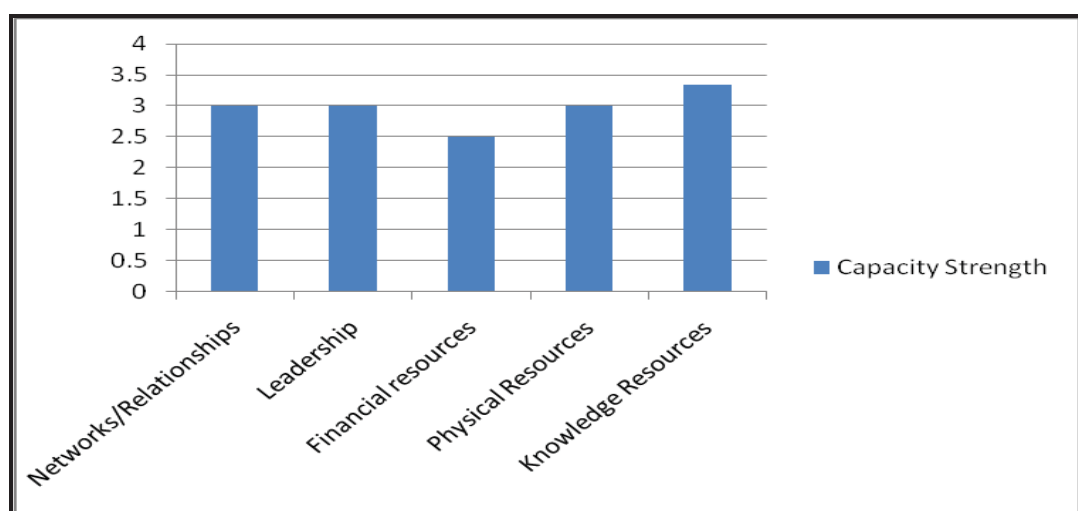
6.4.3 SAAL Board Perceptions of the Individual Tier (Communities)

The NRM Board perceived the Individual Tier (regional communities) as having strong networks and relationships, leadership, physical resources and knowledge resources capacities (see Figure 6.4).

Access to financial resources was considered the weakest capacity by far of the NRM community, with Board members noting a lack of funds to support volunteers and contractors run activities and also to supply, maintain and replace facilities and equipment. Networks and relationships, leadership and financial resources were all medium priorities for building capacity.

In general the Board assessed the Individual Tiers' capacity indicators as moderately strong. Board members considered the SAAL NRM community had local champions and individuals with strong leadership skills. Interestingly the Board claimed that while the SAAL communities have strong networks they have difficulty to influence. Another interesting point was the comment made by the Board in relation to the Individual Tier's access to physical resources (equipment). It was reported that individuals have reasonable access to most equipment required to achieve NRM objectives and most, if not all people, were able to safely use the equipment.

Figure 6.4: SAAL Board Perception of the Individual Tier



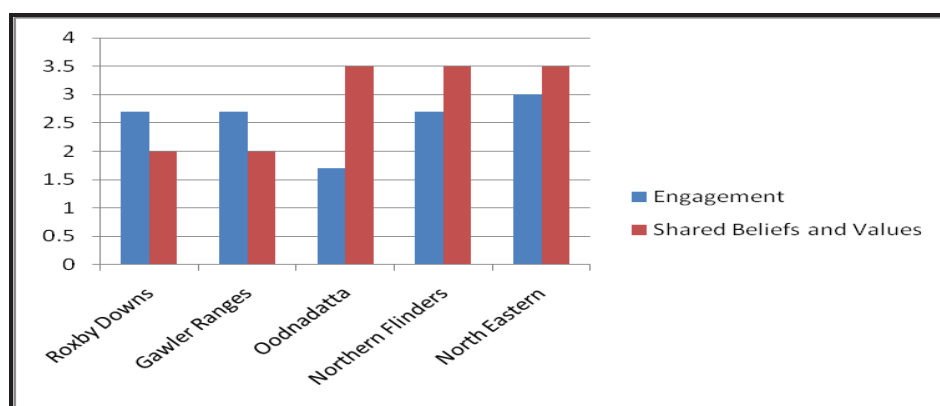
Source: SAAL Study

A concern for the Board was what they perceived to be (a) the lack of access to quality NRM information and (b) many of the programs available were not tailored to the needs of the community.

Overall, the Board's self evaluation highlighted strong capacities in most areas. An exception was financial and knowledge of resource capacities. The Board considered it was financially constrained in its capacity to employ the necessary staff to carry out business in a timely and efficient manner and they lacked knowledge in some areas, which has impacted on their ability to pass on relevant information to stakeholders. While the Board identified engagement capacity as moderately strong, a number of participants reported that the life of the Board was 'very new' and it was difficult to determine its capacity to engage with stakeholders. The general consensus by Board members was that the engagement process they had undertaken (as a Board) could be improved. In their defence, the Board commented about the difficulties associated with getting themselves set up and the requirements imposed on them as a result of short timeframes within which to do this, and the constraining effect this has had on engaging communities in the SAAL NRM Region. In relation to the Board's perception of the NRM community, the Board assessed the community as having the capacity to undertake natural resource management. The Board perceived a weakness in the area of finance, which was supported by the responses from community respondents.

6.5 Participatory Culture Across the Region

Across the region communities reported there had been little, if any, community engagement undertaken by the SAAL NRM Board. Indeed participants reported what exposure they had to natural resource management had been through previous bodies, for example the now defunct Soil Board.

Figure 6.5: SAAL NRM Communities Participatory Culture

Source: SAAL Study

Figure 6.5 demonstrates participants' perspectives of the level of engagement undertaken by the Board with individual communities across the Arid Lands region and the extent to which shared beliefs and values are appreciated across the region. In relation to engagement, participants in Roxby Downs and Andamooka reported that the broader community would accept opportunities for engagement if opportunities for engagement occurred. This however rarely happened since opportunities for engagement were limited in number and was inaccessible to a wide cross-section of the community. Travel to and from meetings was a major limitation to engagement and a significant concern for Roxby Downs and Andamooka participants.

Community members also added that there was a general lack of communication by the Board. For example, survey mail outs were infrequent and Board representatives were rarely present at community functions or events. It was mentioned that only a limited number of key stakeholders had been invited to recent NRM meetings. Interestingly those people who attended meetings did not consider them as opportunities for engagement because they were not inclusive, transparent, fair or flexible – the community did not trust the SAAL NRM Board. Overall, Roxby Downs and Andamooka participants thought those people who attended meetings did not consider them as opportunities for engagement because they were not inclusive, high in trust, transparent, fair or flexible.

Similarly the Gawler Ranges and Oodnadatta assessment groups reported that opportunities for engagement were not abundant and this was they claimed due to two reasons. First, was the fact

that the NRM Groups were “not up and running” and second, “that if people were not directly associated with the previous Soil Board”, then the current NRM Board was “not likely to engage with them”. Oodnadatta participants reported of their past frustrations with being on government committees and boards, claiming it would take forever to ‘implement’ strategies – this they said was consistent with the current situation.

Equally, Northern Flinders participants claimed there was a general lack of trust in the community regarding the new Board. “People” they claimed, “were happy with the way things were – the Soil Board – and the development of the Board was likened to reinventing the wheel.

A further interesting outcome was the comment by participants from the North Eastern Community workshop, who claimed that while the NRM Board had not held any meetings in the North Eastern sub-region, NRM engagement opportunities provided by other agencies had been adequate.

Community participants across the region had mixed emotions and some degree of difficulty in responding to the statement “NRM stakeholders have a shared vision for the region which is consistent with the region’s NRM plan”. For example, Roxby Downs and Andamooka reported the lack of a shared vision was due to the poor engagement by the Board with the wider community, and in particular the lack of opportunities for communities to come together through an engagement process to discuss regional natural resource management.

Similarly, the Gawler Ranges community perceptions were inclined to be negative as participants contended they were unable to respond to the shared vision indicator. They did however, comment that Indigenous knowledge and participation was not necessarily imperative for natural resource management in their sub-region. For example it was commented that Indigenous people “were assumed to have knowledge about NRM,” but in some instances the “validity of Indigenous knowledge that had been deemed ‘local’ was questionable”.

Oodnadatta participants valued natural resource management as being extremely important for ensuring sustainable futures and open dialogue, communication and social interaction were valued as a means to achieve sustainable natural resource management. Not unlike the Gawler Ranges, Oodnadatta participants were more inclined to question Indigenous values and knowledge in

respect to natural resource management. For example it was claimed, “Real Indigenous knowledge around natural resource management has been lost as the Elders who had such knowledge were deceased”. A rejoining consensus was Indigenous knowledge is of minor importance since first and foremost it would have to be “credible for it to be valuable” and next, “they (Indigenous peoples) would have to ‘actually participate’ in community based natural resource management processes”.

Northern Flinders participants reported they shared vision for NRM and were committed to sustainable development. However, participants remarked that they had not seen the Board’s strategic plan so they could not say whether their ideas and vision were compatible with the Board’s plan. Unlike the previous communities, the Northern Flinders participants, reported “natural resource management stakeholders valued Indigenous knowledge and participation in community based natural resource management”.

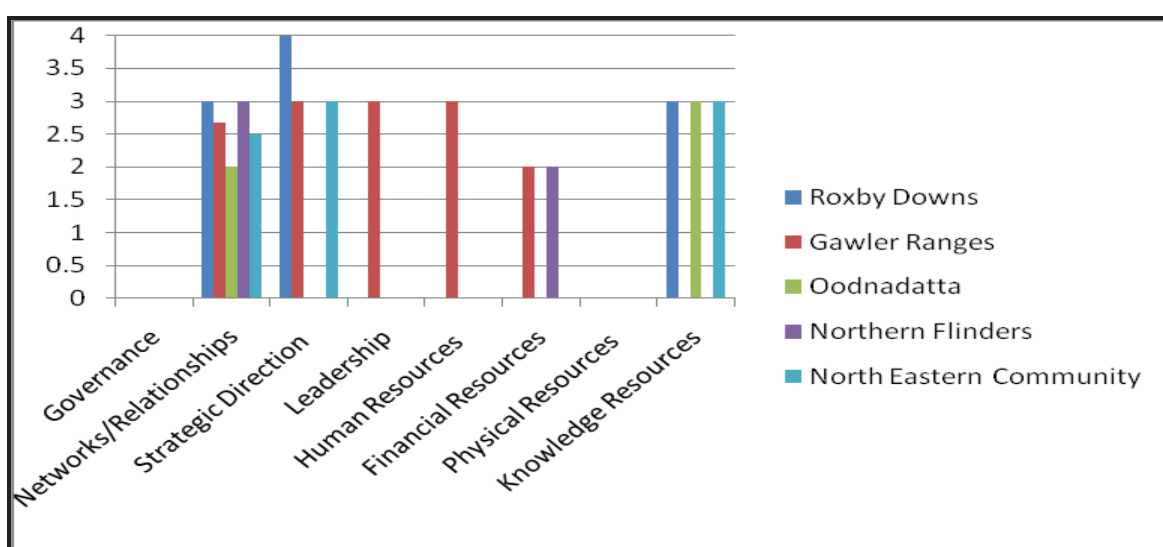
Similarly, North Eastern participants claimed a shared vision for NRM exists in the region. There was respect for maintaining the equilibrium between differing land uses and the need for different approaches according to land system. Indigenous knowledge and participation was generally valued in the subregion. For example, it was reported: “Cultural heritage and artefact sites were respected and protected”. However, participants reported “there was some concern about Indigenous group alliances with the mining industry and their perceived association with lands that do not contain artefacts. Artefact conservation needs to be differentiated from current political issues on land rights”.

6.6 Individual Tier’s Perception of the Board

All community participants involved in the NRM assessment workshops across the region reported being unable to, or having difficulty in, responding to the assessment statements relating to their perceptions of the Institutional Tier’s (The SAAL NRM Board) capacity to administer the regions’ NRM strategic plan. Resounding criticism of the SAAL NRM Board and its lack of engagement with communities resonated across the region from one workshop to the next hence the lack of responses to statements which is illustrated in Figure 6.6 below.

Moreover, whilst participants were reluctant to assign a value to the capacity statements they were more than willing to share their perceptions of the Board and its capacity to engage with communities across the region. As Figure 6.6 below demonstrates, participants in all communities were confident in responding to the networks and relationships statements, but were less keen to respond to the remaining statements. This was, they reported, due to the fact the Board had not engaged with them and therefore they had little knowledge of the Board's strategic direction or its leadership – human capital, financial, physical and knowledge resources.

Figure 6.6: Individual Tiers Perceptions of the SAAL NRM Board



Source: SAAL Study

6.6.1 Roxby Downs and Andamooka

Roxby Downs and Andamooka workshop participants reported they did not have sufficient knowledge to respond to the strength of the Board's governance, leadership, human resources, financial resource and physical resources capacities. The participants were reluctant to respond to the governance indicator, stating they had "no idea" whether the Board had governance structures and processes in place to ensure good business practice. In addition when responding to the 'strategic direction' indicator, participants reported they considered the Board to have a very 'strategic approach towards its NRM program' as it would be a requirement of the NRM Council, but this was of minor importance to the Roxby Downs and Andamooka participants, who felt that "a more action-orientated approach was needed" to address community based natural resource management.

In relation to the Board's leadership skills to deliver its NRM program and their ability to build networks and relationships, participants were unable to draw any real conclusions except to say they "assumed the board had leadership skills and the ability to form networks", as they had little if any knowledge of the Board.

6.6.2 Gawler Ranges

Gawler Ranges workshop participants were unable to respond to the Board's governance, physical and knowledge resources capacities. Of the remaining capacities, networks and relationships and financial resources were identified as being moderately weak. For example, Gawler participants reported "The Board has people who can build networks and relationships, but the quality of networking requires improvement" and "When the NRM Groups form, the Board will then have the necessary connections required for building strong networks and relationships throughout the region", as well as "Whatever the political connections, they need to be 'fed from the bottom up' rather than top down". Strategic direction, leadership and human resources were marked as medium priorities for action; however, it must be noted that participants reported low confidence in responding to the indicators.

Gawler Ranges participants reported having had no idea as to whether the NRM Board had governance structures and processes in place to ensure good business practice. One participant asked "Is the Board directly under the Minister....we are not sure?" Further, participants recognised the Board had people who could build networks and relationships, but they claimed the quality of networking required improvement. It was thought when the NRM Groups form, the Board would benefit immensely, as they would then have the necessary connections required for building social capital throughout the region.

Participants also made assumptions as to the Board's competencies in human resource management, stating they "don't really know" because they had not met the Board.

Notwithstanding, it was thought that the Board did not have the financial resources it needed to deliver NRM programs in accordance with its NRM plan. Participants commented "the Board started off with money.... but now they are saying they do not have any money at all" and "we don't know what their plan is...so from our perspective, it is all guess work". In relation to the indicator

'NRM Board has people with competencies in financial agreement' the participants declined to respond, saying they "wouldn't have a clue". Similarly, the participants were confident in reporting that they did not know whether the Board has the facilities and equipment it requires to deliver its NRM program or knowledge resources to meet the needs of regional natural resource management.

6.6.3 Oodnadatta

While Oodnadatta participants had difficulty responding to the Board's overall capacities they did attach a value to the networks and relationships indicator – claiming it to be moderately weak yet a high priority. Interestingly, while the participants were disinclined to assess the Board's capacity, they were free with their commentary regarding their opinions of the SAAL NRM Board. For example, participants reporting having no idea as to whether the Board has governance structures and processes to ensure good business practice, stating they (the community) "did not have any information" regarding the Board.

Participants also assigned a value to the Boards' knowledge resources. The participants considered the existence of 'relevant knowledge' as being important for natural resource management, stating "we need to remember the importance of relevance and applicability of the information" adding "there is sufficient information, albeit not entirely complete". Moreover, there was uncertainty as to how much access the Board has to "correct information." It was questioned whether the Board had access to people or organisations that create, enhance and transfer NRM knowledge and information. Participants said that the Board should assess its knowledge resources through a consultation process with communities, since community members may have considerable practical knowledge.

When it came to considering the Boards capacity to build networks and relationships with communities, participants were quite vocal stating "the Board does not have the networks and relationships necessary to deliver its NRM programs". They further claimed "there has been a lot of angst generated in the community due to the time it has taken for the Board to form ... and that the Board was still finding its way" participants stating the Board "was still finding its way after twelve months or more." Participants reported the Board was too top heavy in its representation,

claiming “too many government agencies were represented” which prompted the participants to question whether NRM was going to be “community driven”.

In relation to political connections to deliver its NRM program, the Board was said to have “strong connections with the Minister”, but apart from the Minister, participants were unsure. It was claimed by participants that the Board did not have any “real farming connections” and this caused participants some concern, particularly given they were uncertain of the Board’s selection process. Further to this, participants were uncertain whether the Board had a strategic approach to its NRM program since they had not had any dealings with the Board.

In relation to whether the Board has strategic thinkers, the participants were again reluctant to respond to this indicator apart from saying “there are definitely some members who are strategic thinkers” and that “it is important to have a mix of people on the Board that reflect the roles of the Board and bring different skills to the table”.

6.6.4 Northern Flinders

Northern Flinders workshop participants were only comfortable with scaling the Board’s networks and relationships (moderately strong) and financial resources (moderately weak) capacities. Networks were considered a medium priority and financial resources were a high priority for the participants.

Participants were uncomfortable commenting on the Board’s governance capacity except for saying “we would hope they have governance structures and processes in place to ensure good business practice”. In addition, while the participants stated “they had no idea whether the Board has networks and relationships to deliver its NRM program”, they would expect that “members of the Board could build networks”. The Board was “pretty” connected with government, but it really needed to become “connected with the community”. Again the emphasis was on an organic engagement process, “starting at the community level and then taking it to the politicians at the State/Federal level.” (It must be noted that the moderate rating was not a true reflection of the Networks and Relationships capacity since the participants declined from ranking two out of the three indicators relative to this capacity).

In general, the participants were unsure whether the Board had a strategic approach to its NRM program nor were they able to comment on whether the Board had strategic thinkers. However, participants were clear in stating that they considered it important for the Board to have strategic direction and strategic thinkers. Leadership too was a gray area for the participants, who reported “they assumed that the Board would probably have members with leadership skills”. They based this premise on the fact that the members volunteered their services and some of them had previous experience on the Soil Boards. Conversely, a number of Board members were reported not to be “living in the region” and this was a problem for some members of the community.

Participants were reluctant to respond to the human resources indicator, stating they did not know if the Board had people with competencies in human resource management. Similarly, participants were not comfortable responding to the statement regarding the Board’s financial resources and whether it had people with competencies in financial management. Participants were also unsure whether the Board had information about the natural resources in its region to support its NRM program. Having said this, they commented that they “presumed they have the information they require” and that this information was “correct” and reflected not only scientific knowledge, but also the local knowledge of their regional environmental landscape.

6.6.5 North Eastern Community (Mannahill)

Locals were not privy to what was happening with the Board and therefore felt they were compelled to say they had no idea as to the Board’s governance capacity. The participants reported “Local people were not confident the Board would be forthcoming with information” and while they thought the quality of the Board’s networks and relationships was weak they concluded the Board’s political connections were strong.

Participants reported “here has been a lack of consultation by the Board on important issues such as naming of Arid Lands”. Participants reported the name ‘arid’ was associated with non-productive land. It was claimed the previous name used to identify the area - ‘Rangelands’ - was the preferred title and the Board should never had changed the name of their region.

Interesting, participants reported the Board as having strong political connections with the Minister, government agencies and local Indigenous groups, but its connections with private enterprise, community organisations, land managers and local contractors required strengthening. Having said this, the participants then remarked that the Minister, government agencies and Indigenous groups “have far too much influence on NRM decisions”.

Another concern for the participants was what they considered to be a lack of practical action being undertaken at the community level. Participants reported, “The Board develops strategic priorities, but it has difficulty transforming strategy into action, monitoring direction and progress and remaining focussed on strategic outcomes”. Moreover, it was claimed “it was important for the Board to consult locals during the preparation of NRM policy. They need to acknowledge long-term business acumen of local and, in order to regain trust, be prepared for ongoing relationship building”.

Participants were unsure whether the Board had strategic thinkers and they felt they could not comment as to its leadership strength, as they (the participants) “were unfamiliar with the Board’s selection process and criteria”. In relation to knowledge resources, it was thought the Board had information about the natural resources in its region to support their NRM program, but it was stated “they (the Board) rarely refer to earlier plans and incorporate their findings into new initiatives”. For example it was claimed the Board should have incorporated the earlier North East Soil Board Plan and Arid Areas Water Plan in their NRM plan. It was unclear to the participants as to whether the Board had access to people or organisations that create, enhance and transfer NRM knowledge and information. It was thought the number and range of training programs available to local communities needed strengthening.

6.7 SAAL Communities Perceptions of the Organisational Tier

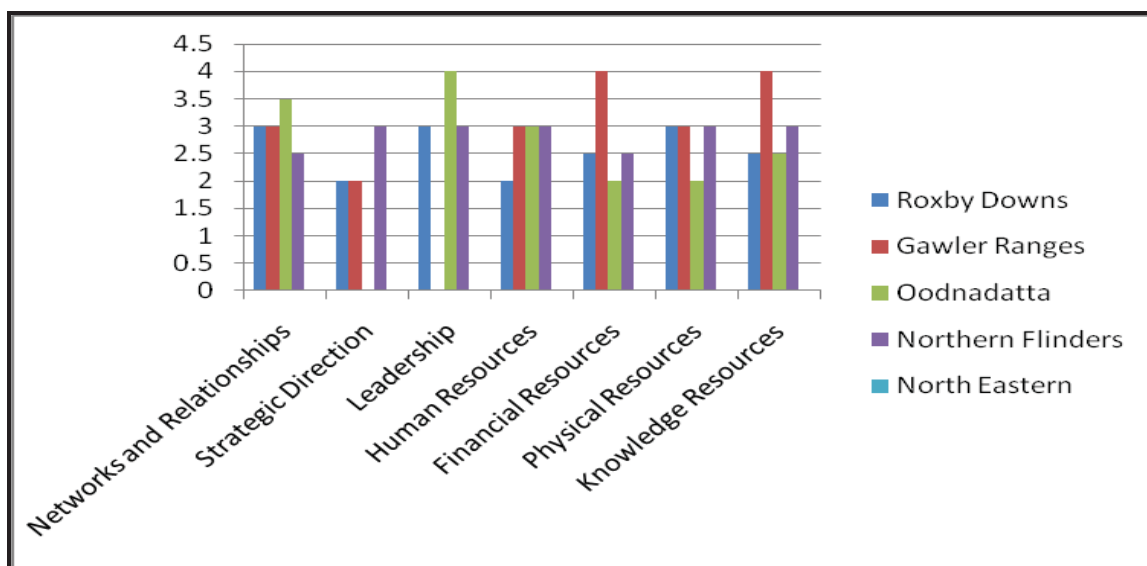
Across the region, all but one of the communities concluded they could comment on the organisational tier of community based natural resource management. The North Eastern Community declined to comment on organisations in their community on the grounds that they were unsure whether these organisations were involved in natural resource management. Apart for this one exclusion, community participants in the remaining four communities reported

organisations were overall strong in their capacity to participate in the delivery of community based natural resource management.

6.7.1 Roxby Downs and Andamooka

Roxby Downs and Andamooka participants contended that the Organisations in their community had the necessary networks and relationships to deliver NRM programs as well as the networkers to improve these relationships (see Figure 6.7). In relation to strategic direction, participants reported organisations in their community had developed their own plans regarding natural resource management and their goals did not necessarily promote existing planning and initiative. It was reported community groups/organisations would benefit from formal leadership training.

Figure 6.7: Communities Perceptions of Organisational Tier



Source: SAAL Study

Participants claimed human resources were weak in Roxby Downs and Andamooka, claiming people were overworked and had little time to volunteer on an ongoing basis. As well, participants noted there was an uneven distribution of financial capacity within the district. For example, it was reported “some organisations have more resources than others, in particular those organisations around Roxby Downs...and further...while organisations have competencies in financial management, some need extra funds to undertake natural resource management”.

With regard to information and knowledge transfer, participants reported they have information about the natural resources in their region and access to knowledge brokers at different community levels, but a number of organisations do not have adequate training programs to achieve their NRM objectives. While training was identified as a weakness, it was of minor importance to the Roxby Downs and Andamooka communities.

In summary, Roxby Downs and Andamooka perceived those organisations in their community who were involved in natural resource management capacities to be moderately strong or strong, with the exception of strategic direction and human resources which were considered moderately weak. Strategic direction was a high priority, and networks and relationships and leadership capacities medium priorities for building. For example it was reported “organisations in the community have networks and relationships to deliver their NRM programs as well as the networkers to improve these relationships”.

6.7.2 Gawler Ranges

Gawler Ranges workshop participants perceived the Organisational Tier’s strategic direction capacity to be moderately weak, but it was only of low importance and hence low priority. Financial resources were identified as strong capacity. Interestingly, it was reported “organisations in the community have networks and relationships to deliver their NRM programs”. Interestingly, Gawler Ranges, when commenting on Strategic Direction, reported “Organisations in the community have developed their own plans and their goals do not necessarily promote existing planning and initiative”.

It was thought community members could benefit from formal leadership training and that organisations in the community had poor competencies in human resource management and that there was an uneven spread of financial resourcefulness across the region. It was also reported that organisations in the community have access to equipment they need for natural resource management and people who can safely use it.

6.7.3 Oodnadatta

Oodnadatta participants considered they had the people who could build networks with the wider community and that they had the skills necessary to build rapport between the community, NRM Groups and the Board. While the participants were unable to say whether organisations in the region incorporated and promoted existing planning and initiative, they did report “the previous Soil Board had a district plan, in relation to the South Australian Arid Lands NRM Board; they would have to wait and see”.

It was thought organisations in the community have the necessary people with leadership skills to achieve their NRM objectives. However, it was noted that there were “lots of chiefs”, and there was a need “for more Indians”. It was also stated that while organisations in the community have people with competencies in human resource management, many do not have the financial resources or facilities necessary to achieve NRM objectives.

Equally concerning for the participants was what they considered to be a lack of information about natural resources in their community to support their NRM objectives. Participants did not agree that perhaps some organisations did have information, but that they may not have recognised it as NRM information. It was commented that the Board would need to ensure the information is two-way, not simply coming from the region, and that a collaborative effort would be required to ensure ongoing commitment from the community.

6.7.4 Northern Flinders

Overall, Northern Flinders participants identified strengths across all of the Organisational Tier’s capacities. Participants reported organisations in the community had people who could build networks and relationships to deliver the region’s NRM program. Participants stated that in their community the Progress Association had some interest in natural resource management and therefore the Association could act as a conduit for building the necessary networks and relationships in the district to assist in the delivery of a NRM program. With regard to leadership, participants reported organisations within their community had the necessary people with leadership skills to achieve NRM objectives, making the observation that “there probably wouldn’t be any organisations without someone having leadership skills”.

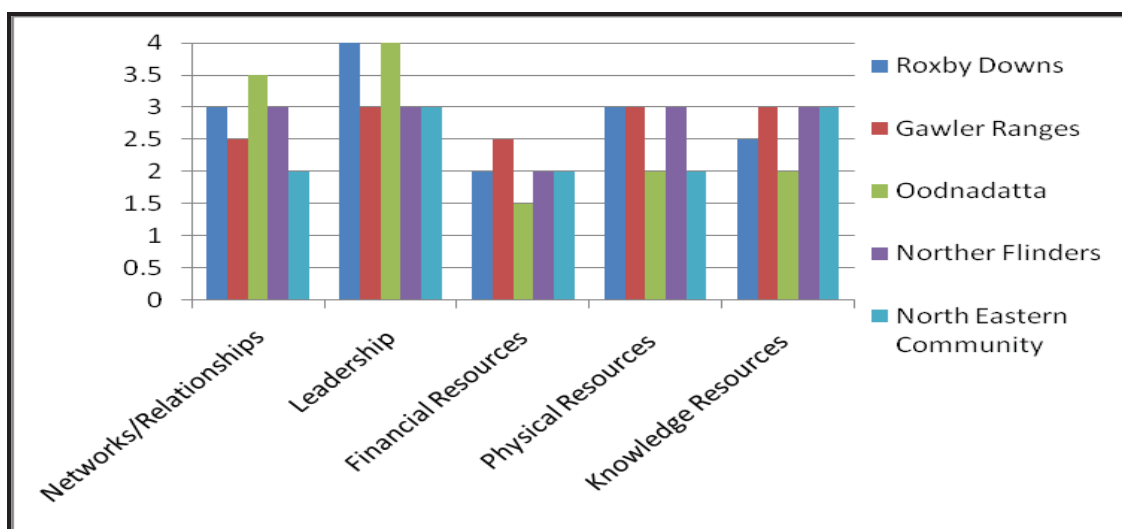
Participants recognised that organisations in their community had people with companies in human resource management and they also considered their community to have people with NRM knowledge. They also recognised that organisations in the community had access to people or organisations to create, enhance and transfer knowledge and information, a case in point being the recent dealings between the Progress Association and the recent Soil Board.

Notably, participants thought that organisations in the community did not have the financial resources to achieve NRM objectives. Participants stated “you can never get enough ...there are plenty of things to spend money on ...and we don’t have independent financial resources, we have to access finance through funding opportunities”. Interestingly, financial resources, leadership and physical resources were identified as medium priorities for this community.

6.8 SAAL Community’s Perceptions of Individual Tier

The self-evaluation process proved to be an interesting process for community participants. The following workshop analysis provides a synopsis of each community’s perceptions of their own capacity to meet the necessary requirements for community based natural resource management.

Figure 6.8: Individual Tier (Community) Perceptions of Self



Source: SAAL Study

Figure 6.8 illustrates that overall the SAAL communities considered they had reasonable capacity to meet the needs of regional natural resource management. Roxby Downs, Oodnadatta and the Northern Flinders communities all identified above average capacity in relation to networks and

relationships, while Gawler Ranges and North Eastern communities were less sure of the strength of their networks and relationships. The only resource capital which caused a major concern for all participants was financial resources.

6.8.1 Roxby Downs and Andamooka

Roxby Downs and Andamooka workshop participants perceived each of the Individual Tier's NRM capacities to be moderately strong or strong, with the exception of financial resources (moderately weak). Networks and relationships and knowledge resources were medium priorities, and financial resources were a high priority.

Participants reported "the people in the Roxby Downs and Andamooka communities have strong but informal networks and relationships". It was thought the informality may pose a problem for achieving NRM objectives, particularly since it was reported that while there were local champions for NRM in the wider community – Roxby Downs and Andamooka, they "did not deliver consistent, positive and reinforcing messages to motivate people".

Financial resources were considered moderately weak, but extremely important for undertaking natural resource management. It was claimed there were insufficient resources and community members did not know where to access financial resources for natural resource management. However, when it came to having access to equipment resources, the participants claimed not only did they have access to equipment, but they could safely use work equipment as well. Whilst it was mentioned that not everybody had appropriate certificates for using machinery, everyone knew how to operate it.

Similarly, participants reported that information about natural resources existed in their communities and people had access to knowledge brokers. However, it was stated "people do not have training programs tailored to their needs" and that it was important that the Board consulted thoroughly with people before organising training programs so as to ensure the programs are suitable and meet the community's needs.

6.8.2 Gawler Ranges

Gawler Ranges workshop participants perceived the Individual Tier's capacities to be moderately strong or strong (Figure 6.8). Leadership and financial resources were medium priorities for action.

Participants reported that "individuals have the necessary networks and relationships; for example the Progress Association and its ability in build strong alliances with the wider community".

Notwithstanding this, the participants could not identify any NRM networkers in the community, stating that unless you were "someone in PIRSA" there really would "not be any cause to be a NRM networker". They added "we talk about NRM but in a disorganised way and we can always get information from the Board if we need it".

In relation to leadership, participants identified 'one' local champion in the district, but it was commented "not everybody in the region knows him". After coming to this realisation, the participants claimed "there is a need to build leadership skills in the community".

With regard to whether community members had access to financial resources, participants reported that most did, and if they were unable to access such resources in the first instance, they would "use their networks" to help the process.

6.8.3 Oodnadatta

Oodnadatta workshop participants perceived the Individual Tier's financial, physical and knowledge resource capacities to be moderately weak. Each capacity received a high priority rating.

Strong networks and relationships were said to exist in the community. Participants commented "they have a pretty strong community" and that members of the community "worked well together". They noted the importance of "pulling together" and sharing similar views, reporting that "unless everyone pulls in the same direction, small communities like Oodnadatta would not get much done". Participants linked working together to outcomes in a tangible way – they mentioned specifically the way members of the community worked together to get "the racing club built".

Local champions reportedly abound in Oodnadatta. Any one of their champions could put his/her mind to NRM projects. The only problem that the participants envisaged would be the government holding up their efforts in natural resource management.

In relation to financial services, participants were concerned about their individual capacity to implement NRM programs, as well as their ability to access financial resources for natural resource management. Firstly, it was reported an assessment should be conducted on the way funds were spent. For example, it was claimed “efficiencies were not achieved and there was a perceived waste of resources in certain sectors”. Secondly, it was claimed “funds need to be redistributed in a way that addresses the true regional priorities”. Moreover participants claimed “there was a lack of capacity in sourcing financial resources for natural resource management”. Participants commented there “was a need for a ‘conduit’ so that there will be a flow of information regarding accessing financial resources” available to them. Participants saw this as a resourced position within their community, i.e. “someone who could spend time doing this”.

When asked to respond to the physical resources statement, participants stated “the day-to-day physical resources required to achieve a lifestyle equivalent to urban cousins were difficult to access” and while broadband facilities were reasonable, individuals sometimes have poor telephone access and this often made life difficult for them. In addition, participants commented they were “unsure of what physical resources they would need to undertake natural resource management”. It was thought there was a “lack of human resources” to help provide the information individuals required so that they could get funding, advice and assistance on accessing physical resources for natural resource management.

While information about natural resources was said to exist in Oodnadatta; it was reported that there was a need for “further research to be done”. Participants claimed “we have not seen or met the local natural resource management officer”. Again it came down to a lack of information – it was considered “that there was still need for extra information and this is where the problem occurs, who and where”. Further, participants claimed there were few opportunities to undertake NRM training. It was stated “only one program has been provided in the past and what training

opportunities were available were offered at short notice and often some distance from Oodnadatta”.

6.8.4 Northern Flinders

Northern Flinders workshop participants perceived all the Individual Tier’s capacities as moderately strong or strong, with the exception of financial resources (moderately weak). Financial resources were a high priority and physical resources were a medium priority

Participants reported that community members “have the necessary networks and relationships to achieve natural resource management objectives”. “We have plenty of networkers in our community who can communicate local needs and disseminate NRM knowledge and information to land managers”. Participants linked strong leadership with the transference of knowledge and information about natural resource management throughout the community.

With regard to financial resources participants commented “there was a gap between resources available and the financial resources required for natural resource management”. “Seasons (weather) and personal circumstances” will “dictate the availability of financial resources to be used for implementing natural resource management”. In the past, community members would go through the Soil Board to apply for funding – and they (the Soil Board) would soon advise whether the funds were available. Participants don’t expect the same will happen with the Board.

When asked to respond to the statement about physical resources, participants claimed “people in the community have access to the equipment they need to achieve their NRM objectives; it was just that they might not know that it exists”. It was thought one way to ensure that every one was made aware of the available equipment was to advertise the fact to the community. In regard to people being able to use the equipment safely, participants said “whilst people would be able to use the equipment in a safe manner they may not hold certificates for doing so”.

When it came to information and natural resource management knowledge participants reported information about natural resources existed at the local level in the Northern Flinders region. Participants reported that they had “local knowledge” and this has held them in good stead;

however, there have been times when they needed what they called “targeted information”. It was at these times participants claimed “that community members would access organisations or other individuals exogenous to their community to enhance their NRM knowledge and information base”.

6.8.5 North East Community (Mannahill)

The North East workshop participants identified the Individual Tier’s networks and relationships, financial resources and physical resources as high priorities for capacity building in their sub-region.

Participants reported “the networks and relationships between people in this community need strengthening”. It was claimed there was little flexibility, transparency, trust and reciprocity in decision-making. For example, it was claimed “pastoralists feel outnumbered by conservation representatives in natural resource management issues”. Moreover, it was reported “information flow from the Board to the local region was inadequate” and “we don’t see it as our role to impose a particular view about NRM, but we are willing to pass information along that might be helpful to neighbours in an informal way”.

Further participants claimed there were few local champions for NRM in the community.

Participants reported “people express their opinion but they were outside of formal meetings” and “there were more equal contributions rather than a few stand out individuals”.

It was thought the financial resources to support people, run activities and supply and maintain equipment required strengthening. Participants lamented, “the Board has not communicated where and how to access funding and other resources for natural resource management”. There was a general perception that assessing funds was often related to the amount of assets one has. Those with more assets were likely to attract more funds than those with fewer assets.

Participants claimed that while they had access to physical resources such as telephones and computers, not everybody had the necessary work tools to achieve their natural resource management objectives. For example, it was thought access to vehicles, video conferencing, and on ground works tools needed strengthening. With regard to knowledge resources, the participants

claimed, “community members were content with the accessibility, amount, consistency and quality of information on natural resource management”.

6.9 Findings from Observations and Assessment Process

As expressed in Chapters 1, 3 and 4, increasing attention has been paid to the changing attitude of communities to sustainable development over recent years, in particular natural resource management. One of the recurring themes of this literature is the importance of an integrated approach to environmental management. Natural resource management worldwide has diverse meanings and is a complex set of perspectives and ideas that are often difficult to define. As illustrated above, participants in this study provided insight into the understandings, values and beliefs which underpin community based natural resource management. Much of the assessment process revealed a divergence of perspectives was experienced by outback communities and the South Australian Arid Lands NRM Board with regard to natural resource management. Moreover it became apparent that there was a considerable departure in views over the roles of each group, and type of governance and engagement necessary for successful natural resource management. The results of the this assessment process suggest that most community participants remain at best relatively circumspect about the future of community based natural resource management in their region, largely in recognition of the poor community engagement and a top heavy governance process adopted by the SAAL NRM Board.

The following discussion highlights those divergences in community perspectives as to their capacity and that of the Board’s capacity to undertake community based natural resource management. The strength of perspectives is demonstrated by way of maps that highlight the degree to which each community, including the Board, agreed with the statement. For example ‘Non-existent’ stands for unable or unwilling to respond to Likert scale statement. ‘Neglect’ insinuates strongly disagreed with the statement, ‘Inadequate’ represents disagreed with the statement, ‘Adequate’ signifies agreed with the statement and ‘Good’ portends strongly agreed with statement.

6.9.1 The Challenge for Building Strong Networks and Relationships

As the assessment process unfolded it became apparent that different perceptions existed as to why poor networks and relationships existed between the Board and the wider community. In most cases community participants claimed the Board had not engaged with them, while the Board considered they had attempted to engage, but it may not have been as successful as they had wished. Networks rarely just happen; they must be developed and maintained to achieve successful community based responses to project delivery. For example, Board members purported that a major factor for not creating strong networks between themselves and the wider community had come about because of the ‘tyranny’ of distance. This argument however, did not resonate true with community participants, who claimed the Board had been up and running for over twelve months and therefore had time to meet with communities, particularly when conducting their Board meetings across the region. The Board’s response was to say it had been “caught up” in establishing itself and its processes and did not have the time to engage with communities. The Board recognised (somewhat reluctantly) that it was necessary to build networks with the community, but thought this could be something the NRM groups would be better at doing. Not surprisingly, community participants reported a poor level of trust existed between themselves and the Board. Feedback from the participants indicated community participants put a lot of emphasis on building trusting relationships, and they expected the same from the Board.

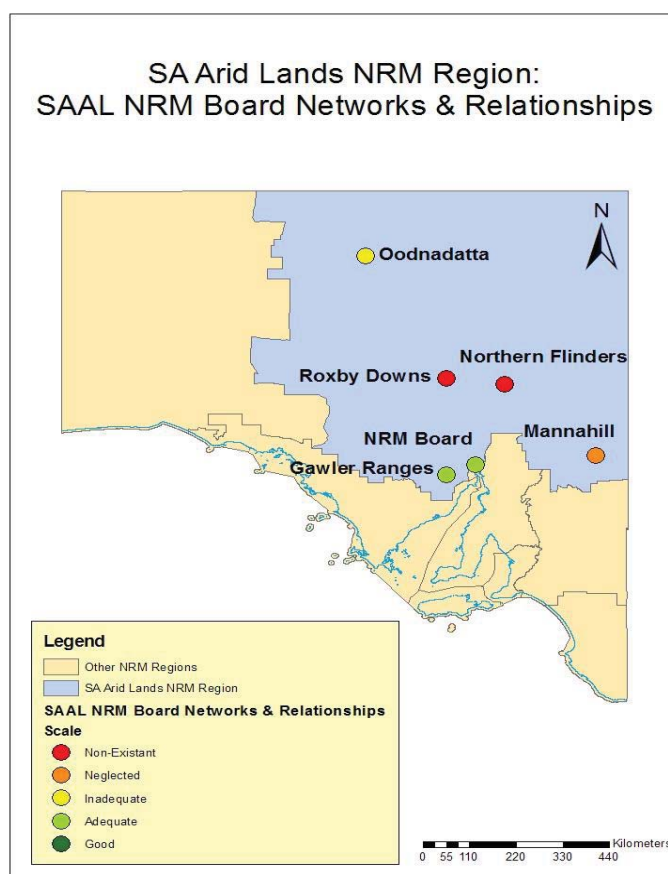
The lack of trust was exacerbated by the breakdown of previous natural resource management networks. These networks had developed over many years due to the operations of the previous Soil Board. The role of the Soil Board (which was similar to that of the current NRM Board) became redundant when the present regional NRM framework was put in place. As one participant reported:

Individuals and organisations in this community have strong networks. There is however considerable resentment over the disintegration of many networks due to the closing of the Soil Board and the introduction of the current NRM framework. Some organisations, e.g. Friends of the Park see themselves as outside of the NRM system.

Participants in Oodnadatta, Roxby Downs and Andamooka participants reported that they would have preferred if the Board had been built on the established and trusted organisational networks that were already in place and that had been developed by the now defunct Soil Board.

Participants claimed that today there are networks and relationships in the area to deliver NRM, but the quality of these networks is lower than it was before the introduction of the Board. Many previous networks have been displaced or disappeared altogether.

Figure 6.9: SAAL NRM Boards Capacity to Build Networks and Relationships



Source: SAAL Study

Participant comments were consistent with observations made by Marshall (2008), who reported people involved in community based natural resource management should be directed as far as possible through the structures with which landholders are already involved, rather than creating a new raft of structures that would stretch their capacity, i.e. to commit and/or engage in natural resource management even further (Marshall 2008:34). Even though pre-existing trust-based

relations between communities and organisations existed and made establishing networks easier, equally these relations proved to be an obstacle to building new networks.

Figure 6.9 represents the perceptions of each community as to the Board's capacity to build networks and relationships. Apart from the Board which considered itself to have an capacity to build networks and relationships, Gawler Ranges was the only community which thought the Board had adequate networks and relationships and was capable of building relationships with the broader community. Mannahill (North Eastern) participants considered the Board to be neglectful in its attempt to build networks and relationships, while Oodnadatta considered the Board to be inadequate in its capacity to build networks and relationships. Roxby Downs/Andamooka and Northern Flinders were both of the opinion that there was no evidence that the Board had the capacity to build networks and relationships. These results are less than flattering and support the evidence provided by Lawrence (2004:16) when citing Taylor 2004 who claimed "Social networks are the foundations of society and provide the basis for more formal arrangements of government" and "...social networks are to be nurtured and promoted to harness social capital and to foster social inclusion".

Mannahill tended to be more sceptical about the strength of their social networks and relationships. For instance participants considered the networks and relationships that existed in their community needed strengthening. Their main concern being what they perceived to be a tendency for community members to be inflexible. Participants also reported a lack of transparency, trust and reciprocity in decision-making appeared to exist within and between some interest groups within their community. For example, participants reported pastoralists felt outnumbered by conservation representatives in NRM issues. Information flow from the Board to the local region was considered inadequate. Community members did not believe it was their role to impose a particular view about NRM, but they were willing to pass information along in an informal way that might be helpful to neighbours.

Participants across all of the communities reported that when the Board negotiated with the community it would need to be flexible and transparent. Moreover it was considered that the Board

would need to be transparent in its dealings with the communities and its decision making processes, based on current opinion, required strengthening.

Mannahill participants' comments that it was important that the Board did have strong networks and relationships to deliver regional NRM were reflected across the broader SAAL community. They reported being "not aware of NRM programs in the area" and this they claimed was due to the "lack of networks" with the Board. They questioned the purpose of the Board, stating a lot of effort was put into previous programs (run by the Soil Board), and to date they had not had any feedback on submissions for the draft interim NRM plan...without the necessary networks with the Board; they perceived the draft interim plan was yet to be acted upon.

The lack of engagement by the Board did not aid the development of trust between the Board and the regions communities, hence jeopardising the expansion of social capital between the Board and communities across the SAAL region.

6.9.2 The Role of Trust in Building Networks and Relationships

The few attempts at building bridging networks by the Board were complicated by the lack of trust afforded the Board by the SAAL communities. Howden (2006:26-27) argues a "social capital approach which recognises that network systems can interact frequently and where building a system for future interactions (or even as an end in itself) is a benefit in itself". Trust was considered by community participants as a critical element in the formation of networks and relationships since it influenced the degree to which these networks and relationships operated. Trustworthiness calls for an individual to have faith in the aptitude, integrity and character of another individual or individuals (Howden 2006:20). The poor level of trust by the broader community with the Board was attributed to the lack of engagement by the Board and a general feeling of being 'excluded from decision making processes'. Warburton's (1998) argument that the lack of faith in community groups by government officials only broadens the gap for promoting effective change was evident in this study.

Clearly, to be effective, particularly when relying on some level of cooperation from the community, it is important that the Board operates in ways that fosters the development of trust and confidence

in public institutions (Petris 2005 cited in Howden 2006:21). Support for the proposition that trust in management is a key element in an individual's decision to share knowledge (Sharkie 2007) reverberated across the Arid Lands. Sharkie (2007) contends that trust and the consequent willingness to work with another party are needed before individuals are willing to share their knowledge. At the time of writing the Board had yet to create a 'trusting' relationship with the wider community. The folly of the Board not to build trust and strong networks with communities has caused significant constraints for the immediate, and possibly, future regional natural resource management.

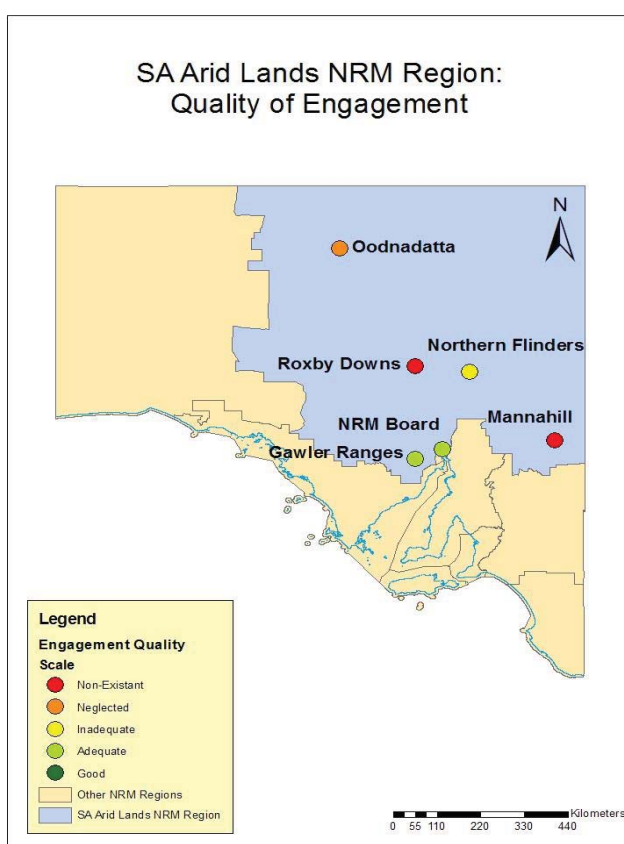
The study illustrates and reinforces the extent to which landholders in such remote destinations assign a high level of importance to building strong networks and relationships. Crowe (2006:577) recognises "[N]etworks involve the nature of ties within the community and between the community and its broader regional and national interests". Further, in the form of both strong and weak ties, networks assisted the exchange of information among groups as well as connected organisations within and between communities (Crowe 2006) throughout the arid lands NRM community.

Consistent with the works of Coleman 1988; Putnam 1995; Putnam 2000; Putnam 2004; Putnam and Portes 1998 and Aslin and Brown (2004) this study illustrates that a direct correlation exists between trust, reciprocity and networks (all components social capital) for building strong and durable relationships. The results of this study also point to community engagement as being pivotal for building trust between communities and those agencies administering natural resource management. Trust and social capital are regularly talked about in such a manner that one could be forgiven for thinking that both concepts go hand in hand. Indeed, this research highlights that neither concept necessarily jointly exists. Indeed, in order to build the glue [the trust necessary to forge networks and relationships] there is one valuable step that needs to take place and that is holistic engagement. It is holism that is a process which provides opportunities for all peoples who have an interest in a project to be presented with an opportunity to be involved/engaged in the project.

6.10 Community Engagement and Managing the Environment

Figure 6.10 illustrates the perceived 'quality of engagement undertaken by the Board' across the region. Community participants reported that if community engagement had been carried across the arid lands by the Board, then it had not been inclusive enough, because they were unaware of it. Participants also reported that 'community engagement' was a part of everyday business for communities across the region.

Figure 6.10: Quality of Engagement Undertaken by the Board



Source: SAAL Study

The level of importance attached to community engagement further explains the behaviour of the Board, who as it came to realise (by working through the capacity statements) that their performance had been mediocre were keen to manipulate or stage manage their responses, so as not to look deficient. For example, early into the assessment process the Board adopted what Goffman describes as a 'face saving' exercise when responding to statements concerning

community engagement. As one Board participant said “We need to be careful how we answer these questions” while another stated: “If we are going to make a point, we need to be careful how we say it – after all we have only been operational for a while – it is not our fault if we have been unable to connect with the region”.

Interaction, including face saving behaviour, is shaped by the environment and the audience and is constructed to provide others with impressions that are consonant with the desired goals of the actor, Goffman (1971) – in this case the Board wished to be seen as meeting its commitments to regional delivery of natural resource management.

As the workshop progressed the Board recognised that there had been numerous opportunities for engagement with the broader community that they had not pursued, conceding there were “areas for improvement” and that they “should instigate more meetings and workshops” as this, it was perceived, would rectify the problem. Moreover, the Board considered that when the NRM Groups were “up and running” the problem of engagement would be somewhat reduced and “take the heat off them”.

Not surprisingly, when asked about the Board’s capacity to engage and share information, community participants raised concerns about what they believed to be “a lack of interest for sharing information and bringing people up to speed with the functions of the Board and the proposed integrated approach to NRM”. For example, Roxby Downs and Andamooka community reported:

Capacity for NRM may exist, although sometimes actions don’t happen. Public meetings are limited...there is a lack of communication... and ...if we were informed about meetings we would attend....

In addition, it was claimed by community participants the Board had representatives from each district, and that to date these people had not engaged with community members if you were not associated with the Soil Board (now defunct) then you are not likely to know about opportunities for NRM.

Participants reported, "People would accept opportunities if there were some" and "There are a lot of people who have come to the district that are interested in NRM".

Of particular interest to this study was the degree to which participants reported feeling undervalued, giving weight to their perceptions that there appeared to be a lack of interest from the NRM Board to meet and greet community members. A meet and greet approach would, it was thought, provide opportunities for the Board to seek feedback from community members as to their willingness to participate in future NRM projects. It was clear from the assessment process that community participants were taking natural resource management seriously, and this fact they considered had been overlooked by the Board as it had not met with communities to discuss their concerns regarding environmental sustainability and natural resource management. Participants made quite clear their desire to be involved in discussion and consultation regarding the development of a regional NRM plan.

...we have missed out on opportunities to be involved.

A newcomer to the region reported:

We noticed when we came here that there was a void re opportunities to be involved in NRM... andif the Board is anything like the Soil Board then it will function like a 'secret society'.

By assuming communities were not interested in natural resource management simply because they had not contacted the Board, the Board had, by default, formed a negative opinion of the communities responsiveness - labelling them as 'disinterested' in natural resource management. This behaviour by the Board typifies what some theorist's identify as a 'labelling theory'. First coined by Albert Cohen in 1955 and further developed by Cloward and Ohlin in 1960, labeling theory is applied to create categories of deviance. In this instance, the Board perceived a lack of interest by the communities to contact the Board as symptomatic of communities that 'did not care'. For example, Board members inferred several times throughout the workshop that it was the responsibility of landholders to make an effort to meet with the Board. For example:

Because a number of landowners need to travel large distances to attend meetings in regional centres they (community members) do not make the effort... and...a greater effort needs to be made by community members...to engage with us.....

A consequence of this labelling behaviour was the creation of a cleavage between how community participants and the Board felt about natural resource management and in particular, the role of the community in managing the environment. This gulf exposed a dramatic failure by the Board to recognise the strengths of the community, the strong networks that existed and the extent to which they could have used these networks to build trust with the broader community. This split created a sense of alienation which was shared by all community participants across the study area.

6.10.1 Disengagement – A Product of Poor Community Engagement

Across the region communities were alienated from the Board. The Board is seen as “something imposed by Government”. When the Board was established participants reported feeling that there had been little recognition of the NRM work that had been done by groups and volunteers in the past. Participants across all communities claimed, many of their NRM champions had become displaced by the new structure and participants felt that their contribution had not been valued and that they no longer had a voice.

Based on these findings, there is a strong likelihood that over time if relationships between the Board and community members continue as they are, participants will be less inclined to engage with the Board to the point where dialogue will be non-existent. Indeed, lack of engagement with stakeholders has meant that there is no ownership of local NRM plans, which has the potential to put at risk the community uptake of future on ground NRM works.

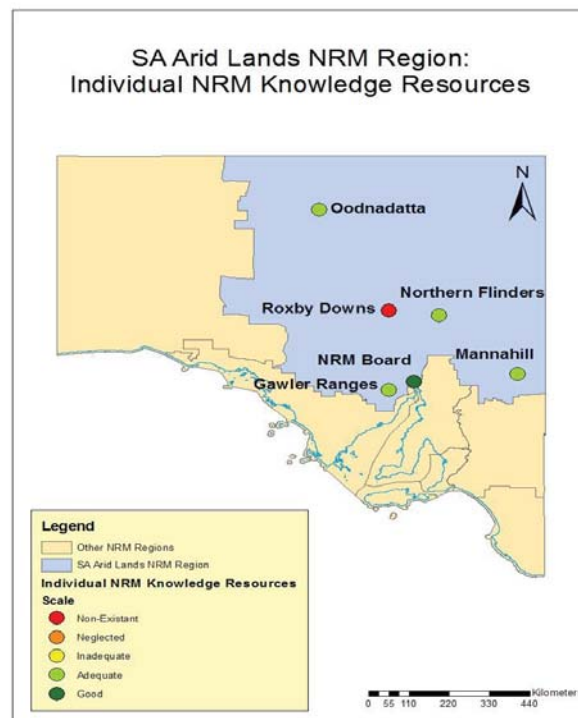
The idea that integration “relies on individual relationships which can be greatly enhanced when they are supported by structural relationships” Bammer (2005:5) is sadly lacking in the SAAL region. The study draws attention to the importance of “effective links between strategic policy, strategic planning and regional implementation [and how they can] substantially boost integration between different levels of government and on the ground action” (Bammer 2005:5). The challenge for pursuing community based natural resource management includes the need for

transparency, community engagement and civic governance. As the Board did not encourage any of the above, the transition towards engaging communities on natural resource management has been particularly slow. Ideally communities need to be engaged in regional NRM from the outset. Without early involvement by communities, the task of the Board to achieve transitional harmony, and interim and long term outcomes is severely put at risk - as has been the case for the SAAL Board. This conjecture clearly supports Farrelly's (2005) observation that it is important that all people interested in NRM should be invited to participate in regional NRM.

6.11 Building Knowledge Resources

While there was a large amount of accessible NRM information, the Board questioned the quality and relevance of the information. A lot of information was either not available or was irrelevant to the local context. For example, the Board did not have adequate access to local Indigenous knowledge. The Board reported having strong connections, state and federal knowledge brokers, and external advisory panels. Notwithstanding these links, the Board was concerned about the inadequate number and range of training programs to support its NRM program.

Figure 6.11: Individual NRM Knowledge Resources



Source: SAAL Study

Community participants reflected that the Board should assess its knowledge resources through a consultation process with communities, since it was considered community members have considerable local knowledge that they could share with the Board. These comments support Aslin and Brown's (2004) theory that local knowledge is integral to the management of natural resource management. They go further to add, that it is necessary to incorporate four knowledge resources, local, specialist strategic and holistic knowledge (see Chapter 4) to ensure quality community engagement. Figure 6.11 illustrates the strength of the communities' perspectives of their individual knowledge resource capacity. The Board was satisfied with its knowledge resource capacity and its ability to source information when necessary. Oodnadatta, Mannahill (North Eastern), Northern Flinders considered their knowledge resources to be either good or adequate for their needs. Roxby Downs and Andamooka participants claimed that while information about natural resources existed in the broader community, it was not very strong.

Relevant knowledge was considered important by community participants for natural resource management. Participants reported:

we need to remember the importance of relevance and applicability of the information... adding... there is sufficient information, albeit not entirely complete and we are uncertain as to how much access the Board has to 'correct information'.

Community participants described the availability and the sharing of knowledge across the region varied from one community to the next. It was stated that some individuals or interest groups had little or no information while others experienced information overload. In addition, participants expressed a desire to (i) share their knowledge with the Board and (ii) build upon their knowledge. They recognised knowledge was powerful and that without knowledge they were less likely to be able to lobby on behalf of their community or work with other stakeholders with confidence on matters to do with natural resource management. This concept of the relationship between knowledge and power fits Foucault's theory of the same. Foucault (1972) recognises the importance of how discourse constitutes knowledge and it constructs and regulates subjects (in this case NRM) and power relations in association with that knowledge

Fox (2000) too, recognises the significance of relationships and the exchange of information (2000:855) by arguing that in essence, newcomers must learn from old-timers and that newcomers should also make contribution to that knowledge. This is called 'legitimate peripheral participation', (Lave and Wenger cited in Fox 2000:855). In the case of the SAAL NRM community, it could be argued that by providing knowledge to communities and by participating in community meetings across the region, the Board had made an immediate contribution to knowledge and would have had an opportunity to be seen be a legitimate member of the local NRM community.

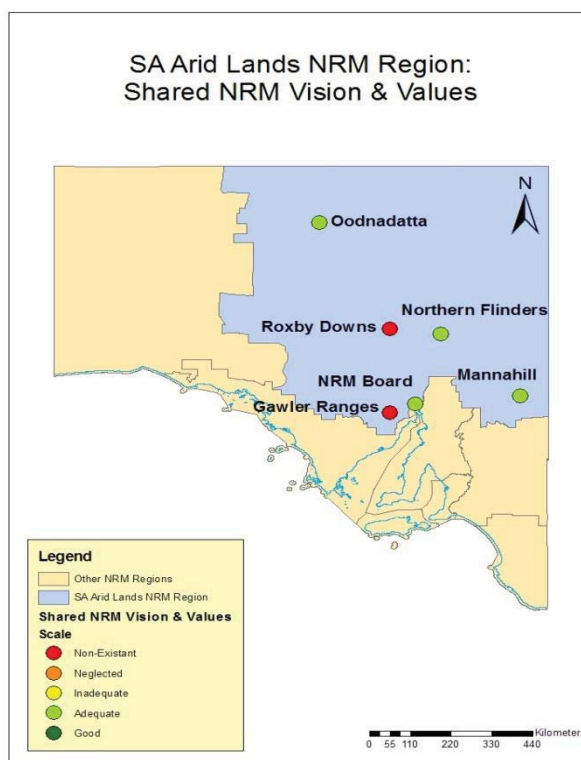
Collective learning or participatory action research (as it is often referred to) is one approach for individuals and organisations to become effective knowledge brokers. The study highlighted a need for the communities and the Board to build upon their existing knowledge base. Preferably this would happen through building strong relationships through a proven engagement process. Ideally the whole of NRM community would be provided with an opportunity to be involved in the development of a plan incorporating a knowledge-based system across all levels of organisation with the SAAL NRM community, i.e. Individual, Organisational and Institutional Tiers.

6.12 Values, Beliefs and Shared Visions

Along with engagement and sharing of knowledge, participants were asked to consider whether they shared similar values in relation to natural resource management and whether they have a shared vision for the region that is consistent with the region's NRM plan. Each community (excluding the Board) reported that while they perceived they individually shared similar values, beliefs and shared visions for natural resource management they were not sure whether their aspirations were similar to that of other communities.

While the Board reported having a vision for the regions' NRM plan, community participants were less than positive as to whether the community visions for natural resource management reflected that of the Board and to so degree each other . Consistency between shared visions and resource condition targets was considered moderate by the Board.

Figure 6.12: Shared Visions and Values



Source: SAAL Study

Recognising values (Botterill, 2001b; Gasson, 1973; Wilson, 2006; Grudens-Schuck et al., 2003), belief systems and shared visions (Herbert-Cheshire and Lawrence, 2003) is essential to understand the diverse views, values and assumptions of stakeholders regarding changes in landscape, land use and biodiversity (Solva, 2007:62). While knowledge, values and belief systems were considered important by participants and necessary for sustaining natural resource management, the degree to which they felt comfortable with the assessment indicator varied slightly across the region (Figure 6.12). Moreover, the study highlighted the differences in participants' opinions as to whether they 'valued Indigenous knowledge and Indigenous values' when it came to managing the environment.

6.12.1 Indigenous Values and Belief Systems

Generally individual communities stated they shared similar values and beliefs about the environment, but their appreciation did not extend to Indigenous values and belief systems (see Table 6.1 below). A worst case scenario was, for example, when the Board was asked to respond to the statement "NRM stakeholders value Indigenous knowledge and participation in NRM" - silence resounded throughout the room. Board members shuffled in their seats and looked to each

other for some sign of leadership and guidance. In all but one case, participants (communities and Board) were evasive in their response to the capacity statement. Participants were clearly uncomfortable and seemed preoccupied with the need for some 'political correctness' when answering the statement.

Table 6.1: Communities Value Indigenous Knowledge and Participation in NRM

Indigenous knowledge and participation in NRM			
Community	Value	Confident	Importance
Gawler Ranges	Strongly disagree	Extremely Confident	Important
Mannahill	Agree	Confident	Important
Northern Flinders	Agree	Confident	Important
Oodnadatta	Disagree	Confident	Minor Importance
Roxby Downs/Andamooka	No Response	No Response	No Response
NRM Board	No response	No Response	No Response

Source: SAAL Study

Table 6.1 demonstrates the quantitative responses by communities as to the value they assigned 'Indigenous knowledge and participation in natural resource management' and includes the confidence level by which they responded to the statement. The table also illustrates the level of importance the participants assign Indigenous knowledge and Indigenous participation in natural resource management. What the table does not highlight is the discussion that occurred at the time the participants were deliberating on how to respond to the statement. For example, participants were inclined to view Indigenous values as hampering and sometimes obstructive to regional natural resource management and, as a result, they claimed they were less likely to seek out Indigenous peoples for their input. Indeed, throughout the entire assessment process and across all communities (and including the Board) all participants were noticeably uncomfortable and reluctant to discuss matters to do with Indigenous values or knowledge. Comments below, and similar were made by participants across all but two workshops.

There is a lack of Indigenous people to consult ...and ...if Indigenous knowledge was valued, then they would be asked to participate in natural resource management.

Credibility of knowledge was also a concern for participants. With one participant claiming:

Past experience has shown very little sharing of knowledge and consideration of our knowledge of the land and the region – our knowledge is not valued.

Participants inferred that pastoral inter-generational knowledge was as important as Indigenous knowledge, with several participants claiming that their knowledge was in fact 'Indigenous' as history about the land had been passed down from generation to generation and was highly relevant since it was about the 'local' environment. Community participants likened Indigenous knowledge as being outdated or irrelevant, since most of the bearers of local knowledge (reportedly) did not live in the region.

The 'real' Indigenous knowledge around NRM has been lost now...the Elders have passed on and their knowledge is outdated to today's needs. People cannot just assume that all Indigenous knowledge is pivotal ...others have knowledge which has been gained by our experience on our land...

Just because they are Aboriginal they are assumed to have knowledge and this is not always the case ... however what valid information they have is important.

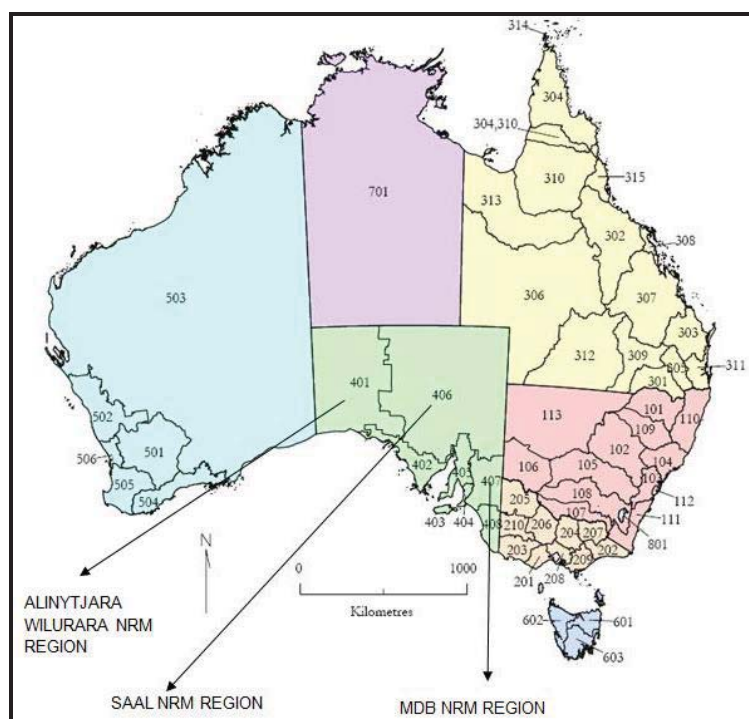
Would be silly if it wasn't valued – however, around here the real Indigenous knowledge around NRM has been lost – elders have passed on and so the validity of current claims about knowledge are questionable....

Concerns were also raised about newly arrived Indigenous people, and issues of claims over land. Community participants were unsure of the expectations of these Indigenous newcomers and were therefore cautious about making comment. Another point of interest that was raised by some participants, is the division of lands and the Alinyatjara Wilurara NRM region (Figure 6.13).

6.13 Alinytjara Wilurara NRM Region

Currently in South Australia natural resource management lands have been considered in terms of a 'region'. Figure 6.13 highlights the Alinytjara Wilurara (AW) NRM Region, its location in South Australia, and where it is positioned in relation to the two regions in which this study and the LMRIA study were undertaken. The remaining Indigenous lands in South Australia have been subsumed into the remaining NRM regions.

Figure 6.13: Alinytjara Wilurara NRM Region



Source: SAAL Study

Research shows that Indigenous communities in the AW Lands have fared well under the program with Lane et al. (2005:20) reporting "... separate, rather than 'mainstreamed' administrative arrangements had been established for the AW lands, [and as a result] this new legislation". "This situation has enabled the Alinytjara Wilurara people's needs and priorities to be considered on their own terms rather than being weighted against European-Australian concepts of, and needs for NRM" (Lane and Corbett 2005 cited in Lane et al 2005:20). The results of this study supports those views of Lane et al (2005:20) who state: " The remaining Indigenous lands will likely have to

struggle to have their particular claims for land management assistance recognised ... and views about natural resource management” (Lane et al 2005:20).

This study also supports the views raised by some authors about the lack of Indigenous consultation in community based projects, including natural resource management (Lane and Rickson, 1997; Lane and McDonald, 2005; Lockwood et al., 2009). A major theme throughout the assessment process was the lack of Aboriginal representation. Interestingly, the Board had not engaged an Aboriginal person to sit on the Board nor were they comfortable discussing any matters to do with Aboriginal views and belief systems. Similarly, whilst some community participants recognised the importance of Aboriginal knowledge there was an obvious ambivalence towards Aboriginal knowledge (as described above) and its relevance to local natural resource management.

6.13.1 A Vision for the Future

On the matter of whether NRM participants held a shared vision for the region that is consistent with the NRM strategic plan, the answer was defensibly ‘no’. A shared view of natural resource management did not exist for the region. Very few people had seen the NRM plan and were therefore unable to identify with it. Moreover, most community participants reported they while as individuals they had a vision for the future, they were unsure whether their vision was shared by the wider community. For example the Board recognised that the Conservation Council has a different vision to that of the pastoralists, stating:

people have views, although they do not always share them with others and often management actions are on a different level to the vision.

One community response identified a need for a shared vision but said it was too difficult to get people to agree:

You would think we would all have a shared vision. ...but you have to come to meetings to know...and of course people do not come to meetings ...in an ideal world it is important that we all have a shared vision – but this is not an ideal world.

While others reported:

Generally speaking concerns are shared, but that does not mean that we all share the same vision.

Participants did however report that over recent times a 'transition' in the way business was being undertaken was evident. It was reported that life in the outback had been driven by commercial interests in the past, but over time conservation had become an equal driver of change. This was particularly salient with the younger generation of pastoralists.

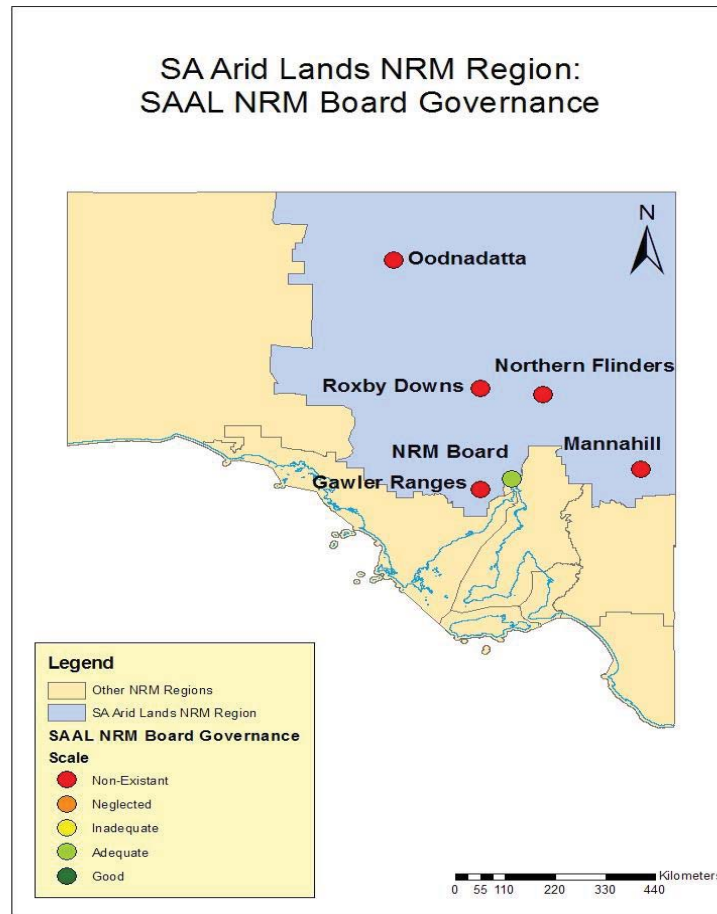
6.14 Governance – A Wide Range of Decision Makers

In all cases, Board members and community participants reported 'governance' as being a crucial element of community based natural resource management. Notwithstanding this broad consensus, the Board and communities had opposing views as to the Board's governance capacity

For example the Board confidently agreed with the statement "The NRM Board has governance structures and processes to ensure business practice" (see Figure 6.14). The Board claimed "our financial reporting was not as good as could be, because of structures". They went on to say "we do not report to the community particularly well, but government we do" and "we are comfortable with the governance structure...the processes are there although there has been no action yet".

On the other hand, all community participants declined to indicate their level of agreement to the statement, "The NRM Board has governance structures and processes to ensure good business practice" claiming "they had not met with the Board, hence their reluctance to respond to the statement".

Figure 6.14: SAAL NRM Board Governance Capacity



Source: SAAL Study

However, notwithstanding the resistance to attach a value to the indicator, participants were quite vocal about their concerns regarding how much ‘independence’ they would have in making decisions about natural resource management. For example Mannahill participants claimed:

We have had no experience with the Board. We are not privy to what is happening with the Board, there have been no reports distributed to local people. We would like to have this information to make an informed opinion ... and ... we are not confident that the Board will be forthcoming with this information.

Indeed the level of concern about governance echoed across the region. Community participants were apprehensive that what governance there was in relation to natural resource management

was driven from the top, and as a result was weighted heavily in favour of an autocratic standpoint, rather than from what the communities preferred – a civic governance model for natural resource management.

Not surprisingly, given its terms of investiture, the Board seemed to employ an air of authority, yet from the communities' perspectives, this authority was considered to be 'arrogance' on the part of the Board. Moreover, community participants admitted that for the Board to have authority it required to be achieved through delivery and not acquired by investiture.

In addition, given the communities inclination to be involved in a shared decision making process, one that was common to all members due to the broader governance structure across the region, and community participants were unanimous that governance should be a bottom up - organic - approach rather than a top down process. Participants believed the Board was out of touch with the community and this was cause for concern. The SAAL NRM Board (like the remaining South Australian NRM Boards) is subject to the control of the SA Minister for Environment and Heritage (Robins and Dovers 2007:115). They comprise a general manager and professional staff. The Board's members are appointed at the nomination of the Minister for up to three years (Robins and Dovers (2007:115). In recommending Board membership to the Governor, the Minister considers whether the Board has the knowledge, skills and experience necessary to carry out its functions, in light of recommendations of the NRM Council (Robins and Dovers (2007:115).

Little wonder, given the participants background in participatory governance (due to the broader governance structure of the region), the participants reported feeling 'uneasy' that representatives from the communities had not been involved in governing the regional NRM reform process, claiming that "without their involvement, the Board would not have the capacity to appreciate what the communities could offer to the reform process". In the case of the SAAL NRM governance structure, it is clear that the lack of a participatory governance approach has caused "obstacles to the formation of partnerships" as power is not shared equitably and government retains control" (Whelan and Oliver, 2005).

A point of interest is that the notion of governance appeared to have multiple and varied meanings to those participants considering it. The Board considered it had the statutory authority to govern and as such it had the responsibility to ensure communities across the region fell in line with Board requirements and expectations regarding natural resource management. The SAAL NRM Board (like the other SA NRM Boards) is dependent on government support, and is increasingly driven by top down agendas rather than regional needs and capacity, and as such it responds to government accountability demands, and as a result it appears to be less responsive and accountable to its regional constituency (Robins and Dovers, 2007:117).

Community members, in contrast were more inclined to envisage governance as a “participatory process and as such preferred to establish their own local agenda while at the same time acting as advocates to the external broader polarity for local and amenities and services” O’Toole (2006:307). As was the case for this study, and as seen in studies undertaken in Queensland, “the capacities of many rural communities to engage with the regional delivery model are limited, and often they were undermined by how governments introduced the model” (Marshall, 2008:35).

6.15 Strategic Direction

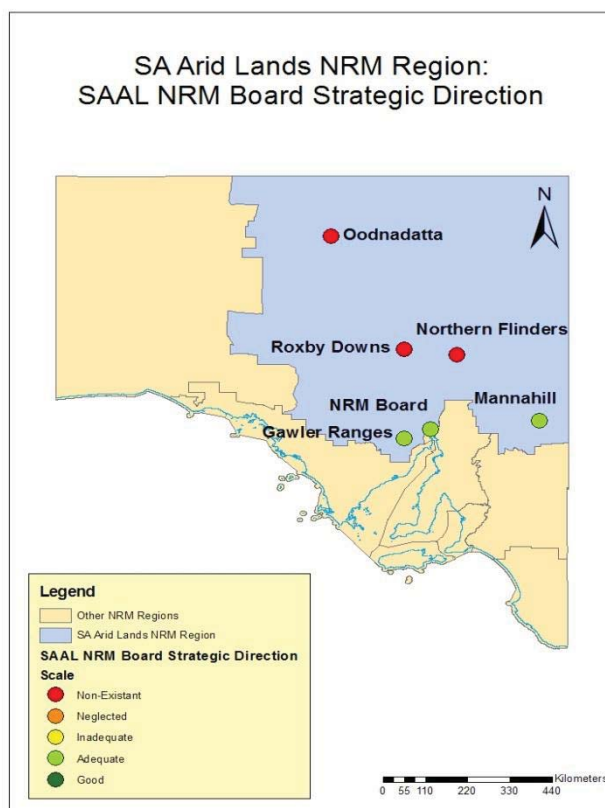
Community and Board participants considered strategic planning as being an integral process to the success of regional NRM reform. Figure 6.15 illustrates the degree to which the Board and communities were comfortable in responding to the capacity statement regarding strategic direction. Three of the communities, including the Board considered the Boards strategic direction as adequate while the remaining three communities declined to respond to the statement.

Board members displayed varying degrees of awareness about the purpose of strategic planning in relation to NRM at the Board and community level. The Board consisted of two groups – the dominant group which comprised of those people who had been involved one way or another (e.g. the Integrated Natural Resource Management Groups (INRM Groups²) in NRM over considerable

² Integrated Natural Resource Management Groups were formed by the South Australian Government to lead and coordinate the efforts of the various groups involved NRM within the region. The principle purposes of the Groups were to prepare an INRM Plan and accompanying Investment Strategies for the region.

time and the others (a sub-group) consisted of those who, whilst extremely interested and dedicated to NRM, had only been involved at the Board level for a relatively short period of time.

Figure 6.15: NRM Board Strategic Direction



Source: SAAL Study

Further, as the assessment process progressed, it became evident that a fundamental component of strategic planning is trust. A report on strategic directions for the Regional Delivery of Incentives for Natural Resource Management delivered by the Commonwealth Department of the Environment and Heritage (2003) noted 'trust' as being a central tenet of improving relationships between those involved in delivery of NRM and those undertaking on ground works. The research illustrated that trust is built through the building of relationships through engagement – and participatory planning. Moreover the research illustrated a need for a participative approach to strategic planning was essential for reaching sustainable outcomes. This would explain why, throughout the assessment process, there was a strong emphasis by community participants about

the importance for locals to be involved in the development of its regional strategic plan. For example it was reported:

it was essential that we are involved in planning and ultimately managing/working towards achieving sustainable environmental management.

Participants believed it was particularly important that the Board value local knowledge and the contribution of this knowledge to the development of the regions NRM strategic plan.

Community participants reported “they could only guess” whether the Board was strategic in its approach to the development of the NRM plan. Again community participants claimed that they did not know who was on the Board so they could not respond. However, it was noted, because Board members had been selected by the Minister, participants thought Board members should have strategic skills. For example participants across the region commented:

...there are definitely some (Board members) with skills ...it is important to have a mix of people that reflect the roles of the Board and who bring different skills to the table...they must stick with ‘long term strategies’

If you are looking for maximum benefit you need to identify what needs to be addressed, it needs to come from the groups (bottom up) and then the Board needs to work ‘needs’ into the strategy.

Sometimes there are good intentions but a huge communication gap exists between government and the local people.... the Board needs to be more focussed on tangible outcomes.

...it would be good if the Board consulted locals in preparation of policy – the Board needs to acknowledge the long term business knowledge of locals... and the Board needs to be in it for the long haul to regain trust.

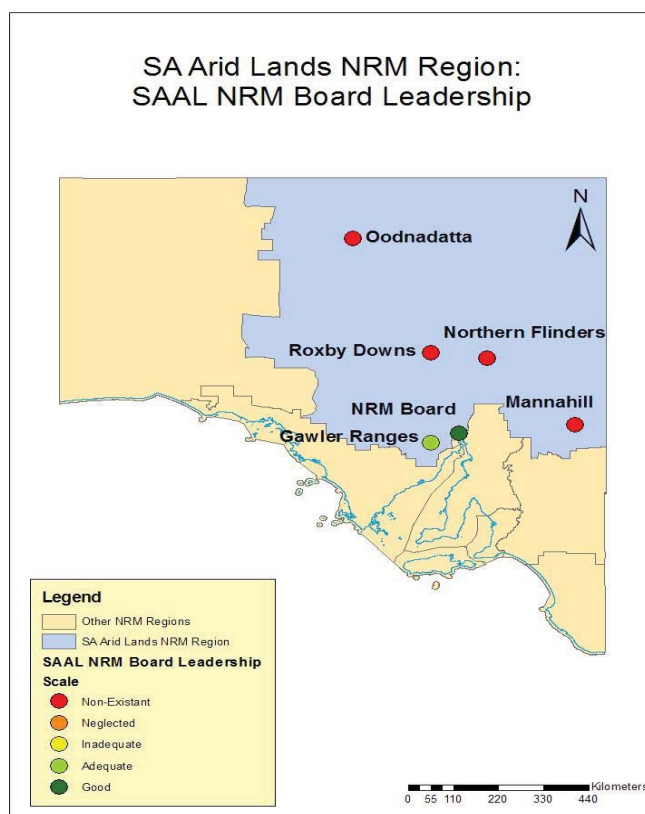
A participative approach to strategic planning was considered essential by community participants, since it provides an “insight from those directly affected by policy”. Communities were concerned

that natural resource management was being managed from a top down approach that gave little consideration to the socio-economic impact NRM programs may have on the community. As highlighted in the literature review and demonstrated in the case study, the lack of civic participation and decision making process poses real problems for reaching sustainable outcomes (Marshall 2005, Lane 2005 and Cavaye 2004).

6.16 Leadership

A quality of human capital is leadership, and the strengths of leadership and human capital are important facets when measuring community strength. The Board identified very strong leadership skills among its members, staff and contractors. In contrast, the community participants did not consider the Board had leaders that were delivering clear messages to the communities.

Figure 6.16: NRM Board's Leadership Capacity



Source: SAAL Study

Figure 6.16 demonstrates highlights the discrepancies between what the Board considers is their capacity regarding leadership skills and those of the broader NRM community.

In fact Board members were extremely confident in responding to this statement since they considered leadership to be extremely important and that they have strong leaders sitting on the Board. Moreover, Board members commented when responding to this statement “We have prepared for change, but some in the NRM community (regional communities) many not have accepted the change”. While Gawler participants agreed with some confidence with the statement “the NRM Board has people with the leadership skills to deliver its NRM program”. The remaining communities, Oodnadatta, Northern Flinders, Roxby Downs and Andamooka and Mannahill were unable to respond to the statement claiming they could only presume the Board had people with strong leadership skills because up to the date of the assessments, participants had not met with Board members. It seemed to the community participants that while there may be strong leadership capacities in the Board, they had yet to see and experience them.

Conversely, community participants reported overwhelmingly that they could identify leaders and champions within their own communities who would be able to work with NRM Groups and the Board to progress the NRM agenda. A strong link between volunteers and leadership was identified by community participants. They commented that volunteers in their communities were considered to have strong skills a long-term commitment to NRM. It was further reported “a few people are involved in multiple areas and many are able to lead by example”.

This high level of public participation in the form of volunteerism is not unique to rural communities. Volunteerism is a concept that has found its way into most literature concerned with community based collaboration – participation in NRM. According to participants, volunteers make up much of the human resources capacity in the region. They also commented that better coordination between interest groups would increase the effectiveness of volunteers.

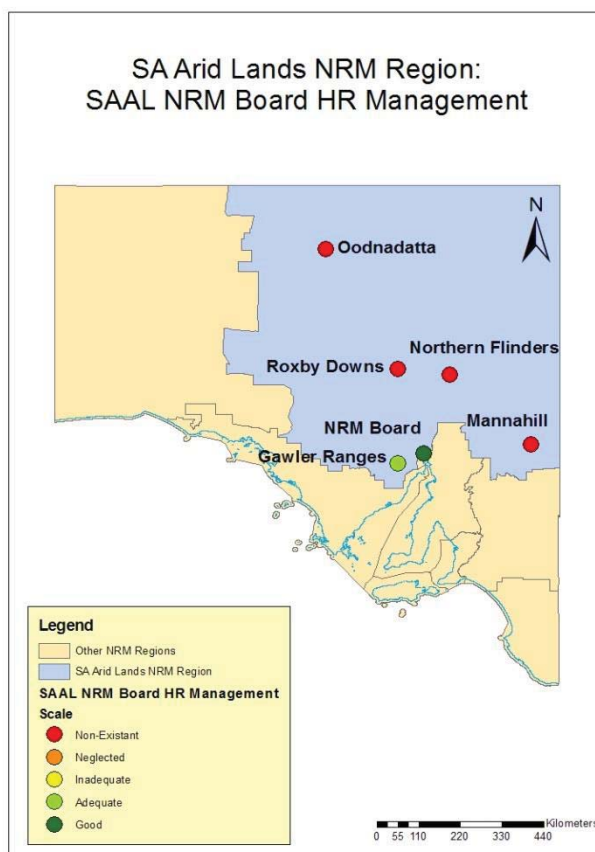
These reflections were consistent with observations made by Lawrence who states, “Limited powers are being given to regional bodies (catchment management groups and authorities) to provide leadership in natural resource management” (2004:7). Equally, the reduction in services and accompanying loss of professionals and the failure to attract skilled staff, has created a

vacuum in leadership in country towns across Australia where once local teachers, bank managers, accountants and doctors could be expected to provide leadership for community development (Alston :166).

6.17 Human Resources

The Board identified as having appropriately skilled staff to achieve their NRM program and the community participants overwhelmingly reported they had the necessary people in their communities to achieve their NRM programs noting people who had been members of the now defunct Soil Board(s) had the skills necessary for undertaking and enlisting help from others to address NRM.

Figure 6.17: SAAL NRM Board HR Management



Source: SAAL Study

Figure 6.17 depicts the Board being extremely confident in strongly agreeing with the statement “The NRM Board has people with competencies in human resource management”. While the Gawler Ranges agreed with some confidence that the NRM Board has people with competencies

in human resource management, the remaining communities were not inclined to respond to the statement, as they had not met Board and staff members. Remarks and behaviour throughout the community assessment processes demonstrated that community participants relied on their strong networks and relationships as a means to ensure that they could access human capital if necessary for undertaking natural resource management.

Community participants noted that while they have the necessary human resources to undertake NRM, there were concerns about critical mass in the region. This concern was expressed in a number of ways, but primarily from the perspective that those who have a strong interest in NRM may be limited in their participation due to the inability to attract and/or retain staff, therefore limiting their ability to take time away from the business to be involved in community based natural resource management. This is especially so for pastoralists, who articulated having difficulties in leaving their properties for meetings etc when they were short staffed, or needed to rely on immediate family members.

6.18 Financial Resources

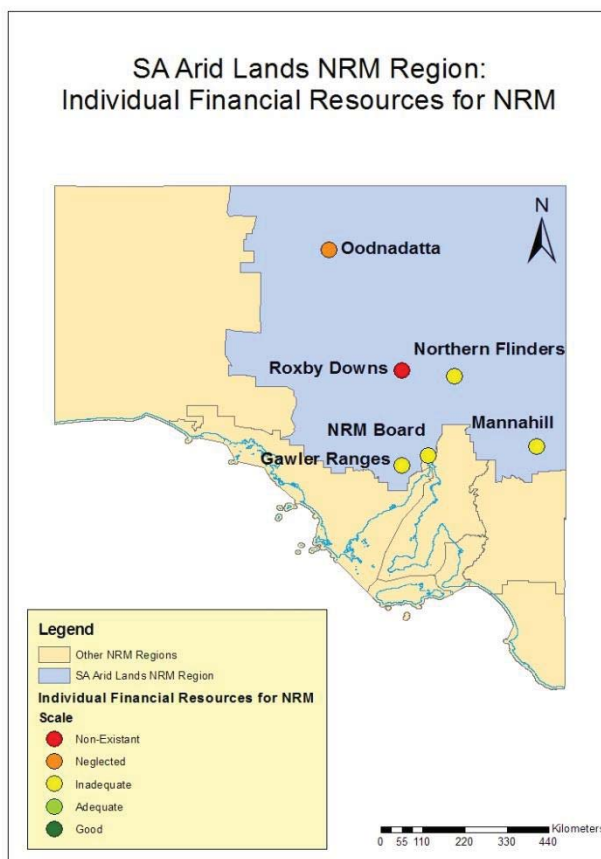
There was a perceived lack of financial resources available at all levels across the SAAL Region. It was stated that Federal and State funding was decreasing and short funding cycles discouraged forward planning, resulting in implications for the sustainability of funding. While it is possible to attract short term project funding, it is difficult to obtain ongoing funds.

The financial resources statement brought about a strong negative reaction from the SAAL NRM Board. While considering it extremely important that the Board has financial resources to deliver its NRM program, the Board was extremely confident to strongly disagreeing with the statement, "The NRM Board has the financial resources to deliver NRM programs in accordance with its NRM plan".

Similarly, participants from all five regional communities reported having had, in the past, difficulty in obtaining the necessary funding for NRM projects, stating "the flow of information on sources for NRM funding is inadequate". Participants from the Gawler Ranges, Oodnadatta, Mannahill and the Northern Flinders disagreed with the statement and Oodnadatta strongly disagreed with the

statement and Roxby Downs and Andamooka were uncomfortable responding to the statement, hence their unwillingness to respond to the statement.

Figure 6.18: Individual Financial Resource Capacity



Source: SAAL Study

Skills in financial management and applying for funding were regarded as barriers to organisations and individuals that did not have expertise in applying for grants. The processes for applying for grants was reported to be 'time consuming' and the lack of certainty in the funding processes 'deters people from applying for funds' in the first instance. Participants across all tiers agreed that many people were not aware of how to access additional funding.

The Board had some concerns as to its capacity to employ and support people, run activities and to supply, maintain and replace facilities and equipment in accordance with its plan.

Notwithstanding the lack of funding available to the Board, it considered staff and contractors had

strong competencies in financial management with one exception: the preparation of financial reports.

Community members in contrast considered the Board's financial capacity to deliver NRM programs in accordance with its NRM plan to be 'limited'. For example, one community member stated: The Board started off with money to do everything, and now they (the Board) are saying they do not have any money at all – we don't know what their plan is, so it is all guess work.

Participants also had mixed views about their individual financial capacity to respond to the demands of NRM and in some cases, participants did not know where to access financial resources for NRM.

One community reported they “needed to be aware of and look for ways to spend funds...that in the past, efficiencies had not been achieved – this is why it is important we know what is in the Board's plan”.

It was also thought necessary that financial resources be shared equally among communities, stating there is a “need for a certain level playing field to start with” because “some organisations have more financial resources than others”.

Additionally, external factors such as economic trends, restructuring and variations in climate were seen to have implications for organisations and individuals, and often determined their level of commitment to be involved in natural resource management. This supports Marshall's (2008) argument that the capacity to be involved in natural resource management includes having the labour to do what needs to be done, as well as having the financial resources to fund these activities.

Indeed, community participants recognised that they may suffer hardship (depending on the season etc) in meeting specific objectives and targets that cover future priority areas, and this was a major concern for them. It was claimed that previously, people in the region could approach the

Soil Board for funding, but now as a result of the recent NRM reform processes, this service was no longer available to them.

6.19 Physical Resources

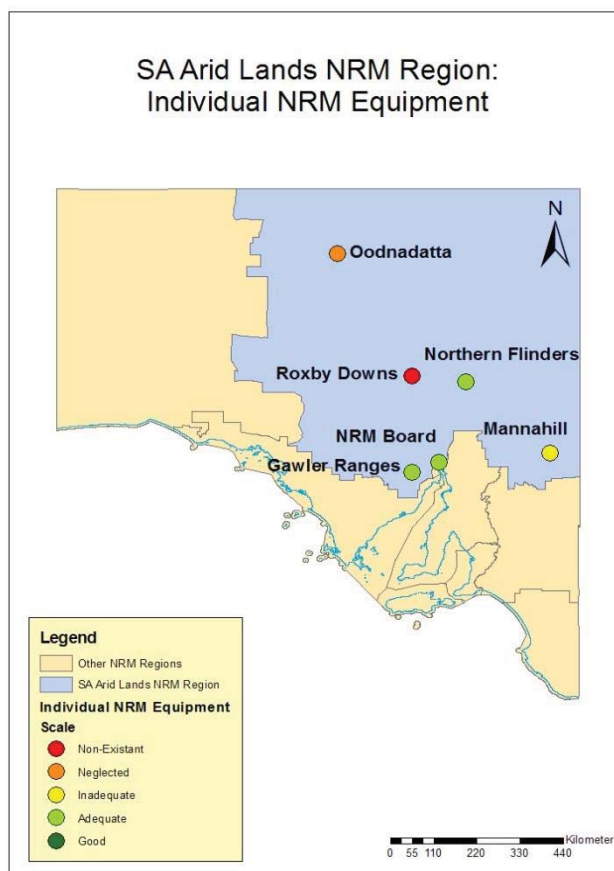
Participants (Board and communities) perceived they had varying degrees of capacity to meet physical resources requirements of natural resource management.

The Board considered their current office facility was rapidly becoming inadequate, and that this would impact on their capacity to deliver effectively. Members reported a lack of office space as being a major problem for Board staff. There was acknowledgement and support from community participants that the Board and its staff need to ensure it has adequate facilities to undertake its function, and therefore to effectively support the region.

Community participants reported that organisations within their communities had the facilities for meeting their needs to undertake natural resource management, but some communities reported they were limited in their access to equipment. For example, participants at Roxby Downs and Andamooka reported that some people may not have the equipment necessary to undertake natural resource management, but in that case, they could certainly access it through their networks. The costs of accessing equipment were also an issue for communities, with volunteers relying heavily on the use of their own equipment to carry out on ground works.

In almost all cases community participants reported that whilst individuals and some organisations in their communities have people who could safely operate on grounds works equipment, in many cases they did not have the accreditation. This matter was acknowledged by the Board. Figure 6.19 represents the degree to which Board members were comfortable in responding to the statement, "The NRM Board has the equipment it needs to deliver its NRM program" and community participants to the statement, "The people in this community have access to the equipment they need to achieve their NRM objectives".

Figure 6.19: Equipment For on Ground Works



Source: SAAL Study

As illustrated, the Board, Gawler Ranges and Northern Flinders all agreed with the respective statement. Mannahill was less inclined to agree with the statement, while Oodnadatta claimed to strongly disagree with the statement. Roxby Downs and Andamooka declined assign a value to the statement.

Networks and relationships, trust and reciprocity (all components of social capital) featured significantly in the assessment of the availability of physical resources. Networking and volunteerism were considered necessary prerequisites for gaining access to physical resources within and between communities. For example it was reported, “People use their networks to find somebody to do a job”.

Contractors were also seen as one way to access physical resources although it was thought that there were limits to how much can be gained by contracting their services:

There are contractors with the skills required and resources required for NRM but this is restricted by cost and they are not always available – sometimes contractors have moved to other regions.

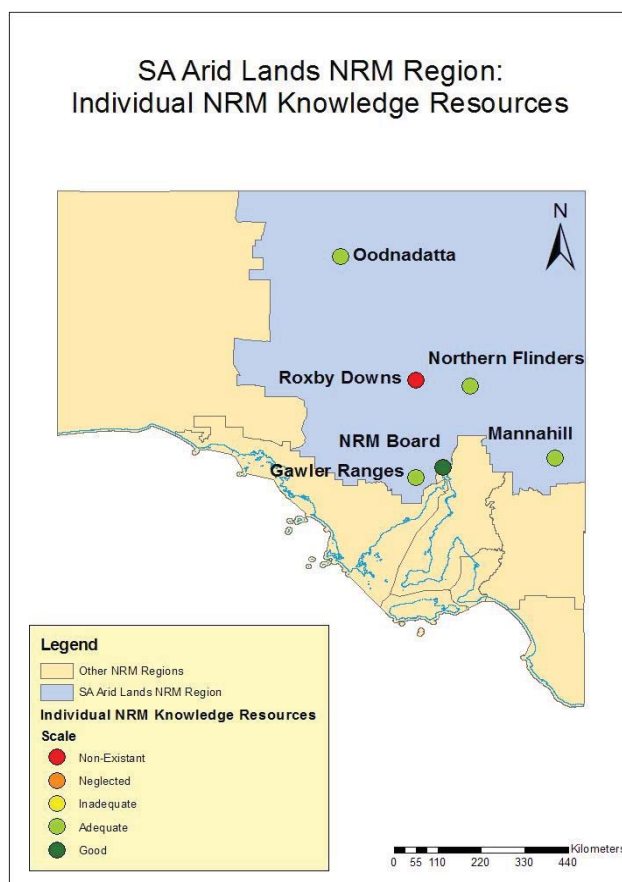
Reciprocity was another feature of social capital that was identified in all communities across the region. Community participants reported that while as individuals they may not have access to all the equipment they needed to carry out natural resource management, they had people within their communities who did have such equipment and they were sure they would be able to use such equipment in a reciprocal agreement of sorts. Participants further reported that what equipment the Board could not provide through lack of funding could be accessed from the community, and the costs be remunerated by the Board.

6.20 Knowledge Resources

Knowledge and information about natural resources existed throughout the communities.

Community participants reported that individuals and organisations have information about the natural resources in their region and access to knowledge brokers at different community levels. In many cases it was reported that this knowledge had been handed down from one generation to the next. However, while recognising their extent of local knowledge, community participants did report that in many cases, they (community participants) did not have adequate training programs to achieve their NRM objectives.

Figure 6.20: SAAL Knowledge Resources



Source: SAAL Study

As is demonstrated in Figure 6.20 the Board strongly agreed that they had the necessary information and access to people or organisations that create, enhance and transfer NRM knowledge and information. Oodnadatta, Northern Flinders, Mannahill and the Gawler Ranges were all agreed that they had people in their communities that had information about the natural resources in their area as well as access to organisations or other individuals that create, enhance and transfer NRM knowledge and information. Roxby Downs and Andamooka were the only community who, while claiming they had people in their community who had access to NRM information, they disagreed that people in their community had education and training programs in their community to implement NRM on ground works. In addition, they disagreed that NRM education and training programs in the region are tailored to the particular needs of the community.

6.21 Implications for Regional Natural Resource Management

As reported in Chapter 1 and Chapter 5, the NRM Community Capacity Assessment project originated from a desire by the Department of Water, Land and Biodiversity Conservation to build a tool that could be used by NRM Boards and community to assess and self-assess their capacity to administer and undertake community based natural resource management. At the same time, the SAAL NRM Board was keen to assess the capacity of communities in their region to address natural resource management. As a result an integrated tool (NRM Tool) and process for both assessing and building regional NRM community capacity was developed. Subsequent to the development of the Tool, an assessment process was undertaken by the SAAL NRM Board and communities (the subject of this case study), and later of the Eyre Peninsula NRM Board and communities.

By undertaking the assessment process the SAAL NRM Board and communities raised their awareness about the gaps in their capacities to address natural resource management. The self assessment process provided an effective means for capturing the perspectives of participants as to the capacity of the Board and communities to undertake natural resource management. The assessment process also provided the Board with a benchmark for future capacity assessments. A major strength of the assessment process was the ability to capture quantitative and qualitative responses of participants, all of which aided in setting the scene for the following discussion.

6.21.1 Quantitative and Qualitative Analysis

The quantitative and qualitative findings complemented one another in highlighting the challenges facing the Board and communities across the Arid Lands to successfully undertake community based natural resource management. The research findings suggest that community based natural resource management is more likely to be successful if managed through adopting an organic approach to natural resource management rather than the top down method adopted by the NRM Board. An organic model motivates greater voluntary cooperation from landholders and provides opportunities for communities to build their capacities in natural resource management due to exposure through participation.

Beyond highlighting the capacity of communities to be involved in natural resource management, the research recognises that natural resource management does not occur in a vacuum, and that restructuring processes, adjustment, natural and manmade disasters (i.e. droughts, floods, fires and climate change) and a lack of resources are likely to impact on the ability for people to engage in natural resource management. Adjustment may come from the need to manage the regions' natural resources (as it was for this study) to considering seasonal climate forecasting (Nelson et al., 2008:1). As was with this study, the assessment process provided an opportunity to assess what was the immediate capacity of the SAAL NRM community to carry out community based natural resource management.

While the assessments provided opportunities to gauge the degree to which communities had access to resources for managing the environment, they were limited in their purpose as they overlooked resource dependency and the willingness of communities to address natural resource management.

6.21.2 Indices and the Tool

A weakness of capital assets assessment processes is the prioritisation of some indices over others. While values, goals and willingness are all important factors for gauging a community's capacity to adjust, they are regularly overlooked by those interested in measuring capital assessments. We might expect to find these assets in cultural capital.

Cultural capital is often considered a sixth capital and is regularly left out of capital assessment processes, probably due to its perceived subjective nature. Yet asking a community to consider their values and goals, including their willingness to be innovative and/or adjust, is necessary to grasp the full extent of their capacity to work with regional bodies (or anybody for that matter) for project development. In the case of this study, while it was possible to construe from the scaling and community narratives those individual capacities that demonstrated participants were capable of managing and undertaking regional natural resource management, the process did not consider the willingness of participants to be involved.

Clearly there is a need to extend the assessment framework to consider those values that people hold dear regarding their work, lifestyle and environment. This is made possible by adopting a values system, similar to, if not the same as that which Gasson (1973) developed when measuring the value orientations of farmers in relation to agriculture, i.e. social, expressive, instrumental and intrinsic values. Tied up with the way farming practices are adopted are the meanings farmers assign to agriculture which manifest into a range of farming styles (Gasson 1973). Similarly, the meanings pastoralists assign to natural resource management and the way natural resource management impacts on primary production will likely determine to some extent degree to which pastoralists engage from year to year in sustainable natural resource management practices.

As mentioned above, a major reason for building the NRM Tool was to aid capacity building while assessing community capacity. The question then must be, did the Tool and process aid capacity building? The answer would have to be no. Simply put, the Tool is an instrument, which when used in a workshop process helps the facilitator to focus the participants, capturing their responses in a transparent manner (as the participants can observe the reporting of comments by the facilitator) as they respond to each capacity statement. The workshop process provided a means to gather information that could later be measured. What the application of the Tool does do, is provide an opportunity for community members to consider their capital assets which they may not have otherwise done. This process has the potential to raise awareness within the community about the types of capitals necessary for sustaining change.

The failure to capture the participants' responsiveness to those socio-cultural challenges for NRM is a major fault of the utility of the NRM tool methodology and community based natural resource management overall. Without recognising participants 'values', their norms and beliefs, and whether they share a common vision for their natural environment, there is little likelihood of capturing whether they have an interest in participating voluntarily in regional natural resource management. Because these days there is a tendency to measure capacity in economic terms (Stratford and Davidson 2002) there was a tendency for those funding the development of the tool to encourage the development of statements that would measure those capital assets considered necessary for carrying out natural resource management over and above those values and

interests in the environment and the subsequent, willingness of participants to adopt changes in natural resource management.

6.22 Conclusion

This case study supports a significant body of evidence (Lane and McDonald, 2005; Lane et al., 2005; Kilpatrick, 2002, Farrelly, 2005; Wilson and Howarth, 2002, Bammer, 2005) that despite their efforts, governments regularly fail in their attempts to engage the community in community-based natural resource management. The research illustrates that social capital in the form of trust and reciprocity was reportedly strong within and between most communities, but weak to nonexistent between communities and the Board. The poor level of trust felt by communities of the Board was explained away by community participants as a result of the Board's poor engagement practices. The Board in contrast, reported poor social capital was due to the tyranny of distance and explained this away by reporting that they were currently in the early stages of operating as a Board.

According to Fukuyama (1999:1) social capital "promotes cooperation between two or more individuals" and the norms that constitute social capital can range from a "norm of reciprocity between two friends all the way up to complex and elaborately articulated doctrines.....". Trust too, is a major component of social capital. If a groups' social capital produces positive outcomes, then it is more likely those individuals/groups and communities will be able to mobilise and form bridging networks that will "facilitate the flow of information, resources and support within and between communities" Crowe (2006:577). Networks, according to Crowe (2006) involve the nature of ties within and between communities and its broader regional and national interests. Unfortunately, in this case there was no evidence of bridging social capital in the form of networks built on trust existing between the Board and the communities. This situation has had a major impact on the Board's ability to engage with regional communities. Indeed the lack of engagement by the Board proved to be a major reason for the existence of poor trust between the Board and communities. The close knit dense communities that have developed over time (Agnitsch, Flora and Ryan 2006:39) in the SAAL have engendered trust and reciprocity but such strong social capital does not extend to the Board. The argument that bridging social capital connects people or groups who are

different from each other in some way is challenged here to some degree, since without the proper engagement process; such bridging processes are difficult to build.

Governance was also an area of great concern for community participants. In particular, it was considered very important that community based natural resource management encourage an organic governance process for administering community based natural resource management. Participants were clear that governance should incorporate a bottom up approach rather than a top down process. Participants reported the Board was estranged from the community and this was cause for concern. Moreover an organic – bottom up - approach to natural resource management was considered fundamental as a means to breakdown those feelings of alienation felt by the community.

The kinds of attributes that were frequently considered to be part of “good” governance were (as mentioned earlier) participation, representation, deliberation, accountability, empowerment and social justice. It is therefore essential that clear, unambiguous and transparent governance and business processes need to be adopted, to ensure there is confidence within the community about the way the Board conducts its activities.

Governmental administration of regional deliver models was heavily criticised by participants. The question that Lawrence (2004:1) poses, “does the re-vitalisation of participatory democracy provide for local communities to have stronger 'voices' and if so, will positive changes prevail”, has been, to some extent, tested in this study. The results speak for themselves. Community participants did agree that participatory democracy was necessary for community based natural resource management. Participants reported that they hoped for a participatory role in delivery of natural resource management but they suspected this would not happen because as it was, a real devolution of power did not exist in the SAALs NRM structure. The results indicate that despite the various attempts to develop and implement a participatory democracy practice to replace the “perceived failure of older forms of governance to deliver sustainable development” (Lawrence, 2004:1) the implementation of the state’s regional model for NRM (to date, 2009) has not been successful across the South Australian Arid Lands NRM region.

In summing up it would appear that the devolution of authority from central governments to regional bodies such as the SAAL NRM Board has not fostered good relations between the Board and the communities. While the South Australian model for natural resource management has led to greater uniformity between sub-regions, this research illustrates that the current governance arrangements in the South Australian Arid Lands has presented obstructions to the formation of partnerships. This outcome supports what Robins and Dovers (2007:117) claim is the result of current regional NRM governance structures, i.e. “power is not shared equitably and the Board retains control through plan and investment strategy accreditation”.

This study has shown that the capacity of the SAAL NRM Board to build positive networks with the Arid Lands community had not been successful to date and that their attitudes to engagement and community was a restraint on their ability to unite natural resource management. In fact the findings were conclusive – at the time of the study the South Australian Arid Lands NRM Board had not engaged with the broader NRM community and their capacity to administer and manage natural resource management programs across the region was poor. The study further revealed that the strengths of community based natural resource management are dependent on trust, holistic engagement, shared values and belief systems and collaborative governance. This, it is argued, could be achieved through transparency, a common understanding of community dynamic and the development of bridging networks between all parties involved project delivery. In addition to the complexity of integration, the concept of community was also identified as a problem for the Board. This is significant since respondents considered the NRM community to encompass all three tiers working together to meet a common outcome, whereas the Board viewed its role as purely one of ‘governance’ and therefore removed from the NRM community.

The research provides empirical evidence which supports discussions of social capital and power, particularly in the performance of the state and the impact that this has on community based natural resource management. Importantly the research shows, impediments exist within the current system of formal community based natural resource management in the South Australian Arid Lands. Communities need the certainty of participatory governance, one that fosters trust and reciprocity which is gained through a sound community engagement process. This case study provides evidence which supports recent research examining regional governance arrangements

which contend, that communities prefer participatory governance rather than a top down approach to natural resource management (Lane and McDonald 2007; Lane, Cheers and Morrison 2005; Morrison and Lane 2006; Whelan and Oliver 2005; (Lane et al., 2009a; Wallington and Lawrence, 2009). It is also an argument of this study that the fostering of sustainable networks and relationships between communities and the Board will only occur if and when the Board considers those regional communities as 'partners' rather than 'obstacles' to natural resource management. In addition to recognising the need for the development of partnerships, this study identifies the need for stakeholders, particularly governments to have a better understanding of community types – so that they can better understand how to engage with them.

Addendum

At the time of writing up (2009), I had an opportunity to travel to the SAAL region to undertake an evaluation of a Western Australia – South Australia joint NRM project. I used this time to enquire as to the state of the SAAL NRM governance and community engagement processes across the region at that time. It was revealed that very little had changed since the assessment process. Whilst NRM groups were now up and running, people considered they were of little use as the Board rarely listened to communities and their concerns (through the Groups) regarding the flow of information and governance issues. Community members reported being alarmed that the strategic plan had been developed yet they had not been engaged in the process and while the Board had arranged for community meetings to discuss the Plan, this was occurring long after the plan had been drafted.

7 THE REHABILITATION OF THE LOWER MURRAY RECLAIMED IRRIGATION AREAS: A CASE STUDY

7.0 Introduction

The previous case study illustrates the departure between government and community conceptualisations about their individual roles and capacity, and that of each other's roles and capacity, in administering community based natural resource management. For example, the Board preferred a top down governance model for managing regional natural resources. The communities on the other hand clearly favoured a bottom up approach, claiming an organic approach inclusive of holistic engagement was more appropriate for regional natural resource management than what was occurring at the time of the study. This study too speaks of the social context of natural resource management, but unlike the SAAL study which focuses on those perceptions of participants as to their ability to undertake community based natural resource management; this study considers dairy farmers involved in structural adjustment which was directly related to circumstances of natural resource management (NRM). The study considers the role of community engagement, social capital and farmer behaviour in relation to structural adjustment processes that occurred in the Lower Murray Reclaimed Irrigation Areas of South Australia (LMRIA). The study draws on the features of a resource dependent community, highlighting its attitude and behaviour to ongoing rationalisation, environmentalism and engagement strategies employed by those agencies responsible for natural resource management.

The condition of market demands, adjustment, and unfavourable climate circumstances finds many rural communities in uncertain and complex times. The Lower Murray Reclaimed Irrigation Areas community is one such community that has experienced uncertainty due to climate, market trends and a compliance driven, community based natural resource management. As it is sometimes pointed out, the kind of complexities which are regarded as problematic are ones that not only "congest decision making and increases zones of conflict, but it also displaces traditional values of control and responsibility, and produces unintended consequences" (Warren 2001, cited in Lane et al 2009) – this was particularly so, for the Lower Murray Reclaimed Areas dairy community when faced with the rehabilitation of their dairy – swamp lands.

7.1 Background

In terms of community based natural resource management, the rehabilitation of the Lower Murray Reclaimed Irrigation Areas was a significant project which was jointly funded by the South Australian and Commonwealth governments under the National Action Plan (NAP) for Salinity and Water Quality Improvement. Irrigators also had to contribute to the cost of rehabilitation. Broadly speaking, the program was concerned with:

the reduction of pollution of the river (to meet the Environmental Protection Agency (EPA), requirement of non return of irrigation run-off to the river by 2008), more efficient use of water taken out of the river, maintenance of a sound, sustainable regional economy, and devolving responsibility for Government owned areas and infrastructure to the irrigators (Parliament South Australia, 2005:3).

Notwithstanding the monetary support offered by the governments, those farmers who chose to remain dairying and some of those who exited dairying but remained on the family farm suffered significantly from a sense of 'loss' and an extra financial burden as a result of the rehabilitation works. As a part of the restructuring phase of the project, the government welcomed the idea that some dairy families would exit the industry leaving parcels of land to be retired or incorporated into remaining farms. For example one senior state government employer commented:

It didn't make sense to rehabilitate the whole area. We then needed to encourage a period of restructuring so that we could concentrate on the farmers on the most viable areas and retire the non-viable areas. We estimated through that study that 40 farms, one third of the farms in the region would exit and that 1000 hectares of land would be retired. That is a smaller percentage, because the modelling suggests that some of the remaining farmers would buy up land from people who decided to sell their water out, so not all the land would go out of production or not at the same rate as that at which farmers would go out (Parliament South Australia 2005:3).

An inducement of a \$45,000 exit plan was used to entice farmers to consider exiting the industry. The governments' stance was that if a dairy family decided to exit the industry they could make an application to the government for a \$45,000 exit plan, one which if taken, would exclude the family

from ever operating as a dairy farm on the LMRIA into the future. While the industry considered the \$45,000 to be a meagre sum of money for an exit incentive, the government relied heavily on the industry selling their water entitlements so as to supplement their exit from industry. However, as the research demonstrates, whilst many families exited the industry, the monies received could not compensate for their sense of loss, i.e. their loss of purpose and attachment to the industry, including grieving for their live stock with which they had formed more than a casual connection. The rehabilitation project had a significant cultural, socio-economic and health impact on the community, with many members having felt their wellbeing had diminished as a result of the inadequate and protracted consultation process .

A preliminary research of newspaper articles referring to the LMRIA project indicated that in the first instance community members approached the government as far back as December 1996 in an effort to address environmental concerns, in particular the health of the River Murray. At the time, it would seem the government showed little interest in addressing the industry's concerns. However over time the government took more than a passing interest and at the time of the study, government representatives and community stakeholders had been involved in discussions over the management of local natural resources for eighteen months. As early as a year into discussions a breakdown in communication occurred as a result of poor community engagement. A top heavy governance approach adopted by the government and poor engagement processes set the stage for what could only be called a long-term tentative relationship between the State government and the LMRIA dairy community. As the project progressed this relationship became capricious and finally, untenable.

The high economic costs of the rehabilitation took its toll on the LMRIA community. Farmers and milk processing companies feared the rehabilitation process would be unsustainable. Dairy farmers were concerned that they (irrigators) would not be able to afford their share of the costs of the rehabilitation project (Lush, 2003a). The government, on the other hand, claimed that irrigators were underestimating the value of water licenses which the Minister of the day claimed would hand a \$1 million public asset over to each irrigator as a privately-owned, traceable commodity. The Minister further claimed water licenses could be sold or leased up stream, which would suit dairy farmers wanting to leave the industry (Lush, 2003b). However, respondents reported being

reluctant to trade their water as it was considered to be an investment - their superannuation and retirement fund.

By the time this case study commenced, farmers had been involved in a three to four year protracted effort to apply pressure to the State Government to engage with the community in a fair and transparent manner. Community members had appealed to the government to work with community to find the best solutions for progressing the rehabilitation project (see Appendix 4). The following case study considers community based natural resource management, but unlike the SAAL study which considered the capacity of the Board and communities to be involved in natural resource management, this study draws attention to the Department of Water, Land and Biodiversity Conservation's (an arm of the South Australian Government) and its attempts to manage a natural resource management adjustment project. The study considers the behaviour of farmers who found themselves in a situation where they were forced to consider exiting their industry when if left to their own devices, would not have considered leaving the industry.

7.2 Recognising the Need for Reform

As far back as 1992, LMRIA dairy farmers had recognised a need to monitor water quality in the swamps due to the potential run off from the dairy back into the Murray River. In 1996 the local Lower Murray Irrigation Action Group (Appendix 4) was developed and overseen by a steering group and a project manager was hired to develop the Local Action Plan (Murray Valley Standard June 1996). The plan included laser levelling of pastures to circumvent pooling of water and encouraging more economical water use, installing meters on properties, and an improvement of water delivery to the farms.

Interests increased over time, and by 1999 steps were taken by volunteers (Appendix 5) to be involved in a project named Waterwatch, which included a network of dairy farmers who were being aided by the support of the Lower Murray Irrigation Action Group (LMIAG) to scrutinise water quality (The Murray Valley Standard, June 1999).

The Lower Murray Irrigation Association Incorporated (known as the LMI) was developed in 2000 with a view to incorporating a "proactive community effort and cooperative approach by the

community and government to dealing with the issues facing the area” (Lower Murray Irrigation, 2001a:1). The Lower Murray Irrigation Advisory Board (IAB) is a government funded body that works with state government bodies in relation to resolving policy and barriers to improving irrigation management (Lower Murray Irrigation, 2001b:1).

The IAB was formed so they (the LMI) would have a political board to deal with government and then government funded that body so they could get “ “ the regional manager in.

From the inception of the rehabilitation project the LMI was uncertain about the governments capacity to manage the project. The LMI were keen for the project to be driven by the community. The following exert forms part of a submission to the National Competition Council in Melbourne Victoria in which the LMI address some of their concerns:

The State Government has secured initial funding from the National Action Plan on Water Quality and Salinity for development works in the LMRIA. We have sought to manage these. The Governments view is that they are better equipped to manage these projects, and while committed to our involvement will not cede control. We believe that for us to succeed in the long-term, we need to develop the skills systems and resources necessary to run a successful irrigation scheme. We understand the Governments responsibilities and needs but we are not convinced that they are necessarily best suited to manage our irrigation redevelopment. We believe that rigorous, reasonable and proper controls need to be established to ensure that the community’s investment is accounted for. We are asking for the Government to support us in identifying and assisting us in the development of these skills so that irrigators can accept ownership of the future at a very early stage.

(Irrigation Advisory Board, 2002:1)

Later in 2003 a regional manager was appointed by the Lower Murray Irrigation Board (see Appendix 6) to address issues on the supply side of the rehabilitation project. The regional manager along with members of the IAB were concerned that the then current “proposal by the government would result in a significant reduction in dairying leading to a negative impact on the regional economy and irrigators were concerned environmental management of retired land had not been addressed” (The Murray Standard, Thursday 8th May 2003).

Throughout the first few years of the rehabilitation project, the regional manager acted somewhat like a conduit between the community and the government. However, over time it appeared he had some concerns as to the transparency by which the government was working with the community. Respondents mentioned that the LMI was concerned about farmers' rights (when discussing the proposed Trusts) and this had been a source of consternation for the government:

Because if it goes into a trust, the trust is liable for everybody else's financial commitment if you know what I mean - I am not sure. But one of the things that the regional manager and LMI have maintained is that farmers should own their own water.... Well JP (DWLBC) didn't like that. If you aren't going with the Government Trust, we don't want to know about you.

Not surprisingly community members became alarmed at the regional manager's early termination (funding for the regional manager's position was reportedly cut by the government) and respondents considered his demise was a result of the government's concerns that he was more inclined to push for the dairy community and their concerns, than those concerns of the government.

I thought the regional manager was really trying to do the right thing and I think he was squeezed out .

And:

".." has given us the details and says - I can tell you what I personally think but it is up to you all to make the final decision. I feel it is important that we have someone to tell us what the best decision is for us. A lot of farmers just don't understand how the laws are and ...the level of transparency is sometimes questionable.

The regional manager always says "when you have a meeting with government agencies you should get everything down in writing....I guess as farmers we go along to meetings and take the word of the people there...that is how we operate as farmers...we deal with each other as farmers...we pay people, all sorts of things...we pay people later on without even signing a piece of paper.... and I guess his view is right because he had dealt with a lot of governments ...and we will have to see if it comes back and bites us yet...because

some of the questions we have asked, they have said yes, but we will have to wait and see when it comes down to the signing off.

The Natural Resources Committee (appointed pursuant of to the *Parliamentary Committees Act 1991* for the purpose of reviewing the Rehabilitation project) when reviewing the project, noted the concerns of the dairy community and recognised the difficulty some of the farmers had in understanding government policies and processes:

The Committee is aware of the consultation program conducted by DWLBC, including newsletters, maintenance of a website, and correspondence from the Minister.

Notwithstanding these efforts, the Committee notes the anxieties of irrigators in the area in relation to the consultation process for this program, and that many irrigators were unaware of the processes taking place. The Committee also notes that Government agencies can, on occasion, make assumptions about community understanding of Government policy and process, and neglect to adequately explain all steps involved.

(Natural Resources Committee, 2005:VIII)

To add to the concerns of dairy farmers about how the rehabilitation program was to be managed and by whom, the farmers were at the same time struggling with the aftermath of the deregulation of the industry, a recent drought and low milk prices.

The drought was the basic killer for a lot of people and then came the rehabilitation program, that was a cloud hanging up in the air - it was a threat over people, and it was all too much... the Government didn't seem to realise that people didn't have any money because of the drought.

Prior to examining the rehabilitation engagement process in more detail, it is useful to consider the socio-economic and cultural dynamic of the dairy industry as these factors have a strong influence over farmer behavior (Panelli, 2001; Liepins, 2000; Bjornlund, 2002; Smailes, 1997; Smailes and Hugo, 2007; Cloke, 1996; Walmsley, 1998) and their willingness to be involved in natural resource management.

7.3 About the Respondents

As reported in Chapter 4, in-depth interviews were undertaken with dairy families to grasp an understanding of the impact of the rehabilitation project on the LMRIA dairy industry. In all but one case, these interviews were undertaken with family groups: husband and wife, father and son, mother and son, brother and sister. Of the 31 respondents, 27 were mature aged (50 and over), three were between 35 and 45 and the remaining respondent was 17 years of age. One interview was undertaken with a manager of a corporate dairy located on the lakes at Narrung (Figure 7.1), South Australia. At the time of the interviews all respondents (except for the Corporate) were asked if they would fill in a questionnaire and return within two weeks. There was a 62.5 percent response rate with 10 families returning their questionnaires.

Figure 7.1: Murray Lakes and Narrung

NOTE:
This figure is included on page 228
of the print copy of the thesis held in
the University of Adelaide Library.

Source: Light Schooner Home Page (2009)

7.3.1 Adjusting and Comfortable Irrigators

The dairy farmers resembled what Bjornlund refers to as non-adjusting, adjusting and comfortable irrigators (200:136-137). Non-adjusting irrigators are those people more likely to sell their properties and water. They regularly have smaller properties and these properties have the least efficient irrigation and drainage systems (Bjornlund 2000:136). One family interviewed resembled a non-adjusting irrigator since they were “small and they were struggling” Bjornlund (2002:136), but unlike those farmers that Bjornlund surveyed, this family did not sell their water, preferring to take off farm work while adopting a “wait and see approach” with regard to dairying in the future.

The remaining dairy irrigators fell into two categories; adjusting irrigators or comfortable irrigators. Adjusting irrigators are those farmers who are developing their properties to be a viable enterprise (Bjornlund 2000:136-137). Adjusting irrigators have a statistically expected distribution when it comes to farm income and dependence on off-farm work and consider themselves commercial farmers, perceiving their property to be financially viable in the long term and their productivity to be steady to increasing (Bjornlund 2001:137). Many of the adjusting irrigators group reported that they had been upgrading their dairy infrastructure up until the rehabilitation process, but since the introduction of the rehabilitation project they were uncertain about investing further money into their business's in the event that the rehabilitation process was too expensive – resulting in them having to sell their dairies.

Three of the families resembled comfortable irrigators (Bjornlund 2000:137-138) in as much as they had the means to continue developing their dairy's through high farm income. These three families had been “active in improving their farm management and in adjusting their properties by expanding their irrigated area and water rights over the years” (Bjornlund 2000:138).

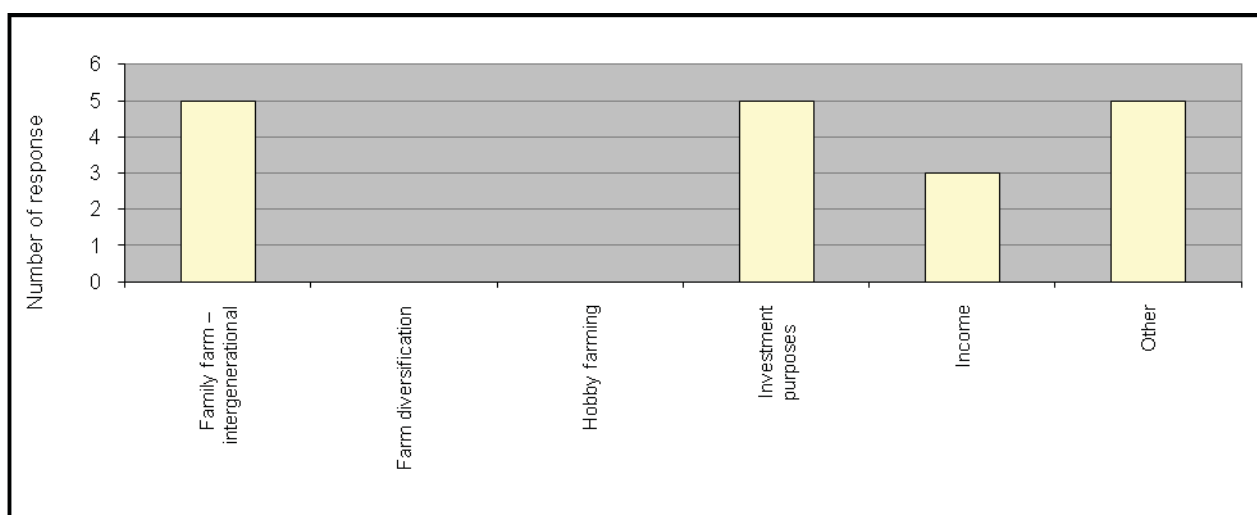
7.3.2 Farming - Lifestyle, Behaviour and Attachment to the Place

The study identified two primary motivations for being a dairy farmer on the LMRIA swamps. First, intrinsic values predisposed respondents' interests regarding lifestyle and employment. A preference for a ‘healthy outdoor farming life’, being carried out on a ‘small to medium scale farm’ with a ‘chance to be innovative and original’ in a ‘purposeful activity’ were ‘primary motivations’ for being involved in the industry. Second, and to an equal degree, an instrumental factor such as

making an income by “making enough to get us by” was considered an incentive to remain in the industry. Respondents reported that their primary concern was not to only maximise their income, but to achieve and maintain a preferred lifestyle.

Lifestyle (discussed in more detail below) is commonly used to describe people going about their daily lives. The link between lifestyle and farming behaviour is not new (Liepins, 2000), nor is the interest by scholars of the relationship between, lifestyle, farmer decision-making and structural adjustment (Lawrence, 1992; Gray, 1994; Passfield et al., 1999; Tonts and Jones, 1999; Rhodes et al., 2003; Boehlje and Doering, 2000; Gray and Phillips, 1997; Lawrence et al., 1999; Lyons, 1997; Lawrence, 1999). Equally, governments have had a specific interest in understanding the behaviour of farming families, particularly those farmers who demonstrate what they term irrational behavior Gasson (1973) by not exiting from primary industries when it is obvious that they struggling to make a living from the land (Morgan, 2004; Higgins and Lockie, 2001b). Botterill, on the subject of rural adjustment policy failure, reported, that for “30 years, successive Commonwealth governments offered grants to encourage marginal farmers to quit farming...and while the grants increased in generosity over time, there has only ever been a limited uptake of the program” (2001a:9-10).

Figure 7.2: Reasons for Being a Dairy Farmer



Source: LMRIA Study

Evidence from this study supports Liepin's (2001) argument that the business of farming and lifestyle are intrinsically linked. For example Figure 7.2 illustrates that the respondents reported being involved in dairying either as a result of family farm succession and/or equally, due to investment purposes. They also reported income as a major reason for being involved in the industry. The remaining five respondents reported being close to family members and lifestyle as important reasons for being a dairy farmer (see Figure 7.3 below). The research identified dairy farmers who confidently reported that they considered themselves first and foremost commercial farmers who were in the business of dairying because they liked the lifestyle. Respondents commented that dairying was a way of life and up until recent times, it had offered them a sense of security and pride. The two most common factors for choosing dairying were inter-generational transference (succession) of family farm businesses and investment purposes. Dairy farming was considered a source of primary income, however it was reported that wives were regularly involved in off farm, and several of the male respondents reported taking off farm work to supplement the household income.

7.4 Making a Living

When sorted by importance, the respondents valued their occupation since it provided security, income and a sense of well-being. Living and working in the district also provided the respondents with an opportunity to take advantage of an 'ideal investment', 'ongoing employment', and the ability to 'live near family members' in a 'landscape that they valued'. The study confirmed that all of the respondents became involved in the LMRIA dairy industry due to a need to make a living, family succession, previous knowledge of the industry and a liking for the industry and location.

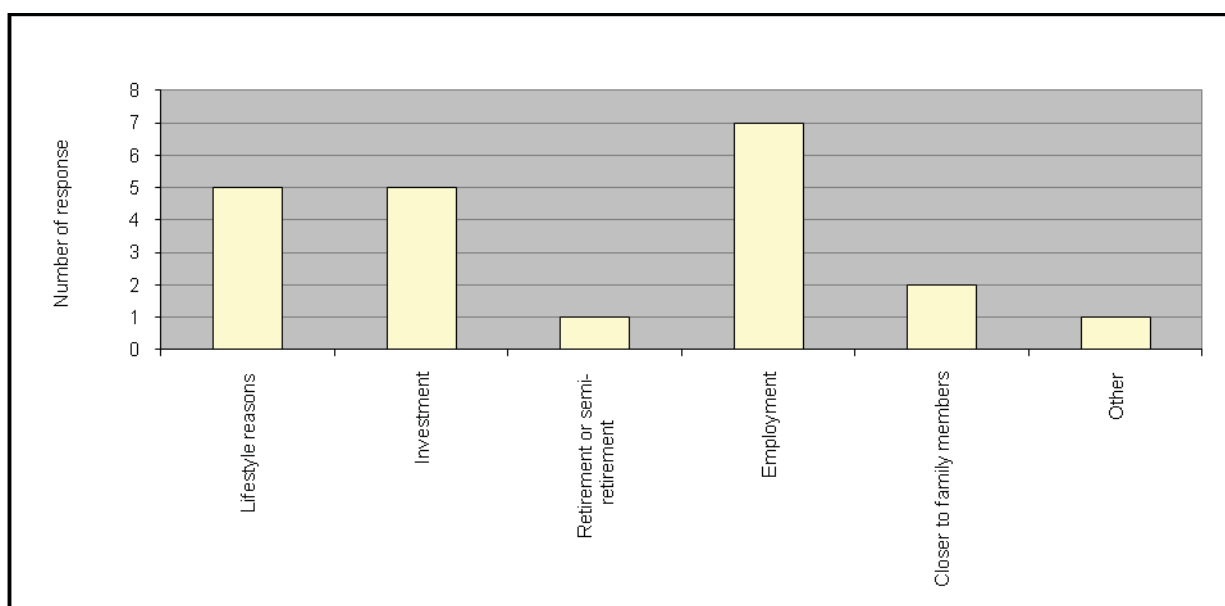
Dairying was all some respondents knew.

So in a thirty year period of me dairying in my own right, we have gone from thirty cows to collectively now, with three sons, we would be nearer, nine hundred and thirty cows and I would say before the sons left school, we would have still been more than four hundred and thirty cows, the acceleration has picked up because of their age and interest and commitment has enabled us to buy extra farms in which rather than they be...

I have always worked on a dairy farm. My father owned this farm and I took it on.

We took the original farm over from our father. Started with about 50 acres of swamp and about 100 of highland... and now it is about 700 dryland and about 100 irrigated highland and 160 acres irrigated swamp...this is all I have ever done for a living.

Figure 7.3: Reasons for Residing in the LMRIA



Source: Case Study LMRIA

Figure 7.3 demonstrates the reasons why the dairy farmers chose to reside in the LMRIA and the degree to which they identified opportunities for investment, and living a lifestyle that suits, including living near family members as reasons to reside in the LMRIA.

7.4.1 Lifestyle

The significance of 'lifestyle' becomes very clear when considering farmer behaviour and why it is that farm families remain on the land when all odds seem to be against them:

It is sort of in their blood, it is part of their essence in what they are all about and if someone can't see that, a bureaucrat can't see it, and experience it because they never really have been there.

I am a farmer and farming is a lifestyle. If we were to get out and do something else, we would find something, but at this stage that is not going to happen. It's like anything; I do it because I like it.

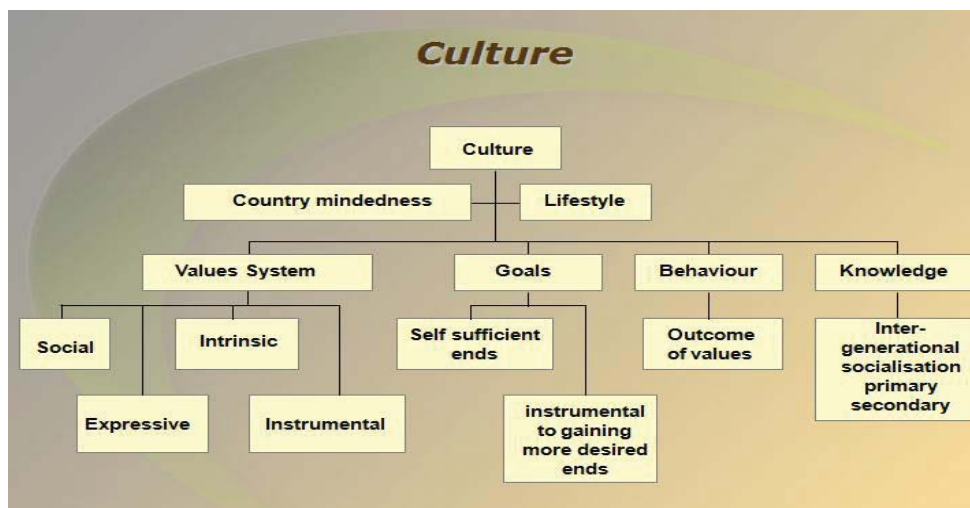
It is hard to explain why farmers are involved so deeply and why they work so hard. It is just a part of your life it is just something you do, you don't look at it as work, it's a lifestyle and you enjoy doing it.

I would suggest, and I am not a money person as such, but profit has to be considered otherwise you cannot sustain lifestyle or your future.

You simply can't place a value in dollar terms on farming...on rural living especially when considering the alternatives...

The term lifestyle was used loosely to explain the more complex nature of agrarian culture. Agrarian culture, like other types of culture, is fundamentally the diversity of human customs and practices that are collectively called "culture". Economic and political systems i.e. local governance, family organisation, beliefs and the transference of knowledge, patrilineal descent and the attachment of meanings to behaviour, are all cultural constructions

Figure 7.4: Agrarian Culture



Source: Cosgrove 2007– PIRSA Flexible Farming Futures: Presentation to PIRSA

Figure 7.4 is a schematic representation of how the dairy farmers considered 'culture'. For example, respondents demonstrated among other things, an integrated pattern of human knowledge, beliefs and behaviour, including a set of shared attitudes, values, and goals. Further their norms, shared beliefs and behaviour were linked through symbolic interaction.

The notion of culture was linked directly to countrymindedness and lifestyle is summed up by one respondent who claimed:

Obviously my sons have grown up and understood the industry, what is required of it, the early mornings and the work and all of that kind of stuff. So it is not like they have come off the street and said 'yeah this is a potential'. They have obviously seen it has been good for me, they have learnt what it takes to work in the industry, we have progressed, and met the challenge and they value what the industry can offer....so they will do the same...it is a lifestyle....

The implications of farming and the notion of countrymindedness being associated as a lifestyle are examined further below.

7.4.2 Countrymindedness – A Link to Lifestyle

The notion of countrymindedness bears a striking resemblance to the concept of 'lifestyle'. At the core of the concept is "the belief in the 'specialness' and moral value of farming, as a way of life" (Botterill, 2001b:12). The notion of countrymindedness and lifestyle has important implications for

farm adjustment policies, such as the rehabilitation project. Hardship and adversity are seen as character building and part of the moral value of farming (Botterill, 2001b:12). Despite inducements (by way of establishment grants or exit grants), made by governments to encourage farmers to depart the industry, farmers are often reluctant to leave (Botterill, 2001b; Lawrence, 1992; Higgins, 1999; Gow, 1994; Lawrence, 1994; Higgins and Lockie, 2001b). Similarly, the dairy industries were reluctant to exit the industry...and a large number of those who did were initially reluctant to do so. In all cases, the respondents claimed if they had to exit the industry, they would have to relocate and start up again and the expense would be great.

Farmers' values, worldviews, motives, beliefs and vision determine the farm type and management he/she adopts. Tied up with the way farming practices are adopted are the meanings farmers assign to those innovations, and the way innovations interact with other farm practices and farmer values and priorities – manifesting in a range of farming styles.

Respondents reported that the attributes of dairying were wide ranging, and incorporated working in an area that allows one to be independent, making a reasonable living while meeting challenges in an innovative fashion. When condensed, these attributes, (listed below in Table 7.1) characterise elements of a 'lifestyle'.

Table 7.1: Attributes of Dairying

•	Leading a healthy life
•	Self-respect for doing a worthwhile job
•	Making a reasonable living
•	Making sure of income for the future
•	Making as high an income as possible
•	Job security
•	Working close to home and family
•	Following family tradition

Source: LMRIA Study

The above attributes closely resemble dominant values which, when broken down, represent instrumental, social, expressive and intrinsic orientations (Gasson, 1973). Gasson argues that farmers have a predominantly intrinsic orientation to work, valuing the way of life, independence and performance of work tasks above expressive, instrumental or social aspects of their occupation. She also noted that “comparing value orientations of larger with smaller farmers illustrates some implications and possible uses of this approach” (Gasson 1973: 521) as is the case between corporate dairying and family farm dairying businesses.

Corporate farming, as reported by one manager, is all “about profit and shareholders”. He went on to say:

Now this particular farm, which I describe as a corporate farm, milks an average of 2,500 cows for a 305 day lactation. Now to do that, to average that number of cows one has to milk 3200 cows at certain times of the year...We have just come off a peak of milking 3100 cows and presently we are probably milking 2900 cows. This dairy here runs for twenty two hours a day. In other properties I have ever worked on, the most we run them was probably six hours a day and that is getting beyond the endurance of one person doing it.

The position being taken here is that much of corporate economic behaviour is rational and flows more or less automatically from fairly major decisions taken perhaps years before, even decisions taken by someone else. However, when asked about the role of family farms, the respondent reported:

I think small farms have some comparative advantages. Often the family works together. They set goals; they work together for a particular goal. It might be to pay off the land or to grow or whatever. And they value the business as a way of life...for example here, if we want a thistle pulled out or if we want anything done, we pay for it. Every time anyone does anything here (Coorong), we have got 25 employees on this property – and we pay for it....One of the things I have found about being on a family farm was that, you know ,

you mucked in, it was very much a team effort and there were some rewards there and some efficiencies in that.

7.4.3 Values and Goals and Life Choices

While respondents attached different values to dairying as a lifestyle, they all indentified with a number of dominant values. Table 7.2 highlights those dominant values that drove them to remain dairying in the face of 'hard times'.

Table 7.2: Dominant Values

Status and Prestige	Security
Money	Being Creative and Original
Working with Family	Using Abilities and Aptitudes

Source: LMRIA Study

Gasson (1973) infers that for one to appreciate the significance of dominant values it is necessary to know where they stand relative to one another. However the experience of this study identified variations in the ranking order being common and these were dependent upon age, gender and the level of 'comfort' being experienced at that time – in terms of lifetime. When asked to describe comfort, respondents' inferred comfort was, a 'state of wellbeing'.

A relationship with the land - country mindedness, independence, working with animals, family tradition, love of the land, enjoying an open-air life, variety and challenge and idyllic place to raise children were all reasons provided by respondents as to why they resist attempts by government agencies, even under times of great hardship, to adjust and exit the industry.

It is a good place to raise kids - and speaking about kids - all the kids in this area - I think only one of them have gone off the rails - they have all got jobs - so that says something about the area.

It is in our blood, it is part of our essence - a bureaucrat can't see it, and experience it because they never really have been there...you know, living and working the land.

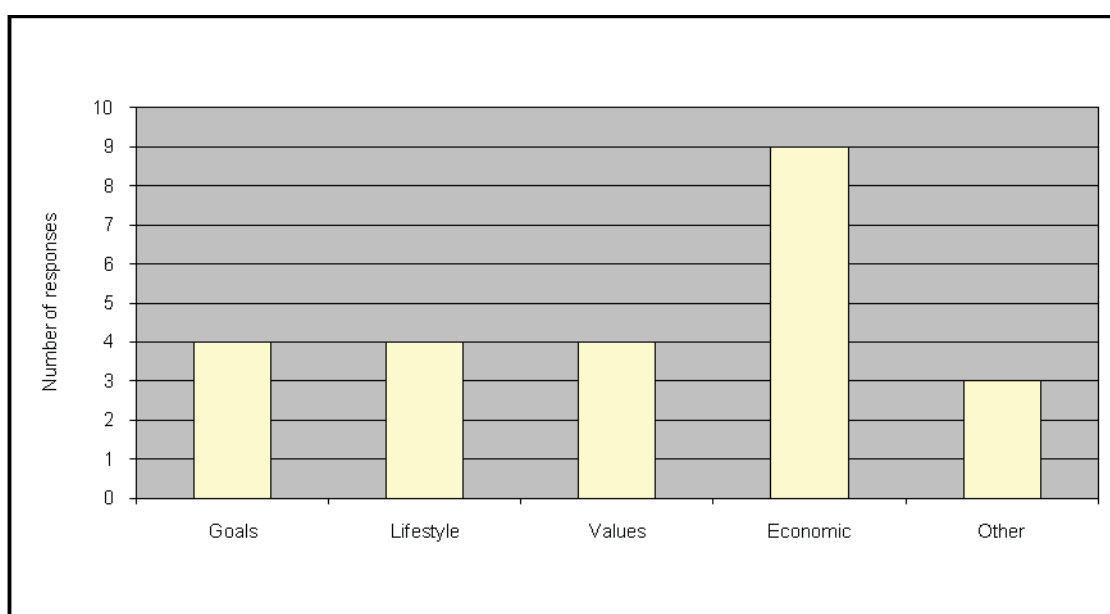
Respondents identified their values, goals and life choices (Panelli, 2001; Liepins, 2000; Botterill, 2001b; Gasson, 1973) as being linked intrinsically with farming 'as a way of life', comprising of monetary and non-monetary values. As Gasson points out, "values are a more permanent property of the individual, less liable to change with time and circumstances, and they do not exist in isolation but are organised in systems or value orientations" (1973 524-525). Consider for

example, a farmer buying more land; he/she may, Gasson (1973 254) claims, purchase the land in order to fulfil one or more of the following:

- Satisfy a desire to own land
- Increase the capital value of his holding
- Expand the business to make room for a son
- Increase output and thereby raise farm income
- Improve access to other parts of the farm, and
- Engage in a non-farming activity such as a tourism activity – bed and breakfast.

Similarly, respondents reported those factors that governed their decision making comprised of goals and values which were linked with economic and lifestyle factors.

Figure 7.5: Factors That Govern Decision Making Processes



Source: LMRIA Study

Figure 7.5 illustrates that while the participants reported their decisions were driven first and foremost by economic desire, they also considered goals, values and lifestyle were important drivers for decision making, and it was the economic driver that provided a means for meeting their needs.

The lessons learnt from this study support Gasson's (1973) view that '[a]lthough psychologists would regard an individual with a single motive as most unusual, orthodox economic theory fails to recognise any goal other than profit maximisation' (Gasson 1973:522). Notwithstanding this view, one respondent did report that some of the farmers who had exited the industry, did so as they were close to retirement and so rather than going through the rehabilitation project, they opted out of the industry as they had an opportunity to maximise the benefit of water, while remaining on the family farm.

I tend to think that if you sit back independently and have a look - we have probably lost a lot of those people who should have gone - and we have been able to retain some who um, thought they would have to go because they just weren't giving themselves time to think it through um!

In most cases those farmers that did exit the industry remained living on the family farm.

A lot of the people who have got out of dairying have remained in the area - and the wives have gone and got more work - there were a lot of people before, where wives were working anyway, but the wives have gone and got more work.

One or two have relocated, but that hasn't been the majority of what has happened, and some of those who have got out are now sitting back are now thinking - maybe I should go back into dairying....quite a few felt pressured by the government and now regret leaving.

See a lot of them have sold their water but retained their land ...there must be a fair bit of land that hasn't been bought by neighbours, just sitting there.

Several male respondents reported having mixed emotions about selling their cows and closing the dairy. In numerous cases spouses had opposing thoughts as to taking the exit package. For example, while one wife was more inclined to stand by their decision to leave the industry, her husband was still milking cows, but on other family farms.

Our decision was made on the very first estimate. They (DWLBC) were nearly twelve months to eighteen months before they got back to us and then we were told "oh! Things have changed". Well we could only make our decisions on the information they gave us, not what is the case now. But even now the farmers that are still here are telling us that the Government still got the answers and it is indecision. We would have hung out for two years, while still going backward just waiting for somebody else to make a decision. I hear now it is going to be cheaper because the Government is going to fund more because I think more of us have left so there is more available funds for people...It is just going to keep going on and on and there is just not ending to it. So with the good water prices...it was like...ok - we had to make that decision. We talk about that often, but still have no regrets. We put everything into this place but we still have no regrets.

My husband is still milking cows, he is doing what he likes and he can still have his passion and walk out the dairy when things are really bad.

Exiting was totally a business decision and for me, I love the cows but I am a business person. For my husband it was a passion, he has worked with cows all his life and for him I thought it would be very hard, but then he is happy to milk other people's cows - so (a farm down the road) have got him as a workman - milking cows.

These mixed messages, and similar ones were typical throughout the study.

If things had been different, like if they had told us it would have cost us \$20,000 to rehabilitate then we would have stayed.... We went to the meeting where the Minister said, more or less, a lot of farms had to go. This is how it all went to shit basically... it went down like a lead balloon. We went to two meetings, and they were so far apart - there was no communication. So once we were given the quote for \$400,000 to rehabilitate our land, we were one of the earlier ones to say 'no, we are not doing this anymore'.

To understand the significance of values and subsequent behavior, it is necessary to understand where values and behaviour stand relative to one another. Variations in ranking of common value elements, all of which may be present cause values systems to differ between individuals (Gasson

1973:525) as was the case for this study. In other words, the dairy farmers aspired to achieve valued ends, but in situations where this was not possible, it was the “relative ordering of values that determined how they decided to act” (Gasson 1973:525). In other words, when individuals were at their wits end with the rehabilitation project and when they were at a loss as to what to do, many of them opted to exit, even though it was not their preferred course of action, which was to retain a working dairy.

7.5 Drought – And the Final Straw

The effects of drought featured strongly throughout the study. At the time of the study farmers were already struggling as a result of the drought, as pointed out by one respondent “none of the farmers got one cent of drought funding, most of us got into financial trouble”. For most of the community, drought was blamed for affecting the livelihoods of dairy farmers in the first instance, and the rehabilitation project was considered the final ‘nail in the coffin’ for many. As Alston reminds us “the people most affected by drought are farm family members whose lives are taken over by drought” (Alston, 2006:154-155).

The many narratives related by the respondents in this study, resembled those experiences cited by Alston (2006), Stehlik et al (1997) Botteril (2003) and Botteril and Fisher (2003) about drought as having profound impacts on farming communities. For example, all but three respondents reported experiencing “economic difficulties associated with the drought, particularly as they were also trying to cope with the effects of deregulation of the industry and increased competition as a result of deregulation and globalisation trends” (Stehlik et al., 1997:266).

I said when the drought was on; it is going to take us ten years to recover. Well it probably looks like twenty years now, now that we have all these other problems (referring to the rehabilitation project), “it is just not worth it anymore”.

And

The drought we had a couple of years ago knocked us around. We had just built the new dairy a couple of years ago and spent every last cent we had and we never had any money in reserve, so it was the end for us. Our plans were to expand. I started leasing the neighbour’s property, expand the herd and go bigger. We had about 200 cows at the time the drought hit. ...Up until the drought we were viable. Yeah, the drought just sort of came

along and then the price of hay trebled and the grain price doubled and it just knocked us rotten. We got behind on our payments because we had to borrow so much money to rebuild the dairy - we didn't have any money and then the rehabilitation came along - just can't make ends meet.

An interesting insight to be gained from the study was that while respondents reported experiencing 'incredibly difficult times' over the past two years as a result of the drought, all but one had managed to keep their dairy herds.

Responses to the drought varied from one respondent to the next and the ability to be 'innovative' was not only noticeable, being innovative was considered to be strength by the respondents, for 'riding the drought out'.

We dried the cows off early, we cut right back on the feed, we got most of the cows in calf, the ones we didn't get in calf I culled – meat works got half the herd and I sat on my hands and waited and I bought them back in June this year, awfully cheap. And these people all sat through the drought- and the Government didn't seem to realise or care that people didn't have any money because of the drought...we didn't over extend ourselves.

In our situation when it came time to look at the business, we had culled all these cows, there was the physical drought and then there was the money to cover the drought, nobody had any money for the rehabilitation project.

If I go back to the drought, it was in September and early October that I knew that there was going to be a shortage of feed, hay and grain, which we rely on. And I indicated to my accountant that I was going to sell a heap of cows. He thought I was acting a little prematurely because our spring running from late August to November is our best time of the year. ...but what do you do!

Even with the hardship of the drought, the study demonstrates that dairy farming as a lifestyle met the expressive, social, instrumental and intrinsic needs of the respondents. The respondents reported they liked living on the swamps; that the social relationships borne out of many years of

working together as a community and the area's attractive natural environment was conducive to raising children. The respondents also demonstrated a strong tenacity in the face of adversity, i.e. deregulation, severe drought conditions, poor milk prices and excessive costs for grain and hay. It was the strengths of their convictions that kept the 'community' from completely crumbling under the rehabilitation process. However, on an individual basis, all but four of the respondents tearfully reported the hardships they had experienced as a result of the rehabilitation process coming on top of the extra burdens placed on their families and businesses due to the recent drought and poor milk prices.

7.6 The Community and the Rehabilitation Project

It is human behaviour to utilise what resource(s) are available to make ends meet. If this means exploiting the natural environment limits, then this is what people will do (Mech, 2004a; Mech and Hugo, 2004; Mech, 2004b). When this study commenced many of the participants expressed annoyance about the government's attitude to them, in particular given they had been blamed entirely for the degradation of the Lower Reclaimed Irrigation Areas of the River Murray. Indeed, the participants pointed out that many other industries i.e. tourism – boating, ski jet hire and so forth used the River on a daily basis and that those recreational pursuits impacted on the health of the river. One participant claimed that bird life also had a major impact on water quality. For example one respondent reported

when you don't have a duck shoot every year and clean out the ducks and ...

Now the ducks and ibis are causing a lot of the trouble with pollution. They have got more ducks down there than they have for ages.

Can you believe ...when we first moved down here twenty three years ago, my mates came down the hill and it was duck shooting season, you cant shoot today....So what we have, is we irrigate here and there are two thousand birds on a bay, two thousand birds on a bay, now you tell the EPA, this is what we have got, and they say, what we will do, we will determine if it is cow poop or whether it is bird poop

Its been shown by trials, and we would insist that those trials keep going, but the initial results are indicating the birds are as much at fault as the cows , if not, more so, because their nutrient load is much more stronger...

In many instances the respondents lamented that while they recognised the need to be 'mindful' of the environment; they often found themselves compromised, for the sake of making a living. It was these and similar concerns that were the incentive for the community's approaching the government in the first instance, to work with them to address their concerns about the health of the River Murray. Similarly, Cocklin points out when considering the balancing act farmers regularly find themselves involved in : "[F]or rural commodity producers, the perennially difficult act of balance is to at once draw upon natural capital and ecosystem services, while at the same time being good stewards of the environment....."(Cocklin, 2005:171).

For the dairy industry on the Lower Murray swamps, the impact of their industry on the natural environment became a common concern for the community in the mid 1990s. Examples of community responsiveness to irrigation drainage and environmental impacts on regional wetland go as far back as November 1997. The Murray Valley Standard reported on a preliminary study by the University of Adelaide in collaboration with the community on two wetlands near Mypolonga. The research looked at the impact of irrigation drainage on wetlands in the Mannum to Wellington area (Aucote and Bartsch, 1997).

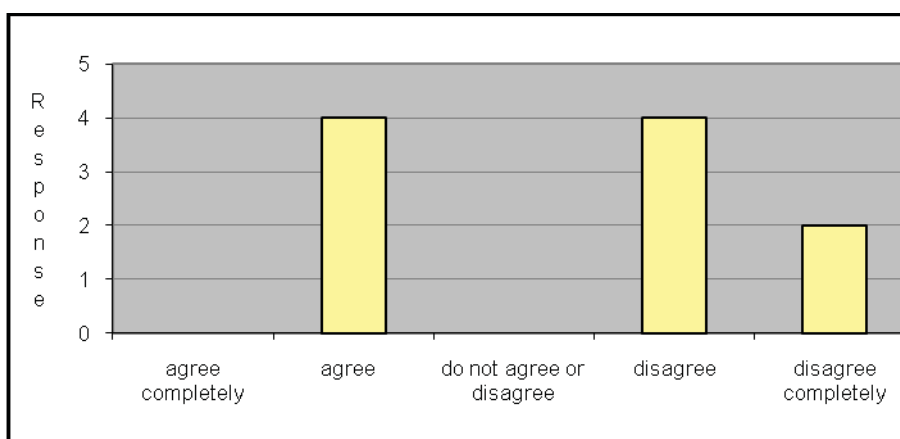
As early as 1999 dairy farmers had met with government officials and specialists in water management to impress upon them that the industry had planned imminent changes such as rehabilitation and restructure of water supply, along with the deregulation of the dairy industry (Standard, 1999). However, it was not until 2000 that the government became involved with the community and this was by way of the 'Rehabilitation Project' in early 2000. The concerns of authorities were documented by the local press on a regular basis. One such article reported the Premier of South Australia as having concerns for the health of the river, and claiming that the main sources of pollution along the lower Murray came from the dairy farms located along the river (Morgan, 2000).

The government considered a rehabilitation project was necessary to address current irrigation systems and practices which used large volumes of water due to the poor design and condition of the infrastructure and poor management practices (PIRSA, 2001) – hence the development of the Rehabilitation Project.

One component of the project was for dairy farmers to form Trusts, to manage the swamps irrigation infrastructure. At the time of the study, two thirds of the LMRIA area, the land and the infrastructure were Government owned and managed, while one third was privately owned and managed (PIRSA, 2001). The government was steadfast in its resolve that dairy farmers should either form Trusts to manage the natural resources and infrastructure or exit the industry. From observations gained from attending community meetings and interdepartmental meetings, it was obvious the government felt a need to work with the community (adopting a heavy top down governance model) to ensure community members acquiesced to the rehabilitation plan, and as such, meets deadlines to ensure a smooth transition from government owned infrastructure to either private ownership, or the more favoured outcome from the government's perspective, a Trust. This 'rigid' stance taken by the authorities proved to be the Achilles heel of the community based natural resource management project and was a source of great consternation for all involved in the rehabilitation process.

7.7 Participation in Decision Making

Respondents reported that throughout the rehabilitation project consultation process, community members had been afforded little consideration by government officials, with regard to their thoughts and opinions about the rehabilitation project including their fears as to how the project might impact on their businesses. Community members claimed many of them had not had an opportunity to be involved in decision making about the rehabilitation process. This was a major criticism, because respondents asserted their livelihoods would be impacted by the rehabilitation project. As one respondent commented "If I had an opportunity to talk about how the rehab was impacting on my business, it may not have got this bad".

Figure 7.6: Participation in Decision Making

Source: LMRIA Study

Figure 7.6 illustrates that of the ten families who responded to the questionnaire, four agreed that they had had some input into the decision making processes of the rehabilitation project, while a further six disagreed that they had had an opportunity to be involved in the decision making processes.

Respondents did however recognise that some people had more input into the decision making process than others. Importantly, respondents reported that in the first instance all dairy farmers were interested in participating in the project. However, over time, and as relationships between government officials and community members broke down, there was less and less desire by farmers to participate in a positive manner with those government officials undertaking the administration of the rehabilitation project. In some instances the resistance was palpable.

7.8 A Lack of Trust Does Not Make for Building a ‘Trust’

Issues about the role of government and the behavior of its officials were widespread across the swamps. Lack of transparency contributed to the poor levels of trust and “...the level of transparency is sometimes questionable” as did a tendency by some government officials to change the goal posts “Yeah, and they will move the goal posts” adding to the pressures being experienced by the community.

Just talking about a meeting with DWLBC – "...", well, he is going to be in charge of the levy bank....well Jervois district is 20 odd irrigators and it is getting less every day because people are pulling the plug. Now the Government which is DWLBC "..." want all irrigation districts to go into Trusts. That's what they want...because it would be easy for them to just get us to sign along the dotted line - because of the Irrigators Act. And because the government has adopted this Australia wide program to save the River Murray the government says the water trusts have got to be changed, and a spokesperson said, since you have to change it, why don't you change it to suit the farmers and ah! We can't do that, it is too difficult because if it goes into a Trust, the Trust is liable for everybody else's financial commitment if you know what I mean - But one of the things that the LMI have maintained is that farmers should own their own water. Well "P" (government authority) didn't like that. If you aren't going with the Government Trust, we don't want to know about you. It got that bad here I have no doubt people would have stayed, but I still don't think it would have fixed up the environmental problems. "..." DWLBC says "you can't do that, that is public money"...well what is his wage - is that not public money? Apparently they have shunted him off to the South East to solve the problems there - and we said "lucky for the South East". He was at this meeting though the other day...so obviously he is still involved.

Respondents reported that the industry had been aware of problems with the infrastructure for over a decade, and so they became proactive and formed a working group to address those problems. In the initial stages the group and the wider community had thought they had developed a good relationship with the government, through PIRSA. However, from the time the rehabilitation project was transferred from PIRSA to DWLBC (as a result of department restructuring), respondents reported the relationship between the LMRIA community and the government deteriorated quickly.

The LMI was actually started by farmers, back some ten or twelve years ago now. The LMI thought perhaps we should look at the environmental things. And there was some enthusiasm...they thought there was some need and they started applying for grants.

People in PIRSA were very proactive in those days. But they cut back PIRSA in Murray Bridge, cut it back to nothing. There is no dairy person (government officer) ...from what I

can gather at Murray Bridge. There used to be workshops. Farmers from Mannum to Wellington would go...and now it's all gone..... further commenting.....and now there was lots of male bonding going on in those days, heaps. You would go along for a half day, but you would be out there all day because you would start talking to one and other, and there was enthusiasm for farming...and that enthusiasm has gone since Hill and his crony's ...see PIRSA got taken off as the lead department, and then it was given to the Minister for DWLBC, and that is when the foundations crumbled

Things haven't been positive since DWLBC got a hold of everything. The whole thing has become so political. For the Minister, it all comes down to numbers, who is staying and who is going. They keep asking us, but I don't think the farmers have a clue who's staying and who's going. One woman got upset and said to the Minister, twenty percent of us might stay and eighty percent go. The Minister scoffed, oh! that won't happen well...look what's happened - forty five percent have gone and there are people here just sitting and waiting, because of their age and it is a tax question. I am fifty two, if I get to fifty five and we are still here I can then leave and get a better taxation retirement, and there is capital gains. So some people are just sitting because of that.

Not surprisingly the progression of the rehabilitation project became hostile and drawn out, particularly given the perceptions of the respondents about their treatment by the Minister and government officers. The degree to which mutual angst existed between parties is summed up by one respondent, when relaying an event which the dairy industry attended early in the rehabilitation process.

The Minister's attitude...he came out of that meeting in Murray Bridge under armed guards. Have you ever been to a meeting where a government Minister is escorted out of the meeting with nine armed guards? People were ready to kill him - no questions asked. Most people held it fairly well.

The extent of negativity felt by respondents about the project was palpable across the swamps. When asked how they felt about the rehabilitation project, all but one respondent shared similar views.

...very negative, and that is mainly because of the Government not coming through with what they say to start with, not helping us. Like we have had consultants come here willy-nilly all the time - paid by the Government - we have had hardly any input up until the last 12 or 18 months and that was minimum...but we haven't seen anything back in return at all. And all that money was originally set aside for the rehabilitation - like the on ground works - there was \$22 million dollars original, and now it is down to under \$12 million dollars and all that has just been put aside. Admittedly there has been a few trials here and there that they had to do to find out what would be the best thing to do, but all these people coming in all the time, consulting on this, this and this, they have never been farmers, never been irrigators a lot of them don't know what they are talking about.

7.9 Top Down Engagement

Respondents were concerned about how the project was being managed, particularly given the lack of communication by the government. Indeed, the outcome of the government's approach to the engagement process had devastating repercussions for the community.

We had a meeting only a fortnight ago and one of the big wigs from the Government, we put questions to him but he never answered the questions. He just ran around in circles and wouldn't answer the questions correctly. By the end of the meeting we hadn't got anywhere with him. He (government employee) stood there and the impression you got was he was up there in his suit and he has a few letters after his name and he is bigger and more powerful than everyone else, so that's about it. Whether it is true or not, I don't know, but that is just the impression we got. And as irrigators and dairy farmers in the area we have had these meetings for the last five or six years and there is only the odd meeting where we seem to be heard or go forward a bit.

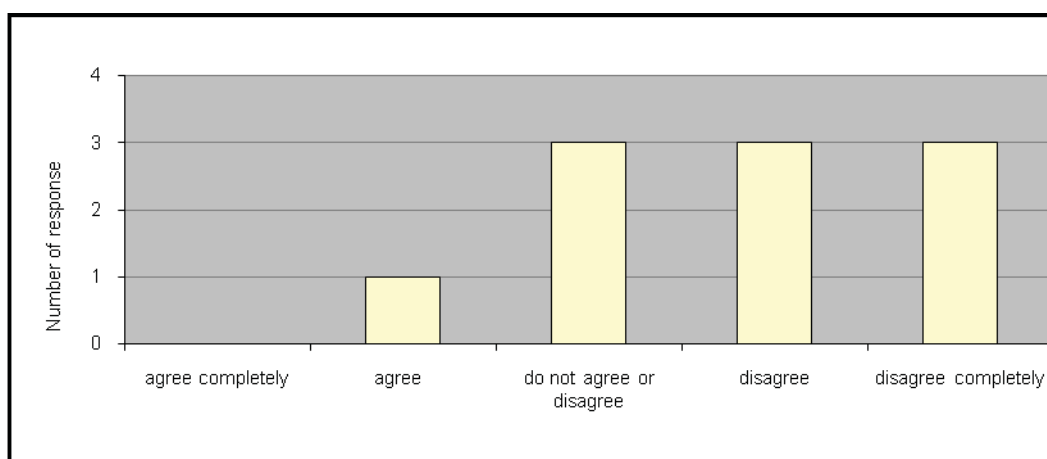
The rehabilitation has been going on for about nine years now since it first came up and if we got more input then we would have been a hell of a lot further ahead than what we are now.

Respondents reported throughout the study that the community had hoped to build a network and partnership approach with government, including a civic governance approach to the rehabilitation process. For the respondents the emphasis was about going beyond institutional constraints and building upon existing networks and relationships, which they considered would affect a more favourable outcome for community based projects (O'Toole, 2006). A level of low tolerance displayed by respondents towards government authorities was symptomatic of the degree of mistrust they felt for the authorities. Respondents' reactions were made worse by what they considered was a lack of respect afforded to them by the government throughout the rehabilitation process.

7.9.1 Lack of Respect

Respondents reported government authorities afforded them little respect as individuals and as a farming community as a whole.

Figure 7.7: Level of Respect



Source: Case Study, 2005

Figure 7.7 illustrates the extent to which all but one respondent considered they were being treated, as individuals and as a community. All but one of the respondent reported the government treated dairy farmers with respect.

Respondents' confidence levels in the government and in particular the Minister and his ability to disassociate himself from a political agenda, so that he could consider what the impact of the project was having on the community, was a major concern for respondents.

Well the Minister came on the scene a couple of years ago and he frightened so many farmers, absolutely petrified so many farmers - it was his attitude of "You! Dairy farmers are responsible for the pollution in the Murray. You are responsible - you will be penalised - you will be stopped - you will be forced and the EPA will do it." The Minister's attitude...he came out of that meeting in Murray Bridge under armed guards. Have you ever been to a meeting where a Government Minister is escorted out of the meeting with nine armed guards? People were ready to kill him - no questions asked. Most people held it fairly well.

To hear from the Minister that the dairy industry is just shoveling their effluent back into the river made us sound like very undesirable people to have along the river.

At the initial meeting with the Minister....he was heard to ask one of his crony's "how do you think we are going"...he was told; 'ok'....well that was a joke.

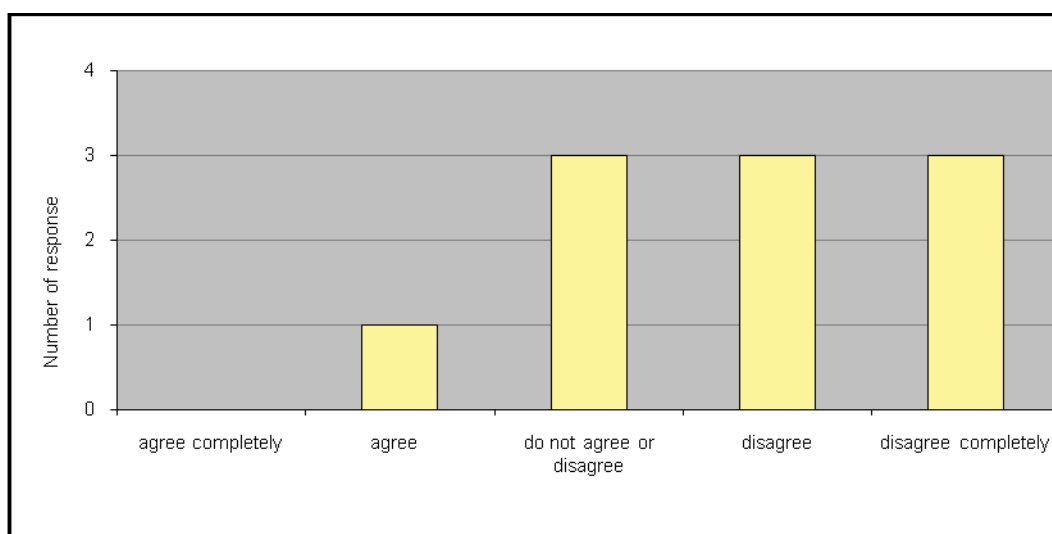
Overwhelmingly, respondents felt that they were being judged by the government and media alike, who, from the respondent's perspectives, lacked any in-depth understanding of dairying and how their approach to natural resource management would impact on their community. In particular, respondents reported, they thought officials had assessed the community incorrectly, and in doing so, challenged the integrity of farmer knowledge in relation to natural resource management.

For the most part it occurred to the dairy farmers that they were being made an example of, for what was a much wider environmental management problem. Indeed the respondents reported

that they were taking environmental sustainability and business development seriously, and this fact appeared to be overlooked by government. Undeniably, the extent of exposure by the press of the dairy industry forming groups to address environmental issues as far back as 1996 lends support to their argument that the dairy community had a long-term desire to manage their environment in a sustainable manner.

Respondents also reported their community had not been treated fairly (see Figure 7.8) by the managers of the project. This caused considerable consternation for the respondents and only added to their mistrust of the government. It was thought that the government 'moved the goal posts' on a regular basis leaving dairy farmers uncertain about their future, and what to do next. Many of the decisions that required to be made were major decisions and as respondents claimed they required correct information otherwise it was believed there would be major implications for individual families and the community as a whole.

Figure 7.8: Managers Dealing Fairly With The Community



Source: LMRIA Study

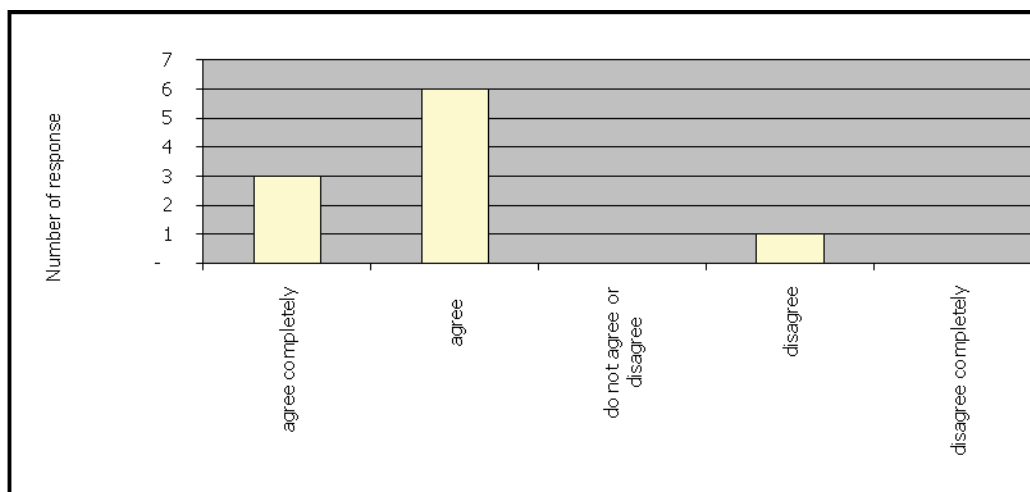
As the interviews unfolded it became obvious that a common theme of disillusionment prevailed throughout the swamps. The sense of dislocation, alienation and confusion caused fear and anger amongst the industry towards the government and had the potential to shatter community spirit.

7.10 A Sense of Community

Respondents reported that up until the 1980s, there had been a strong sense community throughout the district. It was however recognized by participants, that over the past twenty years there has been a change in terms of a traditional sense of connectedness and community spirit. Respondents acknowledged that the slow but steady influx of newcomers had been responsible for what they thought was a shift from a homogenous character to one incorporating a heterogeneous spirit within the community.

Whilst there was a sense of sadness for the loss of a more traditional past where neighbours had similar interests, i.e. all worked as dairy farmers and supported each other through the “good times and bad times”, respondents claimed they still identified with new members (as illustrated in Figure 7.9) and recognized that these newcomers, brought with them a variety interests and new ideas, which the respondents stated, was not a ‘bad thing’ for the community.

Figure 7.9: Identify With New Members of Community



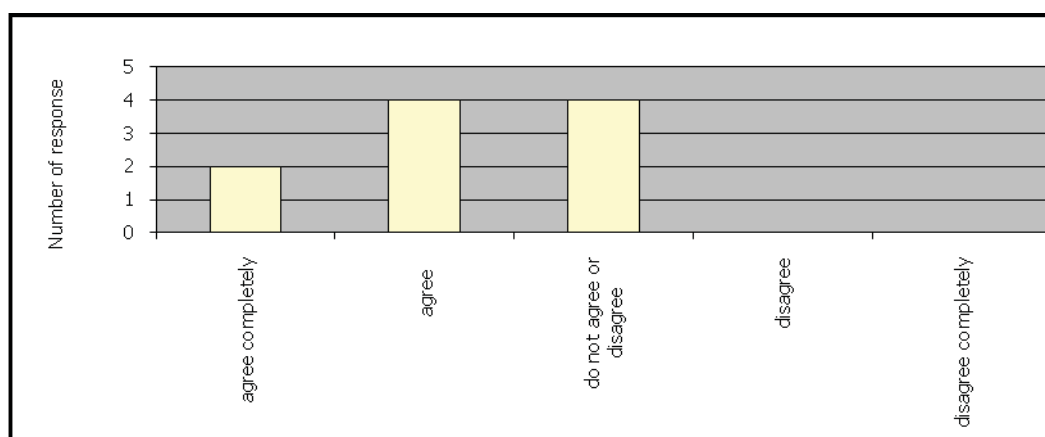
Source: LMRIA Study

As one respondent comment:

Well, now when you talk community, well probably thirty years ago everybody knew everybody, where as now you don't even know twenty percent...I was speaking to this guy the other day - he is building a house down the road - he was good to talk to - but I wouldn't have a clue who he was....apparently he drives trucks for a living.

Notwithstanding this gradual incursion by newcomers, dairy farmers were still the principal demographic in the district. As reported above, respondents acknowledged a sense of community existed on the swamps, albeit, it was somewhat different to what it had been in the past. These comments support a large body of literature that exists as to the social differences that occur in rural communities (Panelli 2001; Smailes et al 2005; Walgrave and Stuart 1997; Walmsley et al 1998; Selwood et al 1996; Hugo 2001; Hugo 2005; Smailes and Hugo 2007). Figure 7.10 demonstrates the extent to which respondents felt a sense of community existed within the swamps.

Figure 7.10: Sense of Community



Source: LMRIA Study

In the early 1990s, debate arose over the social differences that occur in rural communities as a result of migratory patterns, and social scientists recognised a need to more fully document the notion of 'others' in the community context. Writers acknowledged there was a need to more fully document the impact of 'other' groups on communities and consider the purposes and methods by which differences and otherness can be acknowledged most appropriately in academia (Tonts and Black, 2003; Walgrave and Stuart, 1997; Walmsley, 1998; Smailes et al., 2005; Selwood et al., 1996; Smailes and Hugo, 2003; Hugo, 2001; Hugo, 2005; Smailes and Hugo, 2007).

Liepens highlights Day's (1998) comments, who notes the "notion of 'communities in communities'", claiming it can be "recognised how communities are alive to the differences between people...and capable of accommodating divergent, as well as shared identities"

(2000:326). Certainly the encroachment by newcomers over the years had slowly brought about diversity to the community's social composition, supporting Day's notion of 'communities within communities'. For example one respondent commented "even though we used to all have the same interests because we were all dairy farmers, we still accept the alternative lifestyle people – they have some common interests – they like living on the swamps and along the river".

An argument of this study, and one that supports Liepin's theory, is that the "strength of tolerance regarding the social composition of the population is affected by the proximity of people from metropolitan ..." (2000:333) – in this case Adelaide. Since the Lower Murray Reclaimed Irrigation Areas is only some eighty kilometres from the city of Adelaide, and respondents travel to Adelaide on a regular basis, there appeared to exist a higher tolerance and acceptance of newcomers to the area than there was, for example in the South Australian Arid Lands study. Those people living on the swamps would regularly experience people commuting through their communities, whereas those peoples living in the more remote areas of South Australia's arid lands were less likely to experience high numbers of commuters on a daily basis.

7.11 A Community in Crisis

At the time of the study, the LMRIA dairy community was experiencing frustration over the progress of the local natural resource management project –the rehabilitation of dairy swamp lands.

Overtime (during the course of this study) frustration escalated into a state of 'crisis'. When talking about their 'community,' respondents (particularly women) claimed, that theirs was a 'community in crisis', and that the social and human costs were high. Indeed by the end of the first round of field trips, the community resembled a "community in collapse".

It was reported the rehabilitation project destroyed their 'sense of community and wellbeing' and this was a most serious concern for all of the respondents. For example, when asked if the rehabilitation process had brought the community together with everyone playing on the same team; the answer was a unanimous no. Respondents recognised that social change, and to some extent cultural change, had occurred over the past few decades due to in-migration and the rise of hobby farming, but it was the rehabilitation project that was considered first and foremost responsible for their community being in a state of dislocation and crisis.

Now there are farmers fighting amongst themselves about you know, how dare you offer me three hundred dollars an acre ...and the price of unwatered land now has gone absolutely berserk, it is ridiculous.

And all of a sudden these people thought, I really don't want to go and the neighbours land is just sitting there, um, I suppose I will go and see what I can do and of course people so - Ohh! so you actually want my land, well I will double the price, if you actually want it.

In addition, it was possible to exemplify the degree to which the poor engagement process was linked to the state of crisis. From the onset of the rehabilitation project, rather than working with the community, the authorities had been at odds with the community. For example, rather than adopting a participatory and involving community members in discussion and decision making the government utilised in the first instance a desktop consultancy which effectively alienated the farmers from the onset of the rehabilitation project. Subsequent consultancies were also undertaken by people who had little knowledge of the social context of natural resource management and the 'uniqueness' of the environment in which the dairy community lived.

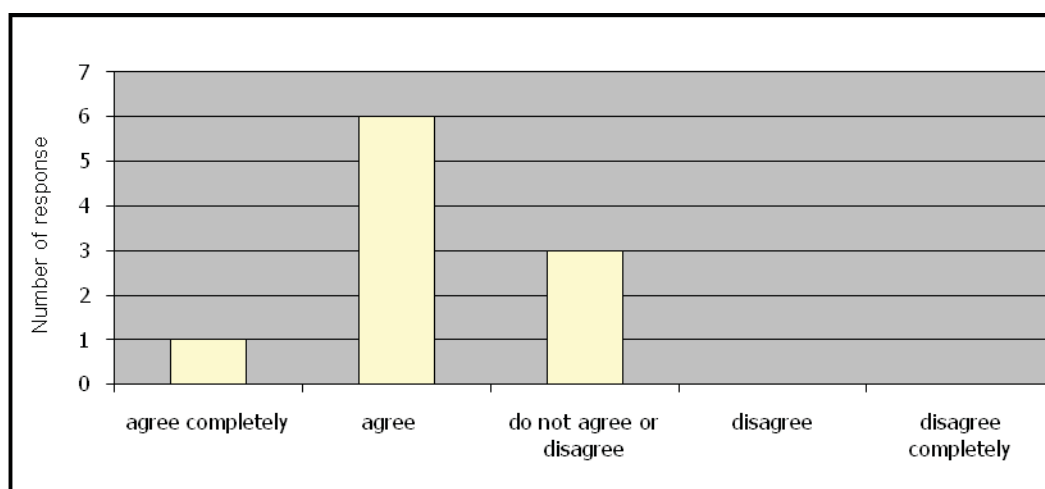
Like we have had consultants come here on and off and they were paid by the Government - we have had hardly any input up until the last 12 or 18 months and that was the minimum...but we haven't seen anything back in return at all. And all that money was originally set aside for the rehabilitation - like the on ground works - there was \$22 million dollars originally, and now it is down to under \$12 million dollars and all that has just been put aside. Admittedly there has been a few trials here and there that they had to do to find out what would be the best thing to do, but all these people coming in all the time, consulting on this, this and this, they have never been farmers, never been irrigators a lot of them don't know what they are talking about

There was consultation, but only on their behalf. They told, we listened, if we wanted to say something, they responded, well it is not going to happen that way, and this is how it is going to be. We got told we were 'stupid'. We were told it was 'stupid' talk when we said that ninety percent of the farmers will go. We got told, that is stupid talk, and I am not even going to address that.

A further criticism of the government was its inability or unwillingness to consider the accumulation of local knowledge regarding the nature of the environment - in particular the peculiarities of the swamp lands in respect of the rehabilitation of the natural landscape. In essence respondents were disappointed that the government had not engaged with them to discuss these peculiarities. Respondents had hoped that the project would have been more 'participatory in nature' as they felt they had a lot of knowledge to offer and share with the government.

Moreover, building a community-driven sustainable rehabilitation project was paramount for the respondents and was as much about adopting a civic governance approach and working with each other, as it was about sharing their knowledge with the government. Notwithstanding their disappointment regarding the extent to which they were involved in the project decision making process about local natural resource management, respondents reaffirmed (see Figure 7.11) that they were proud of their effort to work as a whole community, for as long as they did.

Figure 7.11: Proud of Community Commitment to Rehabilitation Project



Source: LMRIA Study

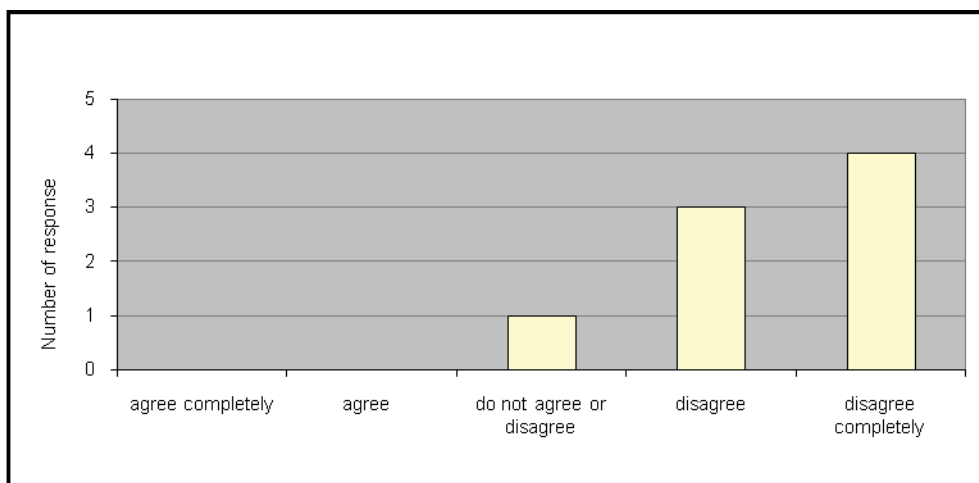
When quizzed further, respondents claimed that they were a community who had tried to work with the government and had now given up. All but one respondent claimed that working with the government had been a difficult and thankless task, particularly given the respondents felt they were being "talked down to" rather than being conversed with. Respondents reported they were

now attending community meetings that were all about how best to identify their next best course of action and how to remain united when it came to natural resource management.

7.12 Social Capital – A Key to Community Success

A key to this community's success up until the rehabilitation project had been its social capital. Indeed respondents claimed high levels of social capital had existed as late as 2001. Fractures in social capital fabric purportedly became evident shortly after the government initiated its natural resource management program. As stated by the respondents, social relations in this small population had been quite strong and existed up until the beginning of the rehabilitation project with one respondent claiming "as the project evolved a breakdown in community confidence and personal relationships began to permeate throughout the social fabric of the community". Respondents accredited the breakdown in social capital was a result of the poor engagement practices adopted by the government throughout the rehabilitation project. As Figure 7.12 illustrates, all but one respondent considered the rehabilitation project destroyed community harmony.

Figure 7.12: Did the Rehabilitation Project Bring The Community Together?



Source: LMRIA Study

In most cases it was considered that as neighbours exited the industry, rather than pulling together, each swamp had gone off on its own tangent and that this was the very reason why it was possible for the Government to influence – by pitting one swamp against another.

Notwithstanding the impact on social capital – in particular the element of trust, community members still utilised those entrenched networks and relationships to initiate ‘neighbourhood watch groups’ who regularly visited those in the community who had been identified by community members as being at risk of harming themselves as a result of the rehabilitation project (discussed in more detail below).

The role of ‘leadership and relationships’ between government officials and community leaders seemed, at times, to make it more difficult for leaders to act according to their beliefs - since if they did, their actions were looked upon disapprovingly by the government and they were subsequently labelled as, ‘interfering’, ‘difficult’ and/or ‘obstructive’ to the progress of the project.

7.13 The Role of Leadership

An interesting facet of the rehabilitation project was the role of leadership, and in particular the role of three matriarchs and how their behaviours influenced some of the project outcomes. All three women lived on the dairy swamps and were directly involved in the dairy industry. One woman (who had not long migrated to the district) appeared to have a resolve to be seen and heard as a leader and a champion of the rehabilitation process. She was the only person interviewed that was in favour of working with the government to progress the development of the first Irrigation Trust for the LMRIA. The remaining two women had over many years been heavily involved in community projects and interests within the district, i.e. community based natural resource management through their involvement in Landcare, the Murray Lakes – Local Action Plan, LMIAC, the Murray Darling Basin Commission and the LMI to mention a few. These two women it appeared were more inclined to work for the benefit of the wider community than self promotion as the other appeared to be inclined. It became evident over time (from observations of several meetings between the government and the government preferred, ‘lead’ swamp community) that the government fostered a relationship with the ‘would-be leader’ and promoted her and the swamp community that she represented (group of three dairy farms) as an exemplar community. In particular, the government used this community to promote how best to work with the government successfully, on the rehabilitation project. In essence, the ‘lead’ Trust was a project which all other potential Trusts would be measured.

Of the three women this woman had the most to gain personally from aligning herself with the government since the other two women were firmly established as leaders in their own right within the community. While all of the sub communities – swamps - were at different points in adjusting to meet the project milestones, the government used this woman's desire for leadership as a mantle, extolling her role and the community she represented as an 'exemplar community'. As it was reported by this respondent when commenting about Trusts and the role of the government:

I can't see anything wrong with Trusts, I still haven't found any reason apart from your neighbour might be able to stop you from selling your water or if all your neighbours got together they might be able to stop you selling your water...but we have got it written into our agreement that everybody has the right to sell their water...which is simple enough to do because we were the only ones that are going ahead...we could basically sit there and write all the rules ...consulting with DWLBC.

The actions of the government in identifying an 'exemplar community' caused friction between this swamp community and a number of other community groups throughout the LMRIA. What was once a friendly and open community had reportedly become a community suspicious of all government authorities and in some cases, doubting their neighbours' intentions?

I suppose in the background you could say they (DWLBC) were forcing it (the rehabilitation and exit program) to happen even though they sat around and said, look this is an opportunity that we are offering the farmers - so many of the farms in the Lower Murray are interspersed with each other, because of the earlier days, you could buy your neighbour out, but it was not necessarily the next door land, so the government said, here is an opportunity to bring all that back into alignment and that will make it cheaper for us to rehabilitate...bring your farms together - it will be something good, but we can't make you do it, but what it did do was pit farmer against farmer...

Throughout the project the government had ongoing problems with leadership. Over the course of the study several officials were removed either all together from the project, or for a period of time. One senior officer and leader of the project had so enraged the community that many of them refused to speak to him, take calls or respond to correspondence from his department.

Apparently they have shunted him off the South East to solve the problems there - and we

said “lucky for the South East”. He was at this meeting with “-“...so obviously he is still involved in the project, we just don’t get to see him.

When the regional manager of the Lower Murray Irrigation role was axed by the government, the dairy community felt that their leadership had been dealt an unfair blow

The irrigators could have a say - that is true - through the LMI with “...”, but because they (government) didn't like what he was saying, what we have been saying all along, they (the government and the Minister) cut the funding...and now the LMI are beating their heads against a brick wall.

The success of the community based natural resource management project was clearly hampered by a breakdown of relations between the industry and the government – a composite of poor leadership qualities of the senior government officials, poor community engagement and a lack of civic governance. Inadequate community engagement and a lack of understanding by government officials as to the need to adopt a civic approach to governance had major social and health impacts on the community. Undeniably, there were many reasons as to why participants felt threatened by the rehabilitation process and the outcome of their anxieties were observed in the rapidly increasing numbers of people being concerned about their health and their apparent apathy towards running their dairy businesses. Indeed a palpable inertia existed throughout the dairy community in relation to making farm business decisions which extended to undertaking and making decision about natural resource management.

7.14 Social/Health Impact on the Community

As the research progressed, a number of respondents (husbands) reported an inability to make business decisions, with wives regularly reporting (in the absence of their husbands) that their husbands were reluctant to answer the phone or open mail in case it had something to do with the rehabilitation project. A number of husbands reported that they felt if they responded to any form of communiqué, it was sure to bring more bad news to their doorstep.

What this rehabilitation process is doing...it is destroying people's ability to think. It is like we have lost control of our lives. A lot of people don't bother making decisions any more....we are just giving up.

My husband doesn't make decisions any more.... he is not interested in anything... I can't talk about what I am doing re the committee.... we just don't have a life outside of this rehab process. The rehab has totally obsessed our lives.... it is awful...I have to make the decisions for my husband.... I have enough to do with the family and children.... I don't want to have to make decisions about whether we buy a new ute...or how many heifers to sell to China...I do enough.

....he (husband) won't open the mail anymore...he just doesn't want to have anything to do with the rehabilitation project.

A large problem for our community.... dairy farmers.....is we can't plan long term....we have no controlwe can't make decisions....our decision making is paralysed
The dairy farmers feel powerless and distressed, yes very distressed there appears to be no light at the end of the tunnel

One respondent reported in his first interview that he was managing well.

I am not concerned about the rehabilitation, as I indicated before, I am not easily intimidated and when it comes down to some principles, um! I will put my life on the line for it. So if anybody else thinks they are nearly as determined as I am, let us resolve the issue.

Interestingly, some twelve months later (when undertaking a follow-up interview) this respondent's (immediately above) circumstances and his outlook on life and the project had changed.

In twenty years' time there won't be a dairy industry here on the Swamps... I have so much stress. I have three sons, the family pressure of this next generation is great because they want to remain dairying and I feel such pressure because I need to support them...how can young people start a dairy farm business today....it is just out of their reach...unless the farm is handed down....and then there is this damn rehabilitation....

Another respondent pondered the impact of the drought and the rehabilitation and reported that the outcome of both had left her family and the community in a state of 'stress'.

When the crunch came with the drought, the rehab threats - the drought was bad, but the rehab threat was worse than the drought because it was the emotional blame - you are responsible for your own mess - and you will clean it up. You think to yourself "when is it going to finish".

An incident that occurred early in 2005 highlighted the farmers' concerns. In February 2005 one dairy farmer went missing. His distressed wife made a desperate plea to the public to help find her missing husband. An article appeared on the front page of The Murray Valley Standard on the 10th February, 2005 in which it was reported a farmer who had been diagnosed with depression in December 2004 and hospitalised, possibly "as a result of growing government pressure on his business" had disappeared and was accounted as missing by the police (The Murray Valley Standard, 2005:1). Several days later the farmer was found by the police, who reported, he (the farmer) was hiding under a bridge at Murray Bridge and allegedly saying "...that he had to get away....the Wallabies were coming to get him...they (the Wallabies – (meaning DWLBC) - were taking his land" (The Murray Valley Standard, 2005:1). Later in the Stock Journal dated March 2006 the wife of the missing husband reported that life had got that bad because:

We are told what to do, when to do it and how much it will cost (by the government) ... and ... we have lost control of our properties and our lives, people walk all over the place inspecting it and treating us with suspicion.

The man's disappearance was of great concern to the community. Several respondents reported feeling anxious for this family and other neighbours' well being. Subsequently, it was decided that a group would be formed with the sole purpose of making contact and keeping in touch with community-identified, 'at risk' families. This collective action was a spontaneous attempt by the dairy community to manage 'crisis' situations. Called the 'suicide watch group', designated community members would drop in on families for a chat, offer an ear and rally around in general. It was agreed that by dropping in on neighbours for a chat, it made it possible to monitor, reassure and offer assistance where necessary without appearing to be offering charity or smothering the individual or family.

The study demonstrates that a correlation exists between the loss of self worth and growing levels of poor health. A link was observed between two variables, depression and subsequent behavioural changes. For example several respondents repeatedly referred to the manifestation of violent or aggressive behaviour of some individuals who under other circumstances, were considered well adjusted citizens.

When prompted to elaborate on their concerns respondents qualified their sense of apprehension for the safety of these people by stating, that some of their neighbours initially behaved quite rationally regarding the rehabilitation project, however over time, they noticed “more troubling behaviour” being exhibited from some members within the community. Indeed the behaviour of some individuals represented extreme cases of abnormal thoughts such as suicidal ideation. Table 7.3 presents a list of social and health impacts that people in the community had and/or were experiencing as a result of the rehabilitation project.

Table 7.3: Social and Health Impact of Rehabilitation Project

•	suicidal ideation
•	tearfulness
•	threats made to harm government officers
•	children acting out
•	family breakdown
•	family violence
•	depression
○	lack of sleep
○	inability to make decisions
○	reluctance to socialise
○	reluctance to share problems
•	deep seated anger
•	loss of control
•	general unhappiness
•	increased cynicism
•	deep seated anger and resentment

Source: LMRIA Study

Clearly a combination of events impacted on community members' wellbeing and their subsequent capacity to commit to and undertake the rehabilitation program. Whilst the preceding drought had had a major influence on the financial capacity of respondents to rehabilitate their lands, the behaviour of the government had a grave direct and indirect, impact on the community. The

disruption to daily living, uncertainty in business viability and the overwhelming uncertainty of the rehabilitation project had impacted socially and reduced the level of health for many of the families living in the LMRIA.

In fact, the destabilising effect of the rehabilitation project had quite devastating outcomes for individual community members, and the community as a whole. It is apparent from the research that the Rehabilitation project influenced farmers' perceptions of and their relations with, the government and each other. Business decisions were put on hold as a result of their mistrust of the government and in most cases there was a hiatus in progressing "on farm rehabilitation". This situation in turn placed significant pressure on families and as a result, there was an increase in concern for the overall health and wellbeing of the LMRIA community.

7.15 Conclusion

This study provides insight into the responses by dairy farmers to the rehabilitation project, it also attempts disentangle the complexities of structural adjustment as a process of natural resource management. Importantly the study attempts to place natural resource management in a normal setting – one which incorporates people going about their everyday living and who as a result of their source of revenue, are frequently drawn natural resource management projects. The emphasis here is 'everyday living'. This thesis argues that it is imperative that those in the business of policy making and project administration to be cognisant that natural resource management does not occur in a vacuum. Rural and remote communities that rely on natural resources for their living are also driven by market demands, competition and access to resources. Indeed, these communities find it necessary to respond to restructuring events on a regular basis and thus, their attitudes and decision making regarding natural resource management will be influenced by such events.

Overwhelmingly, the findings of the study highlighted a natural resource management project in chaos. A number of hypotheses can be extrapolated from this research that explains the state of confusion, distress and anger displayed by respondents and the broader dairy community involved in the rehabilitation project.

Whilst the community reported overall that they were proud of what they were trying to achieve in relation to the project, they were conscious that the cost to their social capital and health of the community had been severe. The decline in the level of trust was attributed to a lack of transparency, civic governance and poor community engagement. All but one respondent reported a lack of trust and transparency in relation to the behaviour of government officials with community members – this respondent resided in the 'exemplar community'.

Successful community based natural resource management relies on employing a holistic approach to community engagement; one that adopts a sound understanding of the community dynamic while at the same time recognising need for community members to have a role in project decision making (Aslin and Brown, 2004; Whelan and Lyons, 2005; Lane and McDonald, 2005; Donlen et al., 2005; Farrelly, 2009). All of these attributes were missing from the rehabilitation project. As reported by MacGillivray (1998), "the gulf between how people feel and what they are told reflects a dramatic decline in the level of confidence they feel". Clearly this trend was present throughout the LMRIA resulting in a great deal of cynicism towards the government and a poor project conclusion.

Undoubtedly, the management of irrigation systems and rehabilitation processes of the Lower Murray has brought about significant changes to the structure of dairy farms, the rural community and the economy of the region. No doubt it will take time for the community to rebuild its community spirit. It is reasonable to argue that if the government had adopted a more holistic and participatory approach to community based natural resource management then the outcome may have been more satisfactory. Clearly the impact on the community would not have been less damaging if the government had adopted a holistic engagement process. As reported throughout this thesis, there is clear evidence that a holistic community engagement process is a necessary prerequisite for ensuring sustainable natural resource management outcomes. Unfortunately for the LMRIA community, lack of holistic engagement between government and community members had repercussions for building trust, networks and relationships, all necessary components for successful outcomes of community based project.

It was evident that whilst strong social capital initially existed within the community, over time there was a noticeable breakdown in relationships – and this situation was attributed to the rehabilitation project. Having said this, respondents did recognise that after a while their community social structure had changed due to an increase in the numbers of newcomers taking up residency in the districts. This however was not considered to have impaired the community; rather it had caused an interesting blend of old and new.

The overall concern regarding the extent of collapse in social capital was attributed directly to those managing the rehabilitation project. Respondents were clearly concerned about the motives of the government and they blamed the government for being instrumental in breaking down their community spirit. Again a poor community engagement process was reportedly a contributing factor to the breakdown in relationships between the community and government instrumentalities. Despite their intentions to engage with the community, the study shows that the government adopted a top down consultation process which alienated the dairy farmers very early into the project.

Yet a further broad criticism of the project administration was the lack of community governance and the need for open communication between parties. Clearly one argument that comes to the fore in this study is the need for mutual respect between parties. The analysis highlights a necessity for government bodies who work with rural communities, to have a much better understanding of farming and how it merges into what respondents call a 'lifestyle' – and what this thesis argues is a complex agrarian culture.

Further the LMRIA rehabilitation project provides an example of how easy it is to cause (intentionally or unintentionally) a community tragedy when little consideration is given to first, the social and cultural dynamics of a community and second, the need for community members to understand the political agenda that drives adjustment and as was the case for this study those political reasons for undertaking natural resource management by way of the rehabilitation project on the LMRIA swamps. Moreover, the research identifies those most basic concepts such as power and agency

In summary, the LMRIA study emphasises the complexities of community based natural resource management programs and demonstrates how, without consideration of the socio-economic and cultural background in which these programs are undertaken, there is less likelihood that structural change including, community based natural resource management (Lane et al., 2009a:67) will occur efficiently. Importantly this study demonstrates that there is a need to integrate community governance as a strategy for ensuring positive outcomes. The study recognises that trust is built by adopting a holistic community engagement process and that social capital is integral for the success of community based natural resource management. Importantly, this study highlights the community's desire to work with the government on a mutual basis, and that this position by the community was not well received by the government. The study highlighted a need for a more robust intellectual framework if you like, one that invests in local knowledge networks and local decision making when undertaking community based natural resource management.

8 CONCLUSION AND RECOMMENDATIONS

8.0 Introduction

As outlined in Chapter One, this thesis has three main aims. These are first, to investigate the belief that strong networks and trust are prerequisites for the management of community based projects. By exploring two communities involved in natural resource management, this study provides two contrasting enquiries as to the significance of social capital when undertaking community based projects. The study recognises the extent to which competing social interactions and social sustainability impact on natural resource management. Second, the thesis examined the role of community engagement and civic governance as essential for the overall success of community based natural resource management. By exploring landholder's views on community engagement this study seeks to understand why those institutions charged with the responsibility of managing regional natural resource management frequently have difficulties communicating to, and recruiting, community members to be involved in natural resource management. Third, the thesis explores the notions of "community" and investigates the "belief that if communities are to work effectively with governments then the concept of community must mean something to the people both inside and outside of those communities", (Smailes and Hugo, 2007:4). By observing different community types, for example communities of interest and communities of place, this study recognised that government instrumentalities were regularly challenged by the notion of community and how to engage with them – in this case for the purpose of undertaking community based natural resource management projects.

This chapter revisits the aims of this research in light of the evidence presented in the foregoing chapters. It then concludes by considering future policy options of community based natural resource management, with special attention being paid to the need for a more integrated process of governmental interaction at the local level and the role of community, social capital, community engagement and governance for ensuring sustainable outcomes.

8.1 An Intersect: Symbolic Interactionism and Environmental Sociology

The research demonstrates that symbolic interactionism as a theoretical approach lends itself to exploring the relationship between society and nature, including people's attitudes about community based natural resource management. Symbolic interactionism predisposes itself to investigating the role of symbols and language which are the core elements of all human interaction (Giddens, 1990:751) In this instance the adoption of the symbolic interactionist perspective provided opportunities to consider the multiple ways in which power and agency were expressed and contested within and between communities and government instrumentalities involved in rural and remote community based natural resource management. For example, both case studies illustrated the extent to which community members communicated the need for and the importance of 'civic governance', 'trust', 'transparency' and the building of strong 'relationships' between communities and communities and the state. The research showed community members have a common interest in communicating their desire for a more organic focus – one that encourages decision makers to consider options for natural resource management holistically and look beyond self interest to collective and ecological wellbeing (Lockie, 2004:37) – this was particularly so for the LMRIA case study.

In addition, the research provided opportunities to advance environmental sociology (the studies of society – nature relations within the discipline of sociology) by shifting the focus of sociological analysis from a search for the centre of power to exploration of the multiple ways in which power and agency may be expressed through peoples networks and relationships and their relationships with the natural environment (Lockie 2004). To this end, both case studies provided opportunities to consider more seriously the active roles of people involved in community based natural resource management. In particular the research provided an opportunity to consider people's interaction with each other and the importance of social capital, community engagement, trust and governance when considering community based natural resource management.

8.2 Ideology, Policy and the Environment

A historical account of the changing policy approaches used to establish and support agriculture, rural communities and the environment was provided in Chapters Two, Three and Four. One of the major arguments developed in these chapters is that the processes of ideology, policy change, market forces and restructuring do not occur in isolation and that they all have the potential to

influence the outcome of natural resource management programs. The evidence in these and later chapters support the contention that policy discourses pertaining to agriculture, rural adjustment and restructuring have brought about changes to the nature of resource economies of regions. The outcome of these changes has the potential to influence farmer decision making, including how they manage their natural resources (Marsh and Pannell, 1998; Mech, 2004b; Taylor and Garcia-Barrios, 1999). Chapter Two underlines the argument that while there is overwhelming evidence to indicate that intensive production has had wide ranging consequences for the environment (Bjornlund, 2002; Mech, 2004a; Mech and Hugo, 2004; Mech, 2004b; Lawrence, 2004; Lockie, 2001a; Nelson et al., 2008; Glaeser, 1995), it is widely recognised today that governments still tend to emphasise development over sustainability (Mech 2004). Indeed, there appears to be a general consensus by governments that markets remain excellent instruments to reallocate natural resources among competing users. This is, of course, provided the operations of such markets are “controlled by adequate regulatory instruments to secure social and environmental values as well as an equitable distribution of economic benefits from using such resources...” (Bjornlund, 2002:125).

Chapter Two reminds us that prior to the 1970s, economic growth had been dominated by conservative policies (between the pre-depression era and the period between the mid 1920s through to 1945 - post World War II) which tended to seek economic security and agriculture development over and above the management of natural resources. The chapter talks of the downfall of the Fordist regime and Keynesian economics, which occurred in the early to mid 1970s and reminds us of the removal of protectionist policies based on paternalism – including dismantling industry protection and the rapid integration of Australia into the global economy (Tonts, 1998). The re-emergence of a more liberalist approach to policy by the mid 1980s has continued to dictate the development of public policy to most recent times. Along with these developments there have been an increasing number of questions being raised over the efficacy of such policies, in particular those policies that have placed economic development over and above sustainable development and natural resource management.

Chapter Two highlights the attempts made by those in the social sciences to keep abreast of these new developments, including how to make sense of the impact they have had on society, and in

more recent times, society and its relationship with the environment. In many respects it is as this thesis has suggested, that the more recent attempts by governments to address issues of sustainability has encouraged the development of what some practitioners call environmental sociology – a sub discipline of sociology which considers the reciprocal actions between the physical environment, social organization and social behavior (Sydenstricker-Nato, 1997). Environmental sociology it is argued in Chapter Two is not the only medium from which to consider the utilization of natural resources, but it does help to challenge and interpret the relationship between society and its environment.

8.3 Rural Restructuring and the Changing Relationships Between the Environment and Society

Whilst the focus of this study revolves around the social characteristics of natural resource management, it is an argument of this thesis that it is not practical to embark upon community-based natural resource without considering the socio-economic and political conditions in which natural resource management is undertaken.

Rural restructuring has the propensity to influence and change rural culture and related practices (Gray and Phillips, 1997:276). Chapter Three describes how over time economic restructuring has shaped the relationship between rural communities and their environment. Indeed, it is an argument of this thesis that it is important to consider the socio-economic and cultural setting, the backdrop if you like, when considering the social context of natural resource management.

Whilst rural restructuring was visible across both case studies, it was more so in the LMRIA study. Examples of land based production i.e. Fordism and post-Fordism, diversification, pluriactivity, tourism and counterurbanisation were present in the SAAL and the LMRIA and were responsible for shaping and reshaping the socio-economic and cultural landscape (Gray, 1994; McMichael, 1999; Tonts and Jones, 1999; Gray and Phillips, 1997; Higgins, 1999; Smailes et al. 2005) of the SAAL and LMRIA. In essence restructuring processes and the subsequent detraditionalisation that frequently occurs within families and communities as a result of rural restructuring (Gray and Phillips, 1997:277) were seen to have direct and indirect implications for the social, economic and environmental sustainability of agriculture/pastoralism (Gray and Phillips, 1997:277) across both

studies. The SAAL study, whilst limited in its consideration of the extent to which restructuring processes impact on community responses to natural resource management and conservation did recognise that their socio-economic and cultural landscape was changing. Arid lands participants reported a growth in endogenous and exogenous factors such as (a) the redistribution of productive activities and investments across the region due to mining companies purchasing pastoral stations for the purpose of acquiring water and (b) the burgeoning interest of the tourism industry in ecotourism. In addition, participants inferred that the market was responsible for pastoralists effectively placing more and more pressure on their natural resources i.e. larger number of cattle/sheep grazing their lands as an attempt to offset failing incomes. Moreover, SAAL participants talked about the extent to which some stations had been subsumed by capital and as a result, had lost control over their business with ultimately the ownership of the business moving from one owned, operated and managed station, to one which was owned by off-farm capital, and operated and managed by employees and contract workers (Lockie, 1997:29)

Similarly, dairy farmers in the LMRIA case study talked about the impact of the market on individual dairy farms and the extent to which subsumption was appearing on the landscape i.e. corporate dairy farms located on the Lower Lakes (see Figure 1.6). There was also evidence of a growing number of, what were referred to as – family corporate farms happening on the landscape. Fewer and fewer family dairy farms were operating across the LMRIA; this was attributed for a tendency for those more lucrative businesses to take advantage of those adjusting out of the industry and purchasing their neighbours farms. Similarly, there was evidence of what Lash and Urry, 1994 and Lawrence, 1995 cited in Passfield et al., (1997:191) called “consumption of those areas by those involved in tourism, recreation,, retirement or lifestyle pursuits” occurring throughout the LMRIA. For example, substantial marina development took place along the River Murray between Mannum and Wellington over the course of the study. Along with the development was the advent of speciality businesses i.e. cafes and restaurants and bed and breakfast holiday accommodation. Such developments are referred to as “aesthetic consumption” (Passfield et al., 1997:191) and are commonly associated with changes to the cultural capital of a community, as was the case in the LMRIA study.

The attention to restructuring is also important when considering natural resource management and sustainability. For example, traditions in the form of inherited land use habits directly impinge on the environmental dimension of sustainability across both studies. In the case of the SAAL, over grazing had become an issue for pastoralists and government instrumentalities alike. Similarly, in the LMRIA study, past practices of grazing cattle on river banks and the flooding of pastures that had not been laser graded was a concern for the state, so much so that it had become a major focus of LMRIA rehabilitation project.

Further, the relationship between restructuring, development and sustainability arises along social and economic dimensions. For instance Chapter 6 illustrates that pastoralists were keen to acquire more land because scale factored significantly as a means for remaining sustainable - the larger their land mass, the more stock they could run on what was otherwise, marginal land. However, in terms of sustainable practices, the nature of grazing and the overstocking practices that occur placed a heavy burden on what was already, a stressed environment. Equally, those dairy farmers participating in the LMRIA case study while reportedly eager to acquire more pastures, were similarly concerned about the potential impact such acquisitions would have on the environment and to the community, i.e. losing another family from the district. However, unlike dairy farmers, pastoralists, while concerned about out-migration were less likely to see the visible effects of such realignment (given the vastness of the properties and such long distances between homesteads) and so appeared less concerned about demographic changes occurring across the SAAL.

The thesis supports Lawrence's contention that rural restructuring is "an all embracing term that seeks to capture the changes to farming, to country towns, to regional communities and to the relationships that govern social, political and economic interaction in rural regions" (Lawrence, 2005:111). The thesis builds upon this example of rural restructuring, claiming it is inevitable that restructuring will continue to reshape the landscape and therefore it is necessary for those who are involved in administering natural resource management to be mindful of the stage on which natural resource management occurs. There is an array of elements of rural restructuring that may impact on farmer decision making i.e. "the characteristics of the available options that present themselves, the resources and constraints faced by the decision-makers, and the characteristics of the

decision-makers and the environment in which they operate” (Murray-Prior and Wright, 2001:573) – notably environments that continue to change overtime. The findings of this research suggest that it is important for governments to be mindful that landholders - rural and pastoral - are faced with increasingly complex pressures relating to rural restructuring, economic viability and sustainability. In other words, the research illustrates that it is important to recognise the extent to which restructuring process influence landholders’ behaviour towards the environment and the decisions they make about natural resource management.

8.4 Building Social Capital Through Community Based Natural Resource Management

The findings of this thesis provide a useful platform from which to explore the different types of social capital that exist within and between communities and how social capital is integral to the success of community based natural resource management. The notion that social capital is the building block of community sustainability was evident in this study. Chapter Four talks about social capital being the ‘glue’ that holds communities together. It contends that social capital is built on the basic cultural norms of identity, trust, reciprocity and on customary behavior associated with these cultural elements, such as networks of reciprocity (Durstun, 1998:3). Social capital engenders among other things the transference of knowledge and information between community members and between communities and society.

Chapter Four draws on the works of Putnam, Coleman, Bullen and Onyx, Bourdieu and Granovetter to mention a few, and talks about bonding and bridging social capital and weak and strong ties. The Chapter recognises that bonding capital comprises networks that are inwardly looking and is characterised by strong bonds of “solidarity and trust with the emphasis on maintenance of norms and sanctioning behavior” (Compton et al., 2009). Bridging social capital, on the other hand, comprises networks that tend to be more outwardly looking and less dense in characteristic. Granovetter’s description of weak and strong ties resemble bonding and bridging capital, in as much as strong ties resemble strong family-friend networks and weak ties resemble loose networks, for example acquaintances.

It is a finding of this research that while there is a broad acknowledgement by government authorities that social capital has a practical use for natural resource management, the study also illustrates that government instrumentalities i.e. the SAAL NRM Board and DWLBC, appear to have difficulty recognising the extent to which social capital exists and how to harness this capital in a way that builds strong relationships. The findings suggest that a trend exists whereupon government bodies do not recognise the subtle differences between the social capitals (bridging, bonding, weak and strong ties) and the integral role they play in community engagement and civic governance. Equally important are the ramifications such confusion has on community based projects. The findings strongly support those proponents like Putnam and Fukiyama who argue that poor forms of social capital exist due to in part a lack of trust between parties. Examples of poor trust were demonstrated throughout both case studies. Such conditions impacted significantly on project outcomes and left no doubt that those managing natural resource management had little comprehension how to invest in and build upon local social capital.

Putnam's and Fukiyama's concept of distrust as manifesting in pathological forms of collective behavior, was noticeable in both studies. This was particularly so in the LMRIA study, where the extent of mistrust displayed by dairy farmers towards the government was tangible. A theory about conflicting interests presupposes different types of trust (and distrust) and different types of association (Siisiainen, 2000) which impact on the creation and composition of social capital. For example, some associations create trust only among their own members, and distrust of others. This argument was strongly supported by the two case studies. Especially notable was the need for government bodies to build bridging capital with communities through holistic community engagement. Putnam (2000), suggests that community revival (or in this case, community based natural resource management) depends upon building or rebuilding stocks of social capital and it is an argument of this thesis that this process depends crucially on civic participation which is gained through an engagement process. However, as laudable as this proposal is, the findings of this research suggest that repeated and regularised interactions bounded in time and space do not necessarily build social capital – as was the case for the LMRIA dairy community. One must ask why? A critical element in the engagement process is 'transparency'.

A notable feature of this research was the extent to which the failure of transparency (by government instrumentalities) in the engagement process only deepened the already present social and political cleavages that existed between government bodies and communities. The findings demonstrate that the lack of transparency impedes positive social interaction, which in turn creates negative social capital as was the case for this study. Both government organisations were notably inferior in their capacity sustainable links with the community and this was, it would seem, due to a lack of transparency, poor engagement and an imbalance of power that existed between government authorities and those communities they were endeavouring to engage with.

Indeed, the imbalance of power was a concern for all of the local communities who were actively involved in community based projects.

Notably, the SAAL study demonstrated that while communities in the outback were bounded by space, they experienced little if any socio-political cleavages and there was evidence of strong bonds within and between communities. This level of social capital had developed over time, initially through the School of the Air and the development of the OACDT, to more recently the advent of Facebook. Thus when the SAAL NRM Board was established there was an expectation by community members that they would work collaboratively with the SAAL NRM Board and that they would be involved directly, in the development of the SAAL NRM Strategic Plan. This was, however, not the case, and communities and community groups across the arid lands reflected that they were being subjected to an imbalance of power relations, and this was not an acceptable outcome for regional natural resource management.

These findings are important since they add credence to those proponents who question the recent developments in regional natural resource management, in particular the effectiveness of institutional integration that is occurring in South Australia and the NRM debate (Cosgrove, 2008; Whelan and Oliver, 2005; Lane et al., 2009b; Lane et al., 2009a; Farrelly, 2009). Equally this research supports Broderick's argument that "while communities and governments have generally embraced the notion of community based natural resource management and the potential benefits it can deliver, the translation of policy into practice has revealed many problems" (2005:88) and inconsistencies.

8.4.1 Building Trust Through Community Engagement

One topic that is important, and has been touched on above, is the role of trust. Trust it is agreed is necessary for building social capital (Bullen and Onyx, 1998; Alston, 2002; Lawrence, 2004; Aldridge et al., 2002; Putnam, 2004; Lane et al., 2009a). Chapter Four illustrates that there is a mechanism – a process if you like - that needs to occur between two individuals and/or bodies that aids the socio-political transactions that regularly occur in this instance, community based natural resource management. This mechanism is the creation of trust. Building trust takes time and it is time well spent, as trust is a crucial 'element' for building sustainable networks and relationships. It is when there is an absence of trust that social capital wanes.

Trust was an element that was sorely lacking across both studies. Instead of building strong relationships through trust, those government instrumentalities engaging with the communities, through their poor communication processes and lack of transparency, fostered the development of less than favourable forms of social capital. Across the Arid Lands, participants were critical of the lack of community engagement and as a result, they were very wary of the Board and its activities. Similarly, the dairy communities on the Lower Murray River were very critical of the lack of transparency with which the government had dealt with the community. The dairy community did not trust the government and its motives for the rehabilitation project. They were particularly angry about what could only be described as (1) poor community engagement and (2) the authoritarian approach to project management.

The findings point to the inability of the South Australian Arid Lands Natural Resource Management Board and the Department of Water, Land and Biodiversity Conservation to comprehend what constitutes social capital, and how to build social capital by adopting a holistic and transparent community engagement process. While it would be unrealistic to expect a complete turnaround in the more technical focus of regional natural resource management perhaps an appreciation of the basic insights into the social context of ecosystems management and collaborative learning might at least, help to reduce, the tensions that frequently exist between communities and those government instrumentalities involved in natural resource management. Thus at a time when those government authorities might have been providing context and building relationships with the

communities, they were unable to, either due to their lack of understanding or simply because they did not feel a need to concern themselves. It is therefore an argument of this thesis that if environmental managers were to adopt a more organic approach to community engagement and community based natural resource management rather than the more predictable top down methodology and demarcation employed currently, they may find they are more amenable to the community and thus capable to attend to the “complex array of natural resource management problems they are faced with” (Lane et al., 2009a:61) on a regular basis. However, the trends to date indicate that if changes to governance and community engagement were to be made it would likely be as a result of political convenience, rather than the recognition of the needs of rural and pastoral communities.

Chapter Four draws attention to what this thesis calls – holistic community engagement. Holistic community engagement refers to engagement processes and practices in which a wide range of people work together to achieve a shared goal guided by a commitment to a common set of values, principles and criteria (Aslin and Brown 2004). It does not necessarily mean though, that everyone in the community can or should be involved, but that all stakeholders make efforts to be as inclusive as possible and to offer everyone an opportunity to be engaged if they wish to be (Aslin and Brown 2004). The research identified community members across both studies recognised the difference between community involvement and degrees of citizen power and that of consultation and tokenism which was afforded them.

It is a proposition of this study that often those very same government instrumentalities tasked with managing community based projects are more inclined to undertake a tokenistic approach to community engagement (as illustrated in Arnstein’s Ladder, Chapter 4) rather than building partnership through collaborative participation. It was evident that the outcome of tokenistic engagement carried out by the SAAL NRM Board and DWLBC resulted in a lack trust between project administrators and community participants. Moreover the study recognises that where once trust was high – for example in the LMRIA, the experiences of the rehabilitation project had in effect depleted stocks of social capital, leaving a once strong and cohesive community, broken and in some cases, dysfunctional.

In all, the thesis provides strong evidence that social capital, community engagement and civic governance are prerequisites for community action, i.e. community based natural resource management. The way that individuals, groups and organisations interact with each other, including symbolic interaction can be the making or undoing of integrated, regional-community based projects. This is particularly evident across both case study locations. Again, it is an argument of this thesis, that a better understanding of community type, the values and belief systems that exist within the community and what motivates community action or non-action would assist governments to better understand the internal and external workings of rural communities and their likely responses to natural resource management.

8.5 Rethinking Community: A Community of Purpose

As the research progressed, it became evident that the notion of community, that is a community of interest and a community of place, while straightforward in theory are far more complex in nature, particularly when both concepts are linked for the purpose of undertaking regional community based natural resource management.

The attraction to rethinking the concept of 'community' became evident from observations gleaned when undertaking the SAAL study. In particular these observations supported previous observations from being involved in numerous project committees and working groups – communities of interest, when employed as a policy officer and consultant for PIRSA. The idea of a 'community of purpose' is very 'specific' and relates to those 'communities' that are established by government instrumentalities for the purpose of delivering specific program outcomes. As the research identified these communities are heterogeneous in nature, with members representing communities of place and communities of interest, and who come to the project with different values, views and agendas. The NRM model adopted by DWLBC for the purpose managing the environment is one such 'community of purpose'. The NRM model comprises a whole community configuration, consisting of three social tiers: institutional, organisational and individual - denoting local communities. The NRM community model includes a pyramidal style of governance, comprising a NRM Council, eight NRM Boards and their NRM Groups, organisations and communities. The model resembles a coalition of groups, however, rather than sharing a similar vision for regional natural resource management and adopting a united approach to the

governance and management of the environment, each group remained dedicated to their own views, ideas and values regarding, natural resource management.

8.5.1 A Blurring of Communities

It was evident when undertaking the SAAL study (and the development of the NRM Tool) that in many instances those charged with administering community based natural resource management had difficulty in grasping the concepts community and the role of social capital within and between community groups, including the government.

Smailes and Hugo point out that a community of interest is aspatial in nature, and “frequently those in the community may belong to important collectives that lack a spatial reference, (e.g. religious movements, professional networks) and may be more important than any local attachment to place” (2003:66). In many instances a community of interest may form a coalition or co-op, to operate on a single-issue basis, an example being the National Farmers Federation who dealt with the Australian Conservation Foundation to deliver the Landcare Package in the early 1990s (Hodgson et al., 2005). In contrast a place-based community (sometimes described as a community of place) is defined in the traditional rural sociological mode as a “localised social system having a sense of belonging and self-identification, having a territorial base and a regular pattern of movement and communication that give rise to a network of local interactions” (Smailes and Hugo, 2003:66).

Unlike a community of place and a community of interest, a community of ‘purpose’ tends to be pluriformal in nature, and where its networks need to “engage a diverse range of individuals and organisations, some of which have limited experience cooperating with each other and limited knowledge of each other’s operating styles” (Howden, 2006:7). In many cases the groups within these communities are as mentioned above, self-referential (Howden 2006:7) in nature as they have their own interests and frames of reference they approach “community based natural resource management with different sets of perspectives and incentives” (Howden 2006:7).

A defining feature of a community of purpose it is hypothesized are those ‘fractional relationships’ that are fostered between place based communities and communities of interest for the purpose of

meeting program requirement – in this case to assess NRM capacity across the Arid Lands of South Australia. There are many such communities in existence since they are a current feature of most government ‘engagement processes’ and given their ad hoc status, these same ‘communities’ have a tendency to vanish as quickly as they do form.

Findings from the study would suggest this type of community regularly fails to engender pragmatic long term outcomes for community based projects as it relies heavily on the premise that social capital exists within the ‘community’, when in most instances bridging capital appears to be non-existent between stakeholders. It is purported that in the event that some degrees of bridging capital exist due to previous project based relationships a community of purpose rarely establishes itself for any great period of time, and as such as it was illustrated by the research, little if any trust exists between within such community types. For example, the SAAL study demonstrated that the ‘purpose built NRM community” (see Appendix 8) has not promoted community cohesiveness nor a common resolve to work together with the Board to manage the environment. To put it simplistically, the top heavy governance structure of South Australia’s NRM regional model does little to engender integration and the formation of partnerships. The reserve of the Board to directly build strong networks and relationships has severely impacted on their capacity to work with communities to meet their (The Boards) NRM obligations.

Interestingly, the Board uses the NRM Groups as a conduit to pass on information too, and to glean information from, the communities. The NRM Groups have a far greater involvement with communities and organizations since Group members reside in local communities and frequently belong to organisations within these communities. This point is important since in the NRM Model adopted by DWLBC. organisations sit in a tier of their own. However community participants considered organisations resided in the third tier – the Individual Tier, along with the community.

Indeed, it is hypothesised that a purpose built community underpins those ‘fractional’ relationships” which makeup structure of regional NRM in South Australia. It is a hypothesis of this thesis that the adoption of such community types has broad implications for community based projects. Time and great effort need to be expended to overcome collaborative inertia (Imperial, 2005) which it is argued, is an outcome of poor engagement and the building of trust within communities of purpose.

The resources required to influence change are difficult to harness at the best of times but when “wicked problems” (Howden 2006:1) exist, then the whole endeavour is made more difficult. Howden (2006) claims wicked problems as being those problems or issues society seeks to address that are not 'owned' by a single agent; not easily defined; nor are they (easily) solvable, and tend to require joint action from government, industry, community and individuals”, Howden (2006:1). Similarly wicked problems existed across both the SAAL yet the neither SAAL NRM Board nor DWLBC found ways to address these problems. The findings of this research provide a useful perspective from which to consider community based natural resource management, particularly when there are multiple groups interested in the outcome of the natural resource management programs. Importantly, the research points to the need to consider a variety of tools to be used for community engagement, and supports Aslin and Brown’s (2004) argument that “imperative to any natural resource management project are the clear mechanisms to enhance participation in negotiations and decision making by as many stakeholders as possible in the regional planning area” (Aslin and Brown 2004:95).

From a practical perspective, the research also recognises the need for ‘communities of purpose’ to recognise the different knowledge systems that make up the community. For example, different groups use different language to describe engagement, consider different issues and hold different priorities for action (Aslin and Brown 2004:6). It is difficult to build social capital and harness the human capital that is present within a community of purpose if those involved in the establishment of the community do not appeal to community participants to acknowledge the different knowledge systems that are regularly found in such communities. For instance, communities of purpose commonly incorporate knowledge systems which can be described as, individual, local, specialised, strategic and integrative. These knowledge systems are frequently, dynamic and complex. This thesis supports Aslin and Brown’s (2004:7) hypothesis that it is imperative that “those people administering natural resource management are aware of the need to adjust to and compensate for, the fact that people belonging to different knowledge systems (or tiers of society) often tend to reject the others”. Indeed, they may dismiss information from an individual as ethnocentric and “local knowledge systems as ‘gossip’, specialists as ‘jargon’ strategic as a pre-set, done deal, and integrative as ‘impracticable” Aslin and Brown (2004:7).

8.6 Rethinking Community Based Natural Resource Management

As this thesis has argued, it is the social context of natural resource management that has had a great bearing on the success of regional natural resource management. It is true, governments have recognized the need to engage with rural and remote communities (to meet their institutional arrangements), to manage the environment, yet not all have been successful in their endeavours. It is equally true that governments are keen to build community capacity as they see it as a solution for managing rationalisation on the one hand and for attaining sustainability on the other; hence their interest in capacity building and capacity assessment. Yet, as this thesis suggests there seems to be a mismatch of mindsets between government instrumentalities tasked with managing the environment and those rural and remote communities involved in community based natural resource management as to how natural resource management projects will be managed and by whom.

The research identified community members thought that those government bodies involved in natural resource management needed to build strong working relationships with the community so as to achieve the legitimacy to operate in their communities. The research demonstrates that a significant shortcoming of current community based natural resource management practices is the failure of government instrumentalities to recognise the need to commit to a collaborative approach to community based natural resource management. While the transition to more devolved forms of governance has been central to both Federal and State governments (Dwyer and Ross, 2007:39) approaches to environmental management, the research illustrates that to date neither the SAAL NRM Board nor DWLBC were successful willing to devolve governance to a community level and by doing so, adopt a more pragmatic approach to governance.

For some commentators (see for example, O'Toole (2006) network and government partnerships go beyond institutional constraints of the expert driven and client based approach to projects. Such relationships cut across organisational boundaries and provide non government agencies with direct input, especially in decision making (O'Toole 2006:305). As O'Toole argues, the State uses

partnerships that co-produce services rather than directly provide them, and relies on networks and various other forums for policy advice (2006:305). Moreover, and as O'Toole (2006) so rightly points out, (and as was the case for this study), networking and partnerships still take place in the shadows of hierarchies and the major forms of decision making are still dominated by government authorities. Seemingly democracy is not the highest value, but simply a means to an end (O'Toole 2006:305) and if decision making regarding community based natural resource management can be disguised as democratic by way of forming a committee or a 'community of purpose', then from some pockets of society, community governance has been served. This is an important point, since it is vital to recognize that this trend in governance which was observed across both case studies is common to natural resource management and community development. In this instance, it is argued here, that this type of governance is indicative of a broader philosophical approach adopted by those South Australian government institutions involved in managing the environment.

As such, one of the main tasks facing policy makers is to develop guidelines which offer an alternative approach to current practices; one which will likely challenge the intellectual hegemony among politicians and public servants about integrative and collaborative forms of community but is all the same necessary to ensure more sustainable outcomes for community based natural resource management.

8.7 The Strength of Capacity is in the Question

Another notable feature of this thesis is the increasing number of government bodies taking advantage of computer software programs for measuring capacity and which allows to handle huge amounts of information and to effectively make decisions in complex institutional contexts (Giupponi et al., 2004:1). These systems Giupponi et al report, are usually "termed Decision Support Systems (DSS) and encompass a large range of computerised tools based on a number of methodological approaches and technologies" (2004:1). Such tools have been developed for dealing with different issues, i.e. measuring the strength of a community to adjust and/or undertake natural resource management. As Chapter Five points out the NRM Capacity Assessment Tool was one such tool, which was developed for this very purpose.

The NRM Capacity Assessment Tool allows the end user to conceptualise, structure and communicate a community's perspectives as to their capacity to undertake natural resource management. A major component of this approach is the involvement of the public through a discourse analysis process. As mentioned in Chapter Five, discourse analysis valuation is a method used for groups to develop consensus for multiple attributes such as strength, importance and contribution. However, as contended in Chapters Five and Six, the strength of the tool is in the quality and usefulness of the capacity statements and the robustness of the discourse analysis. However, the approach for obtaining 'consensus' is only as good as (a) the facilitation process and (b) the interest of the community in the process.

In terms of capacity building there is lengthy literature on techniques for measuring community capacity (Raymond et al., 2006; Cheers et al., 2005; Goodman et al., 1998; Cavaye, 2000; Cheers et al., 2009; Cavaye, 2004) and the use of the 'capitals framework' for developing capacity indicators. While community capacity assessments have been described as useful processes for building capacity there has been some provoking critique of community capacity building and community capacity assessments, in particular that the notion that "these process are used as a "smokescreen, policy rhetoric and red herring in respect to what it claims to do and can actually do" (Verity, 2007:10-11).

Certainly as was the case for the SAAL NRM Board, the adoption of the NRM Community Capacity Assessment Tool provided the Board with information that they would otherwise not have had about their perceived capacity to administer natural resource management across the region, and that of the communities. For example, as illustrated in Chapter 6 the NRM tool of analysis not only provided opportunities to gauge perceptions of the community but also the SAAL NRM Board - providing a gap analysis.

In the case of the SAAL study, not only were community members asked to assess their capacity through group consensus to undertake natural resource management, they were also asked what they perceived was the SAAL NRM Board's capacity to administer its natural resource management program. Similarly, the Board was asked to assess its capacity and that of the communities in its region, to administer and undertake natural resource management. The

assessment process provided a 'gap analysis' and as such proved to be a powerful tool for raising awareness. The analysis showed gaps in perceptions by the Board and communities as to their own and each other's capacity to manage and undertake natural resource management. A major strength of the tool and assessment process is that it provides a benchmark from which to consider future assessment processes.

However, the effectiveness of the process is also dependent upon what government officials do with the information and whether they share the information with those communities involved in the assessment process. It is a proposition of this thesis that such information should be shared with communities in a transparent manner and that these same communities are given an opportunity to meet with in this case the SAAL NRM Board and discuss the assessment outcomes.

A further proposition is that the development of such tools for measuring capacity, should not only measure capitals/assets it should also include some means to measure values and the willingness of individuals and/or communities, to commit to natural resource management. The adoption of value orientations as described in Chapter Four may be a basis from which to consider and potentially measure those dominant values which motivate people and the decisions they make, regarding natural resource management.

8.8 Important Insights

A number of critical themes that enable successful community based natural resource management emerged from the study. The context in which these elements were discussed varied little, and the underlying principles did not differ substantially. The following themes include:

- Social capital and social capacity are stimulated through a culture of shared norms values belief systems, trust and transparency.
- Community types differ significantly, therefore it is important to recognise the complexities of community and engage accordingly.
- Holistic community engagement is the process that builds trust, which is the glue that supports the development and maintenance of bonding and bridging capital.
- Trust is developed through transparency and honesty.

- Unless there is a good understanding of the nature of rural/remote sector, including the beliefs and motivations of farmers then community projects are often doomed to fail.
- Willingness to invest in growth and development of individuals and communities and their knowledge and skills base through community engagement is pivotal for the success of community based natural resource management.
- Social learning is at the heart of rural culture. Building an atmosphere of trust is integral to community based natural resource management.
- Knowledge networks are integral for facilitating change.
- Civic governance is essential for ensuring long term community commitment to project management.

Importantly, this research has identified that regularly government instrumentalities talk about trust and social capital but do not recognise the role of engagement as being the tool for building the necessary trust for ensuring sustainable outcomes for community based projects.

In addition, the research points to how essential it is that policy makers and project managers gain a better understanding of farmer behaviour, and recognise how restructuring, adjustment and of more recent times climate change will likely determine the behaviour and types of decisions they make about the management of their natural resources (Mech, 2004a; Bjornlund, 2002).

8.9 Summary

The challenges facing South Australia's rural and outback communities involved in natural resource management are complex and more far reaching than first imagined. Despite the geographical and regional variations of the two case studies, there is strong evidence of frustrated efforts by community members to work with government instrumentalities in the attempt to address and/or undertake natural resource management.

It is essential that the combined efforts of government instrumentalities and communities to manage the environment in a fair and sustainable manner are successful for if not, the future paints a less than favourable picture for regional environmental management in South Australia. It is patently clear that the adoption of regional-scale management at the local level poses a complex

and tricky situation which requires exacting management. If the Federal Government is to continue to devolve authority to State and then the State to regional bodies then it is essential that they (government bodies) have realistic expectations of what regional-based community groups can achieve (Kellert et al. 2000). The same logic applies to those same government authorities who find themselves directly involved in on ground works as was the case for the LMRIA study.

The study points to a common dilemma that governments face when attempting to engage with peoples who come from different socio-political and cultural backgrounds – this dilemma is termed a wicked problem. When communities of interest are established without creating a common point of reference and establishing ground rules, shared values and a shared vision for the project outcome (as regularly happens), then the more likelihood tensions and a loss of direction will occur. It is argued; that a community of purpose is regularly formed by governments to fulfil their consultation and engagement requirements. The study recognises that such communities are often given to complex and dynamic social and political structures and this regularly poses problems for gaining consensus on project outcomes.

To this end, the thesis recognises the necessity for those government institutions intending on forming communities of purpose, to have a better understanding of social capital – and how weak and strong ties can affect the cohesiveness of a community and the extent to which holistic engagement can close those ties by building the necessary trust, which in turn will arguably engender some sense of shared purpose. Critical to the success of community based natural resource management is the creation of a more effective engagement process, one that requires qualification of a set of shared values and a shared vision from all parties prior to the commencement of the project. Without such an engagement process there is little likelihood of building the necessary trust to ensure sustainable outcomes. This is true of all community types – place, interest and purpose.

In addition, this thesis has reinforced the argument that it is crucial that governments recognise that rural and remote communities will respond to issues about natural resource management and sustainability by whatever means they have available. Thus what constitutes sustainability at a regional scale will therefore depend on the views and values held by those communities involved in

natural resource management (Wallis 2004 cited in O'Toole et al. 2006:25). With this in mind, one of the main tasks for policy makers is to recognise the importance of community engagement and its ability, to build trust which in turn will strengthen those ties that encourage the development of sustainable relationships and partnerships. This point cannot be overstated. Therefore, one equally important task facing proponents of a more balanced policy framework for natural resource management is to build into their policies more effective tools and processes for building holistic community engagement - effectively strengthening the roles of authorities and communities to respond to natural resource management in a collaborative and sustainable manner.