

Capacity to manage natural resources

Western region

State Plan target

There is an increase in the capacity of natural resource managers to contribute to regionally relevant natural resource management (NRM).

Background

The capacity to manage natural resources depends on a number of factors, such as the accessibility of resources, capability and expertise of natural resource managers and the institutional and policy environment in which the managers operate. Such factors are important when assessing capacity and identifying what enables and constrains effective NRM.

A livelihood framework of five capitals (Ellis 2000) provides a framework for understanding these factors. National indicators of adaptive capacity (Nelson et al. 2010a, b) lack relevance at a community level; as such, they cannot effectively aid in triggering a change in local management practices or livelihood activities.

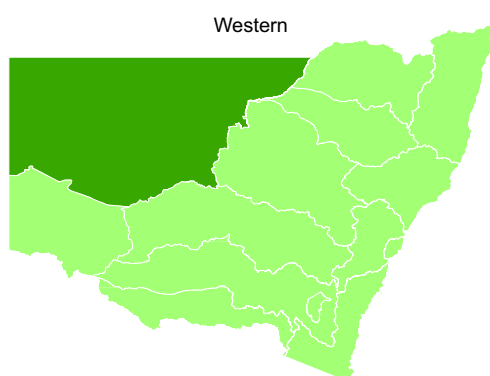
To ensure regional relevance, a participatory workshop approach was taken with participants drawn from pre-existing networks of natural resource managers, where available.

In consultation with the Western Catchment Management Authority (CMA), a workshop was held in Bourke to assess the capacity of land managers to contribute to regionally relevant NRM. Six people, representative of the graziers and irrigators surrounding Bourke, attended the workshop – two graziers also involved in the Rural Counselling Service, one rural financial counsellor, one irrigator and two Western CMA staff.

A detailed technical report describes the methods used to derive the information contained in this report. At the time of publication of the *State of the catchments (SOC) 2010* reports, the technical reports were being prepared for public release. When complete, they will be available on the DECCW website: www.environment.nsw.gov.au/publications/reporting.htm.

Note: All data on natural resource condition, pressures and management activity included in this SOC report, as well as the technical report, was collected up to January 2009.

Map of the catchment



Assessment

Each participant was asked to identify important indicators of *human, social, natural, physical* and *financial* capitals that either enabled or constrained NRM in the Bourke area. Examples of each of these indicators are provided in Table 1.

Table 1 Definitions of the capitals

Capital	Examples
Human	skills, health and education
Social	family, community and other social networks and services
Natural	productivity of land, water and biological resources
Physical	infrastructure, equipment and breeding resources
Financial	access to income, savings and credit

Participants then rated each indicator on a scale of 0 to 5, according to the degree to which it supported NRM action in the Bourke area. A score of 0 indicated the support of the NRM was 'very low' and action was a high priority; a score of 3 indicated support of NRM could be improved and monitoring was required; and a score of 5 indicated that NRM support was 'very high' and no immediate action was necessary. Scores for each indicator were then combined to find an average for each capital (Figure 1).

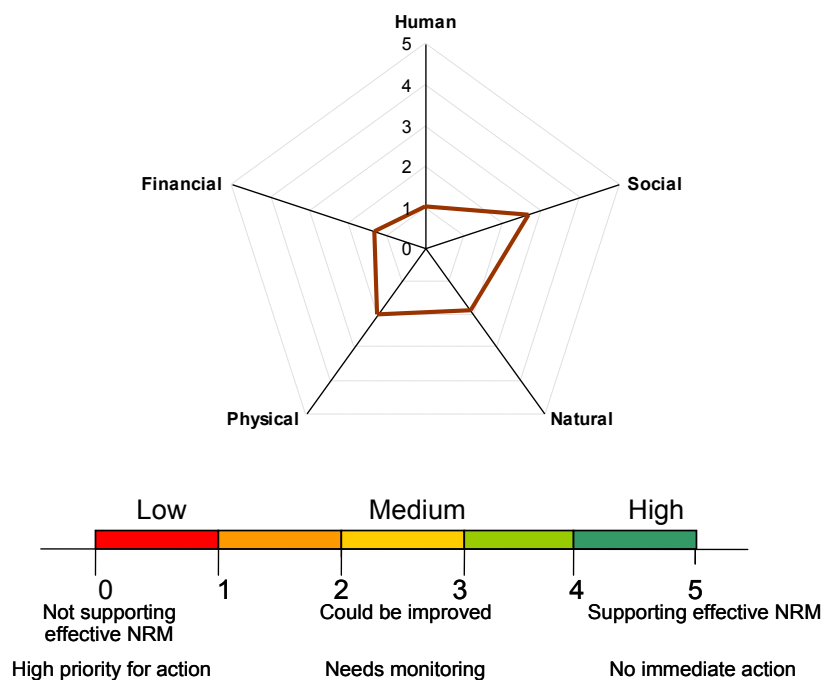


Figure 1 NRM capacity in the Western region

The combined assessment of each capital resulted in the following:

- *human* and *financial* capitals were rated very low and not supportive of effective NRM. This was largely due to the poor profitability of enterprises throughout the drought and terms of trade, which reduced the availability of skilled labour and led to substantial out-migration and loss of services
- *natural* capital was rated low, with invasive native scrub and ineffective pest management identified as key issues of concern
- *physical* capital was also rated low. It was considered limited because of uncertainty about the future impacts of recently introduced Dorper sheep on vegetation and contamination of the Merino clip, which may decrease profitability of wool growing
- *social* capital was rated moderate. It was considered well supported due to a strong sense of community leading to increasingly constructive partnerships between the community, the Western CMA and state government agencies.

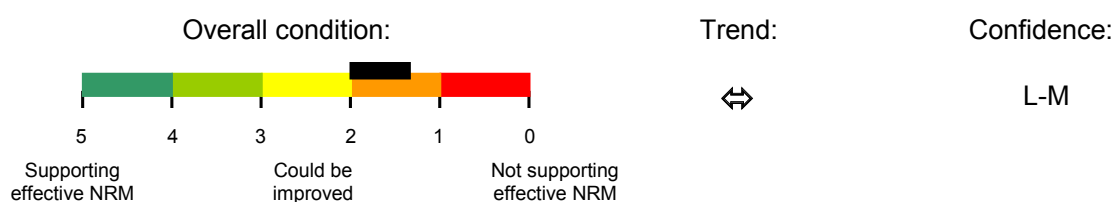
The group also identified action priorities for nearly all of the indicators; these are shown in Table 2. Table 3 outlines the pressures on the various condition indicators identified for the region.

Table 2 Action priorities for the Western region

Indicator	Collective action priorities
Human Capital (the skills, health and education that contribute to the capacity to manage natural resources)	
Availability and retention of skilled labour	No specific actions identified.
Remoteness of skills and opportunities	Governments could improve access to services in the area by encouraging community development.
Access to essential services	Support of Rural Counselling Service is necessary as it is becoming less viable. Continuation of this service provides vital support, information and services.
Social Capital (the family and community support available, and networks through which ideas and opportunities are accessed)	
Sense of community	Increased consultation between government agencies, CMAs and land managers are needed to ensure programs and projects are well targeted and have positive outcomes.
Recognition of skills of natural resource	Accreditation courses should recognise skills of land managers and their prior knowledge.
Partnerships between land managers and government	Governments should retain and continue NRM activities through CMAs with landholder consultations, and consider having some government offices in the community to build links and action.
Natural Capital (the productivity of land, water and biological resources from which rural livelihoods are derived)	
Woody weeds or invasive native scrub	Research is required on management options, especially for management of woody weeds, including economic analyses of management options.
Water availability	Graziers, irrigators and the broader community need to develop a better understanding of water management to enable strategic planning and increase efficiency. Evaporation reduction research is essential.
Vegetation resilience	Research on the resilience of native vegetation would be useful; the Western CMA is well placed to extend this information.
Pest management	Improving fencing, strategic baiting and support for control and eradication of pests is required to deal with this problem.
Physical Capital (the infrastructure, equipment and breeding improvements to crops and livestock that contribute to rural livelihoods)	
Fencing	The Total Grazing Pressure project needs to be continued and improved.

Water infrastructure	Infrastructure needs continual improvement in both grazing and cropping industries. Research, development and extension on drought preparedness are necessary as is continuation of programs for water efficiency.
Introduction of new breeds of stock	State and local government may need to enforce legislation regarding stock trespass to avoid Merino wool contamination. Research on ecological impacts of Dorpers is required.
Financial Capital (the level and variability of the different sources of income, savings and credit available to support rural livelihoods)	
Farm profitability	Drought preparedness programs will be essential to long-term viability of grazing and cropping industries. These should be developed by CMAs, land managers and governments in consultation.
Level of debt	No specific actions were identified.
Recognition of value of NRM	Contractual arrangements need to be clarified. Obligations and expectations of managers need to be explicit.







Table 3 Pressures on condition indicators in the Western region



Indicator	Condition	Trend	Pressures / Importance of indicator
Human Capital (the skills, health and education that contribute to the capacity to manage natural resources)			
Availability and retention of skilled labour		↓	Skilled labour shortages reflect downturn due to drought and low commodity prices. Lack of labour makes it hard to carry out property and NRM work.
Remoteness of skills and opportunities		↔	Remoteness reflects cost and time of distance. Gaining skills or trades usually requires people to leave the region, which can encourage people to move to other areas permanently.
Access to essential services		↓	Downgrading of services can lead to spiral of decline, which undermines strength of community and thus capacity to do NRM.

Social Capital (the family and community support available, and networks through which ideas and opportunities are accessed)			
Sense of community		↔	Community has embraced CMA projects and CMA is increasingly engaging community through improved consultation and extended ownership.
Recognition of skills of natural resource		↔	Skills of graziers are poorly acknowledged and, in relation to these skills, regulations unnecessary to the region are often imposed.
Partnerships between land managers and government		↑	Historical tendency for poor State Government engagement with graziers and community was seen as improving through engagement with the Western CMA.
Natural Capital (the productivity of land, water and biological resources from which rural livelihoods are derived)			
Woody weeds or invasive native scrub		↓	Woody weed encroachment is worsening and threatening productivity and biodiversity. It necessitates the expansion of grazing properties, thereby increasing time pressures.
Water availability		↔	Irrigation industries and grazing depend on water availability, yet participants suggested drought has encouraged improved efficiency and attention to critical water issues.
Vegetation resilience		?	Vegetation resilience is better understood through drought conditions and viewed in terms of the recovery of perennial grasses.
Pest management		↓	Management of introduced and native herbivores limits capacity of NRM work, as this management takes up much time and many resources.
Physical Capital (the infrastructure, equipment and breeding improvements to crops and livestock that contribute to rural livelihoods)			
Fencing		↑	Although not a pressing concern, fences make management easier, especially in terms of vegetation.
Water infrastructure		↑	Water infrastructure limits capacity of NRM work, but is improving for both grazing and irrigation enterprises.
Introduction of new breeds of stock		↓	Dorpers were considered a substantial concern regarding profitability of Merino woolgrowers, impact on vegetation and soil, and potential litigation and boundary issues.
Financial Capital (the level and variability of the different sources of income, savings and credit available to support rural livelihoods)			
Farm profitability		↓	Drought and terms of trade have left profit at critical levels. The fundamental production-related work is prioritised. Many risk foreclosure in the absence of interest relief.

Level of debt		↓	Increasing land prices and the need to borrow against equity to survive dry times leave many graziers vulnerable, and unable to afford NRM action.
Recognition of value of NRM		↑	NRM funding can boost self-esteem and allow for works that are in both private and public interest, such as fencing areas for conservation.

Condition	Trend	Data confidence
 Very good	↑	Improving
 Good	↔	No change
 Fair	↓	Declining
 Poor	?	Unknown
 Very poor		
 No data		

Management activity

New South Wales government agencies and CMAs are actively involved in building aspects of adaptive capacity through numerous programs; such programs include CMA community engagement strategies and CMA and NSW agency training in NRM practice change.

State level

State level activities include:

Capacity building

- developing a state-wide Aboriginal land and NRM Action Plan ‘Healthy Country – Healthy Communities’. This will assist in developing clear policies, principles and tools to improve socio-economic outcomes for Aboriginal people through enhanced capacity to participate in land management and NRM
- measuring the increase in the capacity of Aboriginal communities to contribute to regionally relevant NRM. This will be guided by the State Government’s *Two Ways Together* strategy that assists in building Aboriginal community resilience
- DECCW is facilitating the delivery of enhanced decision-support tools to CMAs for targeting NRM actions at both catchment and property levels
- DECCW is augmenting CMAs’ capacity to monitor and report on the condition of natural resources, socio-economic outcomes and community capacity by developing a monitoring, evaluation and reporting system to track progress against the state-wide NRM targets
- coordinating NSW Waterwatch, a national community water quality monitoring network that encourages all Australians to become active in protecting their waterways.

Education

- Industry & Investment NSW land management and property planning courses. See www.dpi.nsw.gov.au/agriculture/profarm/courses.

Regional level

The Western CMA has undertaken the following activities in relation to the NRM capacity target:

- assessed existing socio-economic information to identify gaps
- undertaken social benchmarking regarding community awareness and perceptions of NRM
- undertaken community consultation on important NRM issues eg establishing an Aboriginal reference group
- increased project scrutiny to ensure greater public benefit
- provided support to individuals and community organisations for NRM activities.

Further reading

Brown PR, Nelson R, Jacobs B, Kocic P, Tracey J, Ahmed M & DeVoil P (in press), Enabling natural resource managers to self-assess their adaptive capacity, *Agricultural Systems*.

Ellis F (2000), *Rural Livelihoods and Diversity in Developing Countries*, Oxford University Press, Oxford, UK.

Jacobs B & Leith P (in press), Adaptive capacity for climate change: principles for public sector managers, *Public Administration Today*.

Nelson R, Kocic P, Crimp S, Meinke H & Howden M (2010a), The vulnerability of Australian rural communities to climate variability and change: Part I – Conceptualising and measuring vulnerability, *Environmental Science & Policy* 13: 8-17.

Nelson R, Kocic P, Crimp S, Martin P, Meinke H, Howden M, Devoil P & Nidumolu U (2010b), The vulnerability of Australian rural communities to climate variability and change: Part II – Integrating impacts with adaptive capacity, *Environmental Science & Policy* 13:18-27.

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