State of the catchments 2010

Capacity to manage natural resources

Southern 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.

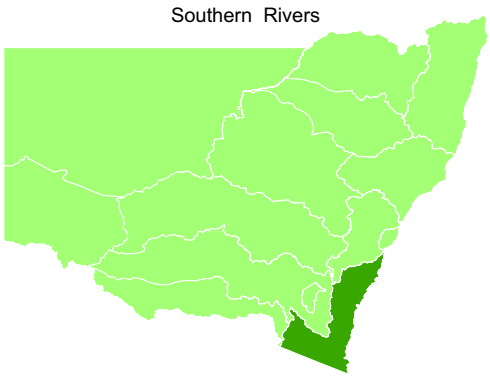
To ensure regional relevance, a participatory workshop approach was taken with participants drawn from pre-existing networks of natural resource managers, where available.

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 Southern Rivers Catchment Management Authority (CMA), a workshop was held in the region to assess the capacity of land managers to contribute to regionally relevant NRM. Nine participants, representative of the northern area of the Southern Rivers region (Figure 1), attended the workshop in Berry. Participants included two dairy farmers, two Southern Rivers CMA staff, two Industry & Investment NSW (I&I) staff, a beef cattle grazier, a small-scale landholder and an NRM volunteer.

Map of the catchment



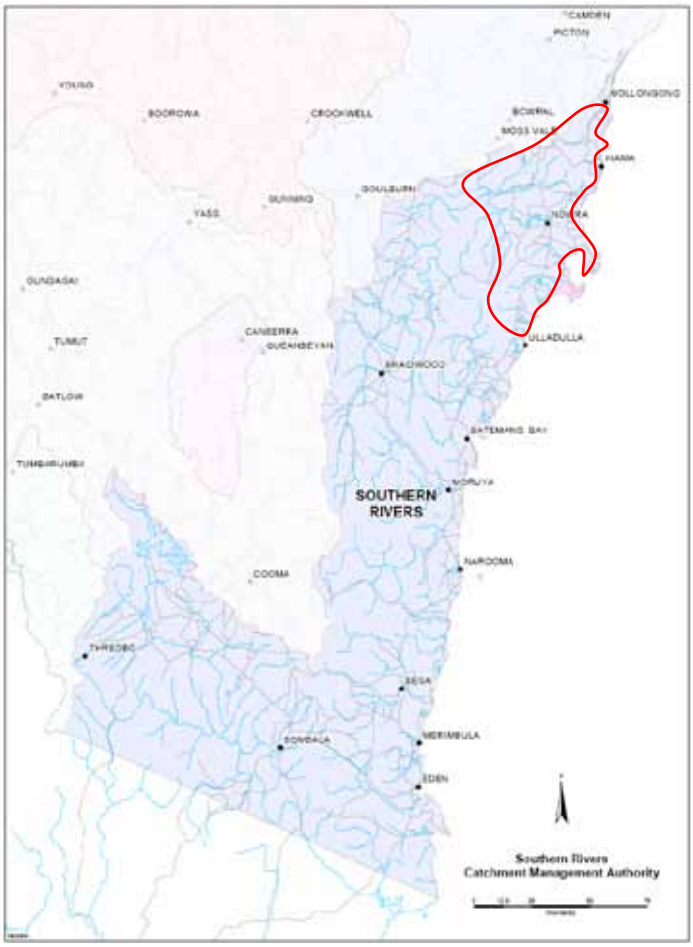


Figure 1 Southern Rivers area represented by the workshop

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 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 area. A score of 0 indicated the support of 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 2).

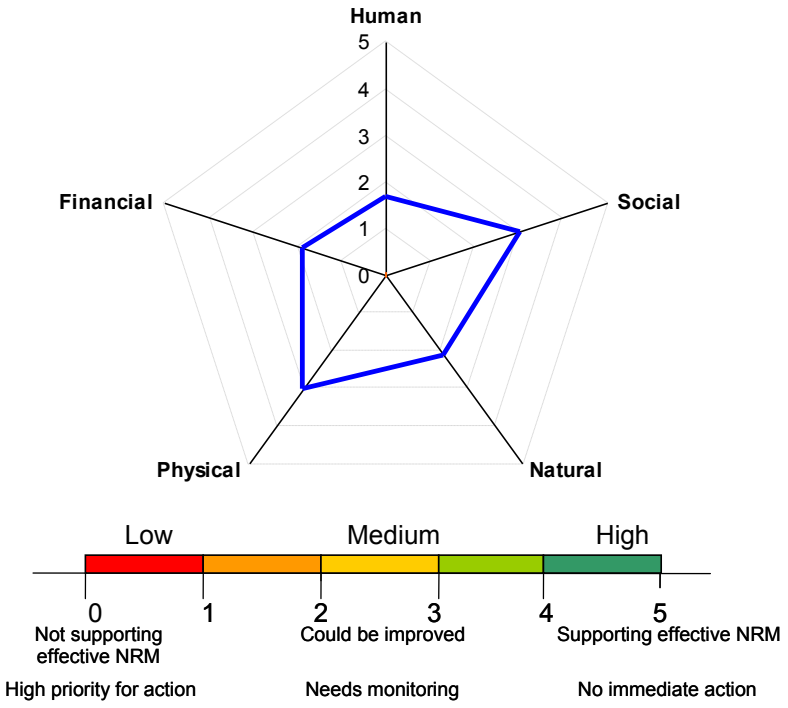


Figure 2 NRM capacity in the Southern Rivers region

The combined assessment of each capital resulted in the following:

- *human*, *financial* and *natural* capitals were rated low, whereas the support from *physical* and *social* capitals was considered moderate
- indicators of *human* capital that particularly limited NRM were the ageing farm population and the changing agricultural workforce; these were linked to indicators of *financial* capital, especially low cash flow and the high market value of land, relative to potential returns from farming. These *financial* and *human* capital indicators limited the ability to invest money and time in NRM work
- support from local networks was considered strong; however, the overall rating of *social* capital was reduced due to uncertain and changing NRM arrangements at state and federal level.

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.

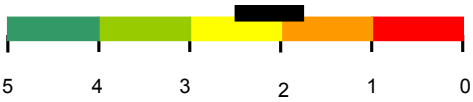
Table 2 Action priorities for the Southern Rivers region

Indicator	Collective action priorities
Human Capital (the skills, health and education that contribute to the capacity to manage natural resources)	
Agro-ecological literacy	Maintaining and increasing this literacy relies on various resources and support organisations. It also requires continuity of policy and political commitment to current institutions and arrangements.
Changes in workforce	Land managers need to encourage young people to participate in industries through training, valuing their contributions and fostering ongoing commitment. Green Corps is valuable.
Age of farmers	To encourage younger generations to return to the land, farmers need better returns in order to compete with other livelihood choices. To make farming a more viable option for younger generations, markets need to price agricultural products to reflect NRM values; alternatively, governments may need to intervene to pay for ecosystem services.
Social Capital (the family and community support available, and networks through which ideas and opportunities are accessed)	
Effectiveness of community support agencies	Governments should, at a minimum, reinstate arrangements as they were in 2007 to maintain effective institutional support for NRM.
Continuity of arrangements	Governments need to be more consultative, and understand that long-term commitments to NRM programs are required to build trust and substantial outcomes. There is a need to fund small-scale projects.

Strength of social networks	Support staff can facilitate building of social capital by managing the bureaucratic side of volunteer organisations; this can lead to positive NRM action and outcomes.
Natural Capital (the productivity of land, water and biological resources from which rural livelihoods are derived)	
Native vegetation	Enthusiasm for native vegetation needs to be continually encouraged by support staff and funded by governments.
Weeds	Extension of weed management techniques can make the control of weeds more efficient and effective.
Water	Governments should ensure that relevant aquifers are made off-limits to Sydney Water.
Land productivity	Councils, CMAs and the State Government need to develop regional strategies and plans that are both development focused and consider NRM and productivity on a landscape scale.
Financial Capital (the level and variability of the different sources of income, savings and credit available to support rural livelihoods)	
Cash flow	To avoid degradation of the agro-ecological resource base, markets need to price agricultural products to reflect NRM values. Alternatively, governments will need to pay for land management.
Access to government funding	CMAs and land managers need to work together to develop creative ways of managing and obtaining funding for projects.
Land values	Governments should further investigate voluntary conservation agreements that are less onerous on land managers than covenants-in-perpetuity.
Off-farm income	The effects of off-farm income on NRM practice were regarded as requiring further monitoring and research to understand their implications that remain largely unknown or, at best, anecdotal.

Table 3 Pressures on condition indicators in the Southern Rivers region

Overall condition:



Supporting effective NRM | Could be improved | Not supporting effective NRM

Trend: ⇔

Confidence: L

= indicates overall condition

Indicator	Condition	Trend	Pressures/Importance of indicator
Human Capital (the skills, health and education that contribute to the capacity to manage natural resources)			
Agro-ecological literacy		↓	Agro-ecological literacy, the understanding of sustainable farming and NRM among landholders was seen as relatively strong and supported by engagement with and among community support agencies, eg I&I and CMAs.
Changes in workforce		↓	Ageing farmer populations, younger generations not returning to farming and labour shortages often mean there are fewer and older people to maintain productivity and NRM.
Age of farmers		↓	It is harder for older farmers to manage NRM work, in particular weed management. This could become a major issue with retirees buying land that is hard to manage.
Social Capital (the family and community support available, and networks through which ideas and opportunities are accessed)			
Effectiveness of community support agencies		↓	Community support organisations have become well integrated and trusted in this area. They provide effective support for NRM and productivity and assist in building capacity.
Continuity of arrangements		↓	The effectiveness of NRM support through organisations was described as under threat. This was because shifting priorities among state and Australian governments alter institutional arrangements, often without consultation.

Strength of social networks		↔	The strength of social networks was exemplified by high rates of participation in NRM programs and events, good volunteerism and effective landholder-driven groups.
Natural Capital (the productivity of land, water and biological resources from which rural livelihoods are derived)			
Native vegetation		↑	Native vegetation was described as drawing people to the area and inspiring them to get involved in NRM and conservation projects on private and public land. As such, it effectively supports capacity to do NRM.
Weeds		↓	Weed management is time consuming and prevents other forms of action for NRM and productivity. The constant growth of new weeds makes weed problems bigger and more complicated.
Water		↓	Water resources originating from aquifers were described as 'under threat' from consumption of water by Sydney. These aquifers were described as supporting threatened ecosystems and agriculture in the area.
Land productivity		?	The productivity of land in this area is relatively high, with good soil fertility and reliable rainfall; however, this encourages weeds and creates management challenges and higher rates of productivity.
Physical Capital (the infrastructure, equipment and breeding improvements to crops and livestock that contribute to rural livelihoods)			
Reticulated sewage effluent		↑	Fertilisation using treated sewage increases productivity at low cost and reduces dependence on expensive chemical inputs, but may lead to some salinity issues.
Native plant nurseries		↑	Native plant nurseries are effectively supporting revegetation projects and are becoming better at representing different provenances in seed stocks.
Government research facilities		↓	Research facilities have been in decline; this makes it hard for farmers to seek independent advice on plant varieties and soil health, and to interact with researchers to better understand their agro-ecological practices.
Lack of timber milling infrastructure		↔	There is a lack of infrastructure that allows the use of timber from trees that need to be cut down by the council and others.
Financial Capital (the level and variability of the different sources of income, savings and credit available to support rural livelihoods)			
Cash flow		?	Low commodity prices in relation to costs of inputs and capital mean that cash flow is low; this prevents expenditure on maintaining productivity and completion of NRM work.

Access to government funding		↓	Funding to complete NRM works was described as the main driver of NRM action. For this reason, there was substantial concern that current NRM investments would not continue, resulting in a decline in the natural resource base.
Land values		↑	The cost of land relative to its productive potential, as well as the ageing farm population, was seen as leading to the fragmentation of prime agricultural land and often ineffective land management of smaller blocks.
Off-farm income		↑	Although NRM funding from government provides more sufficient funding, the high levels of off-farm income in this area are likely to support NRM action.

Condition

- Very good
- Good
- Fair
- Poor
- Very poor
- No data

Trend

- ↑ Improving
- ↔ No change
- ↓ Declining
- ? Unknown

Data confidence

- H High
- M Medium
- L Low

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

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

Regional level

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

- operating a large, community support program – seven support officers assist Landcare and community groups in achieving their NRM goals
- four Aboriginal support members in the Southern Rivers CMA assisting Aboriginal community groups with NRM, employment and group development
- holding more than 600 training events for community and government organisations
- developing more than 423 different training materials
- gaining more than $2 million from funding applications for NRM works
- completing a social benchmarking study; this will enable the Southern Rivers CMA to measure progress in achieving the capacity building targets in the catchment action plan.

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*.

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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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Ph: (02) 9995 5000 (switchboard). Ph: 131 555 (environment information and publications requests).
Ph: 1300 361 967 (national parks, climate change and energy efficiency information and publications requests).
Fax: (02) 9995 5999. TTY: (02) 9211 4723.
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