State of the catchments 2010

Capacity to manage natural resources

Northern Rivers 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.

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.

In consultation with the Northern Rivers Catchment Management Authority (CMA), a workshop was held to assess the capacity of land managers to contribute to regionally relevant NRM. Six land managers participated in the workshop, many of whom owned mixed agricultural enterprises. Types of land managers included broadacre sugarcane, dairy and private forestry; the group did not include small-scale land managers but the NRM capacity of small-scale operators was assessed.

The participants divided the region into three areas they believed were represented by the workshop (Figure 1).

Map of the catchment

Figure 1 Areas represented by the workshop, as follows:

- Lower flood zone, highly productive sugarcane and dairy industries
- Middle zone, small-scale operations on poor soils
- Upper catchment zone, mixed broadacre and forestry

Assessment

Each participant was asked to identify important indicators of *human*, *social*, *natural*, *physical* and *financial* capitals that either enabled or constrained NRM in their respective 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 their 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. Indicator scores were then combined to find an average for each capital (Figure 2).

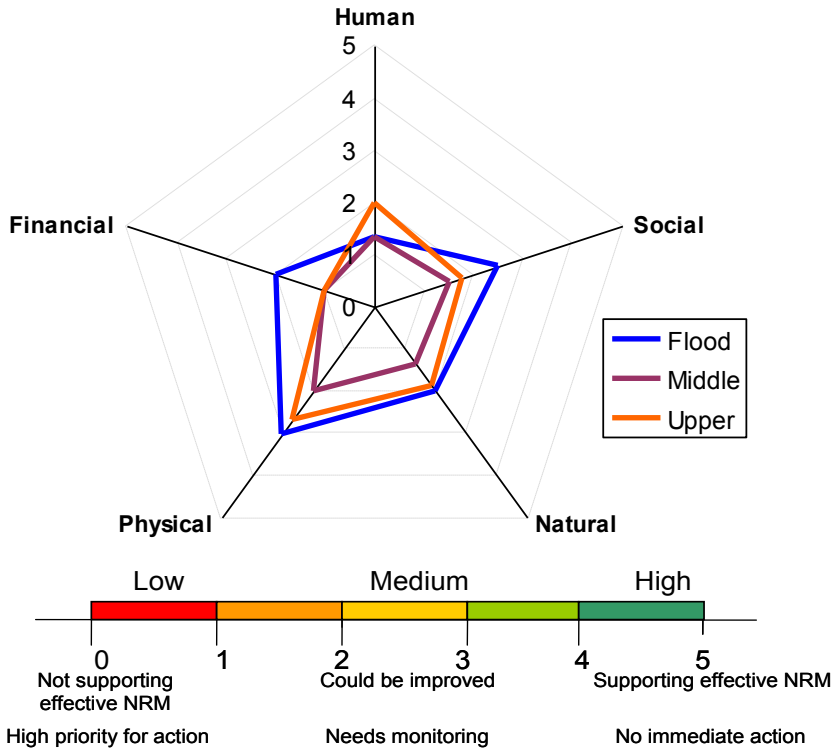


Figure 2 NRM capacity in the Northern Rivers region

The combined assessment of each capital resulted in the following:

- *human*, *social* and *natural* capitals were rated low to moderate across all three areas
- *financial* capital was rated the lowest of the capitals in the middle and upper areas and only marginally higher in the lower flood areas, due to greater off-farm income access
- *physical* capital was considered low to moderate across all areas
- in general, the capitals were not regarded as effectively supporting NRM capacity.

Key constraints to effective NRM were consistent across the areas:

- succession and the increasing age of farmers
- engagement with governments
- the presence of weeds.

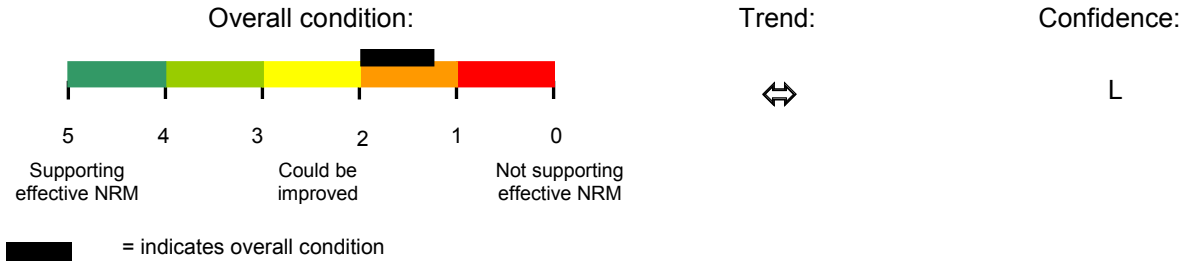
The group also identified action priorities for nearly all the indicators; these are shown in Table 2. Table 3 outlines the pressures on the various condition indicators identified for the areas.

Table 2 Action priorities for the Northern Rivers region

Indicator	Collective action priorities
Human Capital (the skills, health and education that contribute to the capacity to manage natural resources)	
Age of farmers	Schemes to draw people towards farming are required, if certain areas within the region are to remain productive. One suggestion was to implement changes in the tax structure to entice young people to the area.
Skilled labour	Incentives will encourage young people to take up a trade that supports productivity.
Succession	Participants suggested that succession planning issues should be investigated to improve the rates of return for farming families.
Social Capital (the family and community support available, and networks through which ideas and opportunities are accessed)	
Over-regulation	Regulation is required but industry-wide approaches do not necessarily work well.
Engagement with government	There needs to be a re-evaluation of extension services to improve the flow of information, and more collective engagement between regional industries and governments.
Corporate vs. family (stewardship ethic)	Planning policies and land tenure issues need to be addressed to protect floodplain areas.

Sense of community	Rebuilding Landcare or a similar grassroots, NRM-related organisation is a priority (CMA was not mentioned).
Natural Capital (the productivity of land, water and biological resources from which rural livelihoods are derived)	
Weeds	To improve weed management, control of feral animals, and the control of fuel loads and fire, better extension services are needed as incentives; these need to be accompanied by enforcement of control measures by local government.
Feral animals	As above.
Fire management	As above.
Physical Capital (the infrastructure, equipment and breeding improvements to crops and livestock that contribute to rural livelihoods)	
Fences	Appropriate extension services for fence placement and construction are required to improve this infrastructure. Fencing should not be heavily regulated.
Cost of equipment/ infrastructure	Various investment incentives for fence replacement were suggested as a means to encourage uptake of fencing for NRM. Such expenditure would flow onto service providers in the community.
Dams	Appropriate extension services are required for dam placement and construction, but not regulations.
Financial Capital (the level and variability of the different sources of income, savings and credit available to support rural livelihoods)	
Value of agriculture	Environmental levies or stewardship payments were considered a possible strategy for improving the way agriculture is valued in Australia.
Farm viability/sustainability	There needs to be a review of access to government funding based on asset values. The value of farming land needs to be brought into line with its productive value if it is to remain agricultural land.
Off-farm income	No specific priorities for off-farm income were identified.

Table 3 Pressures on condition indicators in the Northern Rivers region



	Condition				
Indicator	**Flood**	**Middle**	**Upper**	**Trend**	**Pressures/Importance of indicator**
Human Capital (the skills, health and education that contribute to the capacity to manage natural resources)					
Age of farmers				↓	The ageing population of land managers affects capacity to fulfil NRM work.
Skilled labour				↓	There is a shortage of skilled labour, including tradespeople.
Succession				↓	The demise of family farms was described as resulting in a decline in environmental stewardship.
Social Capital (the family and community support available, and networks through which ideas and opportunities are accessed)					
Over-regulation				↓	The proliferation of regulations was described as limiting farmers' enthusiasm and capacity to engage in NRM.
Engagement with government				↔	Engagement has been poor; technical expertise often has greater influence over decisions than local concerns, which are often values-based.
Corporate vs. family (stewardship ethic)				↓	Corporate farms are taking over. The continued ownership of family farms is a high priority.
Sense of community				↓	There is a lack of social coherence in some communities and this has resulted in a low flow of information within the community and the loss of Landcare groups. It has also limited the capacity of the community to secure funding.
Natural Capital (the productivity of land, water and biological resources from which rural livelihoods are derived)					
Weeds				↓	Changes in the demographics of land managers, an increase in people moving to the area purely to seek a change in lifestyle ('lifestylers') and increasing areas of national parks were described as factors influencing weed infestation.

Feral animals				↓	Control of feral animals is difficult.
Fire management				↓	Lifestyle neighbours do not have the skills to manage vegetation and fires; this increases the risk of wildfires and destruction of fences.
Physical Capital (the infrastructure, equipment and breeding improvements to crops and livestock that contribute to rural livelihoods)					
Fences				↓	Lack of investment or labour for fencing has led to a decline in fencing and a reduced ability to control stock and grazing pressure (eg in riparian areas).
Cost of equipment/ infrastructure				↔	The rising costs of replacing machinery and infrastructure affect productivity of operations and thus resources for NRM.
Dams				↑	Construction of off-stream farm water was described as more important and cost effective than fencing riparian zones to exclude stock.
Financial Capital (the level and variability of the different sources of income, savings and credit available to support rural livelihoods)					
Value of agriculture				↔	The way agriculture is valued by Australian people and governments affects policy settings and the ability of primary producers to compete in a global market.
Farm viability/ sustainability				↔	Market values of land are increasing faster than potential productivity, which reduces farm income, equity and NRM work. Farmers are drawing down natural capital.
Off-farm income				↔	Distance to opportunities varies across the region and the loss of farm labour can limit the ability of landholders to manage their properties.

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.

Regional level

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

Performance details 2007–08

- 414 skills and training events with 5967 'person days' of participation
- 468 events (demonstrations, field days, etc.) to raise community awareness with 13,000 'person days' of participation at demonstrations
- 577 media opportunities
- 87 educational events and projects reaching 9500 school students
- 210 written products such as brochures, newsletters, posters and fact sheets
- 15 memorandums of understanding with local government
- 67 formally-documented collaborative arrangements
- 556 NRM projects funded in the community.

Local level

Other groups undertaking significant work include:

- local government financial, technical and administration support
- Landcare activity across multiple land tenures and NRM issues across the region
- a range of non-government organisations, industries and other stakeholder groups who provide support to natural resource managers through a broad range of activities.

Further reading

Brown PR, Nelson R, Jacobs B, Kokic 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.

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Nelson R, Kokic 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, Kokic 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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