



# 5.0 Monitoring, evaluation, reporting, and review



Processes of monitoring, evaluation, reporting, and review form an essential part of the natural resource management planning and implementation cycle, providing a structured and planned approach to keeping track of what we have achieved, how effective we have been in our efforts, and how the social and physical environment of the region is changing over time.

## 5.1 Objectives

The **objectives** of the regional monitoring, evaluation reporting framework are to:

- Monitor condition of Central Queensland's natural resource base (outcomes) against management action design and implementation (outputs) in the context of regional asset protection and addressing key pressures (Section 3: Regional targets and actions)
- Evaluate the effectiveness, efficiency, and the appropriateness of the priority investments including methods and tools applied and apply evaluation learnings to the on-going improvement of targets, priority actions and investments
- Account for funds expenditure and organisational performance through a structured reporting framework.

## 5.2 Principles for monitoring, evaluation, reporting, and review design and implementation

The following principles complement principles proposed for local, subregional or catchment, Queensland and national activities in monitoring, evaluation, reporting, and review. The proposed principles for the Framework ensures that monitoring and associated activities

- are useful for all partners
- avoid duplication of effort
- support meaningful interpretation of data
- uses data for multiple purposes
- focus on improving the capability of all participants
- employ a shared set of criteria or themes across all activities
- contribute to long term improvements by feeding back into the decision-making process
- incorporate opportunities for frequent and constructive communication at all stages of the process
- recognise the context (biophysical, climatic, social, institutional and political) within which the planning and activities are being progressed
- are practical and affordable.

Many of the above principles are also characterise an effective working partnership between regional stakeholders in an adaptive management focused monitoring system. This framework is action-oriented, consistent, cooperative, open, regional and decentralised.

## 5.3 National and Queensland monitoring, evaluation, reporting, and review frameworks

In designing the framework and subsequent activities, National and Queensland level policy and implementation frameworks relating to monitoring, evaluation, reporting, and review have been considered. These frameworks include the *National Monitoring and Evaluation Framework*, the *National Standards and Targets Framework* and the consolidation and expansion of these two documents into the *Queensland*



*Monitoring, Evaluation, Reporting, and Review Framework*, currently in draft form at the time of writing. These frameworks provide guidance on monitoring, evaluation, reporting, and review at the regional level and program-based requirements (NAP and NHT extension) for regional NRM plans.

A diagram of the proposed Queensland Monitoring, Evaluation, Reporting, and Review Framework, in which the contribution of activities from this regional monitoring, evaluation, reporting, and review framework can be seen in the context of overall Queensland and national activities appears in Appendix 1: NAP and NHT.

Principles, tools, frameworks and requirements specified by these documents are reflected in the components of this plan in preceding and following sections.

## 5.4 Adaptive management in natural resource management planning

Monitoring, evaluation and reporting activities contribute significantly to the adaptive management of activities within the CQSS2. This adaptive management approach provides for continuous improvement based on applying new information or learnings (the product of monitoring and evaluation activities, see Figure 2, p. 17), similar to the action-learning model that is widely recognised and used in the region. The value of the adaptive management cycle is that it recognises that people do not have full control over, or understanding of, the future of their environment and the interactions and their impacts of people with their environment. Building resilience of systems requires regular revision of management in order to identify and consider the status and identity of drivers and pressures of those systems.

## 5.5 Indicator selection

Targets set in this plan must be specific, measurable, achievable, relevant, and time bound (see Section 3: Regional targets and actions). This framework deals with the second of these requirements: measurability. To measure progress toward a desired condition, an indicator of that condition must be chosen. For any given asset, there are a number of indicators that assess that asset's condition with respect to the pressure of which the particular indicator is a measure. For instance, the condition of soil – the asset – can be measured by salt content or ground cover (among others). While they measure the condition of the same asset, they measure in the context of different pressures.

While specific indicators in this framework have not been selected by the community, the pressures they measure were identified during workshops conducted to set catchment targets (see Section 1: Community engagement). Thus, these indicators become a valuable aid to communication because the community has ownership of pressures identified and will therefore absorb information regarding indicators of pressures much more readily. Accordingly, efficiency of decision-making and consequently, resource condition, is improved. For these reasons, it is desirable to have a smaller rather than a larger number of indicators, some of which may be indices comprised of several actual measures, however, the strength of having one key indicator per pressure or per asset should not be overlooked. At this stage in our development, a larger number have been identified, however during the early implementation phase this should be refined.

Indicators used in this framework and in the plan generally have been selected in the following manner. Pressures have been identified as impacting on critical assets. Various indicators are used to measure this pressure. The National Core Indicators (NCIs) are the highest order indicators. Where no NCIs were applicable to a pressure, indicators of that pressure used in *1999 Queensland of the Environment Report* (SoE) have been selected. Where no appropriate indicator could be found in SoE, an indicator deemed to reflect the impact of the pressure on assets is used.

The Coastal CRC is conducting work to identify holistic indicators of estuarine health, and as this work is finalised, its findings will be incorporated into the monitoring, evaluation, reporting and review framework. The same group will investigate another aspect of adaptive management of complex systems over the next few years: the mapping of drivers of these systems and whether or not useful indicators of resilience can be determined.



## 5.6 Monitoring and Reporting Responsibilities

The Queensland Government is primarily responsible for monitoring of resource condition with responsibility for some particular parameters in particular locations being taken by local government. Under activities to address pressures on assets, some localised monitoring of resource condition may be necessary. It is likely that in these instances, funds will be allocated from relevant project/s to undertake that monitoring. In general, resource condition monitoring needs of this plan will be tailored to what is already being undertaken. Negotiations with Queensland agencies, local government, and industry to allocate resources to monitor, evaluate, and report resource condition will be conducted prior to preparation of the final version of the plan. It should be noted that no negotiations with respect to the allocation of resources to undertake resource condition monitoring have been undertaken. This process will begin immediately after accreditation.

### Components of the framework

#### Monitoring

This framework identifies three focal points of monitoring information:

- Resource condition matters for targets – to monitor change in resource condition, that is impacts on resource condition at the catchment and landscape scale, particularly the nationally agreed natural resource management outcomes
- Management action targets – to demonstrate achievement of management actions that lead to improved resource conditions; for example, the adoption of more sustainable resource management practices or the adoption of codes of practice leading to reduced sediment levels
- Financial activity – reporting on investment in achieving significant targets, regional plan development and implementation. Monitoring of financial activity will reveal performance against agreed milestones and outputs.

Monitoring of management action targets and financial activity will be undertaken by FBA, while monitoring of resource condition for the purposes of reporting on the joint programs is primarily the responsible of Queensland government.

#### Evaluation

Evaluation is the systematic and objective (and sometimes subjective) assessment of data. That data may relate to resource condition or a project, program, initiative or structure, including its design, implementation and results. It is undertaken to make useful information from data and to determine the relevance and fulfilment of objectives, efficiency, effectiveness, impact, and sustainability. It is an essential component of adaptive management as this exercise provides the link between data and planning and adaptation in the next cycle of management.



**Table 11: Evaluation and reporting framework**

Evaluation and review focus	Timing	Responsible	Reporting target
Accuracy of underlying data and assumptions; continuing appropriateness of regional targets	<ul style="list-style-type: none"> <li>• Ongoing with major effort in 3 year review</li> <li>• Trigger points</li> </ul>	FBA staff and Board with support where appropriate from Queensland and Australian governments	Queensland and Australian, FBA stakeholders, stakeholders through SoR
Effectiveness of plan in meeting regional NRM needs; strengths and weaknesses of implementation; contribution of national programs; review of priorities, targets, strategies and process	<ul style="list-style-type: none"> <li>• 3 years post accreditation</li> <li>• Trigger points</li> </ul>	FBA staff and Board with support where appropriate from Queensland and Australian governments	Queensland and Australian government, stakeholders
Effectiveness of regional investment plan in achieving objectives and providing cost efficient outcomes; refinement of cash flow projections	<ul style="list-style-type: none"> <li>• Annually</li> </ul>	FBA staff and Board	Queensland and Australian government, stakeholders
Effectiveness program/project in meeting objectives and progressing toward resource condition targets	<ul style="list-style-type: none"> <li>• At projects' end</li> <li>• Every two years for programs and at end of program</li> <li>• Trigger points</li> </ul>	FBA staff and Board with support where appropriate from Queensland and Australian	Queensland and Australian Government, and stakeholders
Continuing relevance of targets and milestones; obstacles to progress; changes needed to timelines	<ul style="list-style-type: none"> <li>• Annually</li> <li>• Trigger points</li> </ul>	FBA staff and Board with support where appropriate from Queensland and Australian	Queensland and Australian governments, stakeholders
Reasons for any significant monitoring, evaluation, reporting, and reviewing problems in meeting milestones for plan or major category of investments; changes required to plan or investment plan	<ul style="list-style-type: none"> <li>• Trigger points set in plan, investment program or project</li> </ul>	FBA staff and Board, Australian, Queensland to support as required	Queensland and Australian governments, stakeholders

In program/project evaluation, standard forms of evaluation will focus on one or more of the following aspects of programs:

- Effectiveness – How well have the project/programs delivered on their stated goals and objectives? Did they work? Did they do what they said they were going to do?
- Appropriateness – Were the program/project's strategies and mechanisms the most appropriate means of achieving objectives? All things considered, was this a sensible use of resources and people's effort for the problem at hand?
- Efficiency – How efficiently and cost-effectively did the project/ program funding achieve its outcomes? Were resources used efficiently or was there waste of some kind?

While these are generalised evaluation methods, in developing programs and projects, more explicit evaluation methods, whose responsibility each component is, and when it should be undertaken, will be determined.



## Review

Reviews are used to share information and perspectives on project or program progress, identify and take actions that may be required to put an initiative back on track, or to overcome constraints. A review looks at data or findings and takes a long view in evaluation rather than taking a snapshot in time. Findings of reviews should assist in maintaining accuracy and relevance of plans and programs. Reviews are action oriented and influence decision-making.

Each program of the Regional Investment Strategy will be reviewed after an appropriate interval, which will be scheduled in program development. These reviews will consider outputs of projects in relation to objectives, potential changes to objectives or changes in direction of program. In addition to regular scheduled reviews of programs and activities, triggers may be applied to provide an early warning of the need to conduct a review. These triggers relate to

- Results that fall beyond a prescribed range
- Expenditure beyond a nominated percentage outside budget forecast figures
- Stakeholder or investor feedback
- New information relating to links between actions and resource condition
- Refinement of targets
- Impacts on social and economic circumstances of groups, sectors, and communities.

Reviews will be undertaken using appropriate human resources, independent where necessary, as directed by the FBA Board.

As well as program review, the Regional Investment Strategy will undergo refinement and adjustment on an annual basis to ensure the Board can provide a sufficient level of detail with respect to forecast expenditure to investors: Queensland and Australian Government and external investors. Preparation of the Regional Investment Strategy has provided greater detail in the first year of expenditure than in subsequent years. Annually, review will provide the greater level of detail required for the operating year.

This plan itself will be the subject of further review. The draft circulated to stakeholders for comment is amended to incorporate those comments in this version. Further review will be undertaken according to the following triggers

- Stakeholder or investor feedback
- New information relating to links between actions and resource condition
- Refinement of targets
- Impacts on social and economic circumstances of groups, sectors, and communities
- Three years from accreditation, i.e. 2007. This coincides with the end of the time frame of the current Regional Investment Strategy.

While review according to the first four points will be ongoing, and amendments will be incorporated on an as needed basis, the three-year review will be a formal public review incorporating the invitation of submissions, structured stakeholder consultations, and scientific review.



## Reporting

Reporting is the mechanism for communicating progress toward targets and program objectives. It allows incorporation of evaluated data into the next cycle of adaptive management. As well as informing the region of progress, reports from regions provide the basis for Queensland level reporting of progress in programs. Report form will be appropriate to the intended audience.

In accordance with the Activity Agreement between the Queensland Government and the FBA, FBA will report on NAP and NHT funding quarterly against financial expenditure and twice yearly against performance measures detailed in Schedule 2 of the Activity Agreements. Outputs will be the first subject of this reporting, and will be reported according to categories decided by the Australian and Queensland governments. As management activities are achieved, reporting captures information that shows the link between outputs, achievement of management action targets, and improved resource condition.

## 5.7 State of Region Reporting

Progress toward resource condition and management targets will be reported through a State of the Region Report using information from a regional information system to be developed in collaboration with state and regional investment. The benchmark for condition of critical assets with respect to specific indicators is detailed in Appendix 3: Regional overview. This report follows the Pressure – State – Response format of the *1999 State of the Environment Report*.

Reporting is the critical communication tool between FBA and the Central Queensland community (see Section 5: Communication). FBA is responsible for reporting outputs, progress toward targets, achievement of targets, any changes to the plan as a result of progress, and changes to reported resource condition as a result of improved information. FBA will report to Central Queensland stakeholders through a variety of means, including: State of the Region Reporting, annual reports, stakeholder council meetings, sector group representation, media publicity, and regular newsletters. (It should be noted here that this represents a one-way form of communication; Section 1.4 Developing the plan provides detail on how FBA encourages and is responsive to communication from stakeholders).

State of Region Reporting forms the critical link between evaluation of monitoring data and the next cycle of planning. Once developed, the Reporting system should be a first port of call for those involved in planning and assessing plans for natural resource condition and trend information as well as certain social and economic information. Commitment by stakeholders to its development and use will be an important first step.

## 5.8 Implementing the framework & links to the investment plan

The table below represents current knowledge of measurement status of indicators of resource condition, including the indicators of condition and trend of minimum matters, for which targets have been set. It should be noted that FBA is responsible for *reporting* on condition and trend of resources for which targets have been set. FBA however is not responsible for *collecting* data for that reporting: FBA is responsible for collecting data related to the performance of the plan within the boundary of outputs and management actions. Therefore that table below identifies the group responsible for collecting data on both resource condition and management actions, but it should be understood that reporting information regarding resource condition, management actions, and outputs would be undertaken by FBA.

Note:

\* Denotes an indicator of condition of a Minimum Matter.

∞ Denotes that the indicator is measured, but not in strategic locations and/or at an appropriate scale



Resource condition / Management Action Matters for Targets	Indicator	Component indicator	Measurement status for regional reporting OR strategy to achieve measurement	Responsibility for collecting data	Targets set
Land salinity*	Area threatened by shallow or rising groundwater	Depth to groundwater	Measured, but at coarse resolution	Queensland Government	R7 R8 M10
		Groundwater salinity	Measured	Queensland Government	
		Location and size of salt affected areas	Not measured	Queensland Government	
Soil condition*	Groundcover	%age of soil surface covered	Not measured <i>Methodology to be developed</i>	Queensland Government	R2 M2 – M3
	Soil acidification	Acidification of cropping land (ha)	Not measured <i>Possible use of surrogates</i>	Queensland Government	R9 M11
		Acid sulphate soils (ha)	Some mapping of high risk areas <i>Further mapping project under development</i>	Queensland Government	
	Soil erosion – water	Water erosion hazard ratings	No empirical measures, estimates using SedNet and EMSS models	Queensland Government	R2 M2 – M3
		Rate of loss	No empirical measures, estimates using SedNet and EMSS models	Queensland Government	
	Soil erosion – wind	Dust storm index	Measured and reported	Bureau of Meteorology	
		Accelerated erosion index	Measured and reported	Bureau of Meteorology	
	Soil carbon content		Not measured <i>Possible use of surrogates</i>	Queensland Government	
	Soil physical condition	Diminished soil structure (ha)	Not measured <i>Possible use of surrogates</i>	Queensland Government	
	Surface hydrophobicity	Not measured <i>Possible use of surrogates</i>	Queensland Government		
Soil biota activity		Not measured <i>Possible use of surrogates</i>	Queensland Government		



Resource condition / Management Action Matters for Targets	Indicator	Component indicator	Measurement status for regional reporting OR strategy to achieve measurement	Responsibility for collecting data	Targets set
Condition of native forest estate	Merchantable annual increment		Not measured	Queensland Government	R12 – R13 M13 – M14
	Growth rate		Not measured	Queensland Government	
	Regional value of product		Not measured	Queensland Government	
	Extent of estate		Not measured	Queensland Government	
Rate of clearing*		Annual rate of clearing of vegetation (ha/yr)	Measured and reported	Queensland Government	R14 – R19 M15 – M18
Native vegetation* communities' integrity	Native vegetation extent and distribution	The extent of native vegetation by IBRA subregion (ha)	Measured and reported	Australian and Queensland Government	R14 – R23 M15 – M19
		The extent of each present native vegetation type by IBRA subregion (ha)	Measured and reported	Australian and Queensland Government	
		The proportion remaining of each native type by IBRA subregion, percentage of pre-European extent	Measured and reported	Australian and Queensland Government	
	Native vegetation condition	Components not yet identified	Not measured <i>Methodology under development</i>	Queensland Government	



Resource condition / Management Action Matters for Targets	Indicator	Component indicator	Measurement status for regional reporting OR strategy to achieve measurement	Responsibility for collecting data	Targets set
Inland aquatic ecosystem integrity (rivers and wetlands)*	River condition	Components not yet identified	Measured AusRivAs/State of Rivers	Australian and Queensland Government	R20 – R23 M19 R26 – R29 M23
	Length of functional riparian area	Length protected	Measured	FBA	
	Success of fish passage		Methodology to be developed	Queensland government	
	Wetland ecosystem extent and distribution		Mapping underway	Australian and Queensland Government	
	Wetland ecosystem condition		Condition assessment methodology under development	Australian and Queensland Government	
Estuarine, coastal, and marine habitats' integrity*	Estuarine, coastal, and marine habitat extent and distribution		Mapping underway	Australian and Queensland Government	R9 M11 R20 – 25 M19 – M22
	Estuarine, coastal, and marine habitat condition	Components not yet identified	Condition assessment methodology under development	Australian and Queensland Government	
Nutrients in aquatic environments*	Nitrogen in aquatic environments		Measured ∞	Queensland Government, Local Government	R2 M2 – M3 R30 – R31 M24
	Phosphorus in aquatic environments		Measured ∞	Queensland Government, Local Government	
Surface water salinity in freshwater aquatic environments*	Instream salinity		Measured ∞	Queensland Government, Local Government	R7 – 8 M10 R31 R10 – R11 M12
Turbidity/suspended particulate matter in aquatic environments	Turbidity/suspended solids		Measured ∞	Queensland Government, Local Government	R2 M2 – M3 R30 M24 R10 – R11 M12



Resource condition / Management Action Matters for Targets	Indicator	Component indicator	Measurement status for regional reporting OR strategy to achieve measurement	Responsibility for collecting data	Targets set
Other surface water contaminants	Heavy metals		Measured ∞	Queensland Government, Local Government	R10 – R11 M12
	Pesticides		Measured ∞	Queensland Government, Local Government	
Acidity or alkalinity of surface water	pH		Measured ∞	Queensland Government, Local Government	R10 – R11 M12
Aeration of surface water	Dissolved oxygen		Measured ∞	Queensland Government, Local Government	R10 – R11 M12
Significant native species and ecological communities*	Extent of selected significant native species and ecological communities		Measured and reported	Australian and Queensland Government	R14 – R29 M15 – M23
	Conservation status of selected significant native species and ecological communities		Measured and reported	Australian and Queensland Government agencies	
Ecologically significant invasive species*	Extent of selected ecologically significant invasive terrestrial and aquatic pest species		Measured ∞	Queensland Government, Local Government	R3 – R4 M5 – M7



Resource condition / Management Action Matters for Targets	Indicator	Component indicator	Measurement status for regional reporting OR strategy to achieve measurement	Responsibility for collecting data	Targets set
Invasive species	Impact of selected ecologically significant invasive terrestrial and aquatic pest species	Percentage of assets affected; Regional expenditure on control and management	Measured ∞	Queensland Government, Local Government	
	Presence of new ecologically significant invasive pest species		Measured ∞	Queensland Government, Local Government	
Atmospheric condition	Greenhouse gas emissions		Regional accounting not at an advanced stage	Australian and Queensland Government	R6 M9 R10 – R11 M12
Land managed for conservation	Area under protection and voluntary conservation agreements		Measured	Queensland Government	R17 – R19 M16 – M17
Critical assets identified and protected*	Critical Assets Register		Measured	FBA	
Water allocation plans developed and implemented*	Water Allocation Plans		Measured	Queensland Government	R32 – R34 M25 – M26
Improved land and water management practices adopted*	Adoption of sustainable management practices		Not measured, some will be measured in regional output reporting	FBA and Queensland Government	R1 – R48 M1 – M37
	Percentage of region covered by neighbourhood catchment planning		To be measured in regional output reporting	FBA	M1
	Number of neighbourhood catchment planning		To be measured in regional output reporting	FBA	



Resource condition / Management Action Matters for Targets	Indicator	Component indicator	Measurement status for regional reporting OR strategy to achieve measurement	Responsibility for collecting data	Targets set
Improved land and water management practices adopted* (continued)	Networks established in key locations		To be measured in regional output reporting	FBA	M1
	Number of landholders implementing practices for increased groundcover		To be measured in regional output reporting	FBA	M2 – M4
	Percentage of landholders actively adopting IPM		To be measured in regional output reporting	FBA and Queensland government	M5 – M7
	Percentage of local government implementing IPM		To be measured in regional output reporting	FBA and local government	
Fire	Fire management targets		To be measured in regional output reporting	FBA	M8
Salinity	Extent of appropriate management practices on recharge areas		To be measured in regional output reporting	FBA and Queensland government	M11
Acid sulphate soils	Protection of ASS risk areas		To be measured in regional output reporting	Queensland Government and local government	M12
Mining environmental management	Compliance with EMOS and Environmental authority		Measured	Queensland Government	M12
Forestry management	Forestry Code of Practice development and implementation		Measured	Queensland Government	M13
Greenhouse gas emissions	Carbon emission targets		Measured ∞	Australian and Queensland Government	M9



Resource condition / Management Action Matters for Targets	Indicator	Component indicator	Measurement status for regional reporting OR strategy to achieve measurement	Responsibility for collecting data	Targets set
Vegetation management	Level of compliance with RVMP		Measured	Queensland government	M15
	Area voluntarily protected		To be measured in regional output reporting	FBA	M16 – M17
	Vegetation regenerated		To be measured in regional output reporting	FBA	M18
Species recovery and protection	Species recovery and habitat protection plans		To be measured in regional output reporting	FBA	M19
Coastal planning	Compliance with Coastal Management Plan (State and/ or Regional)		Measured	Queensland Government	M20 – 22
Riparian area management	Kilometres riparian area protected		Measured	FBA	M23
Wetland protection	Area of wetland protected		To be measured in regional output reporting	FBA	
Fish passage	Barriers to migration		To be measured in regional output reporting	FBA and Queensland government	
Water quality*	Water quality targets set		To be measured in regional output reporting	FBA	M24
Water resource plan	WRPs, ROPs finalised and implemented		Measured	Queensland Government	M25
	Callide Valley water management plan		Measured	Queensland government	M26
Co-management with traditional owners	Numbers of agreements for Indigenous co-management		Measured	Queensland government	M27 – M29
Culturally important sites	Numbers of culturally important sites protected		Measured	Queensland government	
	Inventory of cultural sites		Measured	Queensland government	



Resource condition / Management Action Matters for Targets	Indicator	Component indicator	Measurement status for regional reporting OR strategy to achieve measurement	Responsibility for collecting data	Targets set
Native title rights	Native title rights determined		Measured	Australian and Queensland government	M29
Traditional owner access	Number of traditional owner groups with access to country		Not measured	Australian and Queensland government	
Business resilience	Uptake of options to increase business resilience		Not measured	FBA	M30
Social viability	Net outflow of youth		Measured	Australian government	M31 – M32
	Employment levels of Indigenous and youth		Measured	Australian government	
	Community participation	Knowledge of groups & individuals recognised		Not measured	FBA
Regional coordination	State of Region Reporting developed and used		To be measured in regional output reporting	FBA	M34

