

**The relationship between community vitality,
viability and health, and natural resources and
their management
- final report**

URS 15

Don Burnside

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Postal address: GPO Box 2182 Canberra ACT 2601
Office location: 86 Northbourne Ave Braddon ACT 2612
Telephone: 02 6263 6035
Facsimile: 02 6257 9518
Email: info@nlwra.gov.au
Internet: <http://www.nlwra.gov.au>

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1	Introduction-----	1-1
1.1	About the Project	1-1
1.1.1	Background	1-1
1.1.2	Project objectives	1-2
1.1.3	Methodology	1-2
1.2	About the Final Report	1-3
2	Community VVH and natural resource management-----	2-1
2.1	The conceptual framework	2-1
2.2	The rationale for an interest in community vitality, viability and health (VVH)	2-2
2.2.1	Defining the term	2-2
2.2.2	Features of communities with high VVH	2-4
2.2.3	The evidence that NRM needs strong communities	2-4
2.2.4	The evidence that strong communities need good natural resources and NRM	2-4
3	Linking NRM and community VVH-----	3-6
3.1	The policy environment for NRM and community VVH	3-6
3.1.1	Features of the NRM programme framework	3-6
3.1.2	The policy framework for community VVH	3-6
3.2	The challenge - linking NRM and regional economic and social development	3-8
3.2.1	Implications for the community VVH-NRM project	3-8
3.2.2	Measuring community VVH and NRM	3-9
3.3	Key findings and recommendations	3-9
3.3.1	Key findings summarised	3-9
3.3.2	Recommendations	3-10
4	Headline indicators of community VVH-----	4-1
4.1	Community VVH and NRM reporting experience across Australia	4-1
4.1.1	Addressing information needs about community VVH	4-1
4.1.2	Addressing information needs about NRM	4-2
4.1.3	Intellectual development in information definition	4-3
4.2	Potential indicators describing the relationship between community VVH and NRM	4-3
5	Testing the indicators – suggested prospectuses-----	5-1
5.1	Objectives of a trial	5-1
5.2	The products from the trial	5-1
5.2.1	Process products	5-1
5.2.2	Output products	5-1
5.2.3	Outcome products	5-2
5.3	Methodology	5-2
5.3.1	Appointment of a Project Advisory Committee	5-2
5.3.2	Refinement of indicators	5-3
5.3.3	Selection of regions and case studies	5-3
5.3.4	Data collection	5-5
5.3.5	Data interpretation and presentation	5-5

5.3.6	Review by experts	5-5
5.3.7	Report preparation and presentation	5-6
5.4	Indicative budgets for three projects	5-6
6	Next steps -----	6-1
7	Acknowledgements and relevant reading-----	7-1
7.1	Acknowledgements	7-1
7.2	Relevant reading	7-1
8	Annex 1 - The Policy Framework for NRM-----	8-1
9	Annex 2 - Indicators-----	9-1
10	Limitations -----	10-1

Tables

Table 1: Suggested headline indicators for the relationship between community VVH and NRM.....	9-1
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Figures

Figure 1: A simplified conceptual framework of community VVH and NRM program logic	2-3
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This Final Report presents:

- (i) key findings from a Literature Review that explores the nature of people's interactions with natural resources, viewed from individual and community perspectives, with special attention given to the concept of community vitality, viability and health (VVH);
- (ii) suggested headline and supporting indicators for testing as to their suitability in assessing community VVH and its contribution to natural resource management (NRM) delivery and outcomes;
- (iii) a prospectus for how the indicators might be tested in one or more regions across Australia, and
- (iv) options for next steps for consideration by the Social and Economic National Coordination Committee.

This is the final report that will be delivered to the National Land and Water Resources Audit (NLWRA), as part of URS's commitments to the *Socio-economic indicators to assess community vitality, viability and health for natural resource management* project.

1.1 About the Project

1.1.1 Background

The Natural Heritage Ministerial Board has tasked the NLWRA with coordinating the collation of data to support reporting on natural resource condition required under the National NRM Monitoring and Evaluation Framework (NM&EF).

The Framework identifies the need for a set of indicators for monitoring community and social processes relevant to or affected by NRM programs, as well as measures of the adoption of sustainable development and production techniques.

The Social and Economic National Coordination Committee (SENCC) is responsible for advising on the development and implementation of socio-economic indicators relevant to the NM&EF. SENCC has representatives from the Australian Government and State jurisdictions and observers from major national socio-economic data providers / research institutions.

In August 2006 SENCC recommended a national set of indicators and protocols to assist in assessing the impact of NRM programs on:

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- the capacity of land managers' to change and adopt sustainable management practices, and
 - the social and institutional foundations of NRM - including the capacity of regional organisations to make NRM decisions.

A third and final set of indicators which examine the link between community vitality, viability and health and natural resource condition were to be scoped, with the initial results to be considered by SENCC in early 2007. This report presents the results of the scoping study.

1.1.2 Project objectives

The objectives listed in the Consultancy Terms of Reference (ToR) are to:

1. produce an evidence based Conceptual Framework that clarifies concepts and terminology on the relationship between community VVH and NRM outcomes, in consultation with key stakeholders;
2. propose initial indicators of VVH relevant to NRM, and identify appropriate measures and information sources, highlighting major data gaps, and
3. develop a prospectus for future co-investment in trials of the indicators, data collection and reporting on VVH.

The project's ToR identify four key policy questions that need to be answered.

- Is community VVH important in NRM?
- How should VVH be used in NRM program design and delivery?
- What are the most useful measures of community VVH?
- How should we measure, analyse and report on community VVH now and in the future?

1.1.3 Methodology

Project Plan

A draft conceptual model of the relationship between community VVH and NRM, a suggested structure for a Literature Review, and indicative sources of literature were presented to the Project Advisory Committee (PAC) in October 2006. The PAC provided advice and feedback which was used in reviewing the model and in completing the Literature Review.

Completion of a Literature Review

URS completed a Draft Literature Review that covers the components of community VVH, the contributors to VVH and the linkages or drivers between VVH and the foundations of NRM action. This literature review and a conceptual framework of the relationships were reviewed by the PAC in November 2006.

Workshops with key stakeholders

Four workshops were held in Brisbane, Melbourne, Perth and Canberra between December 2006 and February 2007. The purpose of the workshops was to consider the Literature Review, the proposed conceptual framework for the relationship between VVH and NRM, and to begin work on a useful set of indicators. Attendees at the workshops were drawn from the social sciences, and NRM governance and delivery. There was less involvement from regional economic and social development. The collective summary points from the workshop feedback were used to edit and extend the Literature Review.

Consultations with agencies

Subsequent to the workshops, information on the project was presented to key agencies in local and regional community development, namely the Australian Local Government Association (ALGA) and the Department of Transport and Regional Services (DOTARS).

Presentations to SENCC

The project and key findings were presented to a meeting of SENCC in March 2006. This was followed by preparation of this Final Report including the key findings from the Literature Review, suggested headline indicators, a prospectus for testing the indicators and options for next steps.

1.2 About the Final Report

Section 1 introduces the objectives of the project.

Section 2 presents the conclusions about the relationships between community VVH and NRM based on a literature review completed in an earlier phase of the project.

Section 3 discusses the policy environment and identifies issues in linking NRM and community VVH.

Section 4 summarises current experience in the measurement of community VVH and natural resource management.

Section 5 sets out approaches (prospectuses) that can be used in testing the headline indicators in regional Australia.

Section 6 lists next steps for consideration by SENCC.

Section 7 lists acknowledgements and references.

The relevant parts of the agreed NRM Programme Framework are presented in **Annex 1 - The Policy Framework for NRM**.

An indicative list of headline and supporting indicators is presented in **Annex 2 - Indicators**.

Section 10 presents limitations associated with the Report.

2.1 The conceptual framework

The conceptual framework in Figure 1 draws upon our existing knowledge of human behaviour in managing natural resources, in regional and local development, and community dynamics, and is linked to the program logics developed by the National Action Plan for Salinity and Water Quality (NAP) and the Natural Heritage Trust (NHT).

The model shows five types of capital that are available to contribute to NRM programs. **Human capital** can be found and developed internally in a community, but is also a function of a community's willingness and ability to access and exploit 'external' resources of human skills, experience, and innovation. **Social capital** include the internal and external networks, the organisations that operate for community good and spare resources that are available to support the community. **Economic capital** is drawn from the consumptive and non-consumptive use of natural resources (natural capital), and increasingly in many communities, from those activities that rely purely on social and human capacity. **Physical** or built **capital**, which is sometimes included as a subset of economic capital is the public accessible infrastructure available to support community endeavours. Finally **natural capital** is the resources of land, water and air, their condition and the values placed on them.

Collectively, the natural, physical, economic, human and social resources (capitals) available to a community are contributors to components of community VVH. These include administrative capacity, infrastructure and services, population mobility and trends, and the skills, knowledge and experience accessible to the community. For example, population increase and mobility will contribute to community VVH directly (just by having more people able to contribute) and by increasing skills, knowledge and experience. Further, a higher mobility in the population provides new talents, and revitalisation of community structures and activities. The quality of infrastructure and services will be a function of the economic resources available to a community, generated either internally, or through access to external resources.

The framework postulates that these components of community VVH interact with and support (and if feedback loops were shown, benefit from) achievement in NRM. While developing foundations and actions may mainly occur through grass-roots work in the community, achievement of sound NRM will require a community to incorporate NRM as a core function of its organisational and institutional objectives. In the NAP program logic, the equivalent stages are motivating and then enabling the community to take effective action on NRM. Thus the framework is about the added value that community VVH can make to NRM planning and action above that undertaken by individuals acting on their own initiative.

The framework also shows external forces in terms of those that are unplanned (shocks and trends) and those that are planned as in policy drivers for regional development. These policy

drivers can be in conflict, as in policies that reduce employment in some government service sectors in regional communities while other arms of government are encouraging regional industrial and tourism growth to address population decline. Finally, there are many feedback loops, which are not shown in the model. Government can be a significant investor in human social capacity, and can act directly in motivating and enabling communities to take action in NRM.

2.2 The rationale for an interest in community vitality, viability and health

If the Conceptual Framework depicted in Figure 1 is valid and defensible, then communities are able to make a separate, unique and beneficial contribution to natural resource management that is outside the contributions made by individuals on the one hand, and people within the NRM family on the other. It follows that harnessing this capacity in community VVH will assist in NRM program design and delivery. It further follows that there will be value in investing in the community capacity to contribute to NRM. In this project, this ‘community capacity to contribute to NRM outcomes’ is termed community vitality, viability and health.

2.2.1 Defining the term

The term ‘community vitality, viability and health (VVH)’ is not used in the literature, and may be constraining if adopted universally. A range of terms have been used to describe ‘strong communities’ being community ‘sustainability’, ‘development’, ‘resilience’, ‘capacity’ or ‘health’. Another term suggested in the workshops is a community’s ‘comparative advantage’. These terms are defined as involving varying combinations of elements drawn from human, social, economic, built and natural capital, which themselves have varying definitions.

Although there is much theoretical literature in the area, not all of which seems to be grounded in observation or evidence, there is sufficient empirical support for a number of factors being associated with (and contributing to) communities that are recognised as being innovative, healthy and viable communities.

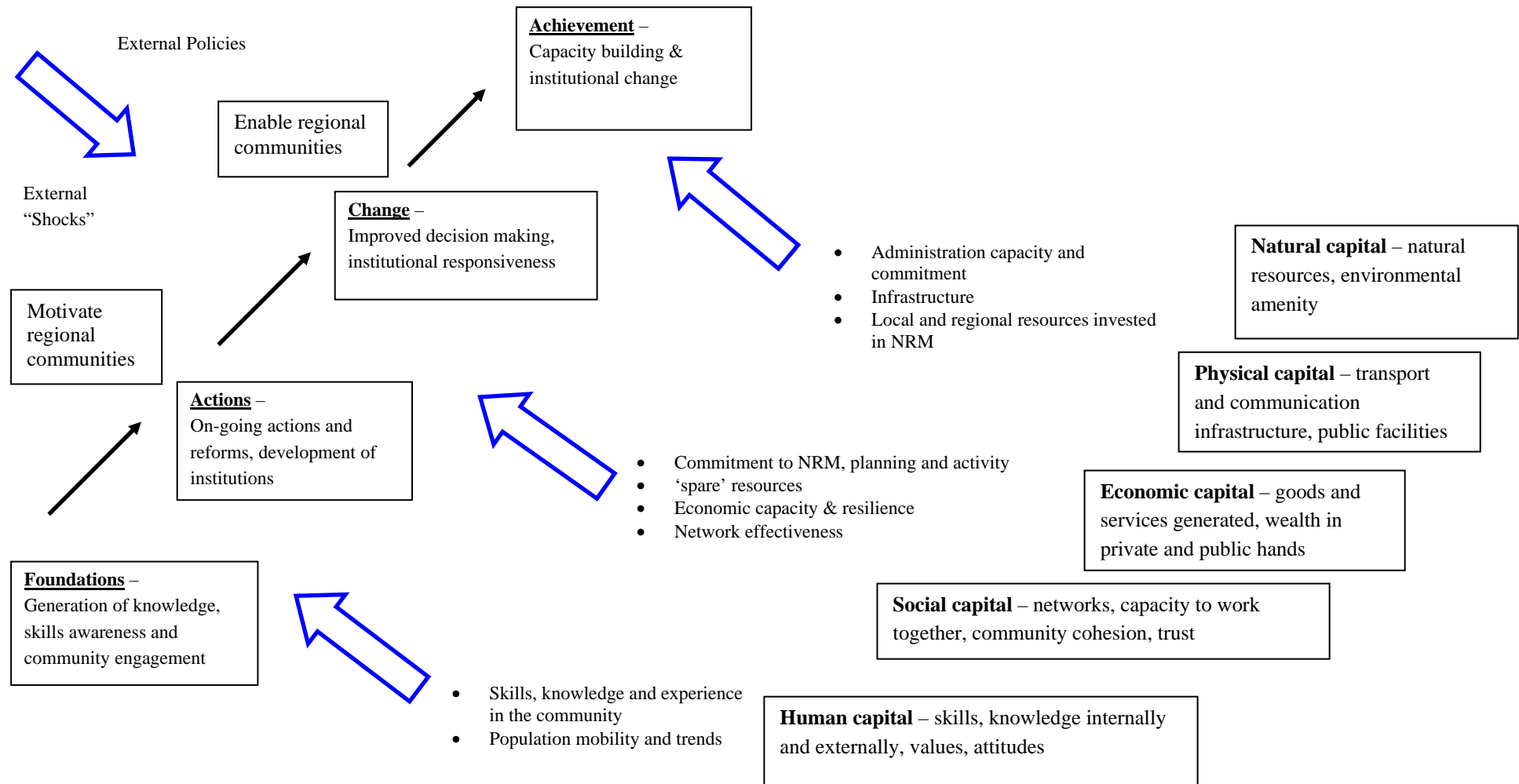


Figure 1: A simplified conceptual framework of community VVH and NRM program logic

2.2.2 Features of communities with high VVH

There is reasonable consistency within the literature about what makes communities vital, viable and healthy. Factors such as growing and mobile populations, high social capital, good administrative and decision-making capacity, availability of skills and experience, economic resources, willingness to use external information, and the quality of leadership and networks are identified in many works, and are depicted in the Conceptual Framework shown in Figure 1.

Further, Australian, State and local governments are all involved in measuring most of these elements as part of a commitment to triple-bottom line progress. This provides a solid grounding to the consideration of community VVH in the use and management of natural resources.

The research into community VVH has not given much consideration to the role of the physical environment in which a community is located as a contributor to community well-being. There appears to be no obvious or necessary relationship. This may in part be because the research into human factors in community development and NRM has rarely been closely linked.

2.2.3 The evidence that NRM needs strong communities

Individual land use and management behaviour is generally only indirectly affected by community VVH. Social and community factors will contribute to how individuals perceive their goals, with adoption of new technology determined by how well they will assist achievement of those goals. However, the recommendations in the most recent literature are that it is likely that it is easier to design technologies that fit with most individuals' goals, than to build community VVH with a view of changing individuals' goals.

There is some evidence that communities with strong VVH are better at setting regional directions and plans for how they want their landscapes to look and to be used, and then being able to mobilise the resources (human, social, economic, built capitals) to take action. This will be particularly so in land use planning, provision of resources, the management of NRM strategies, programs and investments at regional and local scale, where a depth of community strength will be able to support better performance in all these areas.

2.2.4 The evidence that strong communities need good natural resources and NRM

The available evidence would suggest that the economic gains from the use of nature resources have varying impacts on community VVH. Where the use is confined to broad-acre agriculture, the market forces operating on that land use are resulting in adjustments that are likely to inhibit local and sometimes regional community VVH. Conversely, where there is a move towards uses of natural resources for tourism and amenity/ lifestyle supports, as in coastal and peri-urban

areas, the evidence is for trends that are enhancing community VVH. Finally, natural resource decline is likely to be having a marginal depressing impact on community VVH in most areas of Australia, and more so in remote Aboriginal communities.

Based on the evidence reviewed for this report, we suggest that the impact of the decline in the condition of the natural resources on local and regional community VVH has been overstated. While there are clearly some extreme local and regional examples, at a large scale, some of the major natural resource problems are contributing less to declining regional fortunes than factors such as declining terms of trade, and changing land uses.

Aboriginal people have very different relationships to the environment than European people, with a larger cultural dependence on a healthy environment required for community well-being. The aspirations and needs of Aboriginal people in their relationships between land access, land use and management and community development are not always being addressed adequately within existing institutional and organisational arrangements for land use and management in the rangelands. Specialist programs funded through the regional NRM delivery model are now addressing some of these inadequacies.

3.1 The policy environment for NRM and community VVH

3.1.1 Features of the NRM programme framework

The framework for future NRM programmes was endorsed by the Natural Resource Management Council in 2006. The features of the framework that have particular relevance to this report are summarised below. Relevant sections from the framework have been extracted and are presented in full in **Annex 1 - The Policy Framework for NRM**.

The delivery of NRM services is based on an adaptive management approach that relies on continuous learning. This recognises that NRM, in particular regional NRM is a relatively new area for public investment. In particular, supporting Indigenous people to contribute to shared NRM objectives will yield benefits for them.

The delivery mechanisms are widening, to capacity-building initiatives, grants, on-ground works and regulation, and are likely to entail an increased emphasis on the use of market-based instruments in the future. There is a strong on-going focus on capacity-building for individuals, landholders, industry and communities to enable them to acquire the skills, knowledge, information and institutional frameworks to promote sound NRM. The framework anticipates a greater participation by local government.

This framework reflects the considerable stakeholder support for and confidence in the regional approach used to deliver the NHT and the NAP, and the continuing value of the regional investment approach for achieving strategic landscape scale change – with community-developed NRM plans and investment strategies at the core of this approach.

3.1.2 The policy framework for community VVH

Building the capital base

Building the natural capital occurs through policies and programs in agriculture and environmental management.

In the community VVH area, there are a large number of policies, programs and portfolios with responsibility for building human, social, economic and physical capital at all levels of government. The portfolio areas include industry and resources development, education and training, health and community welfare, Indigenous development, and transport and communications. These areas interact spatially in Governments' regional development activities.

Regional economic and social development

Australian and State Governments are committed to regional economic and social development, with specific policies and programs operating to encourage devolved decision making, industry development, better services, human capacity building, and improved resource use. The purpose of government's involvement in regional development varies – in some regions (such as in much of Victoria) it is to manage growth, whereas in other regions (e.g. broadacre agriculture regions) it is to arrest decline and generate viable alternative industries, or to assist structural adjustment.

National policy

The Australian, State and Territory Ministers for regional development, and the Australian Local Government Association have developed a Framework for cooperation in regional development which provides definitions, roles and responsibilities and principles (Department of Transport & Regional Services 2005). The Framework defines regional communities as including the people, families, businesses, local industries, non-government organisations, educational institutions, and economic and social networks that make up regional Australia. It further defines regional development as being

‘about regional communities improving their economic, social, cultural and environmental wellbeing by fully developing the potential of the region and its people. Key elements underlying successful regional development include cooperation between all spheres of government in building community capacity to adjust to change, growing and attracting businesses, diversifying regional economies, fostering innovation and working cooperatively on public and private sector infrastructure development and regional investment.’

The agreed principles of regional development set out in the Framework stress the importance of the three layers of government (federal, state/ territory and local) collaborating in planning and action, the importance of communities in setting their own priorities by building on natural advantages and existing structures, and cooperation with the private sector (Department of Transport & Regional Services 2005).

State and territory policies

Specific published statements outlining their intentions in this area, which can be considered as analogous to regional development of community VVH, are reviewed for three jurisdictions (New South Wales – *Strategic Plan 2004-2007*, Department of State & Regional Development; Victoria – *Moving Forward: Making Provincial Victoria the Best Place to Live, work and Invest*; and WA – *Regional Western Australia . A better place to live*. Regional Development Policy).

The central thrust of these three strategies/plans is about building the economic strength of regional communities with investments in infrastructure and services, and attraction and

incubation of new industries. For growing regions, this is about ensuring that economic growth can be sustained and not hampered by inadequate facilities. For struggling regions, investment in infrastructure is often seen as a ‘supply-side’ driver of regional development. Other common themes include improving the quality and inclusiveness of regional governance and fostering innovation and technology in the regions. Community development receives varying attention, with a focus on improving health and education outcomes and community cohesiveness. Environmental enhancement is also mentioned, but there is little recognition of linkages with the regional delivery model for NRM.

3.2 The challenge - linking NRM and regional economic and social development

3.2.1 Implications for the community VVH-NRM project

Australian governments (Commonwealth, State and Local) are investing in regional economic and social development, in research and development for NRM, and in changed land use and management. It appears that the investments in regional economic and social development and regional NRM are occurring in parallel at all levels of government, with limited linkages between the two streams. The exception will be where investments in human and social capacity are being made to meet the needs for NRM.

The national NRM framework is increasing its focus on direct regional and local management of natural resources, with further devolvement of responsibility for defining of issues, strategic planning, investment management and monitoring and evaluation. While the Framework continues to recognise the importance of individual decisions in land and water use and management, it is increasing the emphasis on collective decision-making approaches such as regulation and the use of market-based instruments. Regional and local administration of these instruments requires strong, committed communities.

Building the capacity of regional and local communities, in particular local governments and Indigenous communities will receive increased emphasis to enable these larger responsibilities to be discharged. A capacity to define the relative capacity of communities to contribute, and then investment to address weaknesses would seem to be implicit in the wording of the framework.

The community VVH policy agenda includes most functions of government, including health, Indigenous affairs, community welfare, regional development, education, transport and communications. It will not be possible for the NRM fraternity to interact across all of these contributors to community well-being.

Regional development policies are being implemented at national, state and territory, and local government scales. The focus is on economic and community development, with less emphasis on environmental matters. However, the principles of regional economic and social development and regional NRM in terms of government support for regional community priorities and capacity building for improved decision-making and delivery are closely aligned, albeit in different domains. Building linkages across these domains is a logical, and to the extent that there are synergies to be captured, a useful objective.

3.2.2 Measuring community VVH and NRM

There is abundant experience in the design and use of indicators to measure the accepted elements that comprise community VVH.

The development of means of measuring and reporting on regional NRM organisational performance is well advanced (see Fenton & Rickert 2006a and b), although these methodologies may not connect closely with some of the fundamental drivers of that performance which are community-based, such as the strength of local and regional administrative arrangements, and the population dynamics in the area.

The task will be to consider the components of community VVH that are likely to contribute most to NRM program outcomes and match these with appropriate social and economic indicators used in existing national and state frameworks.

3.3 Key findings and recommendations

3.3.1 Key findings summarised

- Community VVH is important and understood, managed and measured in many different ways by many different entities. However empirical evidence for the structure and function of community VVH is less available than theoretical concepts.
- The characteristics of community VVH occur mainly as elements of human, social and economic capital. There is no straightforward relationship between community VVH and natural resources, or the condition of natural resources. The environmental setting may contribute to or detract from community VVH, or may have no influence at all.
- Higher community VVH will add most value in encouraging NRM in land use planning, provision of resources, and the management of NRM strategies, programs and investments at regional and local scale. Harnessing VVH will be beneficial to NRM.

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- Investments in building community VVH are wide ranging, contextual and can be either outcome driven (e.g. targets in health, education) or catalytic (e.g. provision of infrastructure, facilities).
 - The principles of regional economic development and regional NRM, and the separate justification for investments in these areas are closely aligned.

3.3.2 Recommendations

Four recommendations are presented.

1. There is enough evidence of linkages between community VVH and NRM to investigate the relationship further in testing the utility of indicators that can highlight the nature of the linkages. However, the evidence of linkages is not consistent at a national scale, and varies considerably according to regional situations. Further work is required to define the relationships at region-by-region scale.
2. This project and subsequent work can be used to define and foster the linkages between those people and organisations working in the community VVH and NRM domains.
3. Indicators need to be straightforward and clearly focused on those aspects of Community VVH that are relevant to and contribute to NRM program design and delivery.
4. Indicators for the NLWRA measurement of community VVH must be linked to existing National, State and locally developed indicators.

4.1 Community VVH and NRM reporting experience across Australia

There is a growing body of literature and experience in the development of reporting frameworks to report the state of human and social well-being, the state of the environment, and the progress towards sustainability or ‘triple-bottom line’ objectives.

The information on reporting frameworks is presented here to provide a context for the development of an indicator framework that links community VVH and NRM. It is within these wider reporting frameworks that existing indicators are likely to be found that can contribute to an appreciation of the state and trends in a community’s overall VVH that is relevant to NRM delivery. Based on their current reporting activities, the organisations involved in this work will need to be involved in future discussions about linking measurement of community VVH and NRM.

4.1.1 Addressing information needs about community VVH

At national scale

The Australian Government needs quality information to determine (i) issues that require policy development, and (ii) evidence of the impact of policy implementation. Developing appropriate national information products is the responsibility for the Commonwealth Government agencies, such as ABS, the Bureau of Transport & Regional Economics (BTRE), and the Productivity Commission are building their capacity to report on the economic and social trends in Australia. The ABS is increasing its capacity to report on specific aspects of sustainable development such as (i) Indigenous health and welfare, (ii) how the nation is housed, and (iii) how regions are functioning across economic, social and environmental domains. It has also begun reporting general progress through the *Reporting Australia’s Progress 2004* document (ABS 2004). This report can be considered as the first ‘triple-bottom line’ report on Australia as a whole and as such the development of indicators for reporting community VVH and NRM at local and regional scale would benefit from being consistent with this national approach.

Other national organisations that contribute information that is relevant to the measurement of community VVH include the Australian Council of Social Services (ACOSS) and ALGA who publish the *State of the Regions Report*.

At state and territory scale

Across Australia, State and Territory Governments such as Tasmania (Tasmania Together Progress Board 2003), Victoria (Government of Victoria 2001) and the Australian Capital Territory (ACT 2003) are developing reporting frameworks that include measures of community VVH. These reports follow a similar framework being based on aspirational goals or desired states, with a range of measures that are able to detect change in respect of the goal or the general area of interest. Victoria's approach is a little different, in that it reports an array of selected activities (e.g. number of new teachers employed) undertaken by Government in pursuit of the goals. The approach is less objective than that taken by Tasmania or the ACT. The Government of South Australia's State Strategy lists 6 objectives and 79 targets across these objectives (Government of South Australia 2004). Again the approach is mainly about being able to track what government does to drive change in desired directions.

At regional and local scale

Local governments such as Newcastle and Onkaparinga have developed reporting frameworks (Australia Institute and City of Newcastle 2000, City of Onkaparinga 2000), which tend to be developed on strategic planning frameworks. Indicators of regional development are being measured by government agencies around Australia (see Department of Local Government and Regional Development 2003).

4.1.2 Addressing information needs about NRM***At national scale***

Environment Australia¹ published *Are we sustaining Australia? Report against headline indicators* in 2002 (Environment Australia 2002). The framework was developed to measure national performance against the core objectives of the *National Strategy for Ecologically Sustainable Development* (Council of Australian Governments 1992). The National Land and Water Resources Audit has a specific brief to provide a national and regional overview of the state and trends in the nation's natural resources. The Department of Environment and Water Resources (DEW) is also involved in publishing data to show the state of the nation's biophysical resources and leads in the publication of the *State of the Environment Report*.

More specific socio-economic indicators in respect of NRM have been developed by the National Land and Water Resources Audit, the Bureau of Rural Sciences (BRS) and ABARE

¹ Now the Department of Environment and Water Resources

(2005) to measure landholder adaptive capacity and the adoption of sustainable management practices. The Department of Agriculture Fisheries and Forestry (DAFF) and the National Land and Water Resources Audit have funded the *Signposts for Australian Agriculture* project which reports on agriculture's contributions to ecologically sustainable development.

At state and territory scale

States and territories are involved in State of the Environment reporting, with more specific information provided to address particular policy needs.

At regional and local scale

An increasing number of local authorities are setting goals and targets for reduced carbon emissions, reduced waste generation, and enhanced biodiversity conservation (see websites for ALGA and individual state local government associations). To determine progress toward these targets, they are developing their own reporting capability. Regional NRM groups, supported by Commonwealth and State agencies are developing monitoring and evaluation frameworks to measure bio-physical outcomes and socio-economic indicators of NRM behaviour.

4.1.3 Intellectual development in information definition

Intellectual development in measuring change in community and environmental conditions is being led by the Commonwealth and State Governments (e.g. see Department of Local Government & Regional Development 2003), and some NGOs such as the Australia Institute (Hamilton & Denniss 2000). The work being done by the Australia Institute is highlighting problems with conventional measures such as gross domestic or regional product (GDP) per capita, and is focusing on indicators that provide insights into how 'we' live as a community and individuals. Commissioned reports have been completed for the former Department of Family and Community Services (Black & Hughes 2001), the Department of Transport and Regional Services (Rural Women's Advisory Council 2001), and ALGA (National Economics 2002).

4.2 Potential indicators describing the relationship between community VVH and NRM

The following approach was taken in developing a list of **indicative headline and supporting indicators** linking community VVH and natural resource management, as shown in **Annex 2 - Indicators**.

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- In the NRM context, community VVH is not an end in itself. It is relevant to the extent that communities with ‘high’ community VVH can make a contribution to better NRM outcomes than those with ‘low’ community VVH. There will be value in selecting indicators that focus on those aspects of community VVH that can contribute to NRM actions and outcomes. In doing so however, the findings in the literature review suggest that there is less value in measuring the contribution that natural resources make to community VVH.
 - The indicator framework needs to link to the program logic that is guiding investment and delivery of NRM programs. This logic has been developed for the NAP and the NHT. Both of these logics have community capacity, strength and resources as an essential underpinning. It is in these areas that community VVH can make a difference. The indicators need to measure these factors.
 - The literature on individual NRM adoption behaviour suggests that community factors are less important than how well the desired practices align with a person’s goals. Further, indicators to measure these factors are being developed elsewhere by SENCC (see Section 1.1.1). The unique contribution that community VVH makes to NRM mainly occurs outside its direct or immediate influence on individual landholder decisions to adopt new practices, and instead focuses on the collective contribution that a community makes to NRM outcomes. Indicators therefore need to measure the added value of harnessing community VVH to NRM activity.
 - The program logic suggests that both output and outcome indicators of the contribution of community VVH to NRM need to be measured. Output indicators will be those that will in time affect positively NRM outcomes. Therefore, an increased skill base in the population and improved administrative arrangements at local and regional government level can make a positive contribution to NRM delivery. Outcome indicators will measure the outcomes from community VVH as they influence NRM. These indicators need to measure how much, or how well this skill base is being harnessed in NRM program design and delivery, and the commitment of local and regional government to achieving NRM outcomes.

5.1 Objectives of a trial

Any trial of the indicators of community VVH and NRM (summarised as ‘VVH-NRM indicators’) must have both process and content relevance.

- To determine the logistical ease of measuring VVH-NRM indicators at regional and sub-regional scale with existing data sets.
- To determine additional data sets that would be required for comprehensive assessment.
- To determine the validity of suggested causal linkages between community VVH and natural resource management.
- If causal linkages are valid, to determine the sensitivity of the indicators in being able to show the impact of varying community VVH on NRM activities.
- To determine the value of the information obtained in guiding investment in community VVH at national, regional and sub-regional scales.

5.2 The products from the trial

The products of a trial to test the relationships and the indicators will generate process, output and outcome products.

5.2.1 Process products

Practitioners in NRM and community VVH will learn to work together in addressing complementary issues, and operate in a cross-disciplinary environment – relationships will be built between the domains at all levels of government.

The two meta-disciplines of regional NRM and regional economic and social development will build capacity in addressing policy issues that affect both in a manner that will allow synergies to be generated.

5.2.2 Output products

At an immediate level, a trial will enable progress with indicator development that has value for measuring NRM and community VVH, and highlighting those indicators that are able to inform into both arenas.

Undertaking the trial may identify areas where policies in the NRM and community VVH arenas are (i) aligned, (ii) are not aligned and (iii) indeed are antagonistic. In the case of the latter two situations, this could provide a trigger for policy work that addresses the conflicted objectives of policies and identifies changes that can increase policy alignment to the benefit of both policy arenas.

5.2.3 Outcome products

Assuming that the trial demonstrates that there is validity in the proposition that community VVH can contribute to NRM, and that indicators are available to measure the relevant factors of VVH that matter, and the contribution that can be made, the next step will be to design programs for investment in the community VVH-NRM linkage.

5.3 Methodology

5.3.1 Appointment of a Project Advisory Committee

The Steering Committee for a trial will include the key stakeholders in this area. These include organisations with a key role at national level in the areas of interest – being NRM and community VVH. These are:

- National Land and Water Resources Audit (NLWRA) (Chair);
- NRM Management Unit, Departments of Agriculture, Fisheries and Forestry (DAFF) and Environment and Water Resources (DEW);
- Department of Transport and Regional Services (DOTARS);
- Australian Bureau of Agricultural and Resource Economics (ABARE);
- Bureau of Rural Sciences (BRS);
- Bureau of Transport and Regional Economics (BTRE);
- Office of Indigenous Policy Coordination (OIPC);
- Australian Local Government Association (ALGA);
- Australian Bureau of Statistics (ABS), and
- National Farmers Federation (NFF).

5.3.2 Refinement of indicators

The indicators listed in **Annex 2 - Indicators** are indicative. Clearly, they need refinement according to accepted principles of validity and reliability, capability of measurement, cost of data collection, potential compliance burden, availability of data sources and usefulness by decision-makers. In part, the trials will carry out this assessment, but work will need to be done in ‘operationalising’ the indicators before use in the trials.

5.3.3 Selection of regions and case studies

The nature of communities varies greatly across Australia. If the measurement of community VVH that is relevant for NRM is to be used as a basis for deciding investment priorities between regions, then that indicator framework needs to be applicable across the range of regions.

The literature suggests that there are many types of communities, according to their functions, sizes, cultures and activities. We have taken a geographic approach to community definition, being functional units that house population and provide services. The reasons for doing this are essentially pragmatic, as follows:

- the delivery of natural resource management is occurring through NRM regions, and
- the manner in which statistical data are collected, which is normally collected spatially at statistical local area as the smallest unit.

We suggest a broad categorisation of regions into four community ‘types’ as shown in the headings below, with the selection of one region from each type for a test of the indicators. As well as this categorisation, the other criteria that should be used to govern selection of regions are:

- The availability of expert opinion and documentary evidence about the relative strength and resilience of communities in the regions up for selection;
- the extent to which the indicators are likely to enable discrimination between regions;
- the willingness of regional NRM organisations and regional governance organisations to be involved in the work;
- the willingness of local governments in the region to be involved in the work, and
- the ability to match regional NRM boundaries to those used for data collection on the indicators under consideration.

Metropolitan regions

Suggested regions in this category are Swan Catchment (metropolitan Perth and surrounds), Port Phillip (Melbourne) and Western Port Bay, Sydney Metro, and South East Queensland (including Brisbane and the Gold Coast).

‘Seachange’ regions

‘Seachange’ regions are those formerly agricultural regions that are experiencing changes in demographic, economic and social make-up as urban people move into the areas. These areas occur in mainly coastal areas and within easy travelling distance of the major cities. Some of the important ‘seachange’ NRM regions are Corangamite (Vic), Southern Rivers, Northern Rivers (NSW), Wet Tropics (Qld), and the South West (WA).

Well populated rural regions

Well populated rural regions are those that support relatively large towns in more closely settled but strongly agricultural areas. Suggested regions are Namoi, Central West NSW, Goulburn-Broken, and Burnett-Mary.

Sparsely populated rural regions

Sparsely populated regions are located mainly in the rangelands, and in the drier areas of the grainbelt. Suggested rangeland regions are Desert Channels (Qld), South Australian Rangelands, Rangelands (WA), Aboriginal Lands (SA), Western NSW, with the Eyre Peninsula and Avon being relatively sparsely settled broad-acre agricultural regions.

Intra-regional case studies

Several of the regions referred to above have quite discrete sub-regions, or communities of practice that are distinct in a NRM sense. For example, the cotton growing community in the Namoi region is known to be different in character to the broad-acre dryland agricultural areas in the region. Similarly, the dairy farming areas in Corangamite region are very different to the urban and peri-urban areas associated with Ballarat and Geelong. Establishing a basis for sub-regional case studies and then conducting them will provide information on the flexibility and degree of discrimination of the indicator set.

The role for local and regional governance

The indicator framework in Table 1 includes some focus on activities undertaken by local and regional governance. This reflects the importance of these levels of government in community VVH, and the contribution that the collective activities of a community can make in NRM, which is apart from the individual landholder contribution. Engaging with local and regional government in selected NRM regions and with responsible state and Australian agencies (e.g. DOTARS) will be important in undertaking the trials.

5.3.4 Data collection

It is expected that the data to be collected will be available from a range of sources, including:

- National level - ABS, ABARE, BRS, BTRE, NLWRA, ALGA;
- State levels – agencies with responsibilities for NRM, regional economic and social development, local government peak bodies;
- Regional level – local governments, community groups, published studies, regional NRM groups.

The relative ease of obtaining valid and reliable data for the indicators will be an important process outcome from the trials.

5.3.5 Data interpretation and presentation

The raw data will need to be analysed and interpreted. Quantitative data may be amenable to simple statistical analysis, but it is more likely that these data will be descriptive in nature. Some of the data should be expected in qualitative form, as in the space given in regional development strategies to environmental considerations, or local and regional stories about community activities in NRM. The interpretation of data and information meaning will be a challenging task.

5.3.6 Review by experts

While it will be almost certainly possible to measure different levels and numbers for many of these indicators across different sub-regions and regions, these may not translate into recognised differences in how NRM is delivered, which is the phenomenon of ultimate interest. Given that there is no ‘gold standard’ for VVH-NRM performance, the trial managers will need to submit their assessments of community VVH derived from the indicators to expert judgement about the influence of community VVH on NRM activities and outcomes in those regions and sub-regions.

This will provide an important independent validation of the selected indicators. Experts who have a sound working knowledge of the trial regions and sub-regions will need to be identified and engaged.

5.3.7 Report preparation and presentation

The findings will need to be developed into conclusions and recommendations for inclusion in a Draft Report, for submission and presentation to the Steering Committee. The recommendations will need to focus firstly (i) on the value of continuing with measurement of relevant aspects of community VVH, and then if there is perceived to be value on (ii) suggested changes and refinements to the measures, and then (iii) advice on how the NLWRA can develop this component of its socio-economic data set further.

5.4 Indicative budgets for three projects

The Project brief requires budgets for three co-investment trials of the indicators. The co-investors are assumed to be the National Land & Water Resources Audit (who will fund the external service provider, and the cost of any data access), with in-kind services being provided by NLWRA, the NRM Unit (DAFF / DEWR), DOTARS, Regional NRM Organisations selected for the trial, ALGA, ABS and NFF.

While the basic stages of the project as set out in Section 5.3 will remain the same for all co-investment trials, the scale of the specific tasks can vary according to three budget limits - \$40,000, \$100,000 and \$200,000.

The trials suggested will be different in scale as follows.

1. The smallest trial (\$40,000 shared costs) will allow the indicator set to be tested across one region, with no individual intra-regional case studies. The value of this size of study is limited to an assessment of the logistics of data capture.
2. The mid-range trial (\$100,000 shared costs) will test the indicator across two quite different regions, with a detailed case study of a sub-regional area to be conducted in each region. Detailed case studies will evaluate the intra-regional variation in community VVH relevant to NRM. However, confining the trial to two regions will limit the assessment of the value of the indicator set.
3. The large trial (\$200,000 shared costs) will test the indicator set across four regions, with one drawn from each of the categories shown in Section 5.3.3. A detailed case study of a sub-regional area will either be conducted in each region, or two case studies will be conducted in each of two regions where there is seen to be sufficient intra-regional

variation. This trial will be the most rigorous in testing the flexibility and validity of the indicator set.

There are three options in acting upon the findings and recommendations in this Report. These are as follows.

1. Take no further action. This would assume a judgement that the information presented suggests that there is inadequate justification for a program that seeks to build increased linkages between delivery mechanisms in NRM and community VVH. The corollary is that the current focus on community capacity building in the NRM fraternity that is highlighted in the national framework will provide sufficient support for NRM in this area.
2. Continue with a program of research into the relevance of community VVH for NRM delivery. This assumes that the current work has indicated that the relationship has some validity, but it may not be important enough to NRM to be worth investment by NRM agencies. Further research is indicated.
3. Engage formally with organisations involved in community VVH, in particular with regional development agencies in building a collaborative program of linking regional NRM and regional economic and development. This would involve as a first pass implementation of the trial suggested in this report, followed by a significant amount of policy work, firstly at national level and then through to state/ territory levels and then to local levels.

7.1 Acknowledgements

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7.2 Relevant reading

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Features of the NRM programme framework

The framework for future NRM programmes has been endorsed by the Natural Resource Management Council in 2006. The features of the framework that have particular relevance to this report are as follows, and are presented *verbatim*.

Framework rationale

- An adaptive management approach based on continuous learning should continue to underpin the delivery of NRM services.
- Providing opportunity and building capacity among Indigenous people to contribute to shared NRM objectives will yield biophysical, cultural and socio-economic dividends and opportunities for collaborative whole-of-government approaches.
- An effective approach to NRM entails the application of a wide range of policy and program responses, including capacity-building initiatives, grants, on-ground works and regulation, and is likely to entail an increased emphasis on the use of market-based instruments in the future.

Programme objectives

Community capacity building and institutional change – the continued development of sufficient support for individuals, landholders, industry and communities to enable them to acquire the skills, knowledge, information and institutional frameworks to promote effective biodiversity conservation and sustainable resource use and management.

Themes

- Capacity building and institutional change. Developing the skills, knowledge and institutional frameworks that support on-ground action is essential to sustain natural resource assets. Accordingly, achievement of the key biophysical themes will require investments in people and the tools they need to contribute effectively, including in the large coastal and land areas under Indigenous management.

The need to develop adaptation responses to climate change, enhanced Indigenous engagement and, greater participation by local government, and actions to contain emerging NRM issues, will be major cross-cutting components of these themes.

Programme elements

This framework reflects the considerable stakeholder support for and confidence in the regional approach used to deliver the NHT and the NAP, and the continuing value of the regional investment approach for achieving strategic landscape scale change – with community-developed NRM plans and investment strategies at the core of this approach.

The Framework also incorporates the following proposed elements:

- A mechanism for responding to emerging NRM issues and, where appropriate, promote prevention over rescue;
- Enhancement of the role of local governments (or local government equivalents in the Territories) in future NRM arrangements;
- Enhancing arrangements for the NRM Facilitator network;
- An expansion of market-based instruments, stewardship arrangements and environmental management systems;
- The potential introduction of regional block funding arrangements;
- The enhancement of Monitoring and Evaluation, Standards and Targets, and Reporting Arrangements, and
- Recognition of the need to develop a more cohesive and effective Communications and Investor Recognition Strategy.

Table 1: Suggested headline indicators for the relationship between community VVH and NRM

NRM program logics		Community VVH and NRM			
NAP Program logic area*	NHT Program logic area**	VVH components	Desirable contribution to NRM	Headline indicators	Supporting indicators (and suggested sources)
Enabling regional communities	Achievement (outcomes) – capacity building and institutional change.	Administrative capacity Infrastructure and services	Local and regional governance has NRM as core activity, and it is delivered according to sound plans (lagging indicators)	<ul style="list-style-type: none"> The amount/ proportion of administrative activity invested in NRM as a core activity The amount/ proportion of infrastructure and services directed at NRM as a core activity 	<ul style="list-style-type: none"> Inclusion of NRM requirements in statutory local and regional land use plans (ALGA? Planning agencies?) Investment (monetary and non-monetary) leveraged by local and regional communities from other sources – state and Australian governments, corporate (Regional NRM Group records?) Local and regional government investment in NRM as proportion of total investment (LGA records?)
	Change (intermediate outcomes) – improved decision-making capability, institutional responsiveness.	Managerial capacity, leadership Economic strength and resilience Organisational supports	The local and regional community has sufficient managerial and leadership capacity to commit to sound decision-making in NRM, and is sufficiently strong and resilient to be able to act on those decisions. (Lagging and leading indicators)	<ul style="list-style-type: none"> The extent to which management and leadership has a NRM orientation (collected via an instrument) 	<ul style="list-style-type: none"> Inclusion of NRM in local and regional government strategic plans (ALGA? BTRE?) Inclusion of NRM on the agenda of community groups and organisations (?) Levels of local and regional employment in NRM (Regional NRM groups? LGA records?) MOUs established for NRM delivery by third parties – universities, state agencies, corporates (Regional NRM Groups, LGAs) Local and regional governance resources (ALGA?) Index of economic diversity (BTRE, ABS)
	Actions (outputs) – on-ground actions and reforms, development of institutions.	‘Spare’ resources Internal and external networks inclusiveness	The community is able and willing to commit a diversity of social and community resources to NRM and can use its networks to build	<ul style="list-style-type: none"> The number of people hours involved in NRM activity 	<ul style="list-style-type: none"> Per-capita income (BTRE) Income distribution (ABS) Indicators of financial pressures (BTRE)

NRM program logics		Community VVH and NRM			
NAP Program logic area*	NHT Program logic area**	VVH components	Desirable contribution to NRM	Headline indicators	Supporting indicators (and suggested sources)
			capacity. (Mainly leading indicators)	<ul style="list-style-type: none"> The proportion of the community's population involved in NRM activity 	<ul style="list-style-type: none"> Off-farm income (ABARE, BRS) Effectiveness of information networks (ABS) Volunteer activity in NRM (ABS?) Social capital indices (ABS, BTRE) Cultural activity index (?) Internal and external promotion of environmental values and issues (Regional NRM Groups) Index of telecommunications availability (BTRE) Indigenous participation in wider community life – e.g. employment, government (ABS, BTRE)
Motivating regional communities (leading indicators)	Foundations (activities) – generation of knowledge, infrastructure development, enhancement of skills and awareness, engaging communities and stakeholders	Diversity and availability of skills, knowledge and experience Attitudes and values, commitment to place Inclusiveness Population mobility	The community is committed to sound NRM, has access to and is able to use available skills, knowledge and experience in NRM planning, and welcomes new people and perspectives. (Leading indicators)	<ul style="list-style-type: none"> The skills available in the community Population mobility The depth and breadth of NRM knowledge and skills throughout the community 	<ul style="list-style-type: none"> Remoteness (ARIA) index (ABS, BTRE) Local and regional demographic trends including age distribution, and visitation from outside the region (ABS) Net migration of youth (NLWRA) Employment type – as in professional vv manual (ABS) Type of residence – as in owner-occupied vv rental (ABS) Quality of physical environment (BTRE) Environmental attitudes and values (ABS) Succession Plans (?) Organisations represented locally that have an NRM focus (Regional NRM Groups)

* from: NAP M&E core documents (2003), ** from: Webb *et al.* (2004)

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