

Appendix **Thirteen**



**Southern
Prospects**
2004 - 2009

*The South Coast Regional
Strategy For Natural
Resource Management*

**NATIONAL NATURAL RESOURCE
MANAGEMENT MONITORING AND
EVALUATION FRAMEWORK**

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MANAGEMENT MONITORING AND
EVALUATION FRAMEWORK**

Monitoring and Evaluation Framework endorsed by the Natural
Resource Management Ministerial Council, 3 May 2002 Meeting

Attachment C under review

Last Revised: 8 April 2003

PURPOSE AND SCOPE

1. The Natural Resource Management Ministerial Council has established the National Natural Resource Management Monitoring and Evaluation Framework (National Framework) to assess progress towards improved natural resource condition through the development of accurate, cost-effective and timely information on the:
 - health of the nation's land, water, vegetation and biological resources; and
 - performance of programs, strategies and policies which provide national approaches to the conservation, sustainable use and management of these resources.

The National Framework is based on a set of principles (see below) for the monitoring, evaluation and reporting on natural resource condition. It also provides a set of indicators for assessing change in resource condition and program performance. The roles and responsibilities for meeting national, state/territory and regional level reporting requirements are outlined.

PRINCIPLES

2. The National Framework is based on principles, which ensure that processes within the framework are useable, cost-effective, accurate, comprehensive and transparent. The framework is structured so that it:
 - (a) is **useful for all partners** in natural resource management – Commonwealth, States and Territories, and regions, communities and industries.
 - (b) is **simple, cost-effective, affordable and practical**. To suit these ends the data infrastructure required to support the framework:
 - *avoids duplication of effort*, and maximises the benefits of earlier investment in data collection, by building on existing State, Territory and Commonwealth initiatives for developing and sharing of data such as the NLWRA and State of the Environment reporting;
 - *uses data for multiple purposes*, where ever possible. In particular, data are collected so that they can be used for both monitoring resource condition and assessing program outcomes. This requires data to be collected in such a way as to permit their use at a range of scales and levels (national, state, regional and local);
 - *ensures that users can obtain the data*. Data are easily accessible to all sectors of the community in format, location, cost and under conditions that do not inhibit their use; and
 - *ensures that users can easily find out whether suitable data already exist*. All data are documented in the Australian Spatial Data Directory with sufficient information for users to determine whether the data are suitable for their intended purpose.
 - (c) recognises that **NRM interventions encompass a range of time-scales**. While interventions undertaken by Government are usually structured as programs conducted over periods of between five and seven years, significant changes in the resource condition will not be measurable for periods ranging from five to fifty years. Processes to measure and report resource condition change and the performance of NRM interventions must encompass this range of time-scales. This relationship is represented in a diagram included as **Attachment A**.

- (d) supports **meaningful interpretation of data over time** by establishing standard national indicators, protocols for their sampling, measurement and interpretation, and data quality and management requirements. Protocols specify the quality of the data to be produced and ensure the data can be used for their intended purposes. To maximise their use and comparability, where required, data are developed and maintained to meet agreed international or national guidelines or standards for the management of spatial information as endorsed by ANZLIC or national coordination arrangements. Quality assurance and control requirements will ensure the consistency of the monitoring process over time and across jurisdictions and may necessitate the accreditation of complying monitoring programs.
- (e) **specifies the assumptions** on which monitoring and evaluation activities are undertaken in a consistent manner which is open to all stakeholders.

STRUCTURE

3. The National Framework structures monitoring and evaluation processes at the national level and also provides a blueprint for monitoring and evaluation frameworks for programs, strategies and policies within the scope of the Council. The framework is represented diagrammatically in the following table:

	Natural Resource Condition	Program, Strategy and Policy Performance
Monitoring	<ul style="list-style-type: none"> Natural resource condition monitoring at local, regional, State/Territory and national levels 	<ul style="list-style-type: none"> Monitoring of resource condition against Standards and Targets Framework) Management action monitoring
Evaluation	<ul style="list-style-type: none"> Evaluating progress towards improved natural resource condition at the national level 	Performance evaluation of programs and strategies

The following discussion describes the elements of the above diagram.

NATURAL RESOURCE CONDITION

4. The health of the nation's natural resource is being assessed to provide a continuing reference point against which the appropriateness and effectiveness of national policies, strategies and programs may be judged. This assessment assists the Ministerial Council to identify areas of concern and to better target the use of resources.

Monitoring the Natural Resource Condition

5. The National Framework utilises nationally agreed outcomes and measures to report on the conservation, sustainable use and management of Australia's land, water, vegetation and biological resources. A core set of resource condition indicators measure progress towards the agreed national outcomes on a medium and long-term

basis. Reports on resource condition trends and associated measures are provided at least every five years.

6. In addition to the primary set of resource condition indicators providing information on resource condition trends, this monitoring will encompass measures of community and social processes relevant to or affected by NRM programs as well as measures of the adoption of sustainable development and production techniques.
7. Since changes in resource condition can result from a range of interventions, as well as from extrinsic factors, interpretation of this assessment will be supplemented with additional contextual information pertinent to the indicator being considered. These contextual data will also be required to permit examination of the scientific and program assumptions that underlie specific interventions.

Evaluating Progress towards improved natural resource condition

8. While most evaluation will focus on specific programs, there will be a need from time to time to commission evaluations of policies, strategies or activities pertinent to one or more programs. The appropriate evaluation focus will be defined on a case-by-case basis.

PROGRAM, STRATEGY AND POLICY PERFORMANCE

9. The performance of programs, strategies and policies is assessed to determine the achievements of these interventions towards improved natural resource condition. Monitoring and evaluation is used for both program improvement and accountability purposes and supports better targeting of resources.
10. It is recognised that factors beyond the scope of government and community interventions may affect natural resource condition. Participants will be accountable for the implementation and delivery of programs, strategies and policies for which funding has been provided, in accordance with contemporary best practice. It is not appropriate for participants to be held directly accountable for changes in resource condition where there is a lack of major scientific certainty or there are significant external factors over which the participants have little or no control.
11. Prior to the commencement of an activity (such as a major new program like the National Action Plan on Salinity and Water Quality), all stakeholders will agree to a monitoring and evaluation framework which will include:
 - Performance information, including all performance indicators and associated data protocols, data collection processes to meet the reporting, performance management and review requirements at local, regional, State/Territory and national levels;
 - Roles and responsibilities for collection, storage, analysis and reporting of monitoring data. This may include cooperative data-sharing arrangements where possible to minimise duplication and maximise efficient use of data;
 - A schedule of planned evaluations at all levels including roles and responsibilities for the identification, direction and conduct of

evaluations, processes for the implementation of recommendations, and arrangements for review of the schedule;

- Timelines, linked to the program implementation schedule, for reporting achievement of milestones, monitoring information, and production of planned evaluation reports; and
- An appropriate allocation of resources to implement the strategy, including cost-sharing arrangements for major stakeholders.

This Framework will be available for the Council to use in assessing progress against expected outcomes for that particular activity.

12. The design of each NRM program, strategy or policy is based on assumptions that particular interventions will bring about change in resource condition. These linkages and assumptions will be documented to provide an explanation of the logical structure of each program, strategy or policy and its intended impact on the resource condition and could include a high level goal, and one or more achievable and measurable, outcomes. The model also provides the basis for testing the assumptions and models adopted as part of the program design and assists in determining appropriate performance information to monitor and evaluate progress towards achieving the desired outcomes. A draft example of such a structure is included at **Attachment B**.

Monitoring of Resource Condition against Standards and Targets Framework

13. The National Framework utilises the national natural resource outcomes identified by the National Natural Resource Management Standards and Targets Framework. The national outcomes provide direction for catchment/regional communities to identify specific timebound and measurable targets for each region, which will move natural resource condition towards the achievement of the national outcomes. Relevant national outcomes and associated measures from the Standards and Targets Framework will be used to monitor changes in resource condition associated with each program, strategy or policy. Further detail on key aspects of the development and characteristics of these indicators are included at Attachment C.
14. Additional national outcomes and associated measures of interest to the Ministerial Council will be included in the National Framework as they are identified and developed.

Management Action Monitoring

15. Each national program, strategy and policy will require specific performance information to meet its accountability and management needs. This performance information will refer to the particular management actions established as part of the rationale. Performance of these management actions will be reported at investment, output and intermediate outcomes levels.

Performance Evaluation of Programs and Strategies

16. Performance evaluation will assess the appropriateness, effectiveness and efficiency of the program, strategy or policy in the achievement of its objectives and intended outcomes at all levels. The assumptions, logical

structure and performance indicators will be used to focus specific performance evaluations.

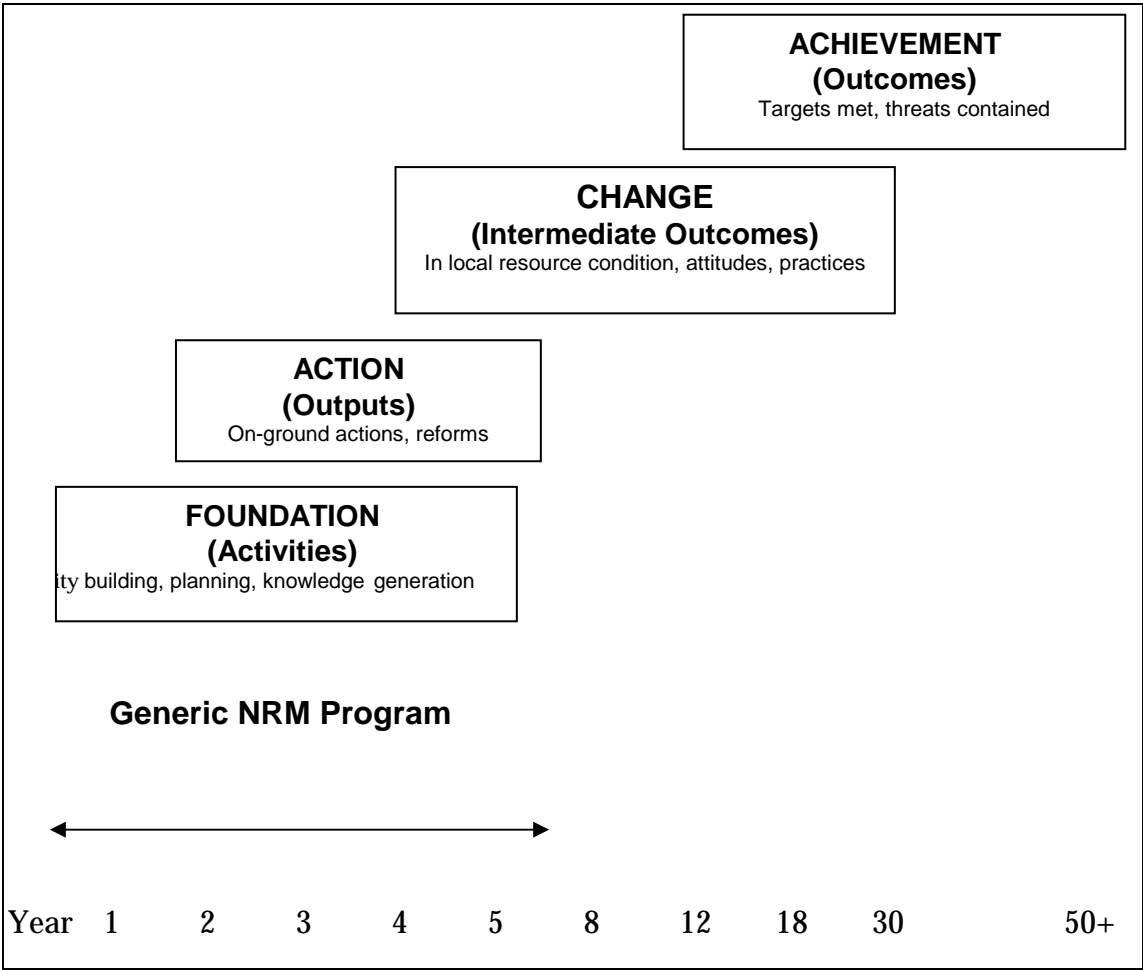
17. To improve program design and delivery, reorient investment during the life of the program, and fulfil accountability requirements, evaluations should be planned to inform key decision points throughout the life of the activity. Planning for evaluations must remain responsive to management needs with the flexibility to undertake evaluations as the program unfolds and as evaluation questions emerge.
18. Planned evaluations will be detailed in the Monitoring and Evaluation Framework for each program, strategy or policy. A register of evaluations will be maintained and reports from these evaluations will be available for the Ministerial Council and other stakeholders to use in considering achievement of expected outcomes for that particular activity.

CAPACITY BUILDING

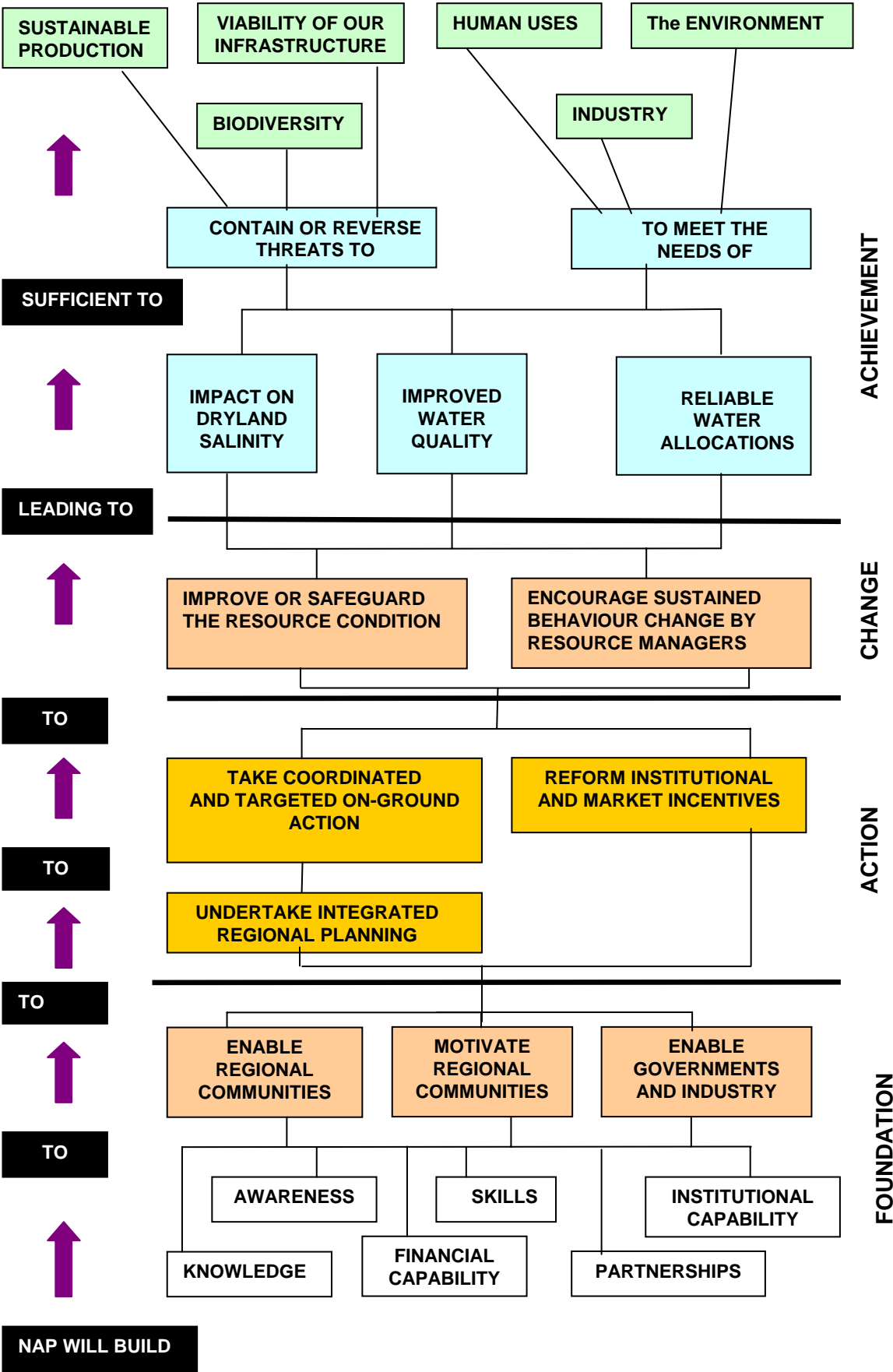
19. Because the Commonwealth, States/Territories and Regions all benefit from effective monitoring and evaluation, all three levels share responsibility to provide the support required to ensure the effectiveness of these processes, including training/accrediting people to use the national protocols.
20. Where any element of monitoring and evaluation capacity needs to be developed to support the implementation of the National Framework, linkages to the capacity building strategy of the relevant program, strategy or policy will be established to ensure appropriate support.
21. It is intended that activities will be fully costed prior to the commencement of each program, strategy or policy. Costs will be shared on an agreed basis established prior to the commencement of activities.

REPORTING

22. All stakeholders' reporting requirements are incorporated within the framework. Reporting products will be specified to meet the needs of stakeholders at all levels.
23. Each program, strategy or policy will establish a comprehensive reporting structure for monitoring and evaluation activities at all levels tailored to the needs of the stakeholder groups. The structure should support the transmission of complete and accurate information in the agreed format to the required stakeholders in time for it to be used in the processes for which it was collected. The reporting structure should include all statutory and accountability requirements including:
 - Agency annual reporting;
 - Budget document reporting;
 - Performance reporting within financial agreements at predetermined intervals;
 - Evaluation reports



CORE NAP LOGIC DIAGRAM



DEVELOPING A SET OF INDICATORS FOR THE NATIONAL FRAMEWORK FOR MONITORING AND EVALUATION

Introduction

The National Natural Resource Management Monitoring and Evaluation Framework (National Framework) will support the NRM Ministerial Council in assessing progress towards improved natural resource condition through the development of accurate, cost-effective and timely information on the:

- health of the nation's natural resources, and
- performance of programs, strategies and policies which provide national approaches to the conservation, sustainable use and management of Australia's land, water, vegetation and biological resources.

The National Framework provides information on the health of the nation's resources and on the conservation, sustainable use and management of Australia's land, water, vegetation and biological resources. The health of the nation's natural resource will be monitored on an intermediate and long-term basis through a coordinated, comprehensive and independent resource condition assessment process. This periodic assessment of resource condition will be used to judge the appropriateness and effectiveness of national policies, strategies and programs may be judged. This will assist in better targeting of natural resource management strategies.

The national framework establishes nationally agreed outcomes and measures to report on resource condition changes and associated institutional, social and economic matters. This process requires a primary set of resource condition indicators to provide information on resource condition trends, measures of community and social processes relevant to or affected by NRM programs and measures of the adoption of sustainable development and production techniques.

A core set of these indicators is required to measure progress towards the agreed outcomes on a medium and long-term basis.

Issues for which indicators are required

Identifying indicators will be assisted by the work already undertaken in developing the National Standards and Targets Framework. The framework identifies natural resource management outcomes and the minimum set of matters for which targets are set in integrated natural resource regional plans. The natural resource issues covered in the framework are of interest to the NRM Ministerial Council and reflect the current program, strategy and policy needs. The immediate priority is to define the indicators and measurement and reporting protocols for the salinity and water quality matters so far identified for the National Action Plan. The next priority will be to define the indicators and measurement protocols for the in-stream and terrestrial biodiversity matters, as required by the National Action Plan, when the national outcomes and minimum set of matters have been identified. Adopting the outcomes and the minimum set of matters developed through the National Standards and Targets Framework as core elements of the National Monitoring Framework should be the basis of a practical and cost effective process for the development of the monitoring framework. Other processes will need to be developed for matters

of interest to the Ministerial Council which fall outside of the Standards and Targets framework.

At the highest level the national framework will support the achievement of the NRMMC's objective: "to promote the conservation and sustainable use of Australia's natural resources". In addition, information at smaller scales, possibly down to the local catchment, will also be required to support on-ground management actions.

At the broad scale the main requirement is that indicators be able to monitor changes in resource condition and management practice. This will require indicators of resource condition, management and relevant socio-economic conditions. These indicators are selected according to the principles of cost, simplicity, consistency and practicality along with their ability to deliver information from the local through to the national scale.

A set of indicators that can operate through a range of spatial and temporal scales is needed. The ideal set of indicators would encompass long term outcomes, such as changes to the natural resource base, intermediate outcomes, such as changes in land management practices, and short term outcomes, such as increased awareness of NRM related programs.

Significant changes in the resource condition will not be measurable for periods ranging from five to fifty years. However, NRM interventions undertaken by Government are usually structured as programs conducted for periods of between five and seven years. Processes to measure and report resource condition change and the performance of NRM interventions therefore need to encompass a range of time-scales.

Characteristics of indicators

Indicators in the national framework should be:

- simple (easily interpreted and monitored),
- measurable (statistically verifiable, reproducible and show trends);
- accessible (regularly monitored, cost effective and consistent),
- relevant (directly address the objectives of the NRMMC), and
- timely (provide early warning of potential problems).

Relevant indices for integrating individual indicators

To assist in understanding the information provided by indicators it is possible to aggregate sets of indicators to support indices such as Index of Catchment Condition developed by the NLWRA or the Index of Stream Condition developed in Victoria. While indices provide a summative profile of a particular condition, specific measures are also needed to provide key statements of individual critical elements. Indices are of limited value in accurately reflecting the condition of some aspects of the resource.

Need for consistent approach to monitoring, measuring and reporting

To be cost effective and practical, information needs to be used at a number of levels. This will require data to be aggregated from regional to national levels.

This can be done in two ways by:

1. aggregating data;

2. determining performance at a local scale and aggregating performance measures.

Both methods of aggregation will need to be used. The choice will depend on the nature of the objective being considered.

The first approach requires the use of consistent methodologies. The NLWRA reports on dryland salinity and water resources provide evidence of the inconsistencies in methodologies used and data collected between jurisdictions. Where possible, the adoption of agreed national standards, such as the National Water Quality Management Strategy Water Quality and Monitoring Guidelines, would greatly facilitate the use of indicators. The MWG could review the existence of agreed national standards and provide support for their use. For example, the recently released Evaluation Framework for Dryland Salinity from the NLWRA could be adopted nationally.

The second approach is less exacting in its requirements for consistency and different types of monitoring may be used to suit different local conditions. For example, different catchments might use different methods to monitor performance with respect to their own water quality objectives and the high level indicator might be the number of catchments meeting their water quality objectives.

Data sources

Relevant data for indicators are available from a range of State and Commonwealth sources. For example, the National Land and Water Resources Audit (NLWRA) and SoE have recently collated large amounts of information on resource condition.

Need for consistent approach to data handling and management

To ensure that data can be aggregated to regional or national scales requires the use of consistent methodologies and protocols for data exchange and management. Considerable effort has already been put into developing consistent methodologies for data management by the Australian and New Zealand Land Information Council (ANZLIC) and the National Land and Water Resources Audit (NLWRA). Adoption of these methodologies would be a major step forward. The development of agreed national custodianship arrangements for core data sets will be very important for developing an information base for natural resource management, which will assist in the implementation of core indicators. Work on achieving this is underway through initiatives such as the development of the proposed Executive Steering Committee on Land Use that will identify the fundamental land use datasets for natural resource management.

Data quality

The data quality requirements of the framework must be established to support meaningful interpretation over time. Where comparison or aggregation of data is required, common data specifications should be established to ensure that the data collection processes support the purposes of each aspect of the framework. To maximise their use and comparability, data should be developed and maintained to meet agreed international or national guidelines or standards for the management of spatial information as endorsed by ANZLIC or through national coordination arrangements.

Cost and efficiency

Establishing and maintaining monitoring programs are costly processes. To minimise the costs of developing the data infrastructure required to support the framework:

- Data should be collected once with the aim of using it to support many activities. For example, use a common set of data to support the many regional, national and international reporting obligations.
- Existing State, Territory and Commonwealth initiatives for developing and sharing of data. Should be built on to avoid duplication of effort, and to maximise the benefits from earlier investment in data collection.
- To ensure that users can obtain the data, data must be easily accessible to all sectors of the community in format, location, cost and under conditions that do not inhibit their use.
- To ensure that users can easily find out whether suitable data already exist, all data must be documented in the Australian Spatial Data Directory. The documentation must be current and provide enough information for users to determine whether the data are suitable for their purpose.

National S&T Framework

The National Framework for Natural Resource Management Standards and Targets (National S&T Framework) sets out consistent national directions and approaches to natural resource planning, target setting, monitoring and reporting. The statements of desired national natural resource outcomes are aspirational statements about desired national natural resource outcomes. They are expressed in a manner that allows an assessment of progress towards these outcomes to be made. While these outcomes are largely focussed on resource condition, they also include objectives related to changing land and water management systems and practices.

The Framework also identifies a minimum set of matters for which catchment and regional communities will need to identify specific timebound and measurable targets for each region, which will move the natural resource condition towards the achievement of the national outcomes. These targets are characterised as achievable resource condition targets (10-20 years) and are required for each matter in the minimum set, and management action targets (1-5 years) which would be implemented to achieve the resource condition outcomes and would vary across regions.

National protocols for monitoring and reporting of progress against targets will be identified to:

- promote consistency in setting and measuring progress towards targets within and across regions;
- allow aggregation and reporting on progress nationally;
- allow comparison of program achievements with national assessments of condition or trends in resource condition (eg NLWRA, SoE reporting); and
- enable feedback to regions on how they are contributing to achieving national outcomes.

For the National Action Plan on Salinity and Water Quality (NAPSWQ), the National S&T Framework has initially identified national outcomes and a minimum set of matters for salinity and water quality/flows, and is currently developing national outcomes and matters for targets for in stream and terrestrial biodiversity. Additional work is also being undertaken to identify national outcomes and related measures for the extension of the Natural Heritage Trust.

Benefits and Issues

Adoption of the Standards and Targets Framework approach will most likely utilise indicators that are common to both the national resource condition monitoring and related performance monitoring of programs, strategies and policies. These common measures may support higher level analysis of the impact made by particular programs, strategies and policies on specific aspects of the national resource.

Further consideration will need to be given to the process for identifying outcomes and measures related to issues not related to the National S&T Framework, particularly the community and social processes relevant to or affected by NRM programs, and the adoption of sustainable development and production techniques.

Process for identifying indicators

The development of these indicators has built on an existing process by using the National S&T Framework to identify natural resource outcomes and associated matters suitable for monitoring the trend on the condition of the nation's natural resource and the performance of programs, strategies and policies. A draft preliminary list of indicators is shown overleaf.

RECOMMENDED INDICATORS

Table 1. List of Indicators for Resource Condition Matters for Target developed to date

Matter for Target	Indicator Heading	Recommended indicators
Land Salinity	Area of land threatened by shallow or rising water tables	<ul style="list-style-type: none"> • Depth to groundwater • Groundwater salinity • Location and size of salt affected areas
Soil Condition	Soil condition	<p>For regionally significant soil condition issues that are the subject of targets in regional plans:</p> <ul style="list-style-type: none"> • Soil acidification • Soil erosion – water • Soil erosion – wind • Soil carbon content • Soil physical condition • Surface hydrophobicity • Soil biota activity
Native Vegetation	Native vegetation extent and distribution	<p>For regionally significant native vegetation that is the subject of targets in regional plans:</p> <ul style="list-style-type: none"> • The extent of native vegetation by IBRA subregion measured in hectares. • The extent of each present native vegetation type by IBRA subregion measured in hectares. • The proportion remaining of each native vegetation type by IBRA subregion measured as a percentage of the pre-European extent.
	Native vegetation condition	<p>For regionally significant native vegetation types that are the subject of targets in regional plans:</p> <ul style="list-style-type: none"> • The proportion of each native vegetation type in each IBRA subregion that is estimated to be in specified condition classes based on a selected set of attributes.

Matter for Target	Indicator Heading	Recommended indicators
Inland Aquatic Ecosystems Integrity	River condition	<p>For regionally significant reach based issues that is the subject of targets in regional plans, the indicators are:</p> <ul style="list-style-type: none"> • Benthic macroinvertebrate community assemblages • Fish community Assemblages • Benthic diatom community assemblages • Riparian vegetation community assemblages • Riverine physical structure and in-stream habitat • Water quality • Hydrology <p>If all or most of these indicators are measured, it may be possible to use monitoring data to develop an index of river condition.</p>
	Wetland ecosystem extent and distribution	<ul style="list-style-type: none"> • Extent of regionally significant wetlands
	Wetland ecosystem condition	<ul style="list-style-type: none"> • Condition of regionally significant wetlands
Estuarine, coastal and marine habitat integrity	Estuarine, coastal and marine habitat extent and distribution	<ul style="list-style-type: none"> • Area of each estuarine, coastal and marine habitat type measured in hectares
	Estuarine, coastal and marine habitat condition	<ul style="list-style-type: none"> • Condition of habitat at significant sites of selected estuarine, coastal and marine habitats
Nutrients in Aquatic Environments	Nitrogen in aquatic environments	<ul style="list-style-type: none"> • Total Nitrogen + flow leaving sub-catchment or whole catchment
	Phosphorus in aquatic environments	<ul style="list-style-type: none"> • Total Phosphorus + flow leaving sub-catchment or whole catchment
Turbidity / suspended particulate matter in aquatic environments	Turbidity / suspended solids	<ul style="list-style-type: none"> • Turbidity OR • Total Suspended Solids (TSS) + Flow
Surface Water Salinity in freshwater aquatic environments	In-stream salinity	<ul style="list-style-type: none"> • Total dissolved solids (TDS) + Flow OR • Electrical conductivity (EC) + Flow

Matter for Target	Indicator Heading	Recommended indicators
Significant native species and ecological communities	Selected significant native species and ecological communities extent and conservation status	<p>For significant species that are the subject of targets in regional plans:</p> <ul style="list-style-type: none"> • Range area and location of each species: area • Area, location and condition of key habitat of each species: • Relative abundance of each species. <p>For significant ecological communities that are the subject of targets in regional plans</p> <ul style="list-style-type: none"> • extent of each ecological community: estimated area (in hectares) • condition of each ecological community.
Ecologically significant invasive species	Selected ecologically significant marine invasive species extent and impact	<ul style="list-style-type: none"> • Presence/absence of known or new: <ul style="list-style-type: none"> - exotic marine species and - native pest marine species in commercial ports and boat harbours.
	Selected ecologically significant vertebrate invasive species extent and impact	<ul style="list-style-type: none"> • Reduction in impact of regionally significant invasive vertebrate pests (excluding fish)
	Selected ecologically significant invasive vegetation species extent and impact	<ul style="list-style-type: none"> • The areal extent and density of weeds under selected regulatory control that are being addressed by regional bodies or community projects

Indicators for Management Action Matters for Target

Management Action Matter for Target	Recommended indicators
Critical assets identified and protected	<ul style="list-style-type: none"> • The extent to which assets are identified during the planning process • Steps taken to protect assets identified in the plan
Water Allocation Plans developed and implemented	<ul style="list-style-type: none"> • Water allocation plans developed and implemented in accordance with relevant State or Territory legislation
Improved land and water management practices adopted	<ul style="list-style-type: none"> • Adoption of codes of practices or recommended practices that are identified in the regional plan

Indicators for Social and Economic Issues

- Effectiveness of information networks
- Youth net migration
- Index of Economic Diversity
- Median income and income distribution
- Farm cash income
- Farm family off-farm income
- Farm Debt-equity ratio
- Education
- Age and experience
- Population Growth

Under Review

To ensure the quality of the data produced and ensure that data can be used for their intended purposes, data protocols for the sampling, measurement and interpretation of these indicators will be developed. The proposed structure of these protocols is as follows:

Proposed Structure of Data Protocol

Indicator name eg Depth to Groundwater

1. Definition

depth to groundwater in metres from the ground surface.

2. Rationale

2.1.1 Monitoring location selection (scale)

2.1.2 Why do we want to know it? ie. rationale for measuring it

2.1.3 Context in which its been measured with regard to national, state and regional resource management programs.

3. Monitoring Methodology

3.1 Monitoring location selection (scale)

3.2 Monitoring frequency required

3.3 Data measurement method

3.4 Data collation/calculation method

3.5 Data analysis and interpretation

3.6 Robustness or quality assurance

4. Reporting Products

5. Current Monitoring and Reporting Products

5.1 Monitoring location selection (scale)

5.2 Monitoring frequency required

5.3 Data measurement method

5.4 Data collation/calculation method

5.5 Data analysis and interpretation

5.6 Robustness or quality assurance

6. Proposed Responsibilities

5.1 Data collection (ie 3.1-3.3)

5.2 Data collation (ie 3.4)

5.3 Data analysis and interpretation (ie 3.5)

5.4 Generation of reporting products (ie 4)

5.5 Data storage and management

5.5.1 sub-regional/sub-catchment data collection and collation

5.5.2 data analysis and interpretation information

5.5.3 reporting products

7. Future development

8. Links to other indicators

9. Further information

Selection of further indicators

This will occur in conjunction with development of the National Standards and Targets Framework as further matters for standards and targets are identified.

GLOSSARY

Monitoring and Evaluation Framework

A monitoring and evaluation framework structures monitoring and evaluation activities to provide accurate, cost-effective and timely performance information for management decision making. Monitoring and evaluation activities use many of the same data sources, and complement one another in covering the full range of issues affecting the performance of an activity. Because of the differences between the two activities, each requires different management structures and processes.

Performance Information can be quantitative or qualitative. Quantitative performance information provides measures in respect of specific indicators of performance towards achieving a target or goal. Qualitative performance information is descriptive, and can include stories and case studies. Qualitative and quantitative performance information should generally be employed together, as quantitative measures usually require some interpretation and explanation to ensure they are properly understood.

Monitoring activities provide *indicative* information to track and review the performance of policies, strategies and programs at regular intervals to inform management decision-making. This indicative information must directly relate to the expected outcomes and outputs of the policy, strategy or program.

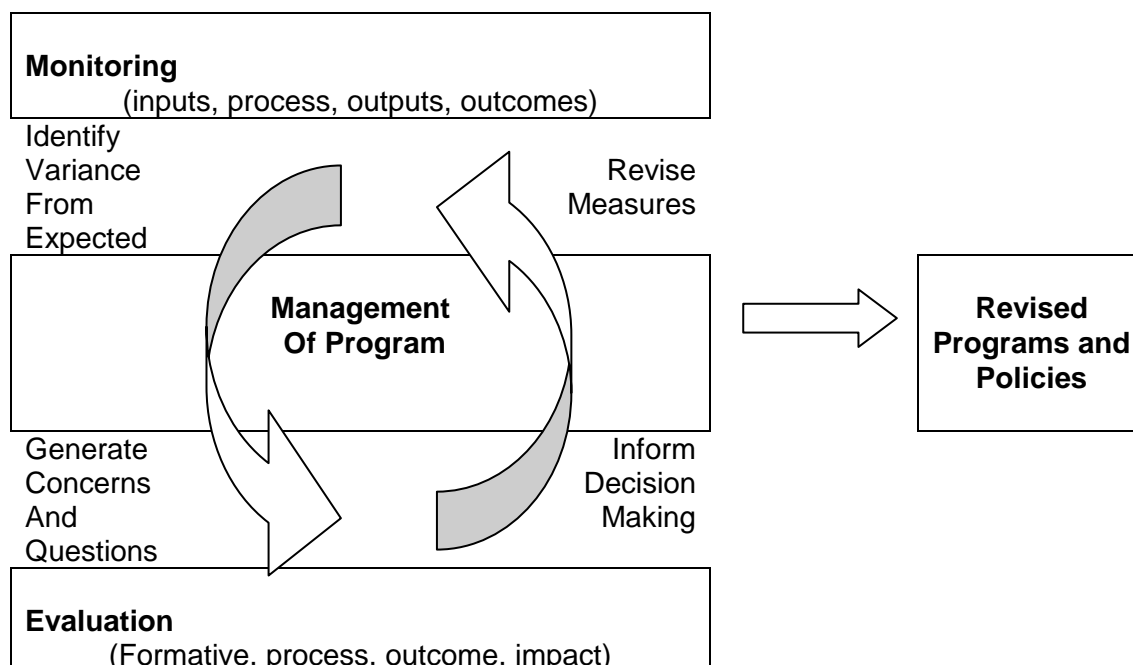
Monitoring is defined as the regular gathering and preliminary analysis of information needed for day-to-day management or evaluation. Monitoring activities provide indicative information to track and review the performance of policies, strategies and programs at regular intervals to inform management decision-making. This indicative information must directly relate to the expected outcomes and outputs of the policy, strategy or program. Monitoring provides information on what is occurring and what the program, policy or strategy is achieving.

Evaluation activities provide comprehensive *analysis* to determine how well, and in what ways the policies, strategies and programs are working. They include an assessment of efficiency (determining whether existing delivery arrangements can be improved) and effectiveness (determining whether or not the program strategies are having the desired effect) and are used to support management decision making at appropriate points in the life of the policy, strategy or program. The information used in these activities may be both directly and indirectly related to the expected outcomes and outputs of the policy, strategy or program. Evaluations may need to consider:

- unforeseen consequences, particularly social and economic impacts;
- external factors impacting on program delivery and likely achievement of outcomes (including social and economic factors)
- attribution - the extent that program strategies contribute to, or are responsible for, achievement of desired outcomes.

Accountability - the Parliament and the public need to be confident that program funds are being spent on actions that will make positive changes to Australia's environment.

Adaptive management enables lessons learned to be realised during the life of the program and to make necessary adjustments in response. Adaptive management utilises monitoring and evaluation activities to form a feedback loop in order to make necessary adjustments to the program. Monitoring and evaluation activities will use many of the same data sources, and complement one another in covering the full range of issues affecting program performance for consideration in management decision making. Regular collection of performance information provides a basis for identifying needs and opportunities for evaluation and policy review. For instance, information from monitoring data could be a trigger for further action or investigation, and agreements on the trigger mechanisms should be included within the program monitoring strategy. Evaluation serves as a powerful tool for reviewing the appropriateness of performance indicators and identifying gaps in the performance information structure. Evaluations will rely on, and therefore should be responsive to, monitoring information. For example, unexpected or undesired results from monitoring data might allow triggering of unscheduled evaluations. These linkages are represented in the following diagram.



Adapted from De Boer M. *Monitoring: the slow cousin of evaluation or an equal partner* Proceedings from the Australasian Evaluation Society Conference 2001