

State of the
Environment
Reporting Series

Discussion Paper No. 1

State Monitoring and Evaluation Framework Discussion Paper



Report prepared by the Environmental Protection Authority for the Minister for the Environment

**Environmental Protection Authority
Perth, Western Australia
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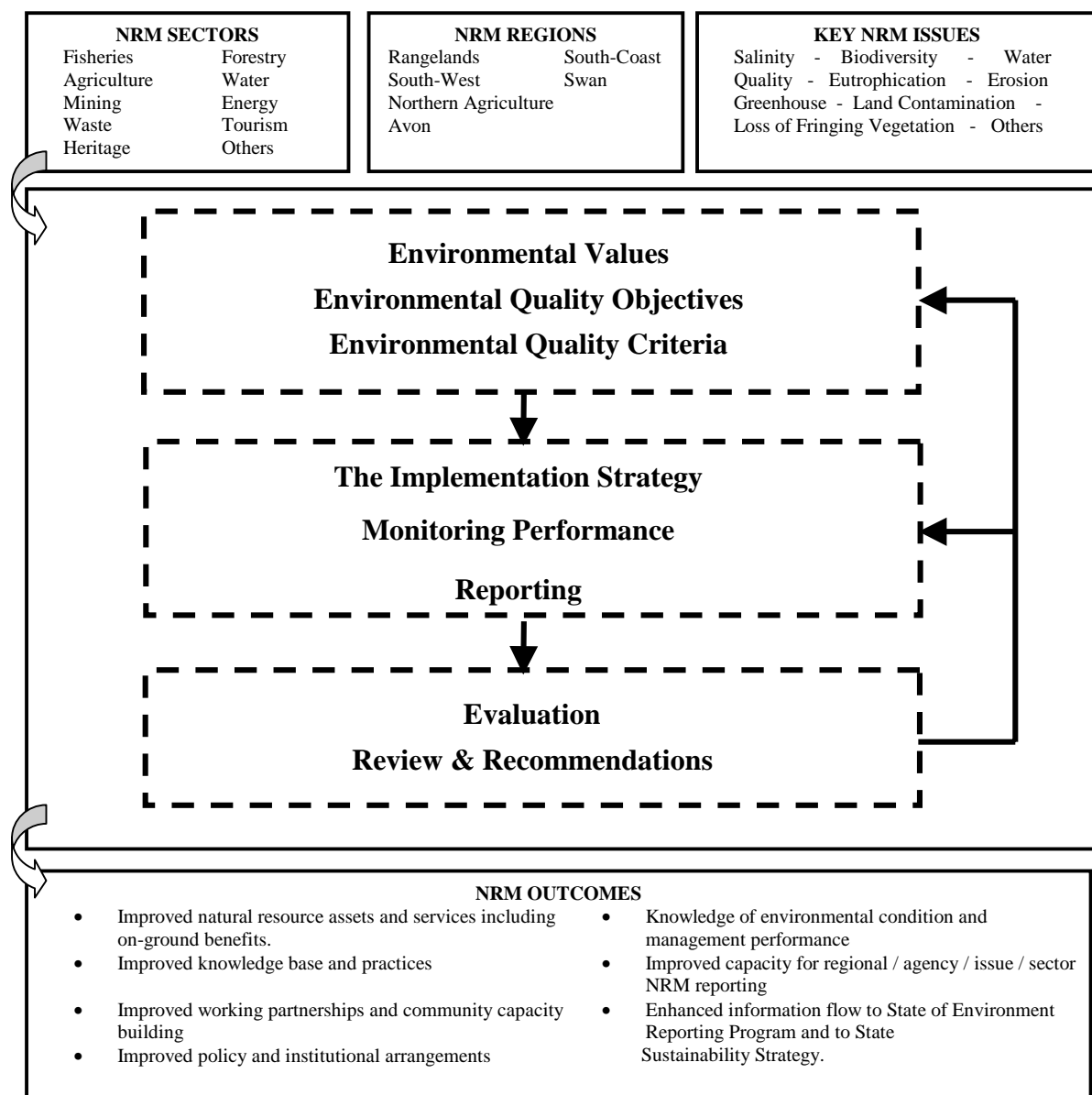
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SUMMARY OVERVIEW

State Monitoring and Evaluation Framework

The State monitoring and evaluation (M&E) framework embodies all of the key natural resource management (NRM) and environmental monitoring and evaluation activities so that an overarching assessment can be made on the condition of Western Australia's natural environment (diagram below). The State of the Environment Reporting (SOER) program is the tool that brings all of this information to bare so that the State's key environmental issues can be reported.

To ensure that monitoring and evaluation is tied to decision making processes and on-ground activities, the State M&E framework advocates an environmental management system (EMS) approach to all NRM policies, programs, strategies and projects. The model used to describe the EMS approach in this paper is termed the "NRM framework".

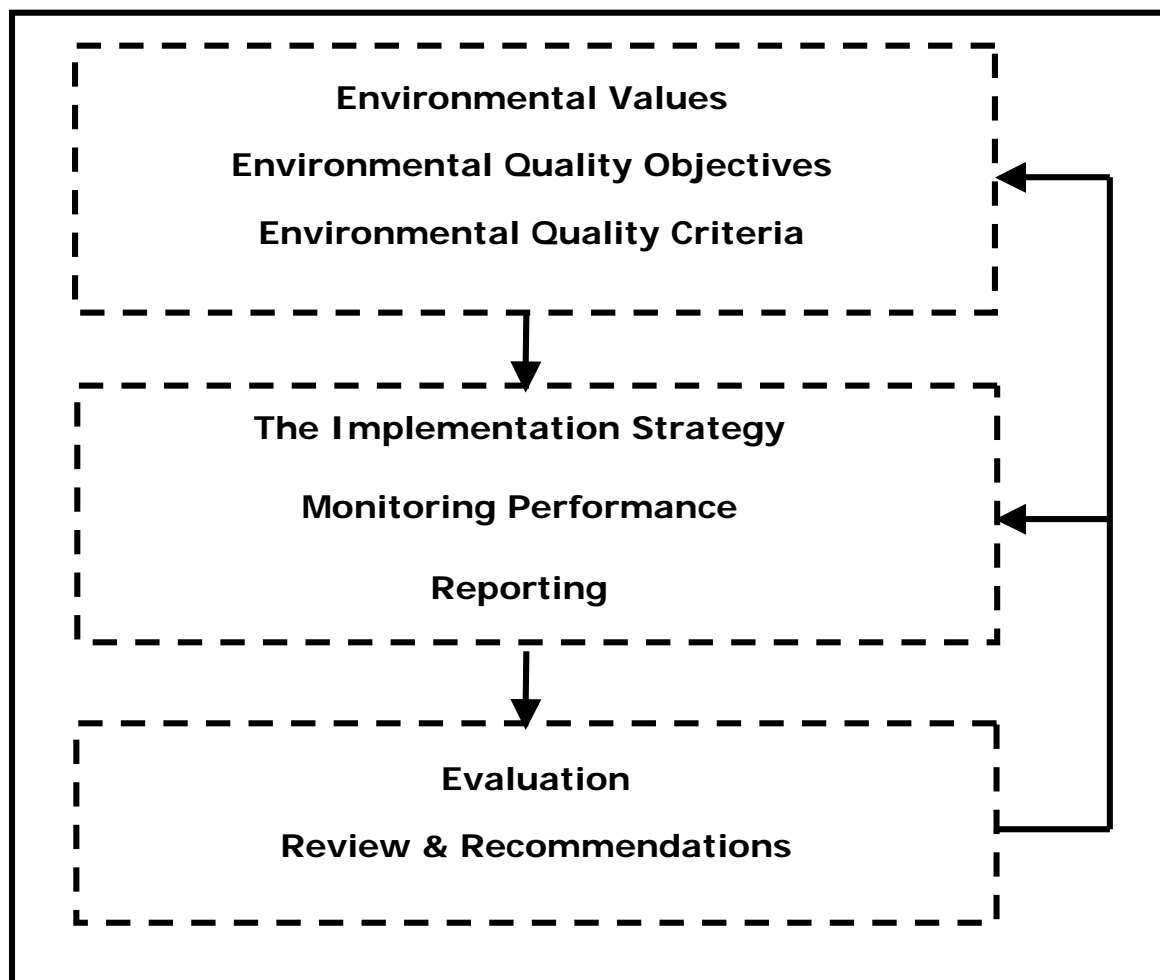


Components of the NRM Framework

The NRM framework, diagram below, is a process derived from the traditional (EMS) model and provides an overarching structure for addressing NRM issues at a sector or regional / landscape scale. It does this by encouraging a systematic and iterative approach to all stages of the NRM decision-making process. This framework has been endorsed by the Environmental Protection Authority who have a statutory role in auditing natural resource management activities throughout the State.

Consistent with the approach used in the broad range of national and state NRM activities, the NRM framework (diagram below) provides a linkage between policies, programs, strategies, projects. The key components of this framework include:

- identifying environmental assets and their corresponding environmental values and beneficial uses;
- identifying and defining threats to those environmental values;
- prioritizing assets and threats;
- formulating policy, objectives, targets and benchmarks to address threats and to protect environmental values;
- implementing programs and projects in accordance with policy;
- monitoring change in resource condition as a result of management activities;
- evaluating the effectiveness of the policy and management activities; and
- making recommendations to improve resource condition and environmental management performance.



1.0 PURPOSE

This discussion paper aims to consolidate a consistent approach to Natural Resource Management (NRM) in Western Australia, by providing a framework that ties together policy and decision making to on-ground activities and monitoring and evaluation. The Environmental Protection Authority (EPA) is seeking comment on the conceptual approach being advocated and its consistency with other NRM activities currently occurring in Western Australia.

The State monitoring and evaluation (M&E) framework embodies the environmental management system (EMS) approach to NRM, which provides a systematic process for addressing NRM issues at a sector or regional / landscape scale.

This M&E framework has been endorsed by the EPA who have a statutory role in auditing NRM activities throughout the State. To date, the EPA has established overarching arrangements with the lead NRM agencies for the EPA to evaluate the environmental performance of the WA's NRM sectors (e.g. fishers, agriculture, water, air, etc). There will be a strong link between these environmental performance evaluation arrangements and the State of the Environment Reporting (SOER) program.

2.0 INTRODUCTION

The proposed State M&E framework will embody all of the key NRM and environmental monitoring and evaluation activities so that an overarching assessment can be made on the condition of Western Australia's natural environment (Figure 1).

In Western Australia, NRM involves the ecologically sustainable management of the land, water, air and biodiversity resources of the State for the benefit of existing and future generations, and for the maintenance of the life support capability of the biosphere. This includes state marine waters.

There is increasing expectation by the Western Australian community that the environmental outcomes of NRM activities can be demonstrated and that investment of public monies is protected. The benefits of this transparent approach to NRM include:

- improved collective capacity to report on the state of the environment;
- better informed environmental policy and decision making;
- a measure of the effectiveness of actions taken on the ground; and
- encouragement for all parties to move towards continuous improvement in NRM.

An EMS approach offers an appropriate framework for NRM as it encourages transparency of process in a logical and systematic manner. An EMS is: *that part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy* (AS/NZS ISO 14004:1996).

Embedded within the EMS model is 'measurement and evaluation'. Measurement and evaluation, more commonly referred to in WA as 'monitoring and evaluation', is concerned with the collection and analysis of data/information to determine whether policy and policy objectives are being met. Monitoring and evaluation informs NRM stakeholders on the difference between actual versus desired environmental outcomes and performance.

The total sum of monitoring and evaluation activities across government and others involved in NRM should ideally inform the State on how it is tracking in terms of environmental performance. The SOER program is the tool that brings all of this information to bare so that the State's key environmental issues can be reported.

In July 2002, the Minister for the Environment requested the EPA to coordinate the next SOER cycle. As such, the EPA works with and support government, and others involved in NRM, to ensure there is consistency in NRM monitoring and evaluation activities across the state.

The initial focus of the EPA has been working with government NRM agencies to develop a consistent EMS approach to managing WA's natural resources. Agencies involved include:

- Department of Environment (DOE);
- Department of Fisheries (DOF);
- Department of Agriculture (DOA);
- Department of Indigenous Affairs (DIA);
- Department of Industry and Resources (DOIR); and
- Department of Land Information (DLI).
- Department for Conservation and Land Management, (DCLM)

The EPA has a statutory role in environmental performance evaluation and are expected by Government to hold resource management agencies accountable for delivering environmental outcomes (Machinery of Government: Changes to Environment Portfolio 2001). To this end, the EPA have adapted the EMS model to assist agencies to improve the NRM decision-making process and deliver on desired environmental outcomes. This adapted model, termed the 'NRM Framework', is discussed in detail in section 3.0.

The EPA has established overarching arrangements with lead NRM agencies to assist in implementing the NRM Framework for each of the NRM sectors (fisheries, agriculture, water, air and mining). These environmental performance evaluation arrangements will link closely with the SOER program.

At the same time, work is occurring at the regional level with the development of NRM strategies. DOA, DCLM, and DOE in particular provide strategic advice, technical expertise and much in-kind support to regional groups in developing and implementing their regional NRM strategies. This includes assisting in the co-ordination of monitoring and evaluation programs to ensure consistency with national reporting requirements. The NRM framework discussed in this paper very closely matches the approach used under the Natural Heritage Trust 2 and National Action Plan extension programs however, there are differences with terminology (see Appendix 1).

Through a State M&E framework, implementing the EMS approach through the range of NRM activities at the sector or regional/landscape level will provide the opportunity to tie together the policy and decision making process to on-ground activities and monitoring and evaluation in a coordinated manner (Figure 1).

State Monitoring and Evaluation Framework

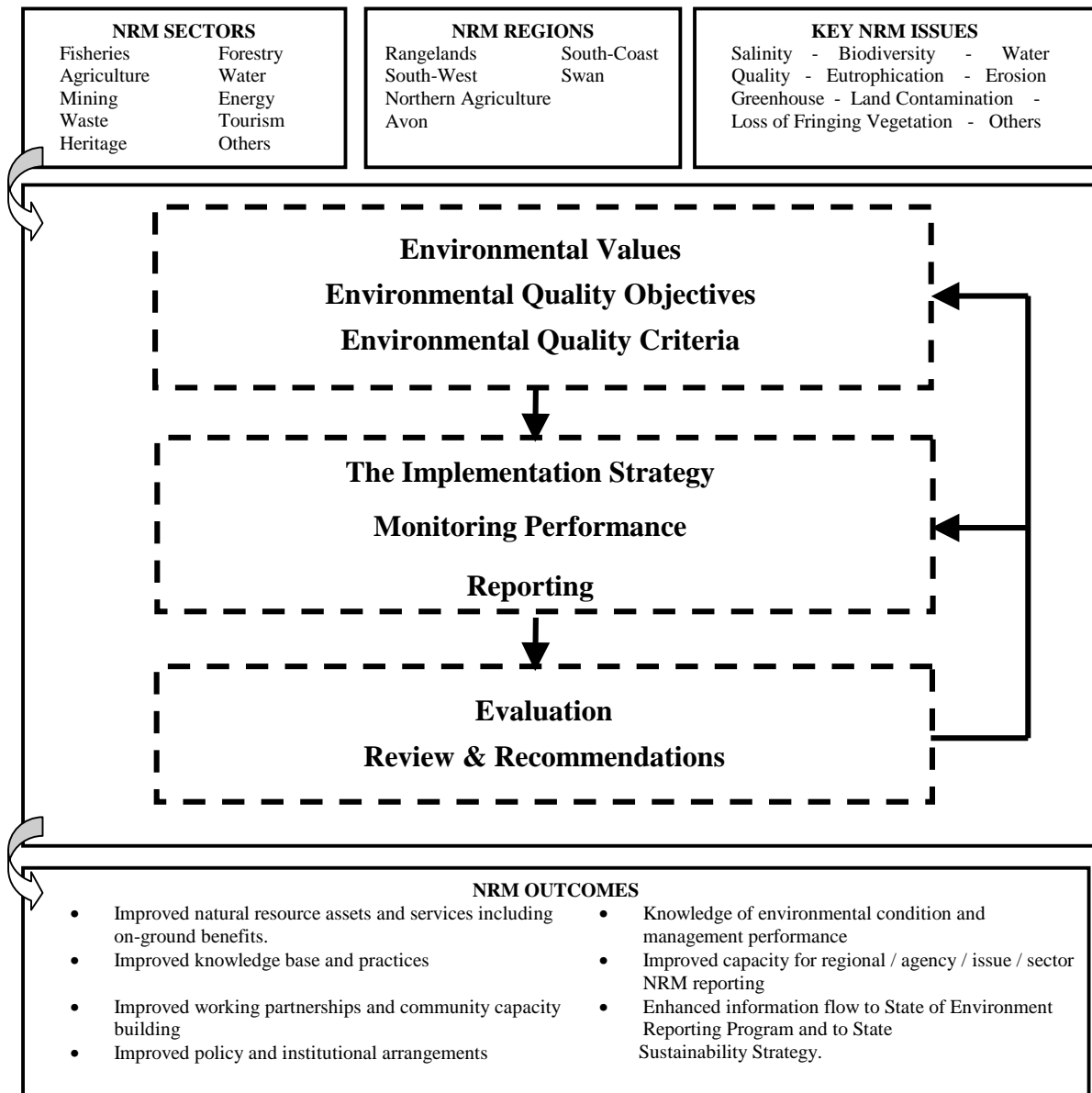


Figure 1: The State M&E framework encourages the traditional environmental management system approach, discussed in this paper as the “NRM framework”, to provide the overarching structure for addressing NRM issues at a sector or regional / landscape scale.

3.0 NATURAL RESOURCE MANAGEMENT FRAMEWORK

The NRM framework proposed in this paper has been adapted from the key elements of the ISO 14004:1996 Environmental Management System model (AS/NZS,1996).

Consistent with both national and state approaches to NRM and as depicted in Figure 2 below, the NRM framework provides a common thread through NRM activities such as programs, policies, strategies, projects:

- identifying environmental assets and their corresponding environmental values and beneficial uses;
- identifying and defining threats to those environmental values;
- prioritizing assets and threats;
- formulating policy, objectives, targets and benchmarks to address threats and to protect environmental values;
- implementing programs and projects in accordance with policy;
- monitoring change in resource condition as a result of management activities;
- evaluating the effectiveness of the policy and management activities; and
- making recommendations to improve resource condition and environmental management performance.

The EMS approach is applicable to NRM as it provides a management, administrative and monitoring framework to ensure that the risk to the environment from an organization is minimized. It also aims to ensure environmental policy, together with associated objectives and targets, are achieved. Each EMS should include the following elements (ISO 14004:1996 EMS equivalent terminology is expressed in brackets):

- Environmental Values; Environmental Quality Objectives (Policy);
- Environmental Quality Criteria/NRM Targets (Planning);
- Implementation Strategy (Implementation);
- Monitoring, Evaluation of environmental outcomes against environmental quality criteria and targets, Reporting (Measurement & Evaluation); and
- Review and Recommendations (Review and Improvement).

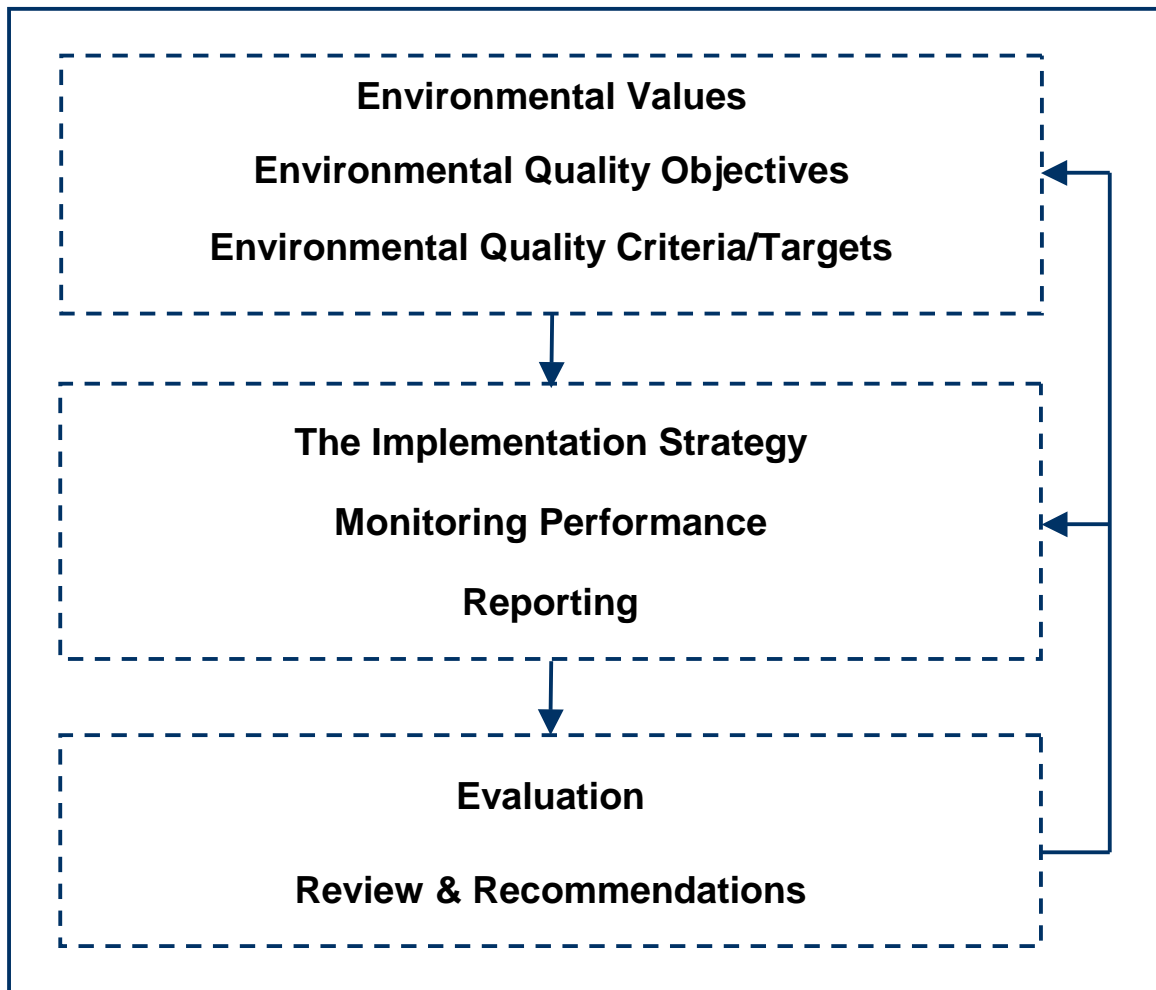


Figure 2. NRM framework - The process advocated by the EPA in Western Australia to evaluate NRM performance, adopting key elements of the EMS approach (EPA, 2002a).

3.1 Environmental Values

The term Environmental Value (EV) can be defined as: *particular values or uses of the environment that are important for a healthy ecosystem or for public benefit, welfare, safety or health and which require protection from the effects of pollution, waste discharges and deposits* (NWQMS:ANZECC and ARMCANZ, 1994).

In the Environmental Protection Act (1986), the definition of a beneficial use is tied to the effects of pollution, waste discharges and deposits. This definition is largely consistent with EVs under the National Water Quality Management Strategy (1994) for the protection of water. For the broader range of NRM matters, EVs will require protection from other types of threats, such as land degradation, over grazing, introduction of pest species, etc.

Because NRM embodies all of the principles of ‘sustainability’, NRM inherently recognises the legitimate EV’s of all stakeholders including the community and environment. As such, EV’s need to be largely agreed to by the community through a public process. This would require broad consultation and input from a range of sources other than the lead agency. Individual stakeholders do not exclusively ‘own’ EVs, however they may have a major stewardship role in the protection of EVs, but always on behalf of the community (see also section 4.0).

An example of environmental values that have been identified for Cockburn Sound, a near-shore marine water body on the Western Australia coast include (Environmental Protection Authority, 2000):

- Ecosystem Health
- Fishing and aquaculture
- Recreation and aesthetics
- Industrial Water supply

3.2 Environmental Quality Objectives

To protect and maintain environmental values, realistic long-term goals need to be developed to guide appropriate management actions. These goals are termed Environmental Quality Objectives.

An Environmental Quality Objective (EQO) is: *a specific management goal for a part of the environment and is either ecologically based by describing the desired level of health of the ecosystem or socially based by describing the environmental quality required to maintain specific human uses* (EPA, 2002c).

Importantly, objectives should be expressed in terms of outcomes, not processes. EQOs are the goals, which when achieved, will allow the environmental values specified within the NRM plan to be protected. NRM should aim to maintain the state of the environment at a desired level of protection where the objectives are presently being met. Where the desired level of protection is not being met, plans should be devised and implemented to achieve designated objectives within a specified period of time (EPA, 2000).

In setting EQOs, the lead agency or regional group should consult appropriately with the scientific community, and with experts in the community.

3.3 Environmental Quality Criteria and NRM Targets

Environmental Quality Criteria (EQC) are the numerical values or narrative statements that serve as benchmarks for environmental performance or condition (EPA, 2002c).

To ensure that Environmental Quality Objectives are being met, EQCs and or NRM targets are set. The EQC and NRM Targets relate to ambient environmental quality and underpin particular objectives. Figure 3 illustrates these linkages.

When an EQC is not achieved, a management response should be triggered. The level of management response will vary depending on the extent to which the EQC departs from current ambient conditions.

Setting EQCs can become a very complex process. It requires a very good understanding of baseline environmental conditions and cause-effect pathways. Good information is lacking for many Western Australian ecosystems. As such, it is often simpler and more appropriate to set NRM targets and interim targets.

An NRM target is the numerical value or narrative statement that serves as long or short-term time related benchmarks (EPA, 2002c). That is, an NRM target provides a quantitative value to aim for over a specified/defined period of time. For example, a 10% reduction in CO₂ emissions by all Government agencies by the year 2010. Once that time

has elapsed, if the quantitative value has not been reached, then revised management actions should be implemented. Alternatively, the target may need to be reviewed if the understanding behind the original target has improved.

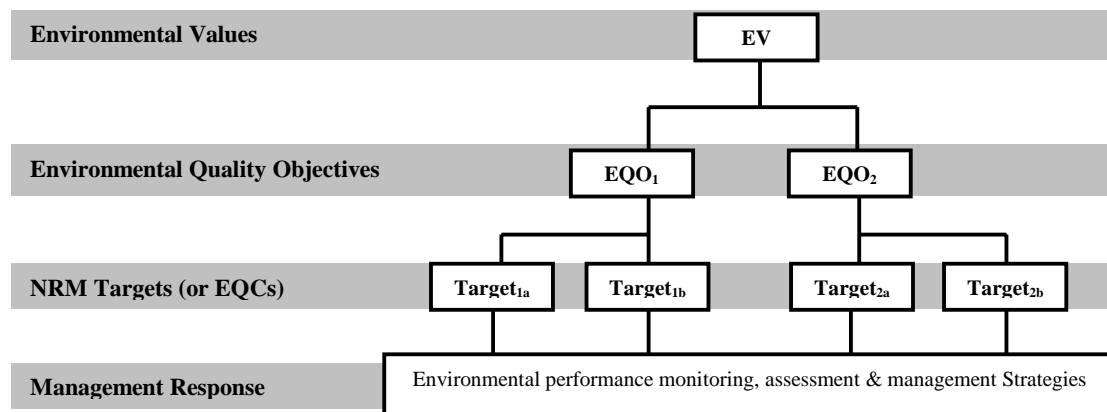


Figure 3. Progressional relationship within the NRM Framework, illustrating the linkages between EVs, EQOs and EQCs/NRM Targets.

3.4 Implementation Strategy

An implementation strategy is required to ensure that the NRM Targets are reached, environmental objectives are met and the environmental values protected. In developing an implementation strategy, consideration should be given to planning what needs to be done (the environmental management program), how community and other stakeholders suggestions will be included (community and stakeholder engagement) and how NRM outcomes will be measured (monitoring and evaluation). This section provides a quick overview of each.

3.4.1 Community And Stakeholder Participation

Open and transparent natural resource management requires community and stakeholder participation (Murray Darling Basin Commission, 1999). It is essential for community to be consulted and invited to express views before and during the preparation of a public consultation plan, as well as within the implementation strategy.

Natural resource managers need to communicate with a variety of groups to let them know what is occurring and involve them in natural resource management decisions. Natural resource managers also need to ensure that there are mechanisms for community members and industry representatives to express their views and have them considered.

These communication requirements can be facilitated through implementing an effective communication plan. A communication plan allows natural resource managers to communicate a vision and role, define their role in relation to their partners, integrate information, natural resource programs and policies and generate community support (Murray Darling Basin Commission, 1999). As such, communication planning needs to become a core part of NRM project planning that should be considered through all stages of the NRM Framework.

3.4.2 Environmental Management Program

An environmental management program (EMP) outlines how the EQOs will be achieved. The lead agency, in consultation with key stakeholders and the community, identifies actions, tools and resources to meet each of the EQCs or NRM Targets.

For the effective implementation of an EMP, it is important to identify responsibilities and available resources to ensure actions are adequately coordinated and funded. Key spokespeople largely assist to coordinate and implement an EMP. Identifying key roles and responsibilities helps to eliminate confusion during and after the implementation of an environmental management program. It is also important for the EMP to be consistent with other NRM policies, processes or frameworks that may affect the management of a natural resource.

3.4.3 Monitoring And Evaluation

Lead agencies can help improve NRM through encouraging decisions about the allocation and management of resources. This should be based upon the compilation, integration, analysis and interpretation of the best available scientific information (Commonwealth of Australia, 2002). An efficient monitoring and evaluation framework will help deliver this outcome.

A monitoring and evaluation framework has two broad components: (i) realistic and practical indicators and benchmarks of environmental performance against objectives (NRM Targets/EQCs); and (ii) actual measurement. The evaluation process should identify any “gaps” between actual and expected outcomes, and set out brief explanations.

Indicators: A crucial first step in developing a monitoring and evaluation program is to identify what measures will accurately gauge the condition of the environment, and subsequently whether environmental objectives have been met. These are measures are termed *indicators*. Environmental indicators help track trends in the environment by selecting key measures (these may be physical, biological or socio-economic) that provide useful information about the whole system (ANZECC, 2000).

Indicator data should be linked to pre-established criteria in the natural resource management cycle (the EQCs or NRM Targets). Indicators should be able to detect acceptable and unacceptable levels of disturbance or change in the condition of the environment. Indicators do this by referencing the NRM Targets and/or EQC thresholds. Such references may include:

- change since a baseline year;
- benchmarks that describe a sub-component relative to the whole (e.g., the number of exotic plant species relative to the total number of known flora species);
- criterion benchmarks (e.g., the percentage of coral reef area threatened by pollution, where the measures spell out ambient pollutant levels that might constitute a "threat"); and
- distance to a policy target, or goal (e.g. the ambient water quality relative to the ambient level desired by year x).

Indicators should also be developed that gauge the performance of natural resource management so managers can make changes, where required, to improve or fill gaps in current management strategies. Performance indicators can also help clarify the causes of

environmental changes that are outside the jurisdiction of the managers and over which they have little or no control or influence.

Evaluation: is the systematic assessment of the appropriateness, effectiveness and/or efficiency of a program, or part of a program, with the aim of:

- providing a better information base to assist managers with improving program performance;
- assisting government decision-making and setting priorities, particularly in resource allocation; and
- contributing towards improved accountability to Parliament and the public (ANAO, 1997).

NRM performance evaluation is primarily based on the extent to which desired environmental outcomes have been achieved. Based upon the results from monitoring (indicators), periodic evaluation should assess actual NRM outcomes against stated environmental objectives. This should provide the basis for assessment as to whether environmental values are being protected or maintained. The key components of an evaluation are:

1. **Purpose:** identify the needs for evaluation and underlying causes. Need to consider purpose, intended use and audience, processes and products, progress of NRM activity (eg. program) being evaluated.
2. **Objectives:** Set objectives or key evaluation questions that relate to the needs and causes of evaluation.
3. **Planning:** Identify information requirements. Design strategies and actions to achieve evaluation objectives.
4. **Implementation:** Implement strategies and actions. Deliver outputs / outcomes where possible.
5. **Monitoring:** Collect data supporting evaluation.
6. **Analyse And Interpret:** Analyse and interpret monitoring data. Use performance indicators to make judgements about whether objectives have been achieved.
7. **Reporting And Recommendations:** Report progress with respect to desired and actual outcomes. Explain intended / unintended results. Make recommendations to improve NRM activity appropriateness, effectiveness or efficiency.

Ideally, performance evaluation should be carried out by agency staff with specialist expertise in their respective NRM areas. It should be done objectively and impartially and preferably by trained personnel (AS/NZS, ISO 14004:1996). It may also be valuable to seek advice or expertise in dealing with issues that run through many aspects of natural resource management, such as maintaining biodiversity, where a number of jurisdictions may have relevant information to support (or contradict) evaluation findings.

Coordinated Data Management: Timely, reliable and accurate data and information on the condition of the environment and natural resources, and responses to human use, is fundamental to natural resource management. A robust monitoring and evaluation framework would ensure the co-ordination and integration of data within an information system.

An information system ensures that data are organised so that users can report on and be aware of the status of natural resources and evaluate NRM performance.

Natural resource information should be widely accessible to a range of users. This is to ensure co-ordination and integration in monitoring, analysis and reporting to avoid duplication or repetition of effort across the state.

Reporting: To remain transparent and ensure that findings of natural resource management are widely accessible, it is important for NRM agencies and regional groups to have satisfactory protocols in place for reporting on status and “gaps” between desired and actual NRM outcomes. This would include what will be reported, to whom and how often.

It is important that agency and regional reporting is easily translatable to state and national levels, so that the environmental status and gaps in natural resource management can be compared over a variety of scales. This will also assist the EPA to meet its reporting responsibilities and its watching brief on the environment.

3.5 Review and Recommendations

Lead agencies in NRM should review and continually try to improve their environmental management system(s), with the greater objective of improving overall NRM performance.

Following an evaluation of NRM performance, a review should be conducted that is broad enough in scope to address the following key areas (AS/NZS, 1996):

- environmental objectives, targets and indicators;
- findings of the NRM performance evaluation; and,
- an evaluation to identify influences on environmental outcomes that are outside of the scope of the NRM strategy (e.g. legislation, environmental policies, social or economic drivers, etc).

This review should provide the basis for making recommendations on the above list.

4.0 EPA ROLE IN NRM PERFORMANCE EVALUATION

Under Section 16 of Part II of the Environmental Protection Act (1986), the EPA can undertake a range of functions related to NRM. This includes the EPA evaluating environmental performance to ensure agreed environmental objectives and targets are being met.

On 19 March 2001, the EPA met with the Heads of NRM agencies to discuss the EPA’s role in this field. There was consensus at this meeting that the EPA should be involved in NRM at two levels:

- a) At an overarching level, in consultation with the NRM agencies, EPA should set environmental values, objectives and targets which agencies should take into account in giving attention to their environmental responsibilities.
- b) At an evaluation level, reviewing environmental performance (outcomes) against values, objectives and targets so as to evaluate the performance of natural resource management.

Broadly, the role of the EPA will be to ensure that environmental values are protected and there is compatibility, consistency and reporting across the sectors in terms of the EVs, EQO’s and NRM Targets/EQCs in the management of the State’s natural resources. This includes the lead agencies dealings with the regional NRM groups in the development of regional NRM strategies. Specifically, the role of the EPA will involve:

i) Setting Environmental Values

The lead agency(s) for the day to day management of a natural resource would consult, in a transparent and open manner, with all stakeholders and the community to establish appropriate draft environmental values. The lead agency would then refer to the EPA the set of draft values accompanied by a synopsis of the consultations undertaken with stakeholders and the community. This synopsis would include stakeholder and community concerns regarding the draft values. Where there are residual concerns, the EPA may consult further before advising Government on a suitable set of environmental values.

ii) Setting Environmental Quality Objectives

For the protection of each environmental value, an appropriate set of environmental quality objectives need to be set. Following consultation with the community, stakeholders and scientific experts, the lead agency would submit to the EPA the set of agreed draft objectives accompanied by a synopsis of the consultation undertaken with all involved parties and indicate the timeframe for implementation. This synopsis would include any concerns raised regarding the draft objectives. Where there are residual concerns, the EPA may consult further before advising Government on a suitable set of environmental quality objectives.

iii) Setting Environmental Quality Criteria

The role of the EPA in setting environmental quality criteria is more complex, requiring a lot of scientific input. It is likely that this part of the process would vary on a case-by-case basis between NRM activities.

Having established the environmental values, objectives and criteria or targets for the natural resource, the lead agency would establish an implementation program to ensure the resource is properly managed. Part of the implementation program would include measurement of agreed key environmental quality indicators (monitoring) and evaluation of performance against environmental quality benchmarks (auditing).

iv) Monitoring and Evaluation

The role of the EPA is to evaluate the performance of NRM. Accordingly, the EPA would need to be assured that the appropriate measures are in place so that actual environmental outcomes can be evaluated. The EPA is also concerned to know the lead agency has satisfactory protocols in place for reporting the outcomes of its environmental management and “gaps” between desired and actual outcomes. Reporting on these indicators and subsequent environmental outcomes should be consistent with and link to the State of the Environment Reporting process.

5.0 LINK BETWEEN STATE M&E FRAMEWORK AND STATE OF THE ENVIRONMENT REPORTING

The State M&E framework advocates a continuous and cyclical process, which requires integration across time, space and institutions. At the state level, the SOER process can help bring this together.

One of the major achievements of Western Australia’s last SOE reporting cycle was that the amended pressure-state-response framework allowed environmental issues of state-wide importance to be identified and prioritized. Suggested management actions were subsequently proposed for each issue to stimulate the policy planning process within the NRM sectors. This resulted in Western Australia’s first environmental policy plan

'Environmental Action: Governments Response to the State of the Environment Report'. This transition needs to continue. The proposed NRM framework, if implemented, should make a discernable impact on policy and decision making for the better.

The next logical step is to integrate the SOER process with the State M&E framework. This would further assist environmental management and policy development. Further exploration and scoping by all of the lead agencies involved in NRM to identify how these processes can be linked is encouraged. As a starting point, opportunities to further improve data management and data sharing, identify and endorse appropriate indicators of environmental performance and fill data gaps, develop partnerships between the range of stakeholders involved in NRM, and improve the evaluation of environmental management, should be sought. As the next SOER process firms, it will be important that opportunities to explore these activities are taken.

6.0 PREPARING SUBMISSIONS

The EPA is keen to develop a State monitoring and evaluation framework in an open and transparent manner. This involves seeking the views of the Western Australian community, government and non-government organisations, as well as other special interest groups.

Members of the public are encouraged to prepare written submissions outlining their thoughts on the proposed framework or any other issue raised in this public consultation document.

This document is released for public comment for a period of eight weeks. Your comments are welcome.

Please send submissions by 14 November 2003 to:

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REFERENCES

ANAO Report No.3 (1997-98) *Program Evaluation in the Australian Public Service*. Canberra. 29 September.

ANZECC (2000) *Core Environmental Indicators for Reporting on the State of the Environment*. Canberra, Australian Capital Territory.

ANZECC and ARMCANZ (1994). *National Water Quality Management Strategy, Policies and Principles – a reference document*. (Agriculture and Resource Management Council of Australia and New Zealand and the Australian and New Zealand Environment and Conservation Council, Canberra, ACT).

AS/NZS ISO 14004 (1996). *Environmental management systems – General guidelines on principles, systems and supporting techniques*. Australia/New Zealand Standard, Homebush.

Conservation Commission of Western Australia (2002) *A new forest management plan for Western Australia: Discussion paper*. Perth, Western Australia.

Commonwealth of Australia (2002) *National Land and Water Resources Audit: Australian Natural Resources Information 2002*. Turner, Australian Capital Territory.

Environmental Protection Authority (2000) *Perth's Coastal Waters: Environmental Values and Objectives*. Draft Cockburn Sound EPP.

Environmental Protection Authority (2002a) *Environmental Protection Authority Annual Report 2001 – 2002*. Perth, Western Australia.

Environmental Protection Authority (2002b, Unpublished) *2002 State of the Environment Work Program*. Perth, Western Australia.

Environmental Protection Authority (2002c). *Implementation Framework for Western Australia for the Australian and New Zealand Guidelines for Fresh and Marine Water Quality and Water Quality Monitoring and Reporting*. Unpublished.

Fisheries Western Australia (2002) *Policy for the Implementation of Ecologically Sustainable Development for Fisheries and Aquaculture within Western Australia*. Fisheries Management Paper No. 157.

Government of Western Australia (1998) *Environment Western Australia 1998: State of the Environment Report*. Perth, Western Australia.

Higham, A. (Unpublished) *State of the environment reporting and environmental policy planning in Western Australia*.

Murray Darling Basin Commission (1999) *Murray Darling Basin Commission Communication Strategy: Phase One Report*. Location? (Unpublished).

APPENDIX 1: CONSISTENCY BETWEEN STATE NRM FRAMEWORK AND NATIONAL NRM FRAMEWORKS

The NRM framework discussed in this paper has been developed to be inclusive of all NRM related activities. It very closely matches the approach used in the National Standards and Targets (S&T) Framework and the National NRM Monitoring and Evaluation (M&E) Framework under the NAP and NHT extension programs. However, there are differences with terminology. The following table provides a direct comparison of key national and WA terms.

National S&T and M&E Framework		NRM Framework
Aspirational Targets	=	Environmental Values
Resource Condition Targets	=	Environmental Quality Objectives
Management Action Targets	=	Environmental Quality Criteria
NRM Programs/Activities	=	The Implementation Strategy
Monitoring	=	Monitoring Performance
Reporting	=	Reporting
Evaluation	=	Evaluation
		Review & Recommendations

APPENDIX 2: ACRONYMS

ANAO	Australian National Audit Office
AS/NZS ISO	Australia/New Zealand Standard
DCLM	Department of Conservation and Land Management
DIA	Department of Indigenous Affairs
DLI	Department of Land Information
DOE	Department of Environment
DOF	Department of Fisheries
DOA	Department of Agriculture
DOIR	Department of Industry and Resources
EMS	Environmental Management System
EMP	Environmental Management Program
EQC	Environmental Quality Criteria
EQO	Environmental Quality Objectives
EV	Environmental Value
M&E	Monitoring and Evaluation
NRM	Natural Resource Management
SOER	State of the Environment Reporting