# NSW Natural Resources

# MER Strategy 2010-2015

# Implementation Plan

## (Version 1.1)

12 October 2010

NSW GOVERNMENT

Environment, Climate Change & Water

Department of Environment, Climate Change and Water NSW
59–61 Goulburn Street
PO Box A290
Sydney South 1232
Ph: (02) 9995 5000 (switchboard)

Ph: 131 555 (environment information and publications requests)

# Contents

# 1. Introduction

The NSW Natural Resources Monitoring, Evaluation and Reporting Strategy 2010 – 2015 (MER Strategy) is a high level strategic document that guides the MER effort of NRM in NSW over the next five years.

The NSW Natural Resources Monitoring Evaluation and Reporting Implementation Plan details the implementation requirements for the MER Strategy and guides MER planning by the NSW NRM sector. The MER Implementation Plan is underpinned by an *Interagency Data acquisition and Sharing Agreement for NSW Natural Resources Monitoring Evaluation and Reporting Strategy*.

## MER Strategy

The MER Strategy addresses the MER requirements for the NSW natural resource sector to develop and communicate information for improved natural resource management (NRM) decision-making. It is based on a collaborative approach between agencies and organisations to ensure comprehensive MER information is provided. While there is significant input of advice and direction from many agencies and organisations, including the central NSW agencies of Department of Premier and Cabinet and NSW Treasury, the MER Implementation Plan focuses on the roles of the key MER partners responsible for developing and providing NRM information under the MER Strategy. These are:

- Department of Environment, Climate Change and Water (DECCW), is the lead NSW Government department with responsibility for protecting and caring for our environment, managing water resources and developing and coordinating programs to address the impacts of climate change in NSW;
- NSW Office of Water (NOW) is an office within the DECCW and is responsible for the management of the State's surface water and groundwater resources;
- Natural Resources Commission (NRC) provides credible, independent advice to the NSW Government on managing the state's natural resources in an integrated manner to maintain landscapes that are resilient, function effectively, and support environmental, economic, social and cultural values;
- Catchment Management Authorities (CMAs) have been established across New South Wales to ensure that regional communities have a say in how natural resources are managed in their catchments. They support projects and activities which help communities restore and improve the natural resources in their regions through provision of support and advice and administration of State federal funding;
- Industry and Investment NSW (I&I NSW) assists in building a diversified state economy that creates jobs, aims to attract investment to NSW and support innovative, sustainable and globally competitive industries. I&I NSW has a strong resource management role, particularly in encouraging responsible land management and implementing legislation for fish and aquatic habitats;
- Land and Property Management Authority (LPMA) represents knowledge, heritage, and responsible land management and is the guardian of all land information in NSW.

Additional organisations that undertake NRM such as local government, the Sydney Catchment Authority, Hunter Water Corporation, and many others may be included as MER processes are developed and resources become available.

## MER Implementation Plan

The MER Implementation Plan is a 5 year plan reflecting the term of the MER Strategy. However, unlike the Strategy, the MER Implementation Plan will be more frequently reviewed and updated as operational conditions change and the needs of MER are developed. The MER Implementation Plan is a "living" document. This enables it to be adapted to meet changing implementation needs and understanding, and will be reviewed and updated every 3 years following State of the Catchment reporting or in response to significant policy change.

## Data acquisition and sharing agreement

The MER Implementation Plan is underpinned by an *Interagency Data Acquisition and Sharing Agreement for NSW Natural Resources Monitoring Evaluation and Reporting Strategy*. The data agreement and schedules establishes the rights and responsibilities of each MER partner agency and organisation in relation to collection, management and access to MER data under the MER Strategy and Implementation Plan.

The administration of this data agreement and the schedules will be the responsibility of the MER Data Sharing Agreement Administrator as nominated by the SOG. Each party to the agreement must nominate a MER Data Sharing Coordinator and all information quality issues, requests for assistance and all other notices shall be directed to the MER Data Sharing Coordinator of each party.

The data agreement and schedules will be reviewed by the SOG at least annually as initiated by the MER Data Sharing Agreement Administrator. Any substantive changes to the schedules, including removal of data to be collected or data and information products to be supplied, will require sign off by the Cluster group.

The Draft Interagency Data Acquisition and Sharing Agreement for NSW MER Strategy forms Appendix 1.

# 2. Approach

The NSW MER Strategy is based on a logical understanding of how publicly funded NRM is delivered in NSW. It assumes that deploying inputs will produce foundational activities which lead first to 'outputs', then to 'outcomes' at progressively higher levels to contribute to meeting the state-wide NRM targets, currently embedded in the State Plan. Monitoring, evaluating and reporting at each level of the hierarchy, i.e. Inputs and foundational activities, outputs, intermediate outcomes and ultimately longer term outcomes, is required to meet the aims objectives of the strategy and the vision/goal for NRM. The MER Strategy details these hierarchy levels as:

- Vision/Goals - 'Improve biodiversity and native vegetation, sensitive riverine and coastal ecosystems, soil condition and socio-economic well-being' (NSW Government 2010)
- Longer Term Outcomes - Change in condition and extent of natural resource assets in the longer-term. Change includes the maintenance of condition and extent, or prevention of decline, as well as improvement of condition and extent.
- Intermediate Outcomes - Aggregated change, in the medium term, in how natural resource assets are managed and affected, behaviour and practice change, and on-ground results.
- Outputs - Immediate products or services that are produced by a program or project. They are directly attributable to the investor or program proponent.
- Foundational Activities & Inputs - The resources and foundational activities used to produce outputs. Foundational activities and inputs include resources (e.g. funds invested, staff hours) and activities (e.g. developing plans, policies and strategies, baseline data gathering & research).

Longer-term outcomes, intermediate outcomes and outputs can be bio-physical or non-biophysical in nature. Understanding the outcomes of NRM investment requires that MER processes are used to assess both biophysical and non-biophysical information. Two strands of MER, together with effective data and information management arrangements, will be used to meet this need. The MER Implementation Plan details the implementation arrangements for the following:

- Natural resource assets, or Resource Condition Strand, will provide an assessment of changes in the state of, and trends in, the condition of natural resource assets in the longer term;
- Monitoring of natural resource program performance, or Program Performance Strand, will monitor the foundational activities, outputs and intermediate outcomes achieved from investment in NRM programs in the short and medium term; and
- Data and information management processes and systems will be developed and established with MER partners to provide best practice data and information management and sharing.

# 3. Partner Commitments and Accountabilities

Successful delivery of the MER Strategy relies on the commitment of the NRM sector agencies and organisations. Support of implementation will be provided through comprehensive governance arrangements, operational coordination and clear partner roles and responsibilities.

## Governance

Governance arrangements for implementation of the MER Strategy will need to be robust and responsive to the needs of all sector partners. Sector-wide governance arrangements include:

- Natural Resources and Environment CEO Cluster (the Cluster) has ultimate oversight of the implementation of the MER Strategy. The Cluster includes representatives of DECCW (Chair), I&I NSW, Department of Planning, Department of Premier and Cabinet; NSW Treasury, the LPMA; Aboriginal Affairs NSW, and NOW;

- NRM Senior Officers Group (SOG) has been established by the Cluster to oversee and negotiate organisational implementation arrangements and includes representatives of DECCW (Chair), Department of Premier and Cabinet, Aboriginal Affairs NSW, CMAs, NOW, Department of Planning, I&I NSW, LPMA, NRC and NSW Treasury;

- MER Management Teams will be established to provide operational coordination of the MER strands and to report on implementation directly to the SOG. The MER Management Teams are:

    - Resource Condition MER Management Team will provide coordination and support of operational arrangements for 13 theme teams (one for each state-wide target) responsible for monitoring under the resource condition strand. The Resource Condition MER Management Team will be led by DECCW, as the lead agency for implementation of the MER Strategy and include representatives of DECCW, NOW, I&I NSW, NRC and CMAs. The Resource Condition MER Management Team will be chaired by the Director, Environment & Conservation Science, Scientific Services Division, DECCW;

    - Program Performance MER Management Team will provide coordination and support of the program performance theme team delivering the Program Performance MER strand requirements. The Program Performance MER Management Team will be led by DECCW and include representatives of DECCW, NOW, I&I NSW, LPMA, NRC and CMAs. The Program Performance MER Management Team will be chaired by the Manager, Capacity and Evaluation, NRMI, CCPP, DECCW; and

    - MER Data Management Team will provide coordination and support for data management arrangements by all MER teams and MER partners. The MER Data Management Team will be led by DECCW and include representatives of NOW, I&I NSW, LPMA, NRC and CMAs. The MER Data Management Team will be chaired by the Director Information Sciences, Scientific Services Division, DECCW.

The Chairs of each MER Management Team participate on the other Management Teams to ensure communication between teams and between MER strands and data management arrangements. Members of each Team will be nominated by each partner agency and organisation. They will meet every 2 months and will resolve operational issues as they arise or elevate issues, where necessary, to the SOG for resolution.

- An MER Strategy Manager nominated from each MER partner agency and CMA is accountable for ensuring the organisation meets its commitments under the MER Strategy and Implementation Plan and as detailed in the data agreement and schedules.

- MER Data Sharing Coordinators in each MER partner agency are responsible for MER data management and access and the data sharing agreement;

- The DECCW MER Data Sharing Coordinator will also ensure a coordinated approach to data management across MER partners by liaising with the other Data Sharing Coordinators and reporting to the MER Data Management Team;

The NSW Spatial Council has been established to coordinate policy and the strategic direction of spatial information in NSW by way of the CS2i (Common Spatial Information Initiative) framework as endorsed by the NSW Cabinet. The NSW Spatial Council will therefore provide advice and guidance regarding the information management aspects of the MER Program including: the provision of whole-of-Government standards for data licensing, access and sharing; endorsement of relevant data and information standards developed by the MER Program; and links to relevant stakeholder forums (eg. Local Government forum).

Reporting of progress of implementation of the MER Strategy will be as follows:

- SOG will report on implementation of the MER Strategy to the Cluster at least every 12 months;
- SOG will review the data agreement and schedules and provide a report to the Cluster every 12 months at a minimum;
- MER Management Teams will provide regular progress reports to the SOG;
- The MER Strategy Managers will provide regular progress reports to the SOG;
- Regular updates to CMAs via the CMA General Manager's meetings and the MER Forum; and
- Reporting to the DIMWG and/or NSW Spatial Council will be undertaken as required.

## Partner Roles, Responsibilities and Commitments

The commitment of each of the key MER agencies and organisations is critical to successful implementation of the MER Strategy. Each partner agency and organisation will:

- Nominate a MER Strategy Manager that is accountable for ensuring the agency meets its commitments under the MER Strategy and

Implementation Plan and as detailed in the data agreement and schedules. This position will be a senior officer in each agency and organization that has authority to make decisions and coordinate resources. The MER Strategy Manager will:

  - Develop a MER implementation plan including risk identification for their agency or organisation to meet their requirements under the MER Strategy;
  - Manage MER implementation activities to meet the requirements of the MER strategy in their agency or organisation;
  - Review and manage the risks associated with the implementation of MER for that agency or organization; and
  - Report regularly to the SOG on progress of MER Strategy implementation, including barriers to implementation and risk management.

- Nominate an MER Data Sharing Coordinator to oversee MER data management and access and work with the MER Data Sharing Agreement Administrator to administer the data agreement and schedules;
- Meet the funding requirements of their contribution to the MER Strategy implementation program through recurrent funding or will seek external funding as available; and
- Undertake organisational reporting to funding bodies, government, etc. as required of the organisation.

The broad roles and responsibilities for key MER partners in implementing the MER Strategy are detailed in Table 1. Roles and responsibilities of other bodies involved in NRM, such as local government, Sydney Catchment Authority, will be defined as collaborative arrangements are developed.

**Table 1 Key MER Partner Roles and Responsibilities**

| Implementation Activity | Lead agency | Contribution |
|---|---|---|
| Governance arrangements and decision-making;<br>The Cluster<br>The SOG | DECCW<br>DECCW | I&I NSW, Department of Planning, Department of Premier and Cabinet;, NSW Treasury, the LPMA; Aboriginal Affairs NSW, and NOW<br>Department of Premier and Cabinet, Aboriginal Affairs NSW, CMAs, NOW, Department of Planning, I&I NSW, LPMA, NRC and NSW Treasury |
| Nominate Data Sharing | SOG | |

| | | |
|---|---|---|
| Administration Officer | | |
| Nominate senior officer as MER Strategy Manager for each NRM agency and CMA | DECCW, NOW, each CMA, I&I NSW and LPMA | |
| Manage MER strategy implementation responsibilities per agency | MER Strategy Manager for DECCW, NOW, each CMA, I&I NSW and LPMA | DECCW, NOW, CMAs, I&I NSW, LPMA |
| Nominate MER Data Sharing Coordinator for each partner agency and CMA | DECCW, NOW, CMAs, I&I NSW, LPMA | |
| Broker and administer data agreement and schedules including nomination of MER Data Sharing Agreement Administrator | The Cluster (DECCW lead) | DECCW, I&I NSW, LPMA; NOW, CMAs |
| MER Management Teams<br>• Resource Condition MER Management Team<br>• Program Performance MER Management Team<br>• MER Data Management Team | <br>DECCW<br>DECCW<br>DECCW | <br>DECCW, NOW, CMAs, I&I NSW, NRC, DLG<br>DECCW, NOW, CMAs, I&I NSW, LPMA, NRC, DLG<br>DECCW, NOW, CMAs, I&I NSW, LPMA, NRC, DLG |
| Contribute to Resource Condition theme teams and in some cases provide data and information (including evaluation of outputs and reporting products — see line items further down this table) as detailed by the Data Agreement:<br>1. native vegetation<br>2. native fauna<br>3. threatened species<br>4. invasive species<br>5. riverine ecosystems<br>6. groundwater<br>7. marine<br>8. wetlands<br>9. estuaries and coastal lakes | 1. DECCW<br>2. DECCW<br>3. DECCW<br>4. I&I NSW<br>5. NOW<br>6. NOW<br>7. I&I NSW<br>8. DECCW<br>9. DECCW | 1. CMAs (practical partnerships)<br>2. I&I NSW<br>3. I&I NSW<br>4. DECCW<br>5. I&I NSW, DECCW<br>6. I&I NSW, DECCW<br>7. DECCW<br>8. NOW<br>9. I&I NSW |

| | | |
|---|---|---|
| 10. soils<br>11. land capability<br>12. economic sustainability and social wellbeing<br>13. natural resource manager capacity | 10. DECCW<br>11. DECCW<br>12. I&I NSW<br>13. DECCW | 10. I&I NSW<br>11. I&I NSW<br>12. CMAs<br>13. CMAs |
| Contribute to the Program Performance theme team and provide performance data and information as detailed by the Data Agreement | DECCW | DECCW, NOW, CMAs, I&I NSW, LPMA |
| Administer the Data Agreement and schedules and support data management arrangements of MER teams | DECCW | NOW, CMAs, I&I NSW, LPMA |
| Provide data and information to the coordinators at timeframes and in format agreed in data agreement | DECCW | NOW, CMAs, I&I NSW, LPMA |
| Provide analysed or evaluated MER data and information to DECCW for State Plan reporting | DECCW | NOW, CMAs, I&I NSW, LPMA, CMAs |
| Undertake State Plan reporting | DECCW | NOW, CMAs, I&I NSW, LPMA, CMAs |
| Provide analysed or evaluated MER data and information to SOE reporting for agency/organisation | DECCW (SoE coordinate collection) | NOW, CMAs, I&I NSW, LPMA, CMAs |
| Undertake SOE reporting | DECCW | NOW, CMAs, I&I NSW, LPMA, CMAs |
| Provide analysed or evaluated MER data and information to NRC for reporting of progress to NRM targets and SOC reporting | NRC (coordinate collection) | NOW, CMAs, I&I NSW, LPMA |
| Undertake reporting of progress towards NRM targets and SOC reporting | NRC | DECCW, NOW, CMAs, I&I NSW, LPMA |

Details of partner commitments are outlined in the *Inter-agency data acquisition and sharing agreement for the NSW Natural Resources Monitoring Evaluation and Reporting Strategy*. A process to broker and administer the data agreement and schedules is detailed in Table 2.

**Table 2: Process to establish MER partner commitment and agreement**

| No. | Action | Deliverable | Responsible | Due |
|---|---|---|---|---|
| 1. | Develop draft data agreement and schedules | Draft data agreement template | SOG for ratification of part A of data agreement by Cluster | August 2010 |
| 2. | Nominate MER Data Sharing Agreement Administrator | Nominated Administrator | SOG | August 2010 |
| 3. | Negotiate and broker the data agreement and schedules, including data acquisition and management details | Agreed details provided to complete schedules of data agreement | MER Data Sharing Agreement Administrator for approval by SOG | Oct to Dec 2010 |
| 4. | Formal agreement with partners | Data Agreement signed | NR&E CEO Cluster, CEO of NRC and CMAs | Dec 2010 |
| 5. | Annual review of data agreement and schedules | Updated data agreements and schedules | MER Data Sharing Agreement Administrator co-ordinate for SOG review and Cluster approval (if changes required). | Annual |

## Timing of Information Requirements and Reporting

Implementation arrangements have been developed with consideration of the required timeframes for data and information provision and delivery of reporting. Table 3 details information provision and reporting timeframes and responsibilities.

**Table 3 Timing of information provision and reporting**

| Date | Data and Information Provision and Reporting | Responsibility |
|---|---|---|
| Quarterly | Provide limited data and information to DECCW for reporting on State Plan as available and appropriate | NRM agencies and CMAs |
| Quarterly | Report progress on State Plan | DECCW |
| Annually | Provide data and information as available and appropriate to DECCW for annual State Plan reporting. | NRM agencies and CMAs |
| Annually | State Plan annual update report | DECCW |

| Date | Data and Information Provision and Reporting | Responsibility |
|---|---|---|
| To be determined | Provide analysed data and information to NRC for progress reporting on state-wide targets | NRM agencies and CMAs |
| Nov 2011 | NRC progress report | NRC |
| Mar 2012 subject to finalisation | Provide data, information and analysis (to Dec 2011) to DECCW for State of the Environment reporting | NRM agencies |
| Nov 2012 | State of the Environment report | DECCW |
| To be determined | Provide analysed data and information to NRC for progress reporting | NRM agencies and CMAs |
| Nov 2012 | NRC progress reports | NRC |
| Sept 2012 | Provide analysed data and information to NRC for State of Catchments reporting | NRM agencies and CMAs |
| June 2013 | State of Catchments | NRC |
| To be determined | Provide analysed data and information to NRC for progress reporting | NRM agencies and CMAs |
| Nov 2013 | NRC Progress reports on state-wide targets | NRC |
| To be determined | Provide analysed data and information to NRC for progress reporting | NRM agencies and CMAs |
| Nov 2014 | NRC Progress reports on state-wide targets | NRC |
| Mar 2015 | Provide data, analysis and information (to Dec 2014) to DECCW for State of the Environment reporting | NRM agencies and CMAs |
| Nov 2015 | State of the Environment | DECCW |
| To be determined | Provide analysed data and information to NRC for progress reporting | NRM agencies and CMAs |
| Nov 2015 | NRC progress reports | NRC |

# 4. Implementation Programs

The major operational programs required for implementation of the MER Strategy and to meet the strategy outcomes are:

- Resource Condition MER;
- Program Performance MER; and
- MER Data Management.

Operational coordination of each program will be undertaken by a management team with responsibility for coordination and support of implementation activities and will include appropriately skilled representatives from each partner agency or organisation.

Detailed implementation activities, processes and roles and responsibilities for each program are detailed in the following.

## Resource Condition MER

The Resource Condition MER program is a continuation of the resource condition program implemented under the 2006 MER Strategy. It will continue to be implemented collaboratively between the inter-agency teams ("theme teams") established in 2007 for each of the 13 state-wide NRM targets, Catchment Management Authorities, the Natural Resources Commission and local government. Since 2007 each theme team has identified indicators based on the questions to be addressed by the MER program and developed methods for data collection, analysis and management. Baseline data have been collected.

Monitoring under the 2006 MER Strategy was framed around the minimum number of indicators and level of monitoring considered essential to enable reporting against the 13 state-wide NRM targets in 2015. In effect, this has meant tradeoffs have been made for future monitoring of the targets on:

- the number and type of indicators;
- the spatial extent of monitoring;
- the frequency of monitoring;
- the numbers of species, populations and communities monitored;
- the spatial bias introduced by using existing monitoring networks;
- the ability to detect a certain level of change by 2015; and
- the cost of establishing and operating new monitoring programs.

Further reductions of resources available for the MER resource condition program have been made and may continue into the future. To establish more comprehensive programs essential to delivering fully against the objectives of the 2010 MER Strategy would entail considerable additional resources to those set out in this Implementation Plan under the "current program" heading. This Implementation Plan considers both resources currently available to monitor natural resource condition across all state-wide targets and those considered to be "essential" to meet the requirements of the Strategy.

The actions listed in this Implementation Plan build on lessons learned from implementing the 2006 MER Strategy and the recommendations arising from a full-term review of that Strategy (Wood, 2009).

### Resource Condition MER Teams and Accountabilities

The inter-agency theme teams established in 2007 drew membership from across primarily scientific staff within each of DECCW, NOW and I&I NSW. With the increased focus on accessing data from a wider range of sources and the opportunities for sharing data and analyses (e.g. National Parks, State Forests, etc), the composition of the theme teams should be reassessed for this next stage of implementing the MER Strategy.

In particular, Policy and other "non-science" consumers of the data and evaluation and reporting outputs should be included in the teams to ensure end-user requirements are adequately addressed up-front.

This should be done under the guidance of the NRC which has taken on the role of reporting on resource condition in the next round of State of Catchment reports in 2013. The NRC has indicated that it will review the program as a whole, including indicators used in the next nine months to arrive at a final program in early 2011. The following table sets out roles, responsibilities and accountabilities for the Resource Condition MER Teams.

**Table 4 Resource Condition MER Teams Roles and Responsibilities**

| Role | Responsibility of: | Accountable to: |
|---|---|---|
| **Monitoring design** | | |
| Review current resource condition monitoring program, including indicators and reporting intervals | NRC (with support from MER Theme Teams) | SOG |
| As new condition data become available, regularly review the sampling design to ensure the distribution and intensity of sampling has sufficient power to detect change by 2015 | Theme teams | Resource Condition MER management team (DECCW, NOW, I&I NSW); NRC |
| Continue refining indicators as experience is gained and as new technology becomes available | Theme teams | SOG, NRC |
| Continue refining conceptual models of ecosystem processes as new understanding is gained from data analysis and other research and make them publicly available on the Internet | Theme teams | Resource Condition MER management team; NRC |
| **Protocols** | | |

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|---|---|---|
| Document and update sampling protocols and standards and make them publicly available on the Internet | Theme teams | NRC, SOG |
| Update the methods for data analysis, resource condition assessment and indicator scoring detailed in the technical reports and make them publicly available on the Internet | Theme teams | NRC, SOG |
| Further develop the indices used in each theme at site, regional and state scales and make indicator integration rules for indices publicly available on the Internet | NRC | SOG |
| **Data collection** | | |
| Carry out data collection, quality assurance/control and storage in corporate databases | Theme teams | NRC, SOG |
| Maintain and update metadata records on the NSW Metadata Portal managed by LPMA | Theme teams | Resource Condition MER management team; NRC |
| **Collaboration** | | |
| Seek collaboration between agencies and CMAs in sharing data and developing opportunities for joint data collection | Theme teams, CMAs, NRC | SOG, CMA Chairs Council |
| Provide any data collected on resource condition (including at the point-of-investment) to agencies for incorporation into state-wide and regional analysis and assessment | CMAs | NRC, CMA Chairs Council |

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|---|---|---|
| Seek collaboration with local government in sharing and collecting data to agreed protocols and standards | Theme teams, CMAs, MER Data management team | NRC, SOG |
| Coordinate the collection of data on pressures common across themes where practical | DECCW MER Coordination Section | Resource Condition MER management team, NRC |
| **Data management** | | |
| Review and upgrade where necessary, corporate database systems for MER data | MER Data Custodians, supported by information managers within DECCW, NOW, I&I, LPMA | NRC, SOG |
| Make MER data and information products available on an interactive Web site | MER Data Custodians, supported by information managers within DECCW, NOW, I&I, LPMA | NRC, SOG |
| Management of data sharing frameworks and standards defined by the NSW Common Spatial Information Initiative (CS2i) | LPMA | NSW Spatial Information Council |
| **Reporting** | | |
| Provide data, analysis and assessment of resource condition and pressures to DECCW for state-wide NRM targets reports and annual updates | Theme teams, CMAs | DECCW |
| Provide data, analysis and assessment of resource condition and pressures to the DECCW for the SoE report and the NRC for SoC reports and for reviews of progress towards targets | Theme teams, CMAs | DECCW, NRC, SOG |
| Prepare and publish SoE reports on a 3 yearly cycle | DECCW | DG, DECCW |

| | | |
|---|---|---|
| Prepare and publish SoC reports on a 3 yearly cycle soon after release of the NSW SoE report | NRC | Premier |
| **Decision support** | | |
| Identify the decision support systems used by agencies and CMAs for policy, planning, investment etc and document how MER program data and analysis will be incorporated into natural resource decision-making | Theme teams | NRC, SOG |

### Implementation of Resource Condition MER

The following table lists all elements of the MER resource condition monitoring program: the measures to be used; assessment and reporting timeframes; and the resources required to run the program successfully. The table is split into two parts: “current” and “essential”; the former lists resources currently available for the program, the latter those that are needed to meet the essential elements of the 2010 MER Strategy. It is envisaged that agencies will move progressively towards implementing the “essential” program as and when additional resources become available. To that end it is necessary to prepare a business case to NSW Treasury to obtain supplementation funding for this program. It must be pointed out that the “current” program will not be able to meet the objectives of the Strategy, which in turn means that the Strategy will not be able to meet the reporting requirements of the state-wide NRM targets.

The table lists indicators for each theme without elaborating them in detail. Detailed descriptions of the indicators and their associated monitoring and evaluation protocols are contained in the MER Technical Report Series available through the DECCW state-wide environmental reporting website (www.environment.nsw.gov.au/publications/reporting.htm).

**Table 5 Elements of Resource Condition Implementation**

| **Native vegetation extent / DECCW Lead** | | | | |
|---|---|---|---|---|
| **Current Program**<br>Uses the State-wide Land Cover and Trees Study (SLATS) methodology for analysis of Landsat satellite imagery to detect native woody (>2 m tall) vegetation extent annually across all of NSW. Application of high-resolution satellite imagery to achieve greater resolution is continuing but is currently being reviewed. Acquisition of high-resolution imagery has separate drivers from MER and may be needed post 2011; for the purposes of state-wide and regional MER analysis of Landsat imagery is sufficient and thus the cost of the "essential" program is lower than the current cost of the vegetation extent program which sources its data from a high-priority vegetation change monitoring program . Research is continuing into mapping and monitoring of non-woody vegetation using remote sensing and is likely to be operational within two years. | **Indicators**<br>SLATS / both Landsat and high-resolution satellite imagery | **Collection Interval**<br>Annually | **Reporting Interval**<br>Annually; incorporated into SoE and SoC at 3-yearly intervals | **Resources**<br>10 FTE<br>$1m operating<br>$3.5m capital investment for image acquisition |
| **Essential Program**<br>State-wide and regional MER requires only a subset of the current corporate program designed to monitor vegetation change in NSW as it is not necessary to use high-resolution satellite imagery to measure vegetation extent for the MER program. Separate government priorities may still necessitate acquisition of high-resolution satellite imagery but those costs would not be attributed to the MER program and have thus been excluded here | **Indicators**<br>SLATS / Landsat only | **Collection Interval**<br>Annually | **Reporting Interval**<br>Annually; incorporated into SoE and SoC reports at 3-yearly intervals | **Resources**<br>10 FTE<br>$1m operating |

| **Native vegetation condition / DECCW Lead** | | | | |
|---|---|---|---|---|
| **Current Program**<br>This program is constructed around two parts:<br>1. The Practical Partnerships Program with CMAs that investigates environmental outcomes from different types of land management. The Program relies on continued support from CMAs. | **Indicators**<br>1. Practical partnerships indicators<br>2. Vegetation modelling and mapping indicators | **Collection Interval**<br>1. annually<br>2. annually | **Reporting Interval**<br>incorporated into SoE and SoC reports at 3- | **Resources**<br>1. 3 FTE; $91,040 operating (this program does not have this level of |

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|---|---|---|---|---|
| 2. Vegetation condition modelling and mapping in the Murray and Murrumbidgee CMAs.<br>Both programs will form the platform for broader implementation of vegetation condition assessments. | | | yearly intervals | resourcing committed to it beyond June 2010)<br>2. 1.8FTE; $1800 operating |
| **Essential Program** | **Indicators**<br>1. Practical partnerships indicators<br>2. Vegetation modelling and mapping indicators | **Collection Interval**<br>1. annually<br>2. annually | **Reporting Interval**<br>incorporated into SoE and SoC reports at 3-yearly intervals | **Resources**<br>1. partnership with 4 CMAs: 4.2FTE; $166,080 operating (expanding if more resources become available)<br>2. 1.8 FTE; $5,000 operating |

| **Native Fauna / DECCW Lead** | | | | |
|---|---|---|---|---|
| **Current Program**<br>Will need to focus on exemplary case studies and investigate using vegetation as a surrogate for fauna populations using currently existing data | **Indicators**<br>Sustainability of native fauna (= probability of a species or population remaining extant within a given area after a given time) | **Collection Interval**<br>Annually | **Reporting Interval**<br>Incorporated into SoE and SoC reports at 3-yearly intervals | **Resources**<br>1 FTE<br>$0 operating |
| **Essential Program**<br>Development and trial of selected cost efficient project ideas for monitoring selected fauna populations to meet the intent of the State Plan.<br>Analysis of listings of species on threatened species lists, e.g. IUCN, | **Indicators**<br>Sustainability of native fauna | **Collection Interval**<br>Annually | **Reporting Interval**<br>Incorporated into SoE and SoC reports at 3- | **Resources**<br>1 FTE<br>$100,000 operating to allow some new, |

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|---|---|---|---|---|
| EPBC Act and TSC Act to look for key differences of scale and criteria. Delivery of monitoring of at least two populations of fauna state-wide. The aim is to work with the threatened species monitoring theme team for efficiency.<br>There will be selective collation of long-term published case studies. | | | yearly intervals | focused data collection |

| **Threatened species / DECCW lead; I&I NSW contribute** | | | | |
|---|---|---|---|---|
| **Current Program**<br>A sustainability indicator was adopted for each of the 3 entities (threatened flora species, threatened fauna species and threatened ecological communities) in this theme using the same definition of sustainability as for the native fauna theme. To assess progress towards the target, recovery of threatened entities is defined as an improvement in the sustainability of entities between reporting periods. | **Indicators**<br>Sustainability/recovery of threatened flora, fauna and ecological communities | **Collection Interval**<br>Annually | **Reporting Interval**<br>Incorporated into SoE and SoC reports at 3-yearly intervals | **Resources**<br>DECCW:<br>- 1FTE<br>- $0 operating<br>I&I NSW: No separate reporting is currently done for aquatic threatened species listed under the Fisheries Management Act, although considerable data are available (e.g. from riverine theme). No resources are currently allocated to compiling these data. |
| **Essential Program**<br>Selective collation of long-term published case studies. Analysis of listings of species, populations, communities and key threatening | **Indicators**<br>Sustainability/recovery of threatened flora, fauna | **Collection Interval**<br>Annually | **Reporting Interval**<br>Incorporated into | **Resources**<br>DECCW: |

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| processes on TSC Act, EPBC Act and IUCN Redlist. Delivery of monitoring of at least two threatened species populations state-wide.<br>Additional, selective collation of long-term published case studies.<br>Work in conjunction with fauna monitoring team for efficiency. | and ecological communities | | SoE and SoC reports at 3-yearly intervals | - 3 FTE;<br>- $150,000 operating<br>I&I NSW:<br>- 0.7 FTE;<br>- $20,000 operating<br>(I&I can collect data and report separately on almost all listed species under the Fisheries Management Act, especially finfish (marine & freshwater).) |

| **Invasive species / I&I NSW lead; DECCW contribute** | | | | |
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| **Current Program**<br>The Invasives Team collects data on terrestrial invasive species from other agencies and groups and reports whatever information is available from local government, LHPAs, I&I Fisheries, DECCW and others. The Program needs 1.3 FTE to run, i.e. it will be under pressure to report in a meaningful way on a state-wide basis if an additional EFT is not available after June 2010.<br>I&I Fisheries collects information on all aquatic invasive animals (including marine algae but not freshwater plants). No separate reporting is currently done | **Indicators**<br>1. New invasive species<br>2. Emerging invasive species<br>3. Widespread invasive species | **Collection Interval**<br>1. annually<br>2. 3-yearly<br>3. 5-yearly | **Reporting Interval**<br>Incorporated into SoE and SoC reports at 3-yearly intervals where data permits | **Resources**<br>I&I NSW:<br>- 0.3 (terrestrial) FTE;<br>- $2,000 operating<br>(Note: this is not sufficient to run the program as designed)<br>- 0.5 (aquatic) |

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| | | | | FTE;<br>- $70,000 operating<br>DECCW:<br>- 0.5 FTE;<br>- $70,000 operating |
| **Essential Program**<br>see description of the current program | **Indicators**<br>1. New invasive species<br>2. Emerging invasive species<br>3. Widespread invasive species | **Collection Interval**<br>1. annually<br>2. 3-yearly<br>3. 5-yearly | **Reporting Interval**<br>Incorporated into SoE and SoC reports at 3-yearly intervals where data permits | **Resources**<br>I&I NSW (terrestrial):<br>- 1.3 FTE;<br>- $40,000 operating<br>I&I NSW (aquatic):<br>- 0.5 FTE;<br>- $70,000 operating<br>DECCW:<br>- 0.5 FTE;<br>- $70,000 operating |

| **Riverine Ecosystems / NOW lead; DECCW and I&I NSW contribute** | | | | |
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| **Current Program**<br>This program draws largely on the Murray-Darling Basin Authority – funded Sustainable Rivers Audit (SRA) and the NOW Key Sites Program for water quality; NSW agency resources are required for coastal rivers monitoring not covered by the SRA. | **Indicators**<br>NOW:<br>hydrology; water quality (turbidity; total phosphorus; electrical conductivity; water | **Collection Interval**<br>Hydrology: 6-yearly<br>water quality: annually<br>Macroinvertebrates: 2-yearly | **Reporting Interval**<br>Incorporated into SoE and SoC reports at 3-yearly intervals | **Resources**<br>NOW:<br>- 8.5 FTE;<br>- $170,000 operating<br>DECCW: |

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| | temperature)<br>DECCW: macroinvertebrates<br>I&I NSW:<br>Fish | Fish: 3-yearly | | - 5 FTE;<br>- $125,000 operating<br>I&I NSW:<br>- 4 FTE;<br>- $180,000 operating |
| **Essential Program**<br>see description of current program<br>Enhanced funding is not necessary for I&I NSW sampling of fish in coastal rivers in the short term as long as SRA continues.<br>Additional to the routine water quality and hydrology indicators there is a need for NOW to finalise the River Styles classification ($1.6m) and Riparian Vegetation Extent ($1m) for rivers across NSW. This will enable the completion of state-wide spatial mapping for River Styles and Vegetation Extent, particularly in Western NSW which is historically data poor. Completion of the mapping of these two attributes will also enable the development and completion of a new state-wide River Condition Index that is reliant on River Styles and Riparian Extent as part of the method. It is currently unfunded. | **Indicators**<br>NOW:<br>Hydrology; water quality (turbidity; total phosphorus; electrical conductivity; water temperature)<br>DECCW:<br>Macroinverstebrates<br>I&I NSW:<br>Fish | **Collection Interval**<br>Hydrology: 6-yearly<br>water quality: annually<br>Macroinvertebrates: 2-yearly<br>Fsh: 3-yearly | **Reporting Interval**<br>Incorporated into SoE and SoC reports at 3-yearly intervals | **Resources**<br>NOW:<br>- 8.5 FTE;<br>- $2,770,000 operating<br>DECCW:<br>- 5 FTE;<br>- $125,000 operating<br>I&I NSW:<br>- 5 FTE;<br>- $210,000 operating |

| **Groundwater / NOW lead; DECCW contribute** | | | | |
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| **Current Program**<br>The groundwater program is NOW core business and is continuing into the future but does not focus on groundwater-dependent ecosystems, the focus of the State Plan Target. The current program is ongoing; there are only minimal resources provided by DECCW (not NOW) to address GDEs.<br>Hydrogeological monitoring is focussed mainly on the inland alluvial aquifer systems. There is a small coastal hydrogeologist team that | **Indicators**<br>Groundwater level; groundwater entitlement v long term annual average extraction limit; groundwater use v long term annual average extraction limit; pressures | **Collection Interval**<br>Monthly to 6-monthly depending on the sites<br>Status reports on | **Reporting Interval**<br>Incorporated into SoE and SoC reports at 3-yearly intervals where data permits | **Resources**<br>NOW:<br>- 30 FTE;<br>- 1.6m operating<br>DECCW:<br>- 1.5 FTE; |

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| concentrates on the north coast coastal sands; the Hunter catchment and Sydney area focus primarily on assessment of developments. There is no direct monitoring associated with the State Plan target.<br>DECCW contributes a small amount of resources to progressing identification of groundwater-dependent ecosystems. | on groundwater resources | Groundwater Management Areas are prepared at 3-5 yearly intervals | | - $2,000 operating |
| **Essential Program**<br>In addition to the current level of monitoring resources are required to identify ecosystems dependent on groundwater to meet the State Plan Target. A CA NSW project is currently being completed which is at a coarse scale identifying terrestrial vegetation reliant on groundwater. This work needs to be continued to improve the scale of mapping and to enable the verification of the remote sensing. Additional work is required to identify other categories of GDEs such as wetlands and estuaries | **Indicators**<br>Groundwater level; groundwater entitlement v long term annual average extraction limit; groundwater use v long term annual average extraction limit; pressures on groundwater resources; groundwater-dependent ecosystems - mapping, extent and condition | **Collection Interval**<br>Monthly to 6-monthly depending on the sites<br>Status reports on Groundwater Management Areas are prepared at 3-5 yearly intervals | **Reporting Interval**<br>Incorporated into SoE and SoC reports at 3-yearly intervals where data permits | **Resources**<br>NOW:<br>- 33 FTE;<br>- 1.9m operating<br>DECCW:<br>- 1.5 FTE;<br>- $2,000 operating |

| **Marine Ecosystems / I&I NSW lead; DECCW contribute** | | | | |
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| **Current Program**<br>The program focuses on key indicators of marine ecosystem health. The marine system also acts as a sentinel system for climate change. | **Indicators**<br>Recreational water quality (Beachwatch, DECCW); Marine algal blooms (DECCW); Extent of marine protected areas (DECCW); Rocky reef biota (I&I NSW) | **Collection Interval**<br>6-monthly (algal blooms<br>annually (all others) | **Reporting Interval**<br>Incorporated into SoE and SoC reports at 3-yearly intervals<br>Beachwatch publishes an annual report | **Resources**<br>I&I NSW:<br>- 1 FTE;<br>- $75,000 operating<br>DECCW:<br>- 4 FTE;<br>- $126,000 operating |

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| | | | | (Beachwatch);<br>- 1FTE;<br>- $8,000 operating (algal blooms) |
| **Essential Program**<br>Minimal change from the current program. A small increase in resources for algal blooms and reef fish would be necessary. | **Indicators**<br>Recreational water quality (Beachwatch, DECCW); Marine algal blooms (DECCW); Extent of marine protected areas (DECCW); Rocky reef biota (I&I NSW); Reef fish (I&I NSW) | **Collection Interval**<br>6-monthly (algal blooms<br>annually (all others) | **Reporting Interval**<br>Incorporated into SoE and SoC reports at 3-yearly intervals<br>Beachwatch publishes an annual report | **Resources**<br>I&I NSW:<br>- 2 FTE;<br>- $150,000 operating<br>DECCW:<br>- 4 FTE;<br>- $126,000 operating (i.e. no change<br>Beachwatch);<br>- 1.5FTE;<br>- $70,000 operating (algal blooms) |

| **Wetlands / DECCW lead; NOW and I&I NSW contribute** | | | | |
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| **Current Program**<br>The targets in the State Plan for wetlands are set for "important wetlands" only, so all field based monitoring of wetlands will be confined to this small set of wetlands.<br>The National Framework for the Assessment of River and Wetland Health (FARWH) was developed under the National Water Initiative and proposes 6 key components for assessing wetland health: catchment disturbance; water quality; fringing zone; aquatic biota; hydrological | **Indicators**<br>Multiple lines of evidence without systematic data collection | **Collection Interval**<br>3-yearly | **Reporting Interval**<br>Incorporated into SoE and SoC reports at 3-yearly intervals | **Resources**<br>DECCW:<br>- 0.5 FTE;<br>- $2,000 operating |

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| change; physical form. The current program is not resourced to measure these indicators. | | | | |
| **Essential Program**<br>The program would rely on remote-sensing data and occasional field visits to collect data on key indicators – accuracy of assessments would remain relatively low, though, over time, data would build up. | **Indicators**<br>DECCW: Fringing zone vegetation; frogs; macroinvertebrates; catchment disturbance<br>NOW: pH, salinity, turbidity and hydrology (infrequent, unreplicated sampling with low resolution of the hydrological indicators) | **Collection Interval**<br>3-yearly | **Reporting Interval**<br>Incorporated into SoE and SoC reports at 3-yearly intervals | **Resources**<br>DECCW:<br>- 3.5 FTE;<br>- $25,000 operating<br>NOW:<br>- 2 FTE;<br>- $10,000 operating<br>I&I NSW would be able to contribute wetlands fish identification only with additional resources of 2 FTE and $200,000 operating |

| **Estuaries and coastal lakes / DECCW lead, I&I NSW contribute** | | | | |
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| **Current Program**<br>The program is designed to monitor composition, structure and function of estuaries and coastal lakes. | **Indicators**<br>DECCW: chlorophyll a; turbidity<br>I&I NSW: macrophytes (mangroves and saltmarsh) | **Collection Interval**<br>One third of estuaries sampled every year; comprehensive set every 3-5 years | **Reporting Interval**<br>Incorporated into SoE and SoC reports at 3-yearly intervals as data permits | **Resources**<br>DECCW:<br>- 2 FTE;<br>- $65,000 operating<br>I&I NSW:<br>- 0.7 FTE;<br>- $60,000 operating |

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| **Essential Program**<br>In addition to focusing on mangrove & saltmarsh monitoring, resourcing at this level would allow seagrass habitats to be assessed in 20 estuaries per year. (note that it would take 6 years for all estuaries that contain seagrass in the NSW to be assessed once). Estuarine fish assemblages would be assessed in each NSW estuary once every 3-year cycle. | DECCW: chlorophyll a; turbidity<br>I&I NSW: macrophytes (mangroves and saltmarsh); fish | **Collection Interval**<br>one third of estuaries sampled every year; comprehensive set every 3 years | **Reporting Interval**<br>incorporated into SoE and SoC reports at 3-yearly intervals as data permits | **Resources**<br>DECCW:<br>- 2 FTE;<br>- $65,000 operating<br>I&I NSW:<br>- 3.7 FTE;<br>- $300,000 operating |

| **Soil condition / DECCW Lead** | | | | |
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| Sites for monitoring of soil health were selected across large and important soil types considered to be subject to change in land use or land management, with several soil condition issues. Ten (10) priority Soil Management Units (SMUs) were defined within each CMA region (4 in Sydney Metro) on the basis that they occupy significantly large areas, have soil conditions which are likely to change, are important in terms of their productivity or ability to provide ecological services, and are related to existing soil boundaries. | | | | |
| **Current Program**<br>Soil salinity; soil structure; organic carbon; soil acidity; gully erosion; wind erosion risk; sheet erosion risk (Data collection on this program has ceased. There are no operating funds allocated to the program apart from funds to complete the analysis of samples taken during the first phase of the program. The current activity is limited to quality control of the existing data set, planning, completing lab testing & CMA communications.) (Data collection on this program has ceased. There are no operating funds allocated to the program apart from funds to complete the analysis of samples taken during the first phase of the program. The current activity is limited to quality control of the existing data set, planning, completing lab testing & CMA communications.) | **Indicators**<br>Soil salinity; soil structure; organic carbon; soil acidity; gully erosion; wind erosion risk; sheet erosion risk | **Collection Interval**<br>Systematic, ongoing data collection | **Reporting Interval**<br>Reporting every 3-9 years, depending on indicator<br>Incorporated into SoE and SoC reports at 3-yearly intervals as data permits | **Resources**<br>3 FTE<br>$0 operating |
| **Essential Program**<br>Allocation of resources to the program would allow continued data | **Indicators**<br>Soil salinity; soil structure; | **Collection Interval** | **Reporting Interval** | **Resources**<br>8 FTE |

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| collection and reporting of the agreed indicators. | organic carbon; soil acidity; gully erosion; wind erosion risk; sheet erosion risk | Systematic, ongoing data collection | Reporting every 3-9 years, depending on indicator<br>Incorporated into SoE and SoC reports at 3-yearly intervals as data permits | $410,000 operating |

| **Land managed within capability / DECCW Lead** | | | | |
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| Land and soil capability refers to the inherent physical capacity of the land and its soils to sustain a range of land uses and management practices without degradation. A system of 8 LSC classes is widely used with Class 1 representing land with negligible limitations to land use and capable of regular cultivation to Class 8 with extreme limitations and capable only for non-agricultural land use. Hazards are used to assess capability and are the 8 indicators used for soil condition i.e. sheet erosion, gully erosion, wind erosion, soil structure decline, organic carbon decline, soil salinity, soil acidification and acid sulfate soils. | | | | |
| **Current Program**<br>**Note: This program will be integrated into the soil condition program since the same indicators are used; no additional resources above those for soil condition are required to monitor this target. Currently data collection for the soils program as a whole has ceased and can be revived only if resources become available. Resourcing as indicated in the soil condition program above.** | **Indicators**<br>Soil salinity; soil structure; organic carbon; soil acidity; gully erosion; wind erosion risk; sheet erosion risk | **Collection Interval**<br>One third of NSW covered in 3 years; i.e. whole State-wideevery 9 years | **Reporting Interval**<br>Incorporated into SoE and SoC reports at 3-yearly intervals; whole of NSW covered every 9 years | **Resources** |

| **Economic sustainability and well-being / I&I Lead** | | | | |
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| **Current Program**<br>The intent of the monitoring for this theme is to measure and report on the contributions of NRM decisions to economic sustainability and social well-being rather than to measure a community's overall vitality | **Indicators**<br>Business profitability and expansion; increased employment; gaining | **Collection Interval**<br>3-yearly | **Reporting Interval**<br>Incorporated into SoC reports at 3- | **Resources**<br>0.6 FTE,<br>operating costs met by a grant |

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| which is influenced by many other factors outside NRM. | more formal and informal skills; community networks and interaction; participation in NRM; more effective NRM decision-making | | yearly intervals | from Catchment Action NSW; no funds available post June 2010 |
| **Essential Program**<br>Will be subject to the outcomes of the NRC review of implementation options for T12. | **Indicators** | **Collection Interval** | **Reporting Interval** | **Resources** |

| **Capacity of natural resource managers / DECCW Lead** | | | | |
|---|---|---|---|---|
| **Current Program**<br>Even with a comprehensive protected areas system, ecosystem services from privately owned land are essential to sustain ecological diversity, as most biodiversity will be found outside the reserve system. Improved natural resource outcomes rely heavily on the adoption of sustainable practices by private natural resource managers in addition to environmental regulation. The capacity of landholders to make the transitions towards more sustainable NRM practices depends on knowledge, motivation, social networks and economic capacity.<br>Rural Livelihoods Analysis has been used to analyse the adaptive capacity of rural communities in both developing and developed nations including Australia. Rural livelihood strategies comprise sets of activities that are continuously invented, adapted and adopted in response to changing access to resources. The resources drawn upon to create rural livelihood strategies can be characterised as 5 broadly defined types of capital including human, social, natural, physical and financial. The balance between the 5 capitals for natural resource managers is as important as the amount of any one type of capital, because the 5 capitals can complement and | **Indicators**<br>Human capital; social capital; financial capital; physical capital; natural capital | **Collection Interval**<br>State-wide data collected over a 3-year period | **Reporting Interval**<br>Incorporated into SoC reports at 3-yearly intervals | **Resources**<br>2 FTE<br>$50,000 operating |

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| substitute for each other in the process of generating livelihoods.<br>The program is predicated on having active co-operation from CMAs - this would be best achieved by negotiating a formal commitment from CMAs. The number of indicators will remain the same between strategies but the State-wide coverage, both spatially and in terms of representation of key NR manager types (other than farmers), is scaleable. | | | | |
| **Essential Program**<br>Focus on agricultural land managers in regions where CMAs collaborate in the assessment and in a limited number of other areas where existing links to farmer groups could be utilised. Would be unlikely to provide regional assessment, but would report on major biophysical, social and economic drivers of capacity of agricultural land managers at state-wide scale.<br>The program will work with CMAs to get adoption at the regional level.<br>**Note: The SOG has recommended that the NRC review implementation options for this target.** | **Indicators**<br>Human capital; social capital; financial capital; physical capital; natural capital | **Collection Interval**<br>State-wide data collected over a 3-year period | **Reporting Interval**<br>Incorporated into SoC reports at 3-yearly intervals | **Resources**<br>1.5 FTE<br>$200,000 operating |

## Program Performance MER

The Program Performance MER strand will use data and information of the outputs achieved from NRM investment and evidence of change in land management practices to inform the intermediate outcomes and the output levels of the logic hierarchy. This includes:

- Output data and information currently collected at the point of management activity by MER partners will be used. The Program Performance MER strand will develop and support consistent measurement and management processes among all partners and transform or aggregate data to inform outputs for decision-making at the regional and state-wide scales. This information includes recorded case study information as available to further inform reporting.
- Review existing land practice change monitoring programs as basis for identifying gaps and investigating opportunities for developing a joint proposal with NRM partners to address this information requirement. Such a program if developed and funded would build on practice change evaluations already conducted by agencies, CMAs and industry groups.

The Program Performance MER strand will not include detailed assessment of investment funds as these are assessed and reported through financial reporting processes. It will however include consideration of inputs or foundational activities as agreed with partners and where directly relevant to a particular state-wide NRM target.

### Program Performance MER Coordination Team (DECCW)

The Program Performance MER strand will be led and coordinated by DECCW. The DECCW NRM Performance MER team will work with CMAs and agencies to develop the Program Performance MER systems, processes and products. The Program Performance Team, responsibilities and operational accountabilities are detailed in Table 6.

**Table 6: DECCW Program Performance MER Coordination Team and Accountabilities**

| Role | Responsibility of: | Accountable to: |
|---|---|---|
| Lead Program Performance MER (Chair of Management team) | Manager Capacity and Evaluation | Director, NRM Investment/SOG |
| Project Manage Program Performance MER Implementation | Program Performance Project Manager | Manager Capacity and Evaluation |
| Data receipt, management and transformation | Program Performance Data Coordinator | Program Performance Project Manager |
| System customisation, distribution and support | Program Performance System Coordinator | Program Performance Project Manager |

| | | |
|---|---|---|
| Secretariat support, coordination and communication | Program Performance Communication Coordinator | Program Performance Project Manager |
| Data handling and sharing with MER partners | Program Performance Database Officer (where resourcing allows) | Program Performance Data Coordinator |
| Assist customisation of spatial system and support partners' use | Program Performance Systems Officer (where resourcing allows) | Program Performance System Coordinator |
| Develop and implement evaluation processes, evaluation capacity building | Program Performance Evaluation Officer (where resourcing allows) | Program Performance Project Manager |

**Program Performance MER Partners**

DECCW will lead coordination of the Program Performance MER and the collation of data and information to address reporting and decision-making of Program Performance. However, contribution of output data and information from CMAs and agencies is critical to successful delivery.

The Program Performance MER strand seeks to establish collaborative partnerships among agencies and CMAs for development and delivery of output data and information. Significant accomplishments in collecting, managing, evaluating and reporting spatial output information have been achieved by many CMAs. Program Performance MER seeks to build on that work to develop an NRM sector-wide information base that informs decision-making at a range of scales by:

- assisting CMAs to continue current collection and management of spatial output information;
- work with the remaining CMAs to adopt spatial information management practices;
- support agencies to adopt or adapt spatial information management; and
- work with agencies and CMAs to provide output data and information.

Program Performance MER will undertake, in collaboration with partners, development of management change statements to establish agreed output indicators for the Program Performance MER program and reporting sector-wide NRM achievements. These statements, and the identified available indicator data, will be used to inform the contribution of NRM investment to state-wide NRM targets. Data collection, management and provision are detailed in the MER Data Agreement.

Operational and technical contacts and interagency/organisational teams will be developed by the Program Performance MER coordination team. Regular informal communication will be established within these teams and more formal operational communication will be undertaken through establishment of a Program Performance MER Management Team.

### Program Performance Implementation

Program Performance MER will be implemented through a phased approach. Implementation phases include:

1. **Negotiate and formally adopt data agreement, data collection and management change statements**

   The focus of this phase is identification of currently collected output information that will be used to report achievements from NRM investment and establish data capture, management and provision processes. Management change statements will be developed and used to identify data and information to establish appropriate indicators for reporting. Performance information will be aggregated or combined where it can reasonably be or where work is undertaken for the same purpose. Data will be aggregated spatially to provide a measure of performance for reporting on state-wide achievements relevant for reporting on state-wide targets and SOC and allowing communication of simple messages to community and government about achievements from investment in NRM. Negotiation of data and arrangements for management and provision of data for the Program Performance program will be undertaken through development of the data agreement and associated schedules. Draft management change statements for reporting program performance are detailed in Appendix 2.

2. **Develop and formally adopt monitoring, data management and provision protocols for the program performance indicators**

   The monitoring, recording protocols, data management and data transfer arrangements will be developed with each agency and CMA to meet the needs of each organisation because each partner has its own imperatives for producing, managing and reporting outputs. Negotiation with staff involved in monitoring, evaluation, reporting, and data management will be undertaken by the MER Program Performance Team to reach agreement on data and information collection, management, analysis, timing, uses and access.

3. **Partners agree and adopt processes and systems for spatial data capture and management within each partner agency/organisation**

   The Program Performance MER program will build on the output monitoring, information management and aggregation experience of CMAs and seek to introduce the use of spatial output information among all CMAs and agencies. Most CMAs currently use the Land Management Database (LMDB) framework to record spatially explicit output information into the ARC GIS spatial system and record attributes of that information. LMDB provides a user friendly system to record and retrieve data and information at a range of spatial and temporal scales with maps of investment. The Program Performance Team will seek to adapt and expand the use of LMDB or develop mechanisms to upload data from corporately supported spatial systems in other NRM agencies.

4. **Pilot Program Performance MER (subject to funding)**.

   The Program Performance Team will seek the assistance of a CMA region and the relevant agencies to test the use of the processes and systems to undertake program performance capture and dissemination of information. Findings of the review of this pilot will be used to improve efficiency for expanding the Program Performance MER process to other regions and state-wide.

5. **Review and adapt Program Performance processes and systems and implementation by partners**

   The Program Performance Team will revise the data and reporting system and work collaboratively with CMAs and agencies to implement the revised program performance processes and systems. Training and support of CMA and agency staff will be expanded to all regions and will be progressively adapted to meet the needs of the CMAs, agencies and program performance program.

6. **Provide agreed data and information to SOE and SOC and liaise on evaluation and reporting processes and products (manual data handling initially with progressive change to automated data entry and reporting)**

   This phase will test the state-wide information and reporting components of the Program Performance MER program. The development of an agreed timeline for data provision will be completed and data and information will be provided by partners. The Program Performance Team will receive data and information and undertake aggregation or transformation of that information. Introduction of a spatial data capture system will take some time so the Program Performance Team will manually process data and information provided by partners where necessary or until appropriate systems are in place. Transformed data and information will be reported to DECCW and the NRC for evaluation and reporting as required (e.g. against state-wide NRM targets, SoE, etc.). The Program Performance team will liaise on development of evaluation and reporting processes as required.

   The use of case study information where available will be investigated to enhance reporting. Where appropriate, a repository of case studies for use in reporting will be established.

7. **Investigate opportunity to develop collaborative proposal with NRM partners to undertake monitoring project on land manager behaviour and practice change.**

   The Program Performance strand of the MER Strategy focuses on the outputs accomplished through NRM investment. This investment and the effort of CMAs and agencies seek to change the behaviour and practices of land managers to conserve or improve the management of natural resources in NSW. Implementation of a review of existing land manager behaviour and practice change monitoring programs would identify information gaps and opportunities for developing a joint proposal with CMAs and agencies.

8. **Review of Program Performance MER delivery and continuous improvement**.

   The Program Performance MER is a new program. As a result, there is likely to be a requirement for continuous improvement of processes, system and delivery mechanisms. The processes and systems will be reviewed to identify adoption and implementation issues. These will be adapted to provide continuous improvement of the Program Performance strand.

9. **Continue support of NR MER Partners in capture and delivery of spatial data and information**.

   The Program Performance Team will continue to collaborate with partners and provide training and support for agencies and CMAs. Program reviews will be regularly undertaken and the program will be adapted as required.

### Roles, Responsibilities and Scheduling for Program Performance MER

Successful implementation of the Program Performance strand of the MER Strategy relies on the contributions of NRM partners and understanding of the scheduling of delivery of each phase. Details of the contributions and timing are included in Table 7.

**Table 7 Contribution of Program Performance MER Partners and scheduling of delivery**

| No. | Phase | Responsibility / Lead | Partner Contribution | Start Date | End Date |
|---|---|---|---|---|---|
| 1. | Negotiate and formally adopt data agreement, data collection and management change statements | DECCW/ NRMI with Program Performance Management Team | NOW, I&I NSW, LPMA, CMAs, DECCW, NRC | July 2010 | Dec 2010 |
| 2. | Develop and formally adopt monitoring, data management and provision protocols for the program performance indicators | DECCW/ NRMI with Program Performance Management Team | NOW, I&I NSW, LPMA, CMAs, DECCW | July 2010 | Dec 2010 |
| 3. | Partners agree and adopt processes and systems for spatial data capture and management within each partner agency/ organisation | DECCW/ NRMI (lead)<br>NOW<br>I&I NSW<br>LPMA<br>CMAs | DECCW / NRMI | July 2010 | Mar 2011 |
| 4. | Pilot Program Performance MER (subject to funding) | DECCW/ NRMI | DECCW/ NRC/CMA<br>Program Performance Management Team | Jan 2011 | Sept 2011 |
| 5. | Review and adapt Program Performance processes and systems and implement | DECCW / NRMI with Program Performance Management Team | All Program performance partner agencies and CMAs | Oct 2011 | June 2012 |
| 6. | Provide agreed data and information to SOE | DECCW / NRMI with Program Performance | All Program performance partner | April 2011 | Jun 2015 |

| No. | Phase | Responsibility / Lead | Partner Contribution | Start Date | End Date |
|---|---|---|---|---|---|
| | and SOC and liaise on evaluation and reporting processes and products (manual data handling initially with progressive change to automated data entry and reporting) | MER Management Team | agencies and CMAs | | |
| 7. | Undertake review on land manager behaviour and practice and investigate opportunity to develop collaborative proposal with NRM partners . | DECCW/ NRMI | NOW, I&I NSW, LPMA, CMAs, DECCW, NRC | July 2012 | Dec 2013 |
| 8. | Review of Program Performance MER delivery and continuous improvement | DECCW/ NRMI with Program Performance Management Team | NOW, I&I NSW, LPMA, CMAs, DECCW | Mar 2013 | June 2014 |
| 9. | Continue support of NR MER Partners in capture and delivery of spatial data and information | DECCW/ NRMI | Program Performance Management Team | Jul 2013 | On-going |

**Resourcing the Program Performance MER Strand**

Output monitoring and data management and provision in each partner organisation will be funded by that organisation (recurrent and/or external funding sought). Currently collected data and information will be used by the Program Performance MER program so any additional cost to each MER partner will arise from communication of data and information and so should be a relatively small cost to each organisation.

Project management funding will be provided from the Natural Resources Management Investment Branch (DECCW) recurrent budget for 3.7 EFT for this program. These resources have been provided through re-alignments of existing NRMI resources to this project. However, as identified in Table 6: DECCW

Program Performance MER Coordination Team and Accountabilities, this 3.7 EFT needs to cover 6 key MER positions.

Systems customisation and on-going support for the LMDB will be sought to ensure that the LMDB is capable of providing on-going services to CMAs and enabling the system to be extended to include output monitoring data from agencies. External funds will also be sought through project proposal to develop a collaborative social research project on land manager behaviour and practice change.

Table 8 details funding requirements for the coordination and management of the Program Performance MER by DECCW over the life of the MER IP. Costs are detailed by year for staffing and operational requirements for recurrent and additional funding. Funding requirements assume that current funding levels will be ongoing so funding requirements in 2010/11 are reasonably accurate but those for the remaining years are estimates only. Estimated costs will be reviewed and revised (as required) each financial year.

**Table 8: Program Performance Financial Resources**

| | Existing Recurrent | | | Additional | | |
|---|---|---|---|---|---|---|
| Year | Staff (EFT) | Salaries ($) | Operating* ($) | Staff (EFT) | Salaries ($) | Operating* ($) |
| 2010/11 | 3.7 | 447,000 | 30,000 | 3 | 219,000 | 100,000 |
| 2011/12 | 3.7 | 453,000 | 30,000 | 3 | 225,000 | 40,000 |
| 2012/13 | 3.7 | 454,000 | 30,000 | 3 | 232,000 | 40,000 |
| 2013/14 | 3.7 | 455,000 | 30,000 | 3 | 242,000 | 40,000 |
| 2014/15 | 3.7 | 455,000 | 30,000 | 3 | 242,000 | 40,000 |

*** Does not include publication costs**

The implementation phase schedule has been developed based on access to the additional resources identified in Table 8: DECCW Program Performance MER Coordination Team and Accountabilities. Implementation may be slower and less effective without these resources because:

- The Program Performance MER requires development and distribution of a spatial data capture and management system. Part of the additional requirement is for software customisation and support. This will require spatial software development and support expertise which is currently unavailable in NRMI. Access to this expertise will be required throughout the implementation plan period and will need to be negotiated from other DECCW areas.
- Development and implementation of the Program Performance MER relies heavily on establishment of cooperative partnerships to obtain data and information. The currently small team will pursue the collaboration required for success but the number of operational staff of agencies and CMAs who need to be engaged and the time this will require is significant. This requirement may slow implementation of the Program Performance MER.

## MER Data and Information Management

The MER Data and Information Management strand will coordinate and support NRM data and information management and sharing arrangements of the MER teams (Resource Condition Teams and Program Performance Team). This will include:

- Collaboration with MER teams and NRM partners to ensure efficient and effective data management and sharing processes are developed;
- Collation of MER data from MER teams and partner agencies and organisations;
- Co-ordinated management of MER data and information;
- Access and sharing of data and information with MER partners;
- MER data and information made available online to meet broader sharing requirements; and

The MER Teams include the Resource Condition theme teams and the Program Performance Team. These teams include representatives of the MER partner agencies and organisations being DECCW, NOW, I&I NSW, LPMA, CMAs and NRC. All MER teams and partner agencies and organisations will require collaborative communication and support to meet data management requirements of the MER Strategy.

### MER Data and Information

Data and information required to meet the needs of the MER strategy include Primary, Derived and Ratings data:

- Primary Data: the original data either collected by the MER team or accessed from other corporate or non-corporate sources;
- Derived Data: includes any intermediate or final data sets generated by the MER teams critical to the reconstruction of the data analysis process; and
- Ratings Data: the final data product carrying the program performance, resource condition or pressure rating (which can then be converted to an indicator).

### MER Data and Information Management Principles

The MER data management principles reflect the principles outlined in the MER Strategy 2010-2015. That is:

- MER teams are accountable for all MER data required for, or used by, their theme, ensuring the respective data custodians effectively manage the MER data;
- Data collected, collated or derived under the MER Strategy will be managed to maximise its usefulness to both current and future users;
- All data collected, collated or derived under the MER Strategy (including Primary, Derived and Ratings data) should be publicly

accessible (where access is not restricted for privacy or other reasons). Data will be freely available by way of data sharing frameworks and standards defined by the NSW Common Spatial Information Initiative (CS2i);

- Enduring and best practice data management systems are to be established by data custodians to ensure the effective collection, collation, storage, access to, and dissemination of MER data and information;
- Effective data management needs to be addressed at all levels: inter-agency, intra-agency and within MER teams;
- Data management, storage, sharing and dissemination standards and systems are the responsibility of the respective data custodians or owners within the agencies;
- MER teams are accountable for ensuring Metadata are created and publicly accessible for all MER data;
- MER teams need to actively identify synergies between themes and other data programs to ensure MER data is logically consistent with the data from those other programs and that opportunities for potential efficiencies in data collection and management are investigated;
- Where possible datasets and indicators should be developed so that the source data can be aggregated and disaggregated for use at a range of spatial scales; and
- All data and information collected should conform to standards specified by the data custodians, to facilitate exchange and multiple uses of data.

**Scope of Work**

This section outlines a series of tangible MER data management implementation tasks. Tasks are categorised in three stages addressing:

1. the securing and delivering products from the first MER cycle;
2. adapt to lessons learnt during the initial MER cycle; and
3. improve corporate data management practices and systems to meet future needs.

**Secure and Deliver 2006-10 MER (Stage 1)**

The first stage in the MER data management implementation plan is to ensure all data and project files from the 2006-10 MER cycle are securely archived, and that relevant products are documented and prepared for dissemination.

Key elements of this phase include:

- MER team leaders will develop an inventory of existing MER data with assistance from agency and CMA data coordinators. This will include primary, derived and ratings data. This inventory will clarify the current management status of the data.
- Agency and CMA data coordinators will ensure all MER data (primary, derived, ratings) is assigned a data custodian. Data custodians will

ensure all MER data and project files are appropriately documented and archived.

- MER team leaders and relevant custodians will finalise and publish standard metadata for all MER program data sets, with assistance from agency and CMA data coordinators.
- DECCW will finalise and release the interactive State of Catchments website, including map viewing and indicator data download.
- For MER datasets that are ready for dissemination, agency and CMA data coordinators will ensure MER data sets are: packaged and published via an appropriate data download site; made available for online viewing and connection via web services; and made accessible via internal agency corporate data delivery systems.
- MER team leaders will evaluate and load new or updated data into corporate systems for ongoing management and use.
- Agency and CMA data coordinators, with the assistance of data custodians, will identify to the MER Data Management Team datasets for which no adequate corporate data management systems exist.

**Adapt to Lessons Learnt (Stage 2)**

- Agency and CMA data coordinators will conduct a post MER (MER 2006-10) implementation review seeking feedback from theme team leaders, key technical staff and theme data coordinators to identify additional data management actions.
- Agency and CMA data coordinators will develop mechanisms for cross theme communications and collaboration to avoid duplication and maximise efficiencies in data collation, management and product development (eg vegetation, soils, wetland and river themes are likely to use similar assessment frameworks and data).
- Agency and CMA data coordinators will work with MER team leaders and data custodians to investigate how appropriate data sets or data acquisition programs from other MER partners such as Local Government and the Australian Government are integrated to maximise collaboration and efficiency.
- Agency and CMA data coordinators or custodians will identify, from the inventory and consultation process, the relevant data management protocols and systems needed for each dataset (ie. corporate data management).
- In consultation with data custodians and others, Agency and CMA data coordinators will develop business cases for new or refined systems required to secure corporate datasets. All business cases will be comprehensively reviewed to ensure opportunities for inter-theme and inter-program alignment are addressed with emphasis on strategic data collections.
- Agency and CMA data coordinators will scope out business requirements and seek stakeholder support for the development of a whole-of-government web application within the CS2i infrastructure to support discovery and access to all agency and CMA held NRM data, including MER and SOC spatial data. It is proposed that this will

eventually replace the Natural Resource Atlas application which ceased active development in 2008. Include strategies for the management and governance of custodian held data.

- Agency and CMA data coordinators will establish quality assurance and signoff processes for MER team leaders to ensure effective MER data management. This will include a check list outlining tasks and outcomes required prior to the formal completion of a MER project.
- Agency and CMA data coordinators will prioritise and implement data access to meet user requirements.
- Agency and CMA data coordinators will identify and review any existing data agreements that are inconsistent with the principles of the NSW MER Strategy 2010-2015, particularly with regards to the free availability of all levels of MER data.

**Improved Data Management and Systems (Stage 3)**

- The MER data coordinator will work with MER team leaders to identify and confirm emerging MER data needs and ensure data management best practice is adopted from the outset.
- MER teams will build their information management skills using guidelines and training packages developed by agency and CMA data coordinators that empower MER teams to implement more effective data management practices. These resources will also be applicable to non-MER projects. Examples include:
  - Tools and training for metadata creation and publishing;
  - Protocols for file naming and directory structure;
  - Guidelines for effective project documentation;
  - Conventions for effective documentation/representation of data manipulation work flows; and
  - Conventions for data management terminology.
- MER data coordinators will monitor, report and review the progress of MER teams with respect to the essential data management activities needed to support MER outcomes.

**Support for MER Data and Information Management**

The MER Data Sharing Coordinators in each agency are responsible for coordinating data management and support by the respective data custodians, including:

- MER metadata;
- warehousing MER data in corporate databases; and
- making MER data accessible to agencies, CMAs and the public.

The resource requirements are detailed in the following table.

| Data Management Resources | Resource | EFT |
|---|---|---|
| MER Data Sharing Coordinator (DECCW) | 1 | 1 EFT |
| MER partners' data coordinators | 4 (Agencies)<br>13 (CMAs) | 4 x 0.5 EFT<br>13 x 0.1 EFT |
| Technical / data officers of resource condition and program performance teams | 14 | 14 x 0.1 EFT |
| MER Data Sharing Agreement Administrator | 1 | 0.1 EFT |
| Enhanced Data Management (funding required)<br>It is essential to ensure that the MER program has metadata statements for all its datasets; that data are secured in corporate databases; that data are available and accessible to participating agencies; and that mechanisms exist for the community to gain access to MER data and information. | 2 | 2 EFT<br>$230,000 operating (indicative) |

# 5. Evaluation and Reporting

The MER Strategy identifies the following evaluation and reporting requirements and implementation is detailed as follows:

## Reporting of progress on State-wide NRM targets by DECCW

Progress reports on state-wide NRM targets are based on available monitoring as appropriate. Resource condition and program performance monitoring data will be reported as available and appropriate. DECCW has responsibility for coordinating these reports.

## State of Environment reporting by DECCW

The NSW State of the Environment report is produced every three years as a requirement of the Protection of the Environment and Administration Act 1991. DECCW has responsibility for developing and producing the State of Environment Report. This report provides an overview of the condition of the NSW environment and 'aims to provide credible, scientifically based, state-wide environmental information to assist those involved in environmental policy and decision-making and managing the state's natural resources' (DECCW 2009). It is prepared following the Pressure-State (or condition)-Response framework and uses multiple lines and levels of evidence to address the following primary questions:

- What is the overall condition or extent of the natural resource or value?
- What are the main pressures and the impact of those pressures on the overall condition (or extent) of the natural resource or value?
- What is the overall trend in the condition (or extent) of the natural resource or value?
- How effective is the cumulative outcome of management responses in addressing issues?
- Is the condition (or extent) of the resource or value sustainable?

The resource condition component of the MER strategy informs both the 'status' and 'pressure' sections of those issues within the SoE report that are the subject of state-wide NRM targets. Outputs from the Performance MER strand may also be incorporated into the 'status' sections where relevant at the state-wide level.

At the same time the outputs component of the MER strategy will inform the 'response' section of the SoE report about NRM activities and outputs where appropriate and at the state-wide scale. It should be noted that the SoE Report reports on issues that are broader than the state-wide NRM targets and uses a wider range of available information to do so. The next SoE report is due in 2012.

The SoE reporting team will work with the Resource Condition and Program Performance MER teams and other relevant MER stakeholders in determining data and information requirements relevant to the state-wide NRM targets, to support SoE reporting.

These data and information requirements can include but is not limited to:

- Indicators and datasets;

- Agreed data products (may be more than one per indicator/dataset);
- Short description of the data products (how derived/what they show);
- An assessment of confidence in the data available;
- Ratings for each indicator on status and trends where required; and
- List of the significant pressures for each theme (preferably in order of importance).

The main criteria that are used in assessing the suitability of data and information for SoE reporting purposes are:

- The extent of state-wide coverage of the data or information;
- The consistency of the state-wide data or information that is compiled;
- The representativeness of the data or information at the state-wide level (ie. how well it describes the overall outcomes and patterns at the state-wide level); and
- The capacity to identify and describe change across time (and space).

## Evaluation and reporting of progress towards the state-wide NRM targets

The NRC is required under the Natural Resources Commission Act 2003 to report annually on the 'progress in achieving compliance with state-wide standards and targets adopted by the Government, including the effectiveness of the implementation of catchment action plans in achieving compliance with those standards and targets'.

The purpose of this state-wide evaluation is to:

- inform macro-policy settings;
- assess overall effectiveness of NRM investment and effort;
- inform decisions of future levels and allocations of NRM investment; and
- inform scientific understanding of macro-changes in the landscape.

The NRC uses multiple lines of evidence collated from State and federal agencies including DECCW, DII, MER Strategy data, State of the Environment reports, CMAs and federal agencies to evaluate progress being made towards the state-wide targets. Data and information collated from these bodies, including data generated from the MER programs and Sate of the Environment reports will be used where available and appropriate. The information collated is then analysed and verified by an independent expert panel.

In 2010, the NRC intends to report on progress towards the targets and the key drivers of landscape health at a macro regional scale using multiple lines of evidence including CAP reviews, CAP audit results, MER data (State of the Environment 2009, State of the Catchment Report Cards), Australian government reports and inquiries, State plans and reviews and cross jurisdictional policies and reforms. The NRC may also commission additional research.

## State of the Catchments 3 yearly by NRC

The NRC will provide the Premier with State-of-Catchment Reports based on its evaluation of catchment scale progress towards state-wide NRM targets. For each CMA catchment, there will be two types of reports:

- A 'technical' report summarising all the data and indices and aimed primarily for a scientific audience; and
- An 'evaluation' report providing 'plain' English descriptions of what the technical reports are telling us.

Evidence for this reporting will include MER resource condition data, performance reporting, point of investment data, program logic, results of NRC audits, expert panel judgment and other scientific knowledge gathered from CMAs, agencies and other stakeholders.

Reports will be produced 3 yearly with the first NRC report produced in 2013.

Evaluation and reporting for organisational purposes is to be undertaken by each agency and CMA in line with their internal evaluation, reporting and funding requirements. All data and information collated for implementation of the MER Strategy will be made available to partner organisations for evaluation, decision-making and reporting.

# 6. Collaboration and Communication

Robust engagement and communication with a wide range of stakeholders will be critical to the successful implementation of the MER Strategy and making progress towards its long-term vision.

Details of '**Who**' will be engaged, '**What**' stakeholders need to know, and '**How**' engagement with stakeholders will occur are described in this section.

## Who will be engaged

The key MER stakeholders and information users and their information needs fall into 6 broad categories; partners, investors, other Agencies, interest Groups, the scientific community and the wider community (Table 9).

**Table 9: Who will be engaged to implement the MER Strategy**

| **Who will be engaged:** | |
|---|---|
| Key MER Partners | DECCW & NOW, Industry & Investment NSW, CMAs, LPMA, NRC |
| Investors | Australian Government (CfoC), NSW Government (DPC & Treasury), private investors in NRM |
| Other Agencies | Local Government, Planning, Aboriginal Affairs, SCA, water authorities, government infrastructure providers (eg RTA) |
| Interest Groups | NRAC, Landcare, industry & industry groups ( including farmers, foresters and miners), environment groups |
| Scientific Community | Universities, CSIRO and discipline experts from social and biophysical sciences |
| Wider community | Interested individuals |

This list is not complete or static. As the MER Strategy is implemented, additional agencies such as local government, utilities companies, and others may become MER Partners.

## What stakeholders need to know

To communicate effectively with MER stakeholders, user needs of MER data and information (including evaluation outputs and reporting products) should be defined. Table 10 lists how MER data and information is used by the different stakeholder groups identified above.

**Table 10: Users of MER data and information products**

| **Purpose** | **User Groups** | **Use** |
|---|---|---|
| Accountability and auditing | All | Review and report progress to Government and community on commitments made to state-wide NRM targets<br>Transparency of NRM investment and |

| | | |
|---|---|---|
| | | achievements |
| NRM investment decision-making | Partners and Other Agencies | Report effectiveness and efficiency of NRM service delivery<br>Development approval and funding applications<br>Guide effective on ground investment planning and implementation<br>Improve NRM decision-making, including prioritisation of investment |
| NRM funding decision-making | Investors | Assess and report delivery of services for state-wide NRM targets<br>Assess & determine funding and program commitments |
| Land-use planning | Other Agencies and Interest Groups | Include NRM knowledge and practices in planning private and public land use<br>Include consideration of NRM knowledge and practices in decision making for management of industrial land<br>Transparency of NRM investment and achievements |
| Land management decision-making | Interest Groups | Include NRM knowledge and practices in management of private natural resources<br>Transparency of NRM investment and achievements |
| Advocacy | Interest Groups | Include NRM knowledge and practices in management of private and public land<br>Include consideration of NRM knowledge and practices in management of industrial land |
| Research | Scientific Community | Improve knowledge about the condition of natural resources<br>Collaborative research projects with Theme Teams to develop MER information products |
| Awareness | Wider Community | Improve knowledge of NRM and environmental issues<br>Transparency of NRM investment and achievements |

## How engagement with stakeholders will occur

Too much communication about the wrong things can be just as problematic as too little communication about important things. The level of engagement with stakeholders will vary according to the needs of each stakeholder group. There will be four levels of engagement:

- Collaborate: Make decisions in partnership
- Involve: Work directly with stakeholders to understand their needs
- Consult: Seek feedback
- Inform: Provide balanced and objective information

In general the principles of engagement will be to, 'collaborate' with partners, 'involve' investors and other agencies, 'consult' interest groups and the scientific community and 'inform' the wider community. Table 11 details the general engagement methods that will be undertaken with stakeholders. However, there will be flexibility in the way that stakeholders are engaged as some may require more participatory levels of engagement as the Strategy progresses, especially at the regional or industry level.

**Table 11 Engagement methods adopted for each stakeholder group**

| **How** we engage with stakeholders | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NR&E CEOs Cluster | Senior Officers Group | NRAC | CMA Chairs & GMs Meetings | M&E Officer's Forum | MER Management Teams | Theme Teams | State-wideNRM target reporting | State-wideof Env. reporting | State-wideof Catchments reporting | Annual reports | Reports to Treasury | NRC reports | Project progress & tech. reports |
| Partners: | ☑ | ☑ | 👂 | 👂 | ☑ | ☑ | ☑ | 🖼 | 🖼 | 🖼 | 🖼 | | 🖼 | 🖼 |
| Investors: | 🛠 | 🛠 | | | | | | 🖼 | 🖼 | 🖼 | 🖼 | 🖼 | 🖼 | 🖼 |
| Other agencies: | 🛠 | | 👂 | | | 🛠 | 👂 | 🖼 | 🖼 | 🖼 | 🖼 | | 🖼 | 🖼 |
| Interest groups: | | | 👂 | | | | | 🖼 | 🖼 | 🖼 | 🖼 | | 🖼 | 🖼 |
| Scient. comm'ty: | | | 👂 | | | 🛠 | ☑ | 🖼 | 🖼 | 🖼 | | | 🖼 | 🖼 |
| Wider community: | | | | | | | | 🖼 | 🖼 | 🖼 | 🖼 | | 🖼 | |

Key:

| | | |
|---|---|---|
| ☑ | Collaborate: | Make decisions in partnership |
| 🛠 | Involve: | Work directly with stakeholders to understand their needs |
| 👂 | Consult: | Seek feedback |
| 🖼 | Inform: | Provide balanced and objective information |

A MER Communication and Engagement Framework will identify the methods and forums for engaging with stakeholders and opportunities for involvement. Methods may include face-to-face meetings, workshops and through existing forums such as

industry and interagency forums. Existing interagency forums include the NR&E CEOs Cluster Group, Senior Officers Group, Natural Resources Advisory Council (NRAC), CMA Chairs' and General Managers' meetings, the CMA Monitoring, Evaluation and Reporting Forum, MER Management Team meetings and the activities of the MER Teams. These interagency forums will provide a mechanism for collaborating with the MER partners and involving or consulting MER investors and others.

The MER Communication and Engagement Framework will identify other forums to provide an opportunity for enhancing involvement in MER by local government, key industry, environment and community groups. At the same time, written reports and the Internet can be used to inform stakeholders, including the wider community of progress and achievements in NRM.

Parallel processes will be established to consult with local government, other NRM bodies, such as Sydney Catchment Authority, and the Australian Government to investigate mechanisms to better align NRM data collection and reporting activities at different scales and institutional jurisdictions over time.

# 7. Quality Assurance

The highest levels of quality assurance are required for successful implementation of the NSW MER Strategy. The integrity of all processes undertaken to implement the MER Strategy need to be assured for delivery of implementation on time, on budget and to meet the needs of stakeholders and information users. Quality Assurance processes and practices to be adopted include:

- The hierarchical interagency governance arrangements will provide oversight review and reporting of progress to implementation, accountability and direction to guide implementation. The roles of the SOG and Cluster have been identified to address effective implementation requirements and require significant contribution from DECCW as lead and all NRM partners;
- Development of a formal Data Agreement clearly identifies the roles and responsibilities of each MER partner. Accountabilities for data collection, provision and use are detailed in the agreement and consequences for failure to meet commitments have been agreed;
- All scientific protocols, including sampling, sample analysis, data analysis and reporting have been, and will continue to be, subject to scientific peer review. MER implementation of resource condition monitoring under the 2006 MER Strategy was guided by peer reviewed technical reports (www.environment.nsw.gov.au) and any changes to scientific protocols will be subject to the same peer review procedures and published. Financial management and recording is required by each MER partner using and adhering to the financial management policy of each organisation;
- Comprehensive communication and collaboration among MER partners will provide appropriate and relevant processes and systems to support the MER needs of the partners and those of the NRM sector; and
- Good records management will be vital for implementation of the MER Strategy. Record keeping of each NR partner organisation must meet the requirements of the records management policy in each agency and organisation and the NSW State Records Act 1998 so that the information necessary for review of the MER Strategy and Implementation Plan will be available.

# 8. State-wide Standard for Quality NRM

The State-wide Standard for Quality NRM (NRC 2005) provides detailed advice on sound project management and NRM practices. Consideration within MER of relevant appropriate practices and processes from the Standard will contribute to meeting the quality assurance requirements during implementation of the MER Strategy. The MER Implementation Plan seeks to meet the advice of the Standard (NRC 2005) and methods adopted for this are detailed in Table 11.

**Table 11 MER Implementation Plan address of State-wide Standard for Quality NRM**

| Components of the Standard | MER Implementation Plan Response |
|---|---|
| Use of the best available knowledge to inform decisions in a structured and transparent manner | Arrangements for data and information of resource condition and program performance is being collected and shared to inform decision-making<br>Regular reporting of MER data will be provided to a wide range of parties through SoE and SoC<br>MER governance arrangements will support knowledge availability and efficient reporting |
| Management of natural resource issues at the optimal spatial, temporal and institutional scales to maximise effective contribution to broader goals, deliver integrated outcomes and prevent or minimise adverse consequences | Collection and transformation of data and information effectively addresses a range of temporal and spatial scales and informs reporting and decision making needs<br>Use of program logic to structure the MER activities informs contribution across scales |
| Collaboration with other parties to maximise gains, share or minimise costs, or deliver multiple benefits explored and pursued wherever possible | The MER program engages the natural resource agencies and CMAs and will ultimately engage the remainder of the sector to maximise information for decision-making at minimal and shared cost<br>Inclusive governance arrangements supports collaboration among NRM agencies and organisations |
| Consideration and management of all identifiable risks and impacts to maximise efficiency and effectiveness, ensure success and avoid, minimise or control adverse impacts | A comprehensive risk management plan including regular review and revision arrangements is included in the MER Strategy IP to minimise or control adverse impacts |
| Quantification and demonstration of progress towards goals and targets by means of regular monitoring, measuring, evaluation and reporting of | MER program establishes both resource condition and program performance MER to inform decision making and adaptive management |

| | |
|---|---|
| organisational and project performance and the use of the results to guide improved practice | |
| Management of information in a manner that meets user needs and satisfies formal security, accountability and transparency requirements | Adherence to records management policies and legislation and negotiating and establishing agreed and robust data management arrangements will meet security requirements, enable sharing of data and information among MER partners and make MER information publicly available |

# 9. Risk Management

Many factors may jeopardise the successful implementation of the MER Strategy. A Risk Management Plan has been developed as part of the Implementation Plan to ensure significant risks are identified and appropriate management responses are implemented.

The Risk Management Plan includes:

- Risk Identification and Assessment which details and assess the potential impact and likelihood of occurrence of potential risks to implementation;
- Risk Management Strategy to identify management activities to address each identified risk; and
- Risk Management Plan Review and Evaluation to ensure that the Risk Management Plan is informed by implementation experience and remains current.

The Risk Management Plan is included as Appendix 3.

A MER risk management plan should be developed by each agency and organisation to effectively mange the risks associated with the implementation of MER. A MER Manager will be nominated by each agency/organisation and this position will be responsible for the implementation of the MER commitments of that agency/organisation as outlined in the MER Strategy and Implementation Plan, including managing the risks.

# 10. Review and Adaptation of Implementation Plan

Implementation progress will be assessed regularly by project managers and adapted in line with the understanding that the Implementation Plan is a 'living' document which needs to respond to changing operational conditions and increased implementation experience. This assessment will be relatively informal but will be undertaken at least annually.

Formal review of the Implementation Plan will be undertaken to inform review of the MER Strategy. It will be undertaken:

- following delivery of the State of the Environment report;
- following delivery of the State of Catchment reporting;
- prior to the end of the Strategy; and
- following any significant institutional or policy change.

This review of implementation will be undertaken by the SOG and reported to the Cluster. It will consider:

- Achievement of deliverables on time (considering budgetary limitations);
- Provision of deliverables within budget;
- Review of risks and effectiveness of management responses;
- Agreed data access and management arrangements in line with the Information Management Framework (DECCW),
- Review of communication and collaboration arrangements;
- Review of governance arrangements; and
- Compliance with agreed accountabilities and commitments.

The data agreement and schedules will be reviewed annually by the SOG and if substantive changes are required to the schedules they will require Cluster approval.

# References

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Wood B. 2009 *Review of the 2006 NSW Monitoring, Evaluation and Reporting Strategy*, Blair Wood Consulting, Condong.

# Appendix 1 Data Agreement

<insert approved data agreement here>

# Appendix 2 Draft Management Change Reporting Statements

| State-wide Target | Draft Management Change Statement | Examples of focus and contribution of NRM agencies and organisations (work in progress) [Note: this section is not intended to be comprehensive.] |
|---|---|---|
| By 2015 there is an increase in native vegetation extent and an improvement in native vegetation condition | # hectares of native vegetation have been managed, protected or established | This management change statement seeks to identify the extent of native vegetation impacted by management activities. Contributions are provided by:<br>• CMAs through supporting the establishment and rehabilitation of native vegetation, negotiation of conservation agreements and other activities<br>• I&I through native vegetation capacity building, management of areas of State Forests and State Forest co-management agreements with Aboriginal groups<br>• LPMA through of establishment of perpetual conservation agreements and management of the Crown reserve<br>• DECCW through management and acquisition of National Parks and Reserves |
| By 2015 there is an increase in the number of sustainable populations of a range of native fauna species | # hectares of land where threats to native fauna have been reduced | This management change statement seeks to identify the extent of threat abatement to native fauna through management activities. Contributions are provided by:<br>• CMAs through implementation of threat abatement processes<br>• I&I through threat abatement planning for aquatic species<br>• DECCW through implementation of fire management plans and pest management strategies |
| By 2015 there is an increase in the recovery of threatened species, populations and ecological communities | # Biodiversity Strategy Priority Action Statements implemented | The biodiversity Strategy requires implementation of Priority Actions to support threatened species. Implementation is recorded by:<br>• CMAs for significant species or ecological community protection<br>• I&I for fish habitat restoration sites in threatened species habitat areas<br>• LPMA projects focused on ecological community protection<br>• DECCW through measures in place to maintain species extent and abundance |
| By 2015 there is a reduction in the impact of invasive | # hectares of land have been managed to reduce | This management change statement seeks to identify the extent of management of invasive species. Contributions are provided by: |

| State-wide Target | Draft Management Change Statement | Examples of focus and contribution of NRM agencies and organisations (work in progress) [Note: this section is not intended to be comprehensive.] |
|---|---|---|
| species | impact of pest plant and animal species | • CMAs through pest plant and animal control management<br>• I&I through:<br>i. excluding new species by coordinating response to incursions using agreed incidence response (ISP Goal 1)<br>ii. eliminating, or if not feasible, containing the spread of newly established species(ISP Goal 2)<br>iii. enhancing the capacity of invasive species stakeholders to reduce the impact of invasive species in NSW (ISP Goal 4)<br>• LPMA through implementation of weed and pest control programs<br>• DECCW through implementation of the Regional Pest and Weed Strategy on parks and reserves |
| By 2015 there is an improvement in the condition of riverine ecosystems | % of surface water extracted state-wide is managed under a water sharing plan<br># of water sharing plans gazetted<br># hectares of riparian native vegetation has been protected, enhanced or rehabilitated | The key focus of management change for this output is the maintenance of riverine flows but many other management activities are undertaken to support riverine health. Contributions include:<br>• NOW develop and implement water sharing plans to manage riverine flows<br>• CMAs support improved protection and management of riparian areas and river beds<br>• I&I reopen or establish fish passage and provide water use efficiency training to reduce water extraction<br>• DECCW manage rivers on parks and reserves and support provision of environmental flows |
| By 2015 there is an improvement in the ability of groundwater systems to support GDEs and beneficial uses | # megalitres of groundwater extraction managed within sustainable yield through water sharing plans | The key focus of management change for groundwater is the management of groundwater extraction within sustainable yield. NOW undertakes this work through water sharing planning. Additional work is being undertaken on Groundwater Dependant Ecosystems so additional management information may be reported at a later date. |
| By 2015 there is no decline in the condition of marine waters | # hectares of coastline foreshore has been protected, | The focus of management change for marine waters is improved management of marine foreshore but additional activity is undertaken to support marine species. Contributions include: |

| State-wide Target | Draft Management Change Statement | Examples of focus and contribution of NRM agencies and organisations (work in progress) [Note: this section is not intended to be comprehensive.] |
|---|---|---|
| and ecosystems | managed or rehabilitated | • CMAS support the establishment or protection of coastal native vegetation<br>• I&I manage the fishery within biologically sustainable levels<br>• DECCW manage marine parks and reserves |
| By 2015 there is an improvement in the condition of important wetlands and the extent of those wetlands is maintained | # hectares of wetlands have been managed, protected, or rehabilitated | Wetland management includes a range of activities. Contributions include:<br>• CMAs support the management and rehabilitation of wetlands through the protection and establishment of wetland native species<br>• I&I reinstate fish passage and provide training in efficient water use<br>• DECCW management of wetlands on National Parks and Reserves |
| By 2015 there is an improvement in the condition of estuaries and coastal lake systems | # hectares of estuary and coastal lake foreshore has been protected, managed or rehabilitated | Estuary and coastal lake management is provided by:<br>• CMAs through the establishment and / or rehabilitation of estuarine native vegetation,<br>• I&I support seagrass friendly moorings<br>• DECCW manage estuary and lake foreshore within National Parks and Reserves |
| By 2015 there is an improvement in soil condition | # hectares of soils have been managed to improve soil health | The management of soils is undertaken by:<br>• CMAs the treatment or protection of soil from erosion and other impacts<br>• I&I through provision of soil health and land management capacity building events<br>• DECCW management and acquisition of National Parks and Reserves (assumes all reserved land improves soil health) |
| By 2015 there is an increase in the area of land managed within its capability | # hectares of land has been managed within its land capability | Contributions to land management within capability is provided by:<br>• CMAs through I&I through support of sustainable cropping, sustainable irrigation and sustainable grazing practices<br>• I&I support improved cropping practices, improved irrigation practices and capacity building in land management<br>• DECCW manage national park and reserves (assumes all reserved land is managed within capability) |
| Natural resource decisions contribute to | # NRM events where social wellbeing may be enhanced | Regional economic input supports social well being through a range of activities:<br>• CMAs deliver awareness raising events such as demonstrations, field days or study tours |

| State-wide Target | Draft Management Change Statement | Examples of focus and contribution of NRM agencies and organisations (work in progress) [Note: this section is not intended to be comprehensive.] |
|---|---|---|
| improving or maintaining economic sustainability and social well-being | $ spent regionally to enhance NRM | • I&I awareness field days, community forums, local government events, workshops and field days<br>• DECCW undertake Aboriginal community consultation and engagement, Aboriginal joint management events, and volunteer park management programs<br>• Economic sustainability is contributed to through funds provided for these events, CMA incentive payments and DECCW commercial leases and commercial tour operators |
| There is an increase in the capacity of natural resource managers to contribute to regionally relevant NRM | # of people engaged in NRM through awareness raising and other NRM activities<br># of people supported to undertake NRM through capacity building activities (training, receiving money, joint projects etc) | Contribution to the capacity of land managers is provided through:<br>• CMAs – the number of participants in CMA delivered awareness raising events<br>• I&I - number of people attending awareness field days, community forums, local government events, workshops and field days<br>• DECCW - number of visitors to parks and reserves, number of people involved in Aboriginal community consultation and engagement, number of volunteers contributing to park management programs |

# Appendix 3 Risk Management Plan

For the purposes of implementation of the NSW MER Strategy, risk is anything that may impede effective and efficient implementation of the strategy or of achieving its objectives.

Risk management planning includes:

1. Risk Identification and Assessment to detail and quantify potential risks to implementation and meeting objectives;
2. Risk Management Strategy to consider potential management activities and responsibilities; and
3. Risk Management Plan Review and Evaluation will be undertaken to ensure that the Risk Management Plan is informed by implementation experience and remains current.

### 1. Risk Identification and Assessment

Risks identified to the implementation of the NSW MER Strategy and an assessment of the significance of each risk is detailed below. Assessment of risks has been undertaken considering the potential impact of the risk and the probability of the risk occurring. Rating of the potential impact of each risk was undertaken using the following criteria:

- No impact
- Little impact
- Delayed delivery of objectives
- Significant delay in meeting objectives
- Catastrophic or failure to meet objectives

Probability of the risk occurring has been considered using the following criteria:

- Very unlikely
- Unlikely
- Possible
- Likely
- Very likely

### 2. Risk Management Strategy

Management strategies have been developed for identified risks.

**Risk identification, assessment, and risk management strategy**

| **Risk Category:** Communication & Collaboration with MER Partners | |
|---|---|
| **Implications for MER Strategy Implementation:**<br>Poor communication can impact on engagement and collaboration among MER partner agencies and organisations resulting in:<br>• Poor relationships among MER partners that reduce the NRM sector's ability to adequately meet MER expectations and | **Impact:**<br>Failure to meet objectives<br>**Probability:** |

| | |
|---|---|
| timeframes<br>• Failure of partners to meet commitment to provide data and information<br>• Reduced available evidence for evaluation and reporting<br>• Reduced quality of MER outputs | Likely |
| **Management Strategy:**<br>Implement Communication and Collaboration Plan including:<br>• Development of robust governance arrangements and regular meeting arrangements<br>• Development of operational teams and regular meeting arrangements<br>• Effective use of these forums to identify and address communication and collaboration issues<br>• Open negotiation and clear identification of partner commitments through Data Agreement<br>• Reporting of inputs, outputs and outcomes to be actively supported across whole of sector<br>• Establishment of clear roles and responsibilities for all stakeholders with transparency regarding products and deliverables at all levels and included in Data Agreement | **Responsibility:**<br>All levels of governance structure, MER Strategy Manager in each agency and CMA and MER project managers |

| | |
|---|---|
| **Risk Category:** Data and Information Management and Systems | |
| **Implications for MER Strategy Implementation:**<br>Inadequate data management among partners could impact on the delivery and quality of MER data and information for reporting on targets. Particular issues include:<br>• inadequate data management systems<br>• inadequate data entry capacity<br>• lack of a standard platform to record delivery of outputs will hinder any attempt to align outputs and outcomes<br>• inadequate details of data management requirements<br>• inadequate data analysis and transformation processes | **Impact:**<br>Failure to meet objectives<br>**Probability:**<br>Likely |
| **Management Strategy:**<br>• Support and advise on appropriate data management system where required<br>• Develop protocols for data entry<br>• Agree on output data management system with partners and support adoption<br>• Develop and disseminate data management plan to MER partners<br>• Advise on training for data analysis and transformation<br>• Advise SOG of required network support for MER data | **Responsibility:**<br>MER Data Management Team<br>MER Strategy Manager<br>MER Data Coordinator<br>MER Data Custodians |
| **Risk Category:** Hardware Systems external to NRM agencies and CMAs | |

| **Implications for MER Strategy Implementation:** | **Impact:** |
|---|---|
| There is significant reliance on Service First to provide hardware support for the MER program. These arrangements have been established over time in an ad hoc way and there is potential for failure. The implications associated with failure of these arrangements may be an inability to meet data and information access or sharing needs of some or all parts of the MER program. | Failure to meet objectives<br>**Probability:**<br>Possible |
| **Management Strategy:**<br>Formal arrangements to be developed with Service First for each component of MER Strategy implementation:<br>• Hardware services as appropriate<br>• Data storage and backup<br>• Software delivery as appropriate | **Responsibility:**<br>MER Data Management Team<br>Data custodians of each NRM agency and CMAs |

| **Risk Category:** Data & Information Availability | |
|---|---|
| **Implications for MER Strategy Implementation:**<br>• Lack of quality, consistency and extent of coverage of available data and information may result in limitation of meaningful analysis or spatial distribution of monitoring leaves large areas where information is unavailable<br>• Failure to address and adhere to data restriction flagging could invoke legal action and damage delivery of MER Strategy. For example, failure to meet agreed privacy protection restrictions would result in significant legal and delivery consequences<br>• Inadequate or inconsistent uptake of systems and processes to meet new information needs for inputs and outputs across whole of sector will limit available information for evaluation resulting in failure to meet MER Strategy expectations for improved knowledge and reporting | **Impact:**<br>Significant delay in delivery<br>**Probability:**<br>Possible |
| **Management Strategy:**<br>• Develop a coordinated program with agreed protocols and standards for recording, managing and reporting data and information<br>• Scalability, ease-of-use and cost to be considered in the development of data collection and management systems.<br>• Development of frameworks that can establish relationships and identify links between outputs and outcomes in natural resource systems<br>• Data restriction details such as privacy protection requirements to be included for each dataset in Data Agreement.<br>• Identified data restrictions to be observed by all parties in presentation and publication of data and information products. | **Responsibility:**<br>MER Management Teams<br>Resource Condition Project Manager<br>Program Performance Project Manager<br>Agencies and |

| | |
|---|---|
| | CMAs |

| **Risk Category:** Governance | |
|---|---|
| **Implications for MER Strategy Implementation:**<br>A strong responsive governance process is required to deal with significant issues that arise during implementation of the MER Strategy. Many of the potential issues identified in the risk assessment may require action to be taken by the SOG to ensure efficient and effective implementation. Similarly, significant operational issues will need to be discussed by work groups and where they can't be resolved, raised with these governance groups. | **Impact:**<br>Significant delay in delivery<br>**Probability:**<br>Possible |
| **Management Strategy:**<br>• Implement routine reporting of implementation progress to each governance level<br>• Significant issues that can not be resolved need to be honestly identified and reported to the appropriate governance level for action<br>• SOG take appropriate action to resolve significant issues | **Responsibility:**<br>All levels of MER depending on level of issue |

| **Risk Category:** Resourcing (Funding / Staffing / Time) | |
|---|---|
| **Implications for MER Strategy Implementation:**<br>Inadequate funding, staffing or time to complete requirements may result in failure to meet timeframes for information delivery or inadequate information to suit reporting purposes | **Impact:**<br>Delayed delivery<br>**Probability:**<br>Likely |
| **Management Strategy:**<br>• Seek additional resources where required<br>• Set out funding and staffing needs in the MER Implementation Plan<br>• Ongoing monitoring of available resources and regular updates<br>• Prioritising indicators for monitoring and reporting and phasing in implementation<br>• Align data collection and reporting timeframes where possible<br>• Use and adapt existing monitoring and reporting information and widely used data collection & management systems<br>• Timely advice to MERSWG and SOG where delays or inadequate information is likely to occur | **Responsibility:**<br>SOG<br>MER Management Teams<br>MER Strategy Managers in each agency and CMA<br>Agencies and CMAs |

| **Risk Category:** Policy or Organisational Change |
|---|

| **Implications for MER Strategy Implementation:** | **Impact:** |
|---|---|
| Institutional, organisational and/or policy changes have the potential to significantly impact on implementation of the MER Strategy by disrupting work structures and MER processes. Such occurrences may include:<br>• Agency restructures<br>• Staff turn-over<br>• Change of Government<br>• Changing government priorities | Significant delay in delivery<br>**Probability:**<br>Likely |
| **Management Strategy:**<br>• Provide for MER systems and arrangements to be adaptable for changing priorities and conditions<br>• Develop robust indicators to meet current and future reporting needs<br>• Undertake regular review of MER Implementation every 3 years<br>• Adapt implementation as required to new and emerging priorities and policies | **Responsibility:**<br>All MER governance levels |

| **Risk Category:** Organisational Culture | |
|---|---|
| **Implications for MER Strategy Implementation:**<br>Where partner organisations have an organisational culture which does not value MER processes and their ability to improve operational practices, commitment to meeting MER needs may be impaired and Strategy implementation may be inadequate. | **Impact:**<br>Significant delay in delivery<br>**Probability:**<br>Possible |
| **Management Strategy:**<br>• CEOs need to value MER processes and provide example for organisation<br>• CEOs and Executive to support MER<br>• Executives to reassure staff that poor outputs/outcomes that result through no fault of staff will not result in blame and can be used as learning tool | **Responsibility:**<br>CEO and executive of each NRM partner organisation |

| **Risk Category:** MER Capacity of Partners / Organisational MER Capacity | |
|---|---|
| **Implications for MER Strategy Implementation:**<br>Inadequate capacity of partner organisation to meet commitment to implementation of MER could adversely impact on MER delivery. There is likely to be a range of levels of MER capacity among MER partners which in some cases will impact on effective implementation and so delivery of objectives and ability to meet the expectations of NRM investors | **Impact:**<br>Delayed delivery<br>**Probability:**<br>Likely |

| **Management Strategy:** | **Responsibility:** |
|---|---|
| • Investigate organisational capacity<br>• Develop and implement training and contacts to support capacity needs<br>• Develop protocols for monitoring and evaluating data and information | CEOs and Managers, including the MER Strategy Manager |

| **Risk Category:** Logical Approach and Evaluation | |
|---|---|
| **Implications for MER Strategy Implementation:**<br>Impediments to effective evaluation of outputs and outcomes include:<br>• Erroneous assumptions about cause and effect could skew evaluation results<br>• Gaps in knowledge prevent overall outcomes being effectively assessed<br>• Pre-disturbance resource condition baselines are not properly established resulting in inaccurate comparison and so erroneous understanding of progress and trend toward targets<br>• Desire to present all programs and outputs in the best possible light could negate ability to use results to improve programs and output delivery<br>• Double reporting of outputs by agencies and independent bodies where more than one involved in delivery<br>• Similar outputs have different objectives across themes<br>• Evaluation practices to bring output and outcome information together to give meaningful understanding of progress to targets has not been tested at the sector-wide scale<br>• Management of information at multiple temporal and spatial scales could result in less than optimal evidence for evaluation | **Impact:**<br>Delayed delivery<br>**Probability:**<br>Possible |
| **Management Strategy:**<br>• Develop/communicate understanding of cause/effect through conceptual models<br>• Knowledge of environmental processes and dynamics will improve with ongoing monitoring and evaluation<br>• Address data gaps through a implementation of broad-scale monitoring programs progressively and strategically as resources allow, consistent with the priorities identified in the implementation plan<br>• Communicate need for robust and accurate reporting to partners to allow improved practices and outcomes<br>• Address double reporting of outputs through the use of a spatial GIS system which can identify where double recording is occurring | **Responsibility:**<br>All partner organisations and project or theme team leaders/managers |

| | |
|---|---|
| • Develop rules for reporting of similar outputs for different themes so that information does not mislead stakeholders<br>• Trial sector-wide evaluation processes and refine as required<br>• Develop and implement output aggregation processes to address multiple temporal and spatial scales<br>• Implement processes to address temporal and spatial issues for resource condition information including methods of providing a variety of spatial representations | |

| **Risk Category:** Risk Management | |
|---|---|
| **Implications for MER Strategy Implementation:**<br>Failure to identify and respond to adverse implementation events could result in failed MER Strategy implementation and inability to meet stakeholder expectations | **Impact:**<br>Delayed delivery<br>**Probability:**<br>Possible |
| **Management Strategy:**<br>• Regularly review Implementation Plan Risk Management Plan and update as additional risks are identified<br>• Include risk management in theme or program work plans<br>• Respond effectively to risks as they occur | **Responsibility:**<br>MER Strategy Manager in each agency and CMA<br>MER Management Teams<br>Program Performance Project Manager<br>Resource Condition Project Managers/ Theme Team Leaders |

### 3. Risk Management Plan Review and Evaluation

This initial risk management plan is unlikely to have captured all potential risks and management strategies for implementation of the MER Strategy. Experience during implementation is likely to highlight necessary changes in the plan to allow additional risks to be identified and additional or different strategies to be used to deal with the risks. As a result, review and evaluation of the Risk Management Plan will be undertaken annually or as new or emerging risks are identified and the plan will be revised as required. The focus of this review will include:

- Identification of new or changing risks;

- Evaluation of whether the previously selected management strategies are still applicable and effective; and
- Evaluation of the possible risk level changes as experience informs changing risk environment.