natural resources commission

CASE STUDY

MURRUMBIDGEE CATCHMENT MANAGEMENT AUTHORITY

Application of draft state-wide standards and targets

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Inquiries

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List of acronyms

CAP	Catchment Action Plan
CMA	Catchment Management Authority
NRC	Natural Resources Commission

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1 Introduction

This case study has been developed to accompany the public release of draft state-wide standards and targets. It demonstrates that:

- the catchment scale natural resource management processes Murrumbidgee CMA is likely to use in developing its CAP relate to the natural resource management process areas for which the NRC is developing state-wide standards
- existing catchment-scale targets, developed by the former Murrumbidgee Catchment Management Board may contribute to the draft state-wide targets.

Similar case studies have been developed for the Western and Southern Rivers CMAs.

2 Application of state-wide standards

The Murrumbidgee CMA is implementing systems to guide the quality of their approaches to developing their Catchment Action Plan (CAP). Foremost among these systems, are the *Implementation Framework* and *Project Management Model.*

The Implementation Framework consists of interrelated business systems for:

- the development of CAP
- planning and management of investment
- implementing programs
- monitoring, evaluation and reporting on projects and across the organisation
- managing internal and external communications.

The Project Management Model will distil key issues relating to the quality of planning and implementation of projects.

Table 1 compares proposed Murrumbidgee CMAs business systems with the processes for which the NRC intends to develop state-wide standards.

Table 1: Proposed matters for state-wide standards and examples of existing natural resource management processes in the Murrumbidgee catchment.

Proposed Matters for State-wide Standard	Current* and proposed natural resource management processes used in the Murrumbidgee catchment
1. Investment planning & Prioritisation Standard *To ensure transparent and increasingly informed investment decisions which contribute to the environmental, social and economic health of New South Wales.*	▪ Some of the elements recommended for the Implementation Framework include, charting integration of various planning levels, a set of principles to guide investment, tools to quantify the impact of catchment activities towards achieving targets and best management practices and supporting information. ▪ Developing a *Project Management Model* (PMM) to guide consistency and quality in project definition, planning, implementation, monitoring, evaluation and reporting at the project level. ▪ Decision support tools that assess potential risk, both biophysical and institutional at the project level. For example, the "Murrumbidgee Native Vegetation Woodland Communities Assessment".*
2. Information Management Standard *To encourage the development and maintenance of coherent, accessible and relevant state scale information.*	▪ Explore the use of database system to develop the CAP and record implementation details on projects.
5. Socio-economic Assessment Standard *To ensure adequate consideration of socio-economics in CMA decision making.*	▪ Considering undertaking cause and effect mapping in development of CAP and individual projects.
3. Coordination Standard *To reinforce partnerships and guide CMAs in coordinating activities to achieve outcomes at the state scale.*	▪ Engagement of significant stakeholders early in CAP development to gain support and coordination effort. ▪ Principles of coordination and priorities for biodiversity investment codified in the guide "Investing in Natural Biological Diversity: Principles, Priorities and Guidelines, NSW Murray and Murrumbidgee Catchments."*
4. Monitoring and Evaluation Standard *To ensure chosen indicators and data collection protocols permit state scale evaluation & development of datasets.*	▪ Some of the elements recommended for the Implementation Framework include a Murrumbidgee monitoring and evaluation framework, a stock take of current monitoring and evaluation activities and the use of a streamlined reporting system. ▪ Monitoring and evaluating biodiversity projects against a numerical biodiversity 'score' every two years*.

These are some examples of the processes proposed by the Murrumbidgee CMA in the delivery of natural resource management. As table 1 demonstrates, the Murrumbidgee CMA has considered, and proposed comparable processes across all matters currently proposed for State-wide standards.

The NRC believes there is potential for state-wide standards to add value to the systems proposed by the Murrumbidgee CMA. For example,

- A state-wide standard for 'Socio-economic Assessment' could guide the way in which Murrumbidgee CMA assess potential socio-economic impacts of its CAP and major program areas.
- A state-wide standard for 'Monitoring and evaluation' could provide guidance for the selection of regional indicators for the proposed monitoring and evaluation framework that permit state-scale evaluation.
- Existing relationships with other CMAs and state agencies could be further strengthened, particular in relation to coordinated natural resource management and data sharing, with the support of state-wide standards
- A state-wide standard for 'Information Management' could guide the future development of an information database system currently being explored by the Murrumbidgee CMA.
- Incorporating key elements of proposed state-wide standards into the Implementation Framework and Project Management Model could ensure effective and efficient on-going compliance with state-wide standards.

Working with the Murrumbidgee CMA through the pilot process has demonstrated to the NRC that there is considerable alignment between proposed business systems and areas for which the NRC proposes to develop state-wide standards. State-wide standards will provide a framework for the Murrumbidgee to further develop and implement the proposed systems.

3 Application of draft state-wide targets

Figure 1 shows the relationship between Blueprint actions and targets, State-wide targets and national matters for targets. It shows how the protection and enhancement of an Endangered Ecological Vegetation Community on a property in Gundagai promotes a draft sate-wide target and contributes to desired outcomes at the national scale.

Figure 1: Links between on-ground actions and targets at different scales

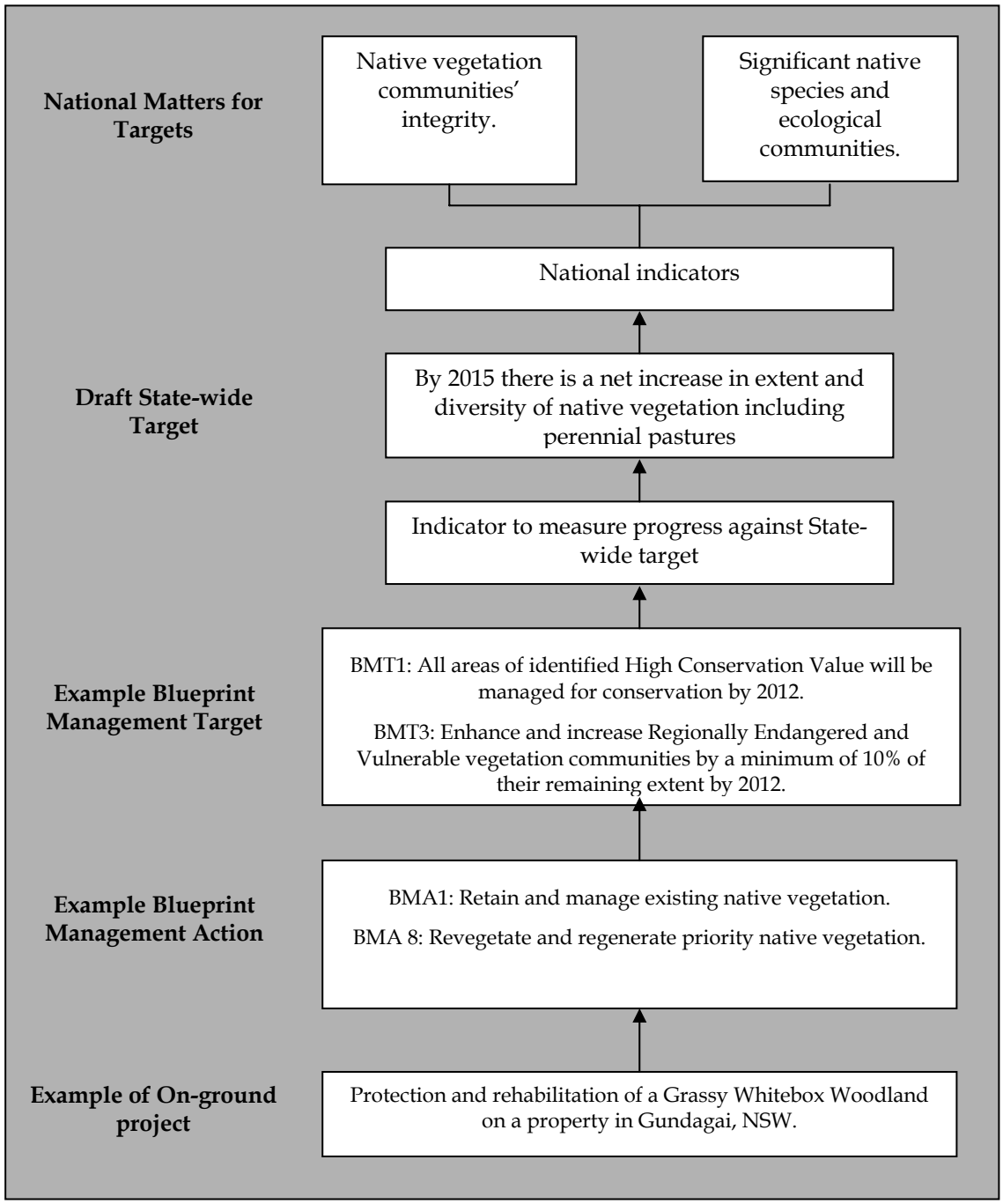

Table 2 shows how the Blueprint targets might contribute to each of the draft sate-wide targets. The full catchment targets and management targets are provided in Appendix 1 to assist in interpreting the table.

Table 2: The relationship between Murrumbidgee Blueprint targets and draft state-wide targets

State-wide resource condition targets[1]	Relevant catchment or management targets
By 2015 there is a net increase in extent and diversity of native vegetation cover.	BCT, BMT2, BMT3, SMT4, WMT1
By 2015 there is an increase in the extent and diversity of native vegetation cover of riparian zones.	BCT, BMT2, BMT3, WMT1, WMT4
By 2015 there is a net increase in connectivity across terrestrial and aquatic ecosystems.	BCT, BMT1, BMT2, BMT3, WMT1
By 2015 there is reduced risk of species, populations and ecological communities (EC) becoming threatened.	BCT, WCT, BMT1, BMT2, BMT3, BMT4, BMT5, WMT5, WMT5, WMT8
By 2015 there is a net reduction in the abundance of and area affected by invasive species and no new invasive species have become established.	BCT, BMT1, BMT2, BMT5, WMT4, WMT5
By 2015 there is a net improvement in the condition of rivers and wetlands as assessed against the Stressed Rivers Classification and the Water Quality and River Flow Objectives (WQO and RFO) for NSW.	BCT, SCT, PrCT, WCT, BMT5, PrMT1, PrMT3, SMT6, WMT1, WMT2, WMT3, WMT4, WMT5, WMT6, WMT7, WMT8
By 2015 extractions from aquifers are within identified sustainable yields.	WMT8
By 2015 there is a net reduction in productive capacity lost due to salinity; acidity; erosion; acid sulphate soils (ASS); invasive species.	SCT, PrMT4, SMT1, SMT2, SMT3, SMT4, SMT5, SMT6, SMT7
By 2015 all critical recharge zones are vegetated with deep rooted perennial vegetation.	SMT7
By 2010 information systems and training programs are in place that meet CMAs identified needs to deliver better NRM outcomes.	This target is not proposed to be the responsibility of the CMAs
By 2010 communication networks and other strategies are established that lead to strong community commitment to better NRM outcomes.	Generally addressed at the scale of management actions within programs rather that at the level of catchment or management targets

Key: SCT = Soil catchment target, BCT =Biodiversity catchment target, WCT = Water catchment target, PrCT = Salinity catchment targets, SMT = Soil management target, BMT = Biodiversity management target, SMT = Soil management target, WMT = Water management target, PrMT = Salinity management target.

1 Four draft state-wide targets were not included in the comparison as they addressed coastal issues that are not applicable in the Murrumbidgee catchment

Table 2 shows that all of the Blueprint targets contribute to the draft state-wide targets. A large number of Blueprint targets align with the state-wide targets for river condition and productive land. This reflects the importance of water and agricultural land use in Murrumbidgee.

Only two Blueprint targets contribute to draft state-wide targets that address sustainable groundwater extraction and the revegetation of critical recharge zones. However, both these targets have a broad scope, since they aim to implement Water Sharing Plans and Land and Water management Plans that address these state-wide issues.

Murrumbidgee CMA believes the draft state-wide targets will help to ensure its CAP addresses priority state issues.

Issues for developing state-wide targets

In discussion with the Murrumbidgee CMA, the NRC has identified the following issues to be addressed in the further development of the draft state-wide targets:

- The possibility of developing CAP targets within the NRCs state-wide framework for targets. For example, management action targets, resource condition targets and aspirational goals developed within biodiversity, water, land and community asset classes. The Murrumbidgee CMA believes this will ensure direct accountability.
- State-wide targets that are meaningful at catchment and sub-catchment scales i.e. actions at these scales can clearly contribute to state-wide targets.
- The integration and compatibility of monitoring and evaluation systems between state-wide and catchment targets needs to be explored.
- The availability of benchmark and trend data and the ability to resource monitoring programs will determine the practicality of state-wide targets.
- The meaning of the term 'cover' needs to be defined, in reference to the draft state-wide target for increasing the extent and diversity of native vegetation generally, and riparian zones.
- It is important to consider the term 'connectivity' in a wider context than just vegetation corridors.
- There could be a difficulty in measuring the concept 'reducing the risk' in reference to the draft state-wide target for threatened species, populations and ecological communities.

Appendix 1: Catchment and management targets from the Murrumbidgee Catchment Blueprint

CATCHMENT TARGETS (CT)	
CT Water (W)	By 2012, in the Murrumbidgee River and its main tributaries, suspended sediment levels will be reduced so that they meet the interim NSW Water Quality Objectives. Flows and water extractions will be managed to maintain or improve river health consistent with the River Flow Objectives (RFO's) and MDBMC Cap.
PrT Salinity (Pr)	A year 2010 target of less than 245 EC for 50% of the time and less than 320 EC for 80% of the time at Balranald. A salt load of less than 145,000 tonnes per year for 50% of the time and less than 325,000 tonnes per year for 80% of the time by 2010.
SCT Soil (S)	By 2012 improve soil health across the catchment by: • Increasing the adoption of perennial pasture by 40% across land used for agricultural production. • Increasing the duration of groundcover levels above 70%, and 50% for sandy loams, by at least one month a year across land used for agricultural production. • Maintaining soil pH greater or equal to 5 (CaCl2) in areas affected by soil acidity. • Improving water use efficiency of crops and pastures to 80%. • Integrating with, and implementing, soil health issues in irrigation areas.
BCT Biodiversity (B)	Manage for biodiversity conservation a minimum of 30% of the remaining area of each of the native vegetation communities and related habitats (including high conservation value) of the Murrumbidgee Catchment by 2012 and improve the extent, diversity and condition of inland aquatic ecosystems.

MANAGEMENT TARGETS (MT)	
WMT1	Protect and enhance 1500 kilometres of streambank using native riparian vegetation for bank stabilisation and runoff filtration.
WMT2	Along those stream reaches, which yield the highest sediment and nutrient loads, control streambank and gully erosion using structural control works covering a total length of fifty kilometres.
WMT3	Manage water quality impacts resulting from storages and weir operations.
WMT4	Improve native vegetation condition in 90% of the floodplain billabongs to restore their natural capacity to filter sediment.
WMT5	Reduce the species diversity ratio of alien to native fish by 25%. Reduce the abundance ratio of alien to native fish by 50%.
WMT6	Ensure development and progressive implementation of stormwater management plans for all major urban areas in the Murrumbidgee catchment by 2005.
WMT7	Reduce the water quality impacts of urban and rural residential development throughout Murrumbidgee catchment by 2005.
WMT8	Implement Water Sharing Plans for the Murrumbidgee River and each of its subcatchments and priority groundwater systems, which are classified under the Water Management Act 2000 as 'high risk' 'high stress' or "high conservation value" by 2012.
PrMT1	Increase perennial vegetation in the 12 priority Murrumbidgee sub-catchments with the aim of reducing the predicted mean annual mid catchment salt load by 12,000 tonnes at Wagga by 2010.
PrMT2	Protection of selected high value infrastructure sites using engineering solutions that aim to reduce the water table level to at least 2 metres below the ground surface.

PrMT3	Irrigation Areas. To reduce the current salt load from the Murrumbidgee Irrigation Area to the river from its current level of about 5,000 tonnes per year to 3000 tonnes per year.
PrMT4	Rehabilitate 60% of severe and moderate saline discharge sites in the twelve priority sub-catchments of the Murrumbidgee.
SMT1	To lift to, and maintain topsoil at pH 5.0 (using Calcium Chloride test) on land classes I, II, III and IV.
SMT2	To lift to and maintain a minimum of 70% groundcover for nine months of the year on land classes I, II, and III.
SMT3	To lift to and maintain a minimum of 70% groundcover for ten months of the year on land classes IV, V and VI.
SMT4	For farmed sands and sandy loams west of Wagga Wagga, lift and maintain a minimum of 50% groundcover for nine months of the year.
SMT5	To lift the percentages of perennials in the pasture phase of farming systems (land classes I to IV) from 10% to 50%; and non arable land (land classes V to VII) from 40 to 80% except for farming systems west of Narrandera.
SMT6	Increase adoption of best management practices to achieve 80% water efficiency.
SMT7	To implement all soil health irrigation targets of the Irrigation Area's Land & Water Management Plans.
BMT1	All areas of identified high conservation value will be managed for conservation by 2012.
BMT2	Regionally depleted or well retained vegetation communities will have 30% of their respective original (c.1750) areas managed for conservation by 2012.
BMT3	Enhance and increase both Regionally Endangered and Vulnerable vegetation communities by a minimum of 10% of their remaining extent by 2012.
BMT4	Maintain the population of selected locally rare and indicator species and threatened species within the catchment by 2012.
BMT5	Maintain diversity (as described in the *NSW Biodiversity Strategy*) of indigenous aquatic biota and processes by: ▪ A reduction in the species diversity ratio of alien to native fish by 25%. ▪ A reduction in the abundance ratio of alien to native fish by 50%. ▪ A 10% increase in aquatic invertebrate diversity as measured by currently accepted diversity indices (eg SIGNAL scores) and richness; complying with ANZECC guidelines for protecting biodiversity. ▪ Establishment and long term maintenance of native aquatic plants for 10 linear kilometres of Murrumbidgee River. ▪ Improved river productivity related to natural spatial patterns*. ▪ Increased extent and duration of floodplain inundation consistent with Water Sharing Plans.