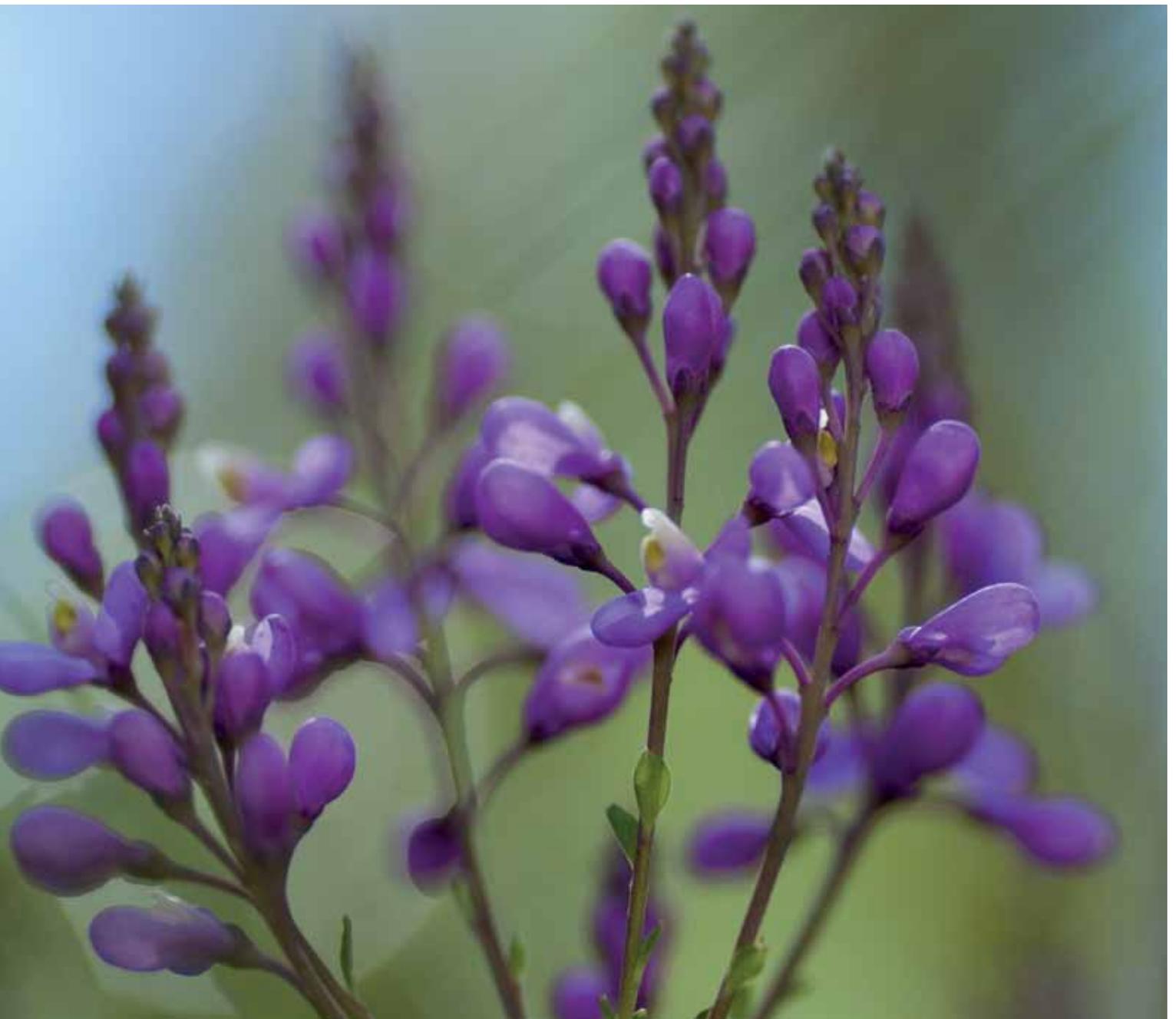Department of Sustainability and Environment

Monitoring, evaluation and reporting framework

Land, water and biodiversity

Department of
Sustainability and Environment

State Government
Victoria

Disclaimer

This publication may be of assistance to you but the State of Victoria and its
employees do not guarantee that the publication is without flaw of any kind or is
wholly appropriate for your particular purposes and therefore disclaims all liability
for any error, loss or other consequence which may arise from you relying on any
information in this publication.

Accessibility

If you would like to receive this publication in an accessible format, such as large print
or audio, please telephone 136 186, or email customer.service@dse.vic.gov.au

Deaf, hearing impaired or speech impaired? Call us via the National Relay Service on
133 677 or visit www.relayservice.com.au

This document is also available in PDF format on the internet at
www.dse.vic.gov.au

About this document

The Monitoring, Evaluation and Reporting (MER) Framework aims to improve the capacity of the Victorian Natural Resource Management (NRM) sector to communicate the outcomes of programs and policy. It also supports the efficient gathering of information to inform future decision making.

The audience for the MER Framework includes policy and program managers in the Department of Sustainability and Environment (DSE) and other NRM agencies that contribute to the management of Victoria's land, water and biodiversity.

This document outlines the scope, context and rationale for the Framework, describing guiding principles and defining key terms.

The Framework has been developed by the Monitoring, Evaluation and Reporting Unit, Natural Resources Division, in consultation with the DSE Monitoring, Evaluation and Reporting Working Group, Catchment Management Authorities and the Victorian Catchment Management Council.

This Framework is consistent with the Australian Government's NRM Monitoring, Evaluation, Reporting and Improvement (MERI) framework[1]. Both frameworks support documentation of the logical links between on-ground activities and planned outcomes as the central supporting structure for monitoring, evaluation, reporting and improvement through adaptive management.

This Framework will eventually be part of a package of documents that will include a set of standards to guide how MER should be done in Victoria. As Figure 1. below illustrates, the framework and standards will provide guidance for MER within NRM policy areas and for other NRM programs that interact with those policy areas.

Fundamentally, the Framework provides a common language for MER in plans and strategies. The standards developed will support improved consistency in implementation, monitoring, evaluation and reporting.
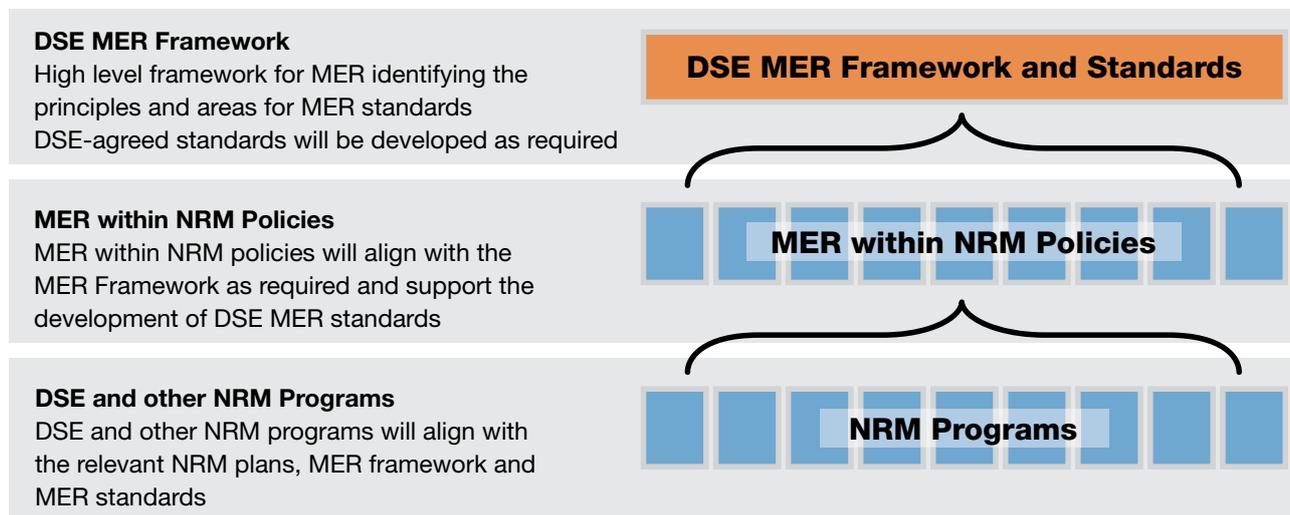
DSE MER Framework
High level framework for MER identifying the principles and areas for MER standards
DSE-agreed standards will be developed as required

MER within NRM Policies
MER within NRM policies will align with the MER Framework as required and support the development of DSE MER standards

DSE and other NRM Programs
DSE and other NRM programs will align with the relevant NRM plans, MER framework and MER standards

DSE MER Framework and Standards

MER within NRM Policies

NRM Programs

Figure 1 The Framework provides guidance for alignment between policies and programs.

---

1 The Australian Government's NRM MERI framework is available at **http://nrmonline.nrm.gov.au/catalog/mql:2338**

Scope

This framework applies to DSE and its key partners. It provides guidance for those policies and programs that seek to manage natural resources and ensure that the quality of the state's land, water and biodiversity are maintained and enhanced.

This framework provides a guide for MER at all levels of management – in projects, programs and policy. It can be applied at various times and geographic scales including local, regional and state-wide.

Specific advice on detailed standards and how they will impact regional managers and program and project delivery will be developed in the future, following appropriate consultation.

Context

The effective management of Victoria's land, water and biodiversity requires the government and community to have access to reliable information on which to base decisions.

Well planned MER plays an important role in supporting decision making that focuses on continuous improvement. Information generated from MER allows natural resource managers to adapt policies, programs and investment in response to risks and opportunities. Appropriate MER can also assist in improving accountability for the use of public funds. It can provide information on resource condition, the impacts of external drivers or management (known and unknown), recognising that the impacts of management activities (e.g. revegetation) generally occur on a smaller scale compared to external drivers such as environmental events (e.g. bushfire) or social changes (e.g. population growth).

Specifically, MER can provide information related to:

• Resource condition: the condition of natural resources

• External drivers: the impact of environmental events and social changes (e.g. climate change, bushfire, population growth) on resource condition

• Management: the location, impact and effectiveness of management in contributing to management outcomes and resource condition change. This management may or may not be known to NRM agencies.
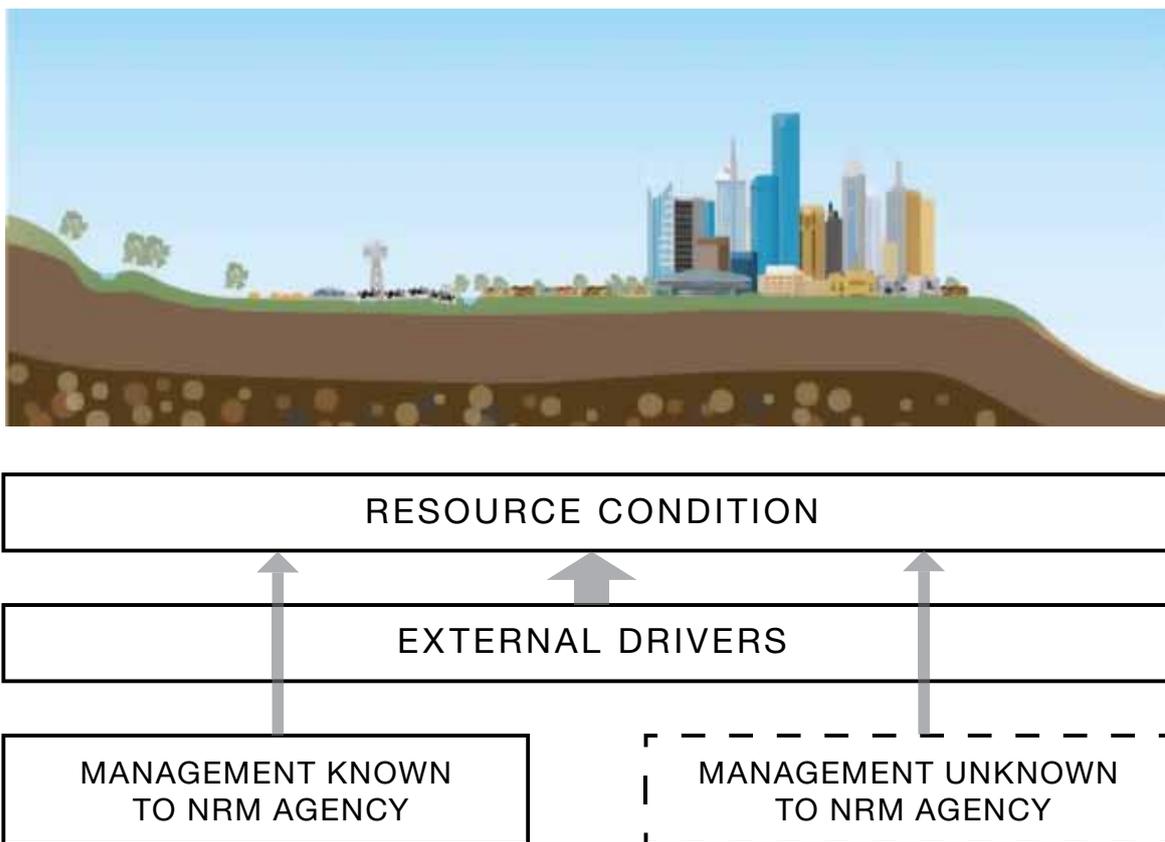

Figure 2. MER can provide information on resource condition, the impacts of external drivers or management (known and unknown).

Background

The need for this framework has emerged following substantial evidence that NRM programs that invest in outcomes for land, water and biodiversity find it difficult, if not impossible, to report to the community about the impact of their effort.

This results, not only in an inability to account to the community for the long term benefits of policies and programs, but underpins a real difficulty proving the future benefits of continued effort.

Approaches to MER have frequently been developed independently across different program areas, and vary across local, regional, state and national scales.

This has meant that, while a large volume of information exists, its collection has been driven through unrelated processes, using different methods and standards, which is then distributed and stored independently.

This approach:

- Has led to variability in the quality of approaches to MER

- Restricts collection and aggregation of information for national, state and regional reporting on the performance of policy and programs against resource condition and trends, and makes it difficult for agencies to evaluate and adapt to change

- Increases the likelihood of duplication and inefficiencies of effort and the risks associated with the creation of conflicting datasets

- Can lead to a perception of a lack of transparency in investment and planning processes

This framework sets out a consistent approach to key elements of natural resource management. It aims to help programs report more effectively to the community about the impact of policy and programs while efficiently gathering information to assist with improved decision-making.

The framework

During the development of this framework a set of underlying principles were identified to support the effective management of Victoria's land, water and biodiversity.

1. **Consistency**: Statewide programs should apply a consistent structure, approach and language when addressing MER.

2. **Accountability**: Decision-makers should be accountable to government and community for the alignment of policy and management activities.

3. **Performance**: Program managers should facilitate more effective procedures and practices to allow reporting on the performance of programs and policies.

4. **Collaboration**: Decision-makers should work collectively to identify projects that would value-add through greater collaboration.

5. **Knowledge and access**: Data, information and knowledge should be freely shared among decision-makers and supported by systems that allow new information to be efficiently incorporated.

6. **Adaptive management**: Decision-making should be underpinned by evidence-based information and supported by the best available science.

7. **Integrated management**: Recognition should be made of the linkages between land, water and biodiversity.

The adaptive management cycle for land, water and biodiversity can be broadly identified as having three stages: strategy and planning, implementation and monitoring and evaluation and reporting.

Figure 3. below demonstrates the adaptive management cycle. Knowledge and information management underpin the cycle, and are crucial for ensuring comprehensive and effective MER. Information is generated, collected, collated and transferred at various stages in this cycle.
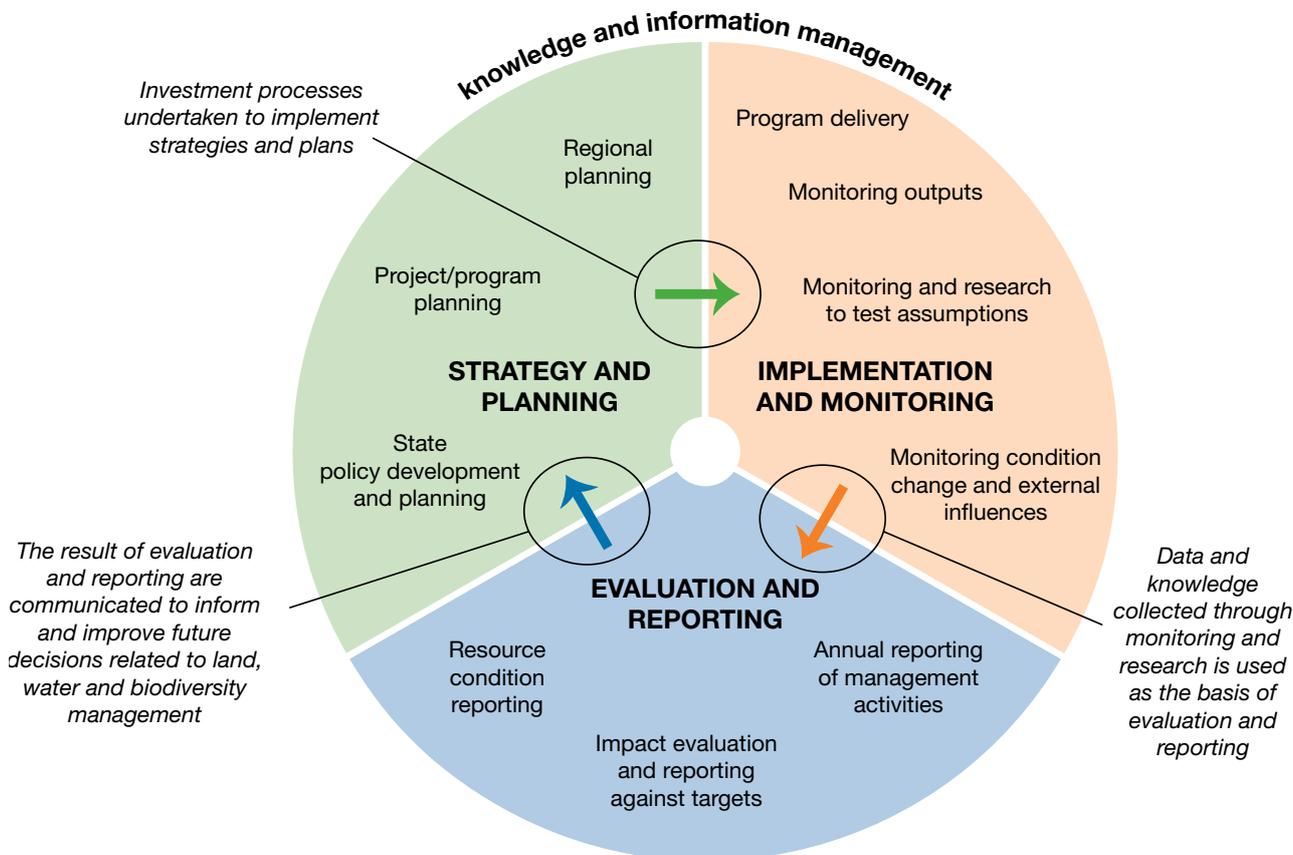

Figure 3. MER and key elements of the adaptive management cycle.

Applying the framework

Over time the further standards and guidance will be developed by government agencies that set state wide policy and investment priorities.

Table 1 outlines areas where there is a potential for development of standards and guidelines.

Table 1. Potential areas for developing standards.

	Potential areas for the development of standards	
1. Strategy and Planning	a) **Program logic**	Outlines the anticipated cause-and-effect relationships between program outputs, management outcomes and condition.
	b) **Key evaluation questions**	Pre-determined questions which frame periodic evaluation of the performance of policies, programs and projects. The questions should focus on impact, appropriateness, effectiveness, efficiency and legacy.
	c) **Targets and objectives**	Quantitative and qualitative, temporally and spatially bound, predicted outcomes based on the program logic.
	d) **Models and assumptions**	Documented relationships between components of the program logic.
2. Implementation and Monitoring	e) **Activity planning**	Process for understanding site scale assets, threats, objectives and workplan.
	f) **Activity delivery**	Minimum statewide standards for delivery of activities/outputs. These may include revegetation, in-stream habitat creation, pest control, community engagement and landholder agreements.
	g) **Output data**	Standard for the structure of outputs, definitions and attribute data.
	h) **Output data management**	The management (collection, transfer and centralised storage) of output data.
	i) **Output assessment**	Post works monitoring/surveillance standard.
	j) **Research to update assumptions for management outcomes**	Targeted research, conducted through robust experimental design, to improve our understanding of how outputs contribute to longer term management and condition outcomes.
	k) **Condition monitoring**	Periodic assessment of natural resource condition.
3. Evaluation & Reporting	l) **Audits**	Independent assessment of compliance with specific standards.
	m) **Management reporting**	Communication of the activities and outputs associated with natural resources investment and effort.
	n) **Management outcomes reporting**	Communication of the impacts on natural resources from investment, effort and policy.
	o) **Condition reporting**	Communication of the change and status of natural resource condition.
	p) **Evaluation**	Periodic assessment of policies and projects against key evaluation questions.

The application of the potential standards to the various elements of MER in the adaptive management cycle is shown in Figure 4. This diagram demonstrates the way elements of MER operate at different spatial and temporal scales, and/or have a different focus.
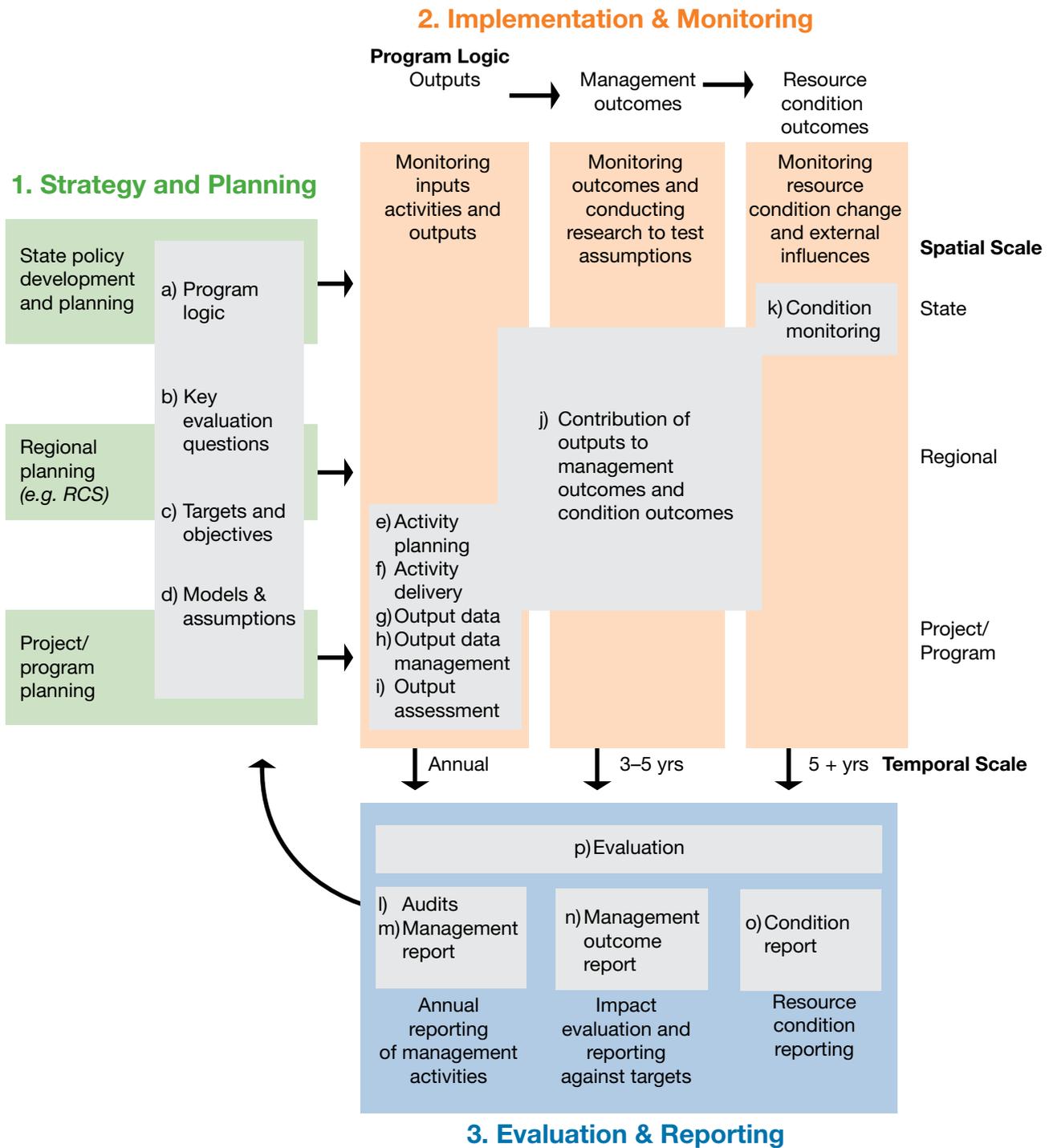

Figure 4. Elements of MER vary in relation to their frequency, scale and focus.

1. Strategy and Planning

Strategy and planning for natural resource management, including planning for MER, is done at a variety of levels. While the specific products of the planning process may differ, the process of planning should apply a common language and concepts. This will enable programs and agencies to better align their planning approaches.

MER is an integral part of strategic policy and program development. The following provides guidance on how MER components should be included in strategies and plans.

Program logic

Program logic models provide the basis for interrogating the program's 'theory of change'[2]. The logic documents assumptions and should inform, and be informed by, the development of monitoring and research programs.

A clear program logic, linking outputs to outcomes, should be documented. Documenting assumptions is important for informing research and monitoring programs.

The following categories of assumption should be considered during the development of the program logic:

- **Condition/threat**: assumptions associated with resource condition or threats to natural resources.

- **Effectiveness**: assumed likelihood that the management activity will result in the predicted outcome

- **Externalities**: assumed influence of environmental events or unknown management activities on resource condition or expected outcomes (e.g. climate change)

Key evaluation questions

Key Evaluation Questions (KEQs) should be generated to address the program's impact, appropriateness, effectiveness, efficiency and legacy. The KEQs should address assumptions presented in the program logic and their evaluation should provide direction for subsequent planning.

Models and assumptions

The program logic provides a useful starting point for more detailed analysis that may be required to identify assumptions, KEQs or clarify the choice of measures. As far as possible, models should provide a quantitative assessment of the connection between outputs and the expected outcomes.
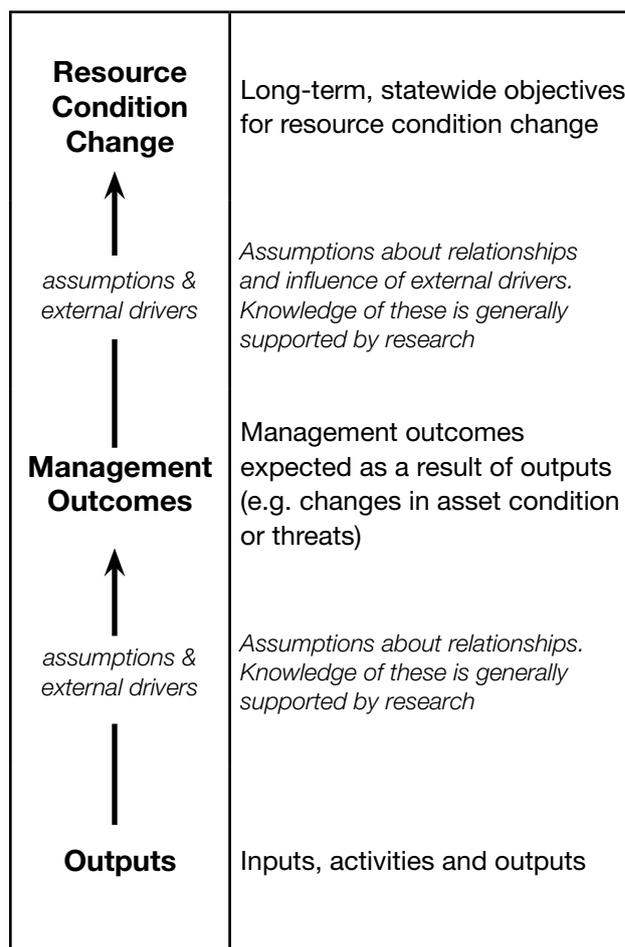

Figure 5. A simplified program logic demonstrating the relationship between long-term, resource condition objectives, outputs and management activities.

Implementation and monitoring

A plan or strategy should clearly outline how it will be implemented. Monitoring and research programs (who, what, how and when) should be clearly linked to the program logic and achievement of relevant objectives and targets. Specifically, research needs should be clearly related back to the relevant assumptions within the program logic model.

Evaluation and reporting

The responsibilities and procedures associated with evaluation and reporting on the plan or strategy should be clear and documented (who, what, how and when).

Knowledge and information management

Plans and strategies should clearly indicate how knowledge and information will be managed. Programs should seek to conform to relevant information standards where available.

---

2 In this case localised refers to the scale appropriate to the project or program under consideration.

2. Implementation and monitoring

Implementation

The implementation stage of the adaptive management cycle is the doing stage, outputs are delivered that are linked to outcomes as defined in the plan or strategy's program logic. Monitoring should be undertaken during and after implementation. Monitoring can take on three forms; intervention monitoring, research monitoring and surveillance monitoring.

Intervention monitoring

Intervention monitoring is used to provide information at any level of the program logic model. This monitoring can be used to help assess progress toward objectives and targets with respect to resource condition, management outcomes and outputs. To ensure appropriate consistency in approaches standards may need to be developed over time.

- **Resource condition**: There are a large number of condition measures used across catchment and land management agencies to indicate progress towards resource condition objectives. These measures need to be understood and any gaps in natural resource condition monitoring need to identified and addressed.

- **Management outcomes**: Monitoring should focus on actual or predicted outcomes achieved as a result of management activities. These outcomes should include 'localised" F changes to resource condition, threats to assets, management practices and/or community capacity.

- **Outputs**: Information on management activities should be collected to statewide agreed standards.

Research monitoring

Research monitoring is limited to research that seeks to test and validate the KEQs and underlying assumptions in the program logic model.

Research should focus on those key assumptions where confidence in predictions is low and the value for improved decision making is high. Research should provide increasing knowledge about the current condition and trend, the changing state of threats, the effectiveness of intervention and the influence of externalities.

Wherever possible programs and agencies should share information and/or reduce costs where research addresses similar assumptions, or is occurring in similar locations, particularly through:

- Shared learning: communication of results after completion of the research project

- Shared costs: identification of opportunities to co-invest in projects prior to commitment of funding.

Surveillance monitoring

Surveillance monitoring is the systematic strategic observation that looks for changes in natural resource condition and threatening processes. This monitoring can be used to provide valuable information to natural resource programs about their changing context. However, these changes are often outside the direct influence of management. This is also often referred to as condition monitoring.

3. Evaluation and reporting

Evaluation and reporting is the process of collating and analysing information gained through monitoring and research, and communicating the results of this analysis to inform future decisions. They are done at different times, across a variety of scales and may focus on different aspects of the program logic.

Evaluation

Evaluation is a way to deliver improved performance; it involves periodic assessment of policies, programs and projects against policy objectives. Evaluation should utilise all information available (e.g. monitoring, reports, audits, assumptions, externalities or expert opinion) to assess performance.

The processes should focus on assessing the following characteristics of the activity/program:

- **Impacts**: Changes to resource condition, management activities or institutions.

- **Appropriateness**: Addressing the needs of beneficiaries and against best practise.

- **Effectiveness**: Achievement of desired management outputs and resource condition objectives.

- **Efficiency**: Value of return from investment.

- **Legacy**: After the activity/program ends.

Evaluation should include a discussion of why a particular level of performance was/wasn't achieved, discuss the reasons for the trends described in the information, discuss the consequences for KEQ and assumptions and consider alternative strategies that might improve the performance of the activity/program in future.

Reporting

Reporting by the NRM sector is the exchange of knowledge and information for the purpose of:

- Communicating outcomes and challenges to the government, community and within and between agencies

- Demonstrating performance, accountability and transparency of management activities

- Informing adaptive and integrated management

Reporting occurs at all levels of management from project, program and policy and at various temporal and geographic scales including local, regional and statewide. Reports should be informed through the process of monitoring and evaluation.

In order to deliver on the goal of this framework, reports should provide information on the management and condition of land, water and biodiversity. The reports should be driven by statewide policy goals, priorities and targets.

Resource Condition Reporting

Reporting on the condition of land, water and biodiversity should involve long-term assessment against a defined set of standards using consistent measures and an appropriate resource condition monitoring regime.

Management Performance Reporting

The purpose of management reporting can be to ensure accountability or transparency, to demonstrating performance and achievement or to communicate new knowledge and information to inform adaptive management processes. The focus of reporting will depend on audience and purpose.

Reporting on the management of land, water and biodiversity essentially involves review and assessment against policies and plans. A review should test progress against predefined goals and objectives and aim to address pre-determined evaluation questions using consistent measures.

Reporting on management activities must occur at appropriate times during the life of the project, program or strategy. This will ensure collection of the management information over time to distribute cost and effort, and to inform continuous adaptive management processes throughout.

Glossary of common MER terminology

Planning term	Preferred definition
Activity/Action	The process of using labour and materials to produce outputs. In particular outputs related to planned outcomes.
Adaptive Management	Adaptive management is a systematic approach for improving resource management by learning from management outcomes.
Catchment	An area which, through run-off or percolation, contributes to the water in a stream or stream system (*Catchment and Land Protection Act, 1994*).
Catchment management	The co-ordinated management of land and water resources, using catchments as a basis (*CaLP Act*).
Condition/Quality/Health	The qualitative state of something described using specific criteria. In the program logic in this Framework the word 'condition' describes the qualitative endpoint for environmental policy. These condition outcomes may also include social and economic criteria.
Effectiveness	Achievement of desired management outputs and resource condition. Where efficiency refers to value of the process, effectiveness refers the quality of the result.
Efficiency	Value of return from effort and investment
Environment	The natural world, as a whole or in a particular geographical area, especially as affected by human activity. (Oxford Dictionaries <http://oxforddictionaries.com/definition/environment>).
Foundational	Used as a conditional statement to identify activity that supports the capacity to deliver outcomes, but is not attributed to specific outputs.
Goal/Objective	A qualitative description of what is desired in the long term. Goal and Objective are synonyms.
Immediate outcome	The impact of planned outputs measured during the timeframe described by a specific plan or strategy at 1–3 years. Short term is a synonym for immediate.
Indicator	A quantitative or qualitative factor or variable that provides a simple and reliable basis for assessing achievement, change or performance. It is a unit of information measured over time that can help show changes in a specific condition. A given goal or objective can have multiple indicators.
Input	Effort, materials, equipment and funds put into natural resource management to deliver outputs and, in the longer term, achieve management outcomes and resource condition change.
Intermediate outcome	The impact of planned outputs measured at a midpoint between immediate outcomes and longer term outcomes (usually 5+ years). A specific timeframe may be proposed e.g. at the end of a 5 year. Strategy. In this Framework this role is filled by management outcomes.
Intervention monitoring	Systematic tactical observation of natural resources which seeks to identify the impact of specific policy, programs and activities.
Land	Soil, water, vegetation and fauna on land (excludes a mineral within the meaning of the *Mineral Resources (Sustainable Development) Act 1990* and petroleum) (*CaLP Act*) This term is also variously used to refer to everything that is not water, an agricultural areas or, simply, ground. The *Planning and Environment Act* (1987) refers to land as buildings and other structures permanently fixed to land and land covered with water as well as any estate, interest, easement, servitude, privilege or right in or over land. Due to this complexity, use the term with care and always clarify the meaning.
Land water & biodiversity	A subset of the environment that refers to land, water in the environment, and plants and animals. A synonym for land and water resources and a synonym for Natural Resources
Long term	A period of time – usually 5 to 20+ years.

Planning term	Preferred definition
Longer term outcome	The proposed impact of planned outputs in the long term; beyond that measureable within the timeframe for activities related to a specific plan or strategy (see long term).
Management	Activities conducted as part of specific plans or strategies.
Management effectiveness	The degree to which natural resource activities and outputs contribute to management outcomes and objectives.
Management Outcomes	The impact of planned outputs that will be measured at the end of the timeframe described by a specific plan or strategy (usually 5+ years).
Natural resource/s	A subset of the environment that describes soil, water in the environment, plants and animals. "A synonym for land, water and biodiversity" and 'land and water resources' (in the sense used here, it excludes a mineral within the meaning of the *Mineral Resources (Sustainable Development) Act 1990* and petroleum) (*CaLP Act*).
Natural resource condition	The qualitative state of a natural resource at a particular time covering a defined spatial area and described using specific criteria.
Natural resources management	Any activity relating to the management, use, development or conservation of natural resources.
Output	The measureable result (good or service) of activity over a fixed period of time delivered to a standard.
Performance	A quantitative or qualitative description of progress toward defined outcomes.
Performance measure	Quantifiable units of measurement that can be used to determine and assess progress toward outcomes.
Program logic	A conceptual model that shows the rationale behind a program/ project or strategy – what are understood to be the cause-and-effect relationships between activities, outputs, management outcomes and resource condition change.
Standard Output	A standard output is an output that is part of an agreed list of outputs that form the basis for investment and planning purposes e.g. a list of standard outputs are used by the Victorian Investment Framework (VIF).
Surveillance monitoring	Systematic strategic observation of natural resources which seeks to identify changes in condition and threatening processes. These are often outside the direct influence of natural resource management, but can help provide important contextual information. Also referred to as condition monitoring.
Target	Quantitative description of desired outcome over a defined period.
Water resources	The quality, quantity, or rate of flow, of water (CaLP Act).

For more information call the
Customer Service Centre **136 186**

twitter.com/DSE_Vic

youtube.com/DSEVictoria

flickr.com/DSEVictoria

www.dse.vic.gov.au