Reef Trust Partnership

Monitoring and Evaluation Plan
Updated October 2021

Australian Government

REEF TRUST

Great Barrier Reef Foundation

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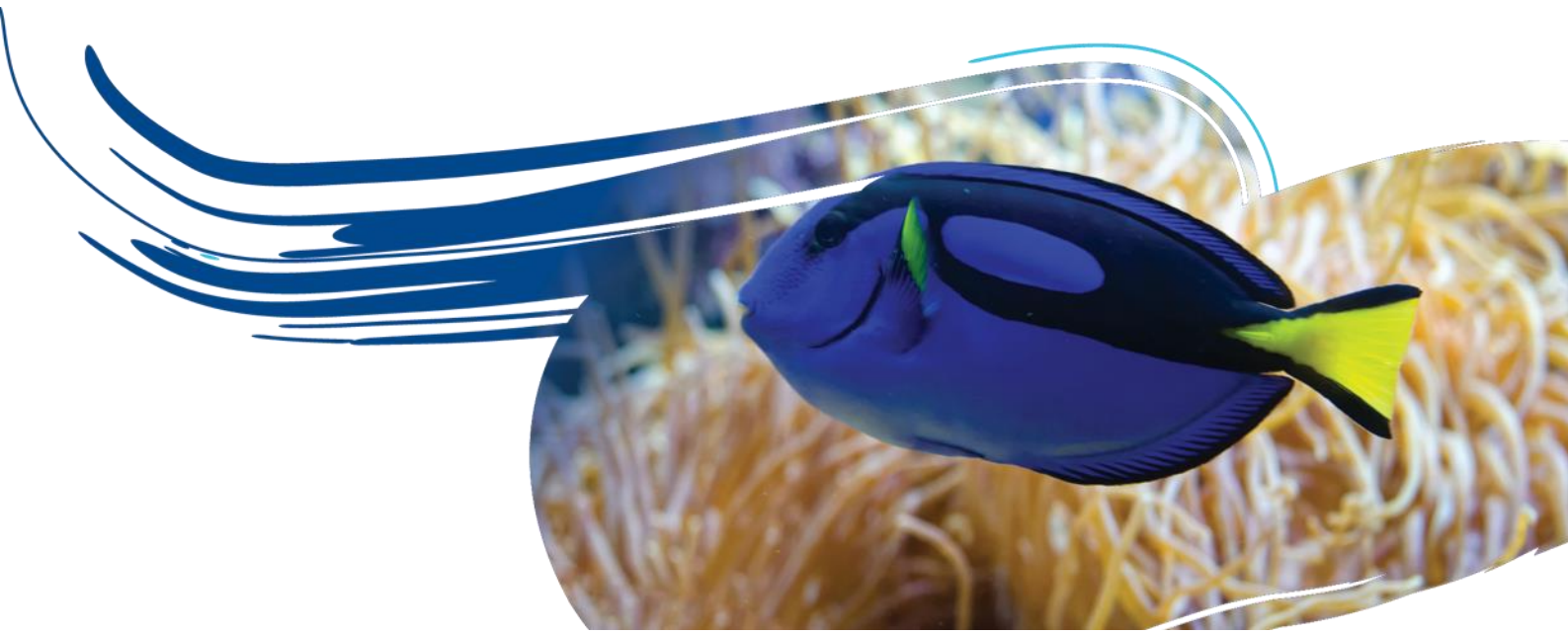


Acronyms

ANAO	Australian National Audit Office
COTS	Crown-of-thorns starfish
DIN	Dissolved inorganic nitrogen
DPSIR	Driver Pressure State Impact Response
DoEE	Australian Government Department of the Environment and Energy
DAWE	Australian Government Department of Agriculture, Water and the Environment
DSS	Decision-Support System
GBRF	Great Barrier Reef Foundation
GOOS	Global Ocean Observing System
GBRMPA	Great Barrier Reef Marine Park Authority
IFF	Innovative Finance and Funding
IMOS	Integrated Marine Observing System
IMR	Integrated Monitoring and Reporting
IPM	Integrated Pest Management
KEQs	Key evaluation questions
LMACs	Local Marine Advisory Committees
M&E	Monitoring and Evaluation
MERIT	Monitoring, evaluation, reporting and improvement tool
MIPs	Major integrated projects
NESP	National Environmental Science Program
NRM	Natural Resource Management
OGBR	Office of the Great Barrier Reef
P2R	Paddock to Reef Integrated Monitoring Modelling and Reporting program
PMC	Partnership Management Committee
R&D	Research and Development
RIMReP	Reef 2050 Integrated Monitoring and Reporting Program
RRA	Reef restoration and adaptation
RRAP	Reef Restoration and Adaptation Program
RRAS	Reef Restoration and Adaptation Science
TOWG	Traditional Owner Working Group
WQIP	Reef 2050 Water Quality Improvement Plan

Preface

The Great Barrier Reef (the Reef) is the largest living structure on the planet and is so large it can be seen from space. It's home to the most extraordinary array of animals and birds, and is often referred to as the rainforest of the sea. Sir David Attenborough describes it as:

"one of the greatest, and most splendid natural treasures that the world possesses."

Today, however, the Reef is under threat from climate change and local stresses. We need the help of all Australians to protect and restore the Reef. Over the last two decades, the Great Barrier Reef Foundation (GBRF) has drawn together the many groups who are working to protect the Reef. There are hundreds of people and organisations working to achieve this including universities, research institutions, government agencies, scientists, Traditional Owners and community groups. The GBRF is the place where these myriad groups (large and small) come together to work on the highest priority projects which will have the greatest impact on protecting and restoring the Reef.

Underpinning this partnership is a record government investment of $443.3 million to tackle critical issues of water quality and crown-of-thorns starfish control, harness the best science to restore reefs and support reef resilience and adaptation, enhance Reef health monitoring and reporting, and increase community engagement on the Reef.

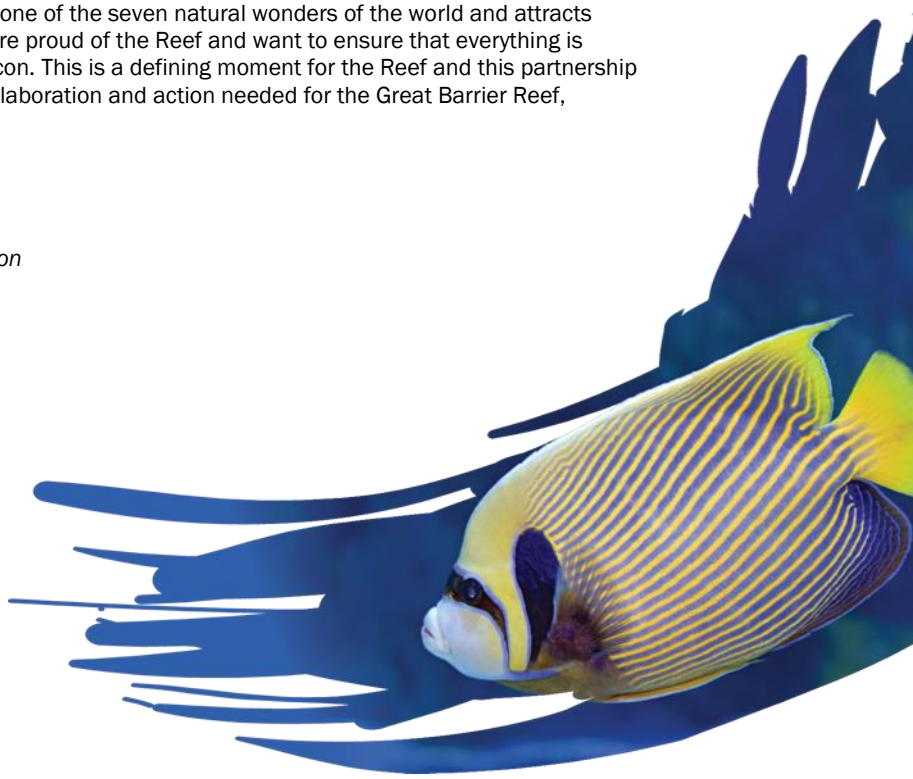
Through the Reef Trust Partnership, GBRF is leading the collaboration of science, business, government, industry, philanthropy and community to amplify the impact of this investment and the benefits it delivers for the Reef. Our guiding principles in delivering this partnership are transparency and accountability.

The GBRF recognises Aboriginal and Torres Strait Islander peoples are the Traditional Owners of the Great Barrier Reef. We are committed to meaningful collaboration and engagement with Reef Traditional Owners throughout the delivery of the Reef Trust Partnership, including the co-design of policies, programs and investments.

The Great Barrier Reef is globally recognised as one of the seven natural wonders of the world and attracts over two million visitors each year. Australians are proud of the Reef and want to ensure that everything is being done to protect and restore our national icon. This is a defining moment for the Reef and this partnership is an unprecedented opportunity to drive the collaboration and action needed for the Great Barrier Reef, now and for the future.

Anna Marsden

Managing Director, Great Barrier Reef Foundation



1 Executive summary

The Reef Trust Partnership (the Partnership) is a $443.3 million six-year Grant between the Australian Government and the Great Barrier Reef Foundation (GBRF) to build on and support delivery of the Reef 2050 Plan. The overall objective of the Partnership is to *achieve a significant, measurable improvement in the health of the Great Barrier Reef World Heritage Area* via three specific outcome areas:

- Improved management of the Great Barrier Reef and relevant activities in the adjacent catchments;
- Protection of attributes that contribute to the outstanding universal value of the Great Barrier Reef, including species, habitats and Indigenous values; and
- Management of key threats to the Great Barrier Reef, including poor water quality and crown-of-thorns starfish outbreaks.

The Monitoring and Evaluation Plan sets out how the performance of the Partnership will be measured over five years to 2023-2024 and provides a robust methodology for credibly demonstrating both the outcomes and broader impact of the Partnership, across all six inter-related Partnership Components:

- Component 1: Administrative activities
- Component 2: Water quality activities
- Component 3: Crown-of-thorns starfish control activities (COTS Control)
- Component 4: Reef restoration and adaptation science activities (RRAS)
- Component 5: Indigenous and community Reef protection activities
- Component 6: Integrated monitoring and reporting activities (IMR).

The Plan is an essential instrument to demonstrate accountability and ensure key challenges are addressed and sustained benefits are delivered to the Reef, in accordance with the Reef 2050 Plan. It will inform learning and improvement across the Partnership, including the prioritisation of investment, and be critical for testing the Partnership assumptions and processes which underpin the delivery of change.

Core to the Monitoring and Evaluation Plan are component-specific program logic models that articulate how change is expected to occur and identify the outcomes that each component expects to have achieved or significantly influenced by the end of the Partnership ('end of Partnership outcomes'). End of Partnership outcomes across the Components are provided in the diagram overleaf. Each component has individual monitoring and evaluation plans based on their component's logic model. Projects delivered within the components have their own monitoring and evaluation requirements, ensuring the components have the monitoring and evaluation data to understand and demonstrate component effectiveness.

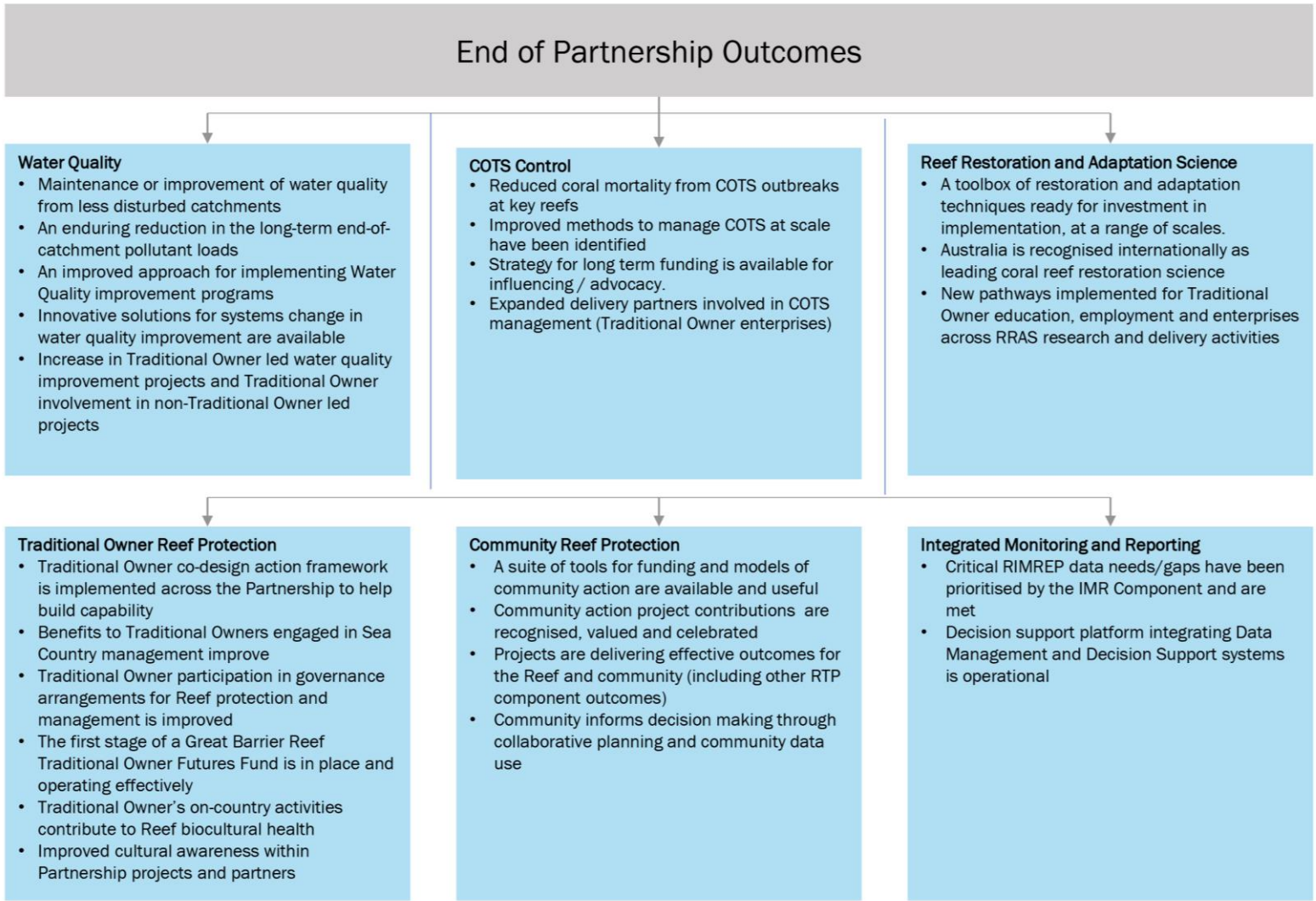
There are five key evaluation questions (KEQs) that form the basis for Partnership monitoring and evaluation data collection and reporting. These questions focus on both the outcomes of the Partnership and its specific components, and the principles and approaches to achieve these outcomes, and include:

1. How well is the Partnership upholding its principles?
2. To what extent are our principles still relevant and meaningful?
3. To what extent is the Partnership on track to contributing to a significant and measurable improvement in the health of the Great Barrier Reef World Heritage Area?
4. What other impacts has the Partnership had to date?
5. To what extent is the Partnership being implemented in accordance with the Grant Agreement?

To answer these questions, the Partnership is drawing on monitoring and evaluation data collected through the six components, via implementation of component-specific monitoring plans. Partnership performance is evaluated annually using synthesised component monitoring and evaluation data, complemented with data collected at the Partnership level. In 2021, at the mid-term point of the Partnership period, performance has been assessed by an external expert panel, bringing independence to the annual internal evaluation process and providing a sharper focus for the Partnership.

This Monitoring and Evaluation Plan represents a very significant body of work and wouldn't have been possible without the contribution of many individuals who have openly shared their knowledge and lessons learnt.

Figure 1. Partnership Outcomes Framework



2 Approach to monitoring and evaluation

2.1 M&E Plan development process

The Partnership Monitoring and Evaluation Plan was developed via a three-stage process, in accordance with the Partnership Grant Agreement. Stage 1, completed in November 2018, resulted in the development of a draft M&E framework, and is referred to as Monitoring and Evaluation Plan (Stage 1). In December 2018 the Reef Trust Partnership Investment Strategy was produced, providing a high-level roadmap for how the Partnership will deliver on each of the priority components included in the Grant Agreement, and outlining component-level investment strategies. The Investment Strategy provided the detail required to further develop the M&E framework.

The Monitoring and Evaluation Plan (Stage 2) was completed in March 2019 and incorporated the further planning for the Partnership undertaken since November 2018, as well as consultation with key component stakeholders on M&E requirements. Program logics were developed for Partnership components, clarifying the expected cause and effect relationships between component activities and their outcomes, and Partnership key evaluation questions (KEQs) were identified.

This Final Monitoring and Evaluation Plan (Stage 3) superseded the Stage1 and Stage 2 documents and was informed by the Partnership Annual Work Plan (first published in July 2019). It describes Partnership and component-level performance expectations, the latter within specific component-level M&E plans. Specific data collection requirements and evaluation processes are also described within this Plan.

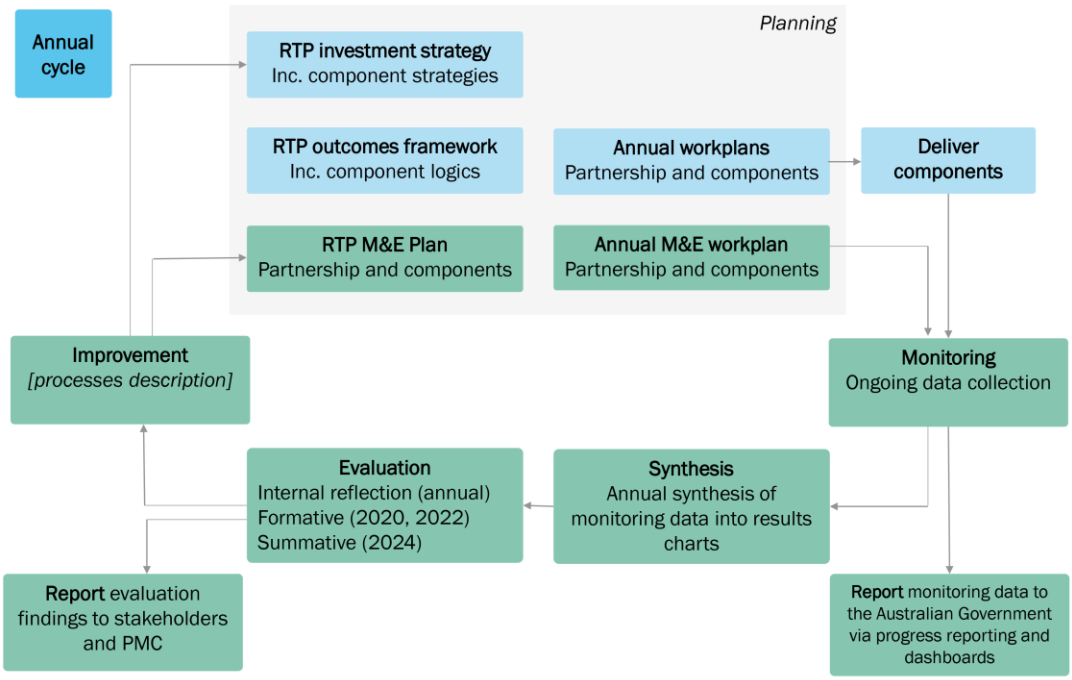
The M&E Plan is structured around several guiding constructs, including KEQs and the use of program logic models. Each of the core elements of the M&E Plan, summarised in section 2.3, were informed by extensive consultation with GBRF staff responsible for the implementation of the Partnership and its components, as well as the funder (Australian Department of the Environment and Energy) and other key stakeholders. Wherever possible, alignment was sought with the Reef 2050 Plan review and program logic development process. The M&E Plan is a living document which will be updated regularly, reflecting progress with the delivery of the Partnership investments and annual cycle of Annual Work Plan development.

In October 2021, following the mid-term evaluation, the Plan was updated to include revised program logic models and monitoring plans for all components, reflecting the current understanding of each component. In addition, the Partnership KEQs were revised to remove duplication in the original KEQs.

2.2 Approach to monitoring and evaluation

Figure 2 shows how monitoring and evaluation is planned and delivered across the annual cycle of the Partnership. The Partnership Investment Strategy, Partnership Outcomes Framework and Partnership M&E Plan are the starting point ‘umbrella’ documents for the duration of the Partnership and provide an enduring basis for annual work plans and associated M&E plans. Activity under the Partnership is implemented according to the annual work plans and at the same time, monitoring and evaluation activity in implemented according to the annual M&E work plans. Ongoing data collection (monitoring) is used in two ways: a) to report progress to the Australian Government via a series of interactive M&E dashboards; and b) for ongoing ‘just in time’ adaptive management of the components. Monitoring data is also synthesised annually to provide the data required for three forms of evaluation: a) annual internal reflection; b) formative (mid-term) evaluation in 2021; and c) summative evaluation at the end of the Partnership funding period in 2024. Evaluation findings are then used for reporting and adaptive management, that feeds into the next annual cycle of planning and implementation, of both component activity and component M&E.

Figure 2. M&E annual cycle of the Partnership



Key evaluation questions have been developed to focus monitoring and evaluation on the areas of the Partnership for the primary audience for M&E is most interested, which includes the outcomes of the Partnership and its specific components (the 'what'), as well as the principles and approaches to achieve these outcomes (the 'how').

The M&E approach is based on non-experimental methods for evaluating outcomes and impact. This includes:

- causal (program logic) models at the component level, describing how the Partnership is likely to produce intended changes, and articulation of key causal assumptions;
- collection of data against the models; and
- examination of both whether the evidence is consistent with what would have been expected if the Partnership was producing the changes, and whether other factors have also contributed to, or indeed provide an alternative explanation for, the identified changes[1].

Program logic has been utilised to clarify the expected cause and effect relationships between component activities and their intermediate and **end of Partnership outcomes**[2]. This forms the basis for targeted data collection to support assessment of, and reporting on, component and Partnership effectiveness and impact. The use of program logic has also clarified the 'line of accountability', distinguishing what the Partnership can reasonably be held accountable for achieving by 2024 and the **broader goals** the Partnership is contributing towards.

The key causal assumptions underpinning the component logic models have also been made explicit and an assessment made of the evidence for/against each assumption, the confidence in the assumption, and the risk each assumption poses to the achievement of outcomes. The component M&E plans include a focus on monitoring and/or evaluating weak causal assumptions[3], as this is an essential part of the evidence of Partnership performance.

Component-level M&E plans outline the monitoring questions and/or indicators to guide data collection against prioritised outcomes of the component logics and thereby generate evidence of progress towards end of Partnership outcomes. As the projects that comprise the components have been awarded, more detailed M&E planning has been undertaken to ensure the M&E information required for each component is being collected at the project level as well.

1 Rogers, P; Hawkins, A; McDonald, B; Macfarlan, A; and Milne, C (2015) Choosing appropriate designs and methods for impact evaluation.
2 The program logic models do not consider or represent the relative importance of activities and outcomes. As such they do not supersede the Partnership investment planning process and associated prioritisation of activities over the term of the Partnership. While there is strong alignment between the program logic models and the Partnership Annual Work Plan, the latter will deal with the sequencing and prioritisation of effort and investment.
3 Weak causal assumptions are those for which there is little confidence in the assumption, due to there being little existing evidence for the assumption, or evidence against the assumption.

Indicators are deliberately pitched at the intermediate outcomes level, acting as lead indicators for the longer-term end of Partnership outcomes, and are independently verifiable.

Collectively, these good practice M&E planning approaches – the use of program logic to articulate how change is expected to occur, the explicit articulation of assumptions, a focus on monitoring and/or evaluating weaker causal assumptions, and the use of performance measures pitched at the intermediate outcomes level – are the building blocks for demonstrating Partnership outcomes and impact via non-experimental methods.

Tracking and reporting progress

Component monitoring data is used to track progress and ensure the components are on track to achieving expected outcomes. Where appropriate, component-level monitoring data is captured and synthesised into results charts, structured against the component program logics. The results chart provides the evidence base for component progress towards expected outcomes and be utilised in six-monthly whole of Partnership reflections meetings to support Partnership-level decision making and inform six-monthly progress reporting.

Evaluation

Evaluation occurs annually, with varying levels of independence:

- Annual evaluation (without Expert Panel) – the use of component monitoring data to make evaluative judgments of the individual components and the Partnership as a whole. It includes a more substantial analysis of performance than that of the six-monthly cycle, producing findings against the KEQs. It includes an annual workshop comprising the GBRF Partnership team to collectively make sense of the data, discuss and agree findings, and develop recommendations for the next annual cycle of delivery.
- Mid-term and end-of Partnership evaluations –including an Expert Panel to bring independence to the preparation of findings and development of recommendations. This was recently completed at the mid-point of the Grant Agreement in 2021, and an end of Partnership evaluation will occur in 2024.

Principles for Partnership M&E

The following principles underpin the approach to Partnership M&E:

- **Aspirational.** An aspirational vision for the M&E of the Partnership will be considered and incorporated where possible, including that the M&E Plan:
    - provides a foundation that allows a new benchmark for monitoring, evaluation and learning in the Reef/marine ecosystem – an opportunity to be progressive rather than meet minimum requirements
    - provides a scalable model for interdisciplinary monitoring in the Reef space
    - considers potential for post-funding M&E and embedding what has worked in Partnership M&E into other existing systems, e.g. the Paddock to Reef Integrated Monitoring Modelling and Reporting program (P2R), and the Reef 2050 Integrated Monitoring and Reporting Program (RIMReP).
- **Culturally appropriate.** Traditional Owners are embedded in M&E, ensuring the planning, collection, analysis and use of M&E information is culturally appropriate. More specifically, the principles underpinning broader Traditional Owner aspirations for the Reef apply:
    - Empowerment – enhance, not replace, fit-for-purpose Traditional Owner structures (rights-based)
    - The Traditional Owner way
    - Sharing communication and celebration between and amongst Traditional Owners
    - Mandate and effective Indigenous advocacy
    - Inscription not prescription – genuine co-governance at all scales
    - Overarching and legitimised – learn and leverage from existing structures
    - All Traditional Owners have equal voice at the scales that are important to them
    - Traditional Owner rights are inherent, not permitted.
- **Incorporates lessons from Natural Resource Management (NRM) investment evaluation.** Lessons from evaluating NRM investments in general and Reef investments in particular, including Australian National Audit Office (ANAO) audits of Reef Trust design and implementation, have and will continue to be incorporated.

  This includes providing information on the extent to which objectives and outcomes are on track to being achieved, rather than predominantly activity information.
- **Does not duplicate/is consistent with existing M&E systems.** The M&E complements existing monitoring systems for Reef health or Reef management effectiveness and feed into them where appropriate.
- **Is robust and reliable.** Uses robust, fit-for-purpose methods, provides a clear rationale for the choice of data (qualitative and quantitative) used, and produces quality evidence.
- **A culture of M&E.** Supports a culture of monitoring and evaluation being 'part of what we do' within the Partnership.

For further details on how the Partnership M&E Plan has incorporated lessons from NRM investment evaluation (ANAO expectations specifically) and is designed to be consistent with existing M&E systems as well as other relevant programs and frameworks, see Appendix 3.

2.3 Elements of the M&E Plan

Figure 3 provides a schematic of the structure of the M&E Plan and includes a set of simple questions, used throughout the M&E Plan, to help orient the reader to the different sections of the Plan.

Section 3 provides a description of Partnership outcomes and the integration between components. This describes *what the Partnership is aiming to achieve and how*, including Partnership contribution to the Grant Agreement outcomes and Reef 2050 Plan outcomes. This section also outlines the principles guiding Partnership delivery and the core assumptions underpinning the Partnership.

Section 4 provides the purpose and scope of Partnership M&E, explaining why we want M&E. It includes the primary audience for Partnership M&E, and the areas prioritised for evaluation focus based on audience needs.

Section 5 introduces the key evaluation questions (KEQs) that the Partnership M&E Plan will address, outlining what we want to know about the Partnership.

Section 6 describes the approach to assessing Partnership performance, in the form of performance expectations, which outlines what the Partnership is expecting to achieve.

Section 7 outlines the monitoring data collection requirements, providing an overview of what data will be collected to address the KEQs.

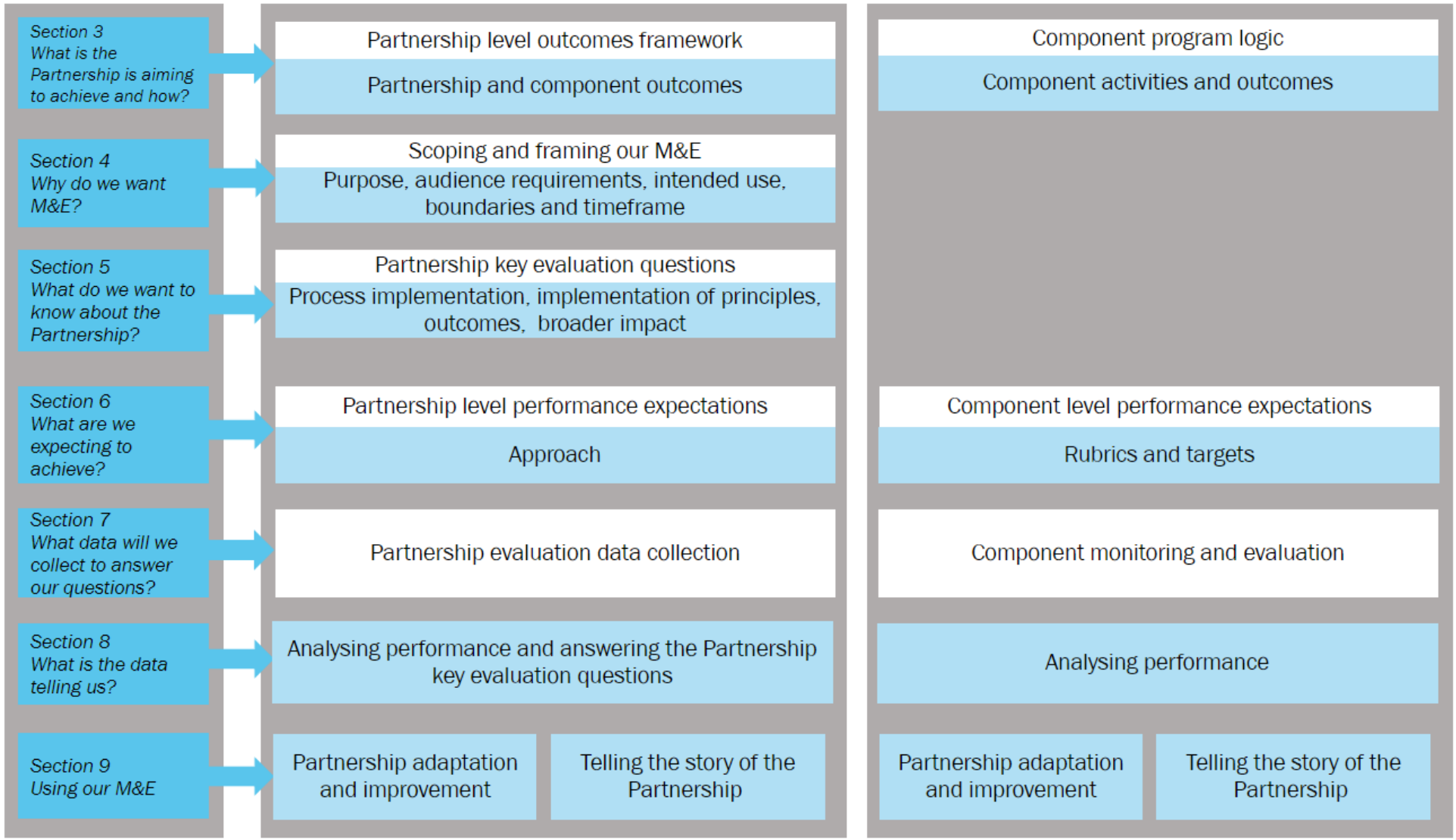
Section 8 describes the points at which evaluation will occur, and how, and the process for bringing component-level M&E data together to make Partnership-level evaluative judgements, i.e. how to make sense of what the data is telling us and evaluate Partnership performance. It includes processes for how independence will be brought to Partnership evaluation.

Section 9 describes the process of using M&E information for Partnership adaptation and improvement and telling the story of Partnership performance (reporting).

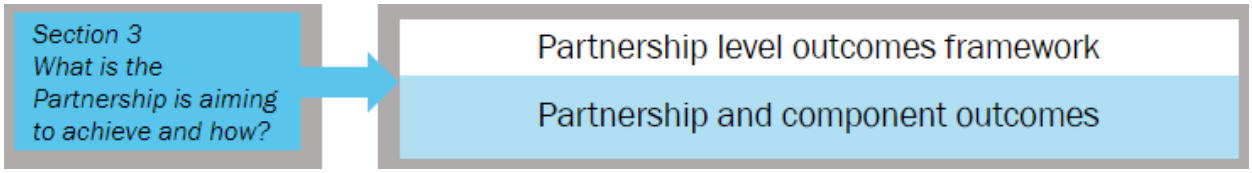
Sections 10-16 include the component-level monitoring plans which include:

- A description of the component, including a program logic model showing the expected cause-and-effect relationships between component activities, and intermediate and end of Partnership outcomes, a narrative to accompany the model, the interactions between the components, and principles and key assumptions underpinning the component
- the scope of the component monitoring plan
- the performance expectations for prioritised end-of Partnership outcomes for the Component
- the plan for monitoring the progress of the component for prioritised intermediate outcomes, including performance measures.

Figure 3. Structure of the M&E Plan document



3 Partnership outcomes



3.1 Introduction

This section outlines what the Partnership is aiming to achieve, and how, including the principles guiding the delivery of the Partnership and the key assumptions underpinning the logic of the Partnership.

The Partnership is framed in two distinct but complementary ways to provide a basis for M&E planning:

1. An overarching outcomes framework that shows the high-level line of sight between the Partnership component outcomes, the expected Grant Agreement outcomes, the Reef 2050 Plan outcomes, and the broader goals for the Great Barrier Reef World Heritage Area (Figure 4).
2. A diagram showing how the components and their outcomes relate to each other (Figure 5).

A description of each is provided below.

3.2 Partnership outcomes framework

Figure 4 outlines an Outcomes Framework for the Partnership. It shows that the broader (shared) goal for the Partnership is to ensure the Great Barrier Reef is sustained as a living natural and cultural wonder of the world[4]. As per the Grant Agreement, the Partnership is expected to achieve *a significant, measurable improvement in the health of the Great Barrier Reef World Heritage Area…underpinned by innovation, science and community engagement* via three specific outcome areas, which collectively frame the ways in which the Partnership will build on and support delivery of the Reef 2050 Plan. These are:

- **Improved management** of the Great Barrier Reef and relevant activities in the adjacent catchments
- **Protection of attributes** that contribute to the outstanding universal value of the Great Barrier Reef, including species, habitats and Indigenous values
- **Management of key threats** to the Great Barrier Reef, including poor water quality and crown-of-thorns starfish outbreaks.

The outcomes-focused components of the Grant Agreement will contribute, individually and collectively, to these three outcomes areas.

Figure 4 shows a high-level summary of the component-specific outcomes. Detailed logic models at the component level are provided in sections 10-16 of this document[5].

4 The updated Reef 2050 Plan is currently under review, and the revised vision in the draft version for public consultation is the Great Barrier Reef is sustained as a living natural and cultural wonder of the world.
5 While monitoring and evaluation effort will be applied to Component 1 (Administrative Activities), it is not included in the Partnership Outcomes Framework as it doesn't have its own unique investment 'outcomes'. Rather, it supports Components 2-6 to achieve their outcomes through ensuring effective and appropriate governance and project management systems and processes are in place. The Reef Trust Partnership Investment Strategy provides for two separate investment strategies for Component 5 (Indigenous and Community Reef Protection) - the Traditional Owner Reef Protection investment strategy and the Community Reef Protection investment strategy. Thus, the Partnership Outcomes Framework includes six outcomes areas, rather than the five outlined in the Grant Agreement.

3.3 Component integration

The Partnership brings the six outcomes-focussed components together into one Portfolio, providing the opportunity to design and deliver on these outcomes in an integrated way, to maximise the co-benefits that can be achieved and provide considerable efficiency dividends as outcomes from one component can inform and strengthen the outcomes of others.

This concept – that the value of the Portfolio is greater than the sum of the Grant Agreement component parts – is an important part of the framing of the Partnership for M&E purposes, as evaluation needs to capture not only progress towards component outcomes as articulated in the Grant Agreement but the synergies between the components that enable the additional value of the Partnership to be realised.

Figure 5 shows how the portfolio of components and their outcomes relate to each other. Essentially, the Traditional Owner Reef Protection, Community Reef Protection and IMR components are cross-cutting components, while the Water Quality, COTS Control and RRAS components are 'stand-alone', even though they interact with each other, and with the cross-cutting components. Collectively, the integrated components contribute to the three specific Reef Trust Partnership outcome areas of improved management of the Great Barrier Reef and relevant activities in adjacent catchments; protection of attributes that contribute to the Outstanding Universal Value of the Great Barrier Reef; and management of key threats to the Great Barrier Reef.

3.4 Principles guiding Partnership delivery

The Investment Strategy incorporates and is guided by a suite of Partnership principles, comprising the guiding principles set out in the Grant Agreement, Reef Trust investment principles, and Reef 2050 Plan principles and priorities[6]. The following represents the grouping of the different sources of principles relevant to the Partnership into a consolidated set of principles for the Partnership:

- Strategic and targeted
- Measurable outcomes
- Integration delivering multiple benefits
- Additionality and complementarity
- Cost effectiveness
- Collaboration, partnerships and co-investment
- Evidence-based and scientifically robust
- Transparency and accountability
- Solution-driven innovation
- Future-focus, dynamic and adaptive.

The purpose of clarifying the principles underpinning the Partnership[7] is to help focus M&E effort, as adherence to the Partnership principles has been identified as an area of evaluation focus.

3.5 Assumptions underpinning the Partnership

There are three key assumptions underpinning the logic of the Partnership. The first two relate to the model of delivery, i.e. that bringing investment into a range of Reef 2050 Plan outcomes together under an umbrella Portfolio, and taking a partnership approach, is expected to maximise effectiveness and efficiency, while the third assumption relates to the science underpinning current targets and actions.

- **Partners have the capacity and willingness to innovate and collaborate and scale up.** We are proposing an accelerated, integrated program and will be relying on delivery partners to join in this effort with an innovative and collaborative spirit, and the capacity and commitment to deliver.
- **The philanthropic approach enables greater leverage and co-investment than typical government funding approach.** GBRF was selected to lead this effort, in part because of its ability to use this investment to leverage even greater investments from global philanthropic and corporate actors. Realising this promise will be key to increasing impacts and benefits.
- **Reef 2050 projections and targets are consistent with best available science.** The Grant Agreement obliges the Partnership to deliver in accordance with the Reef 2050 Plan; we assume Reef 2050 Plan targets and actions are based on best available science and will be updated in response to new information, emerging issues and changing circumstances.

6 In addition to these, the Reef 2050 Plan Independent Expert Panel recommended a set of principles that should underpin the Partnership, all of them consistent with and/or complementary to those specified in the Grant Agreement.
7 The principles underpinning the Partnership relate to the way in which the Partnership is delivered; these are different to the M&E principles, which relate to the way M&E for the Partnership is conducted. The M&E principles are provided in Section 3.2.

Figure 4. Partnership Outcomes Framework

THE BROADER GOAL FOR THE GREAT BARRIER REEF WORLD HERITAGE AREA

To ensure the Great Barrier Reef is sustained as a living natural and cultural wonder of the world.

THE REEF TRUST PARTNERSHIP OBJECTIVE

Achieve significant, measurable improvement in the health of the Great Barrier Reef World Heritage Area in accordance with the Reef 2050 Plan and underpinned by innovation, science and community engagement.

THE REEF TRUST PARTNERSHIP OUTCOMES

Improved management | Protection of attributes | Management of key threats

REEF TRUST PARTNERSHIP COMPONENT OUTCOMES

Water Quality

Broader goals:

- Good water quality sustains the Great Barrier Reef, builds resilience, improves ecosystem health and benefits communities and Traditional Owners
- The quality of water entering the Reef has no detrimental impact on the health and resilience of the Great Barrier Reef
- The cultural significance of our water is maintained

End of component outcomes:

- Maintenance or improvement of water quality from less disturbed catchments
- An enduring reduction in the long-term end-of-catchment pollutant loads
- An improved approach for implementing Water Quality improvement programs
- Innovative solutions for systems change in water quality improvement are available
- Increase in Traditional Owner led water quality improvement projects and Traditional Owner involvement in non-Traditional Owner led projects

COTS Control

Broader goals:

- Coral cover is improved across the Great Barrier Reef
- Primary outbreaks are suppressed
- COTS Control Program has sustainable long-term funding that complements government funding.
- New and emerging Traditional Owner Reef related enterprises flourish

End of component outcomes:

- Reduced coral mortality from COTS outbreaks at key reefs
- Improved methods to manage COTS at scale have been identified
- Strategy for long term funding is available for influencing / advocacy.
- Expanded delivery partners involved in COTS management (Traditional Owner enterprises)

Reef Restoration and Adaptation Science

Broader goals:

- Coral restoration and adaptation techniques are being actively used in resilience-based management of the Great Barrier Reef
- A new marine restoration industry is enabled

End of component outcomes:

- A toolbox of restoration and adaptation techniques ready for investment in implementation, at a range of scales.
- Australia is recognised internationally as leading coral reef restoration science
- New pathways implemented for Traditional Owner education, employment and enterprises across RRAS research and delivery activities

Traditional Owner Reef Protection

Broader goals:

- Great Barrier Reef Traditional Owner Funding Facility is established
- Relationships brokered between Traditional Owners and partners are based on mutual respect and trust
- Reef policy and programs are in line with Traditional Owner Principals
- Knowledge sharing agreements are established
- Traditional Owners have the resources and capability to manage Country
- Traditional Owner commercial interests and Intellectual Property are protected (includes culture)
- Capacity of Traditional Owner Land and Sea management organisations and enterprises are established and strengthened

End of component outcomes:

- Traditional Owner co-design action framework is implemented across the Partnership to help build capability
- Benefits to Traditional Owners engaged in Sea Country management improve
- Traditional Owner participation in governance arrangements for Reef protection and management is improved
- The first stage of a Great Barrier Reef Traditional Owner Futures Fund is in place and operating effectively
- Traditional Owner's on-country activities contribute to Reef biocultural health
- Improved cultural awareness within Partnership projects and partners

Community Reef Protection

Broader goals:

- Community action is valued as a cornerstone of Reef resilience and enabled through enduring funding & program models
- People and communities take individual and collective action to maintain Reef resilience
- Governance systems are inclusive, coherent and adaptive

End of component outcomes:

- A suite of tools for funding and models of community action are available and useful
- Community action project contributions are recognised, valued and celebrated
- Projects are delivering effective outcomes for the Reef and community (including other RTP component outcomes)
- Community informs decision making through collaborative planning and community data use

Integrated Monitoring and Reporting

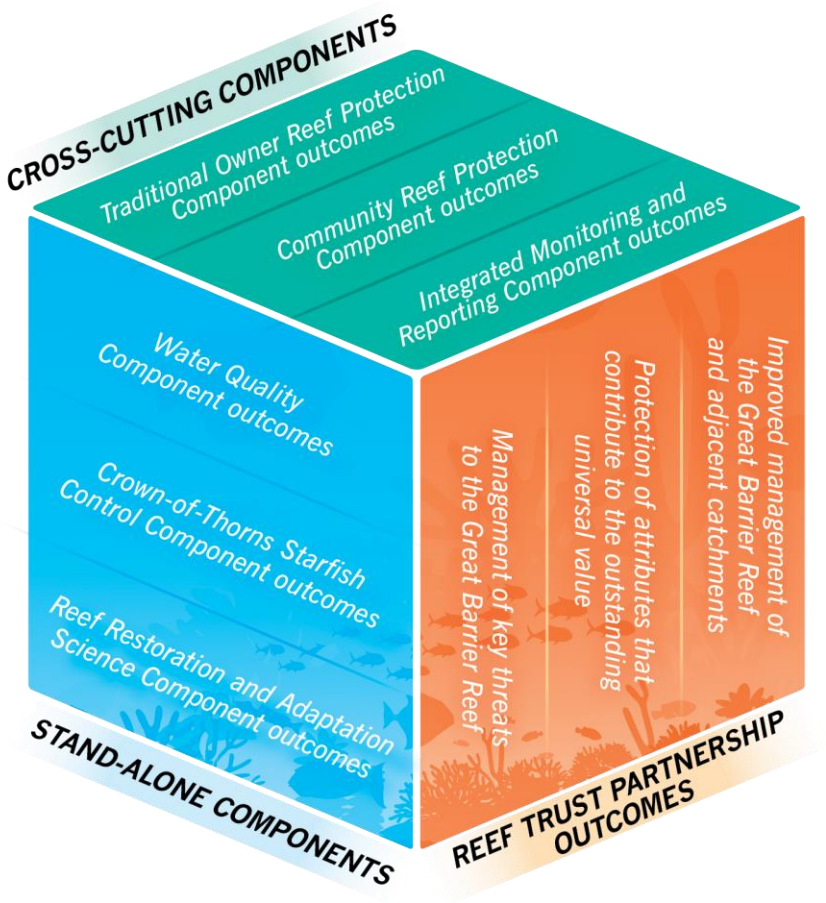
Broader goals:

- Resilience based management of the Great Barrier Reef is operationalised.
- A fit for purpose Great Barrier Reef data / knowledge value chain is in place

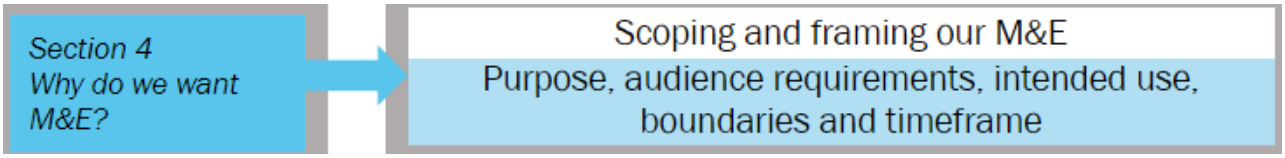
End of component outcomes:

- Critical RIMREP data needs/gaps have been prioritised by the IMR Component and are met
- Decision support platform integrating Data Management and Decision Support systems is operational

Figure 5. Portfolio components and key interactions



4 Purpose and scope of Partnership M&E



4.1 Purpose

The purpose of the Partnership M&E Plan is to:

- Satisfy the accountability and performance requirements of the Partnership Grant Agreement
- Inform learning and improvement across the Partnership, including prioritising investment
- Test Partnership assumptions and process steps which underpin the delivery of change.

4.2 Audience

The primary audiences for Partnership M&E, i.e. those that will reflect on and use Partnership M&E information to make decisions about the Partnership and its components, include:

- Great Barrier Reef Foundation Board
- GBRF Partnership team
- Partnership Management Committee (PMC) which includes representatives from the Great Barrier Reef Marine Park Authority (GBRMPA), the Queensland Government Office of the Great Barrier Reef (OGBR) and the Australian Department of Agriculture, Water and the Environment (DAWE).
- Component-specific working groups
- Delivery partners – involved in implementation and operationalisation.

4.3 Focus and boundaries

The areas of evaluation focus[8] that meet the primary audiences' needs include:

- Outcomes of the Partnership
- Broader impact of the Partnership
- Process implementation
- Implementation of Partnership principles.

The M&E Plan covers all activity invested in under the Partnership to deliver on Reef 2050 Plan outcomes during the period of the Grant Agreement (2018-2024), i.e. is limited to the Grant Agreement's contribution to the relevant Reef 2050 Plan outcomes. It excludes monitoring and reporting on the condition of the Great Barrier Reef[9] in general.

8 For the purposes of M&E, the Partnership makes a specific distinction between 'outcomes' and 'impact':
- Outcomes include:
  - The core intended outcomes expected of each component
  - The intended synergies between components
- Impact includes:
  - Non-core outcomes: broader anticipated positive impacts of the Partnership, including the 'multiple benefits' leveraged across components
  - Conditions the Partnership is providing for enduring progress towards Reef 2050 Plan outcomes into the future (beyond the Partnership timeframe)

9 See Appendix 1 for an explanation of how Partnership M&E fits with the DPSIR framework.

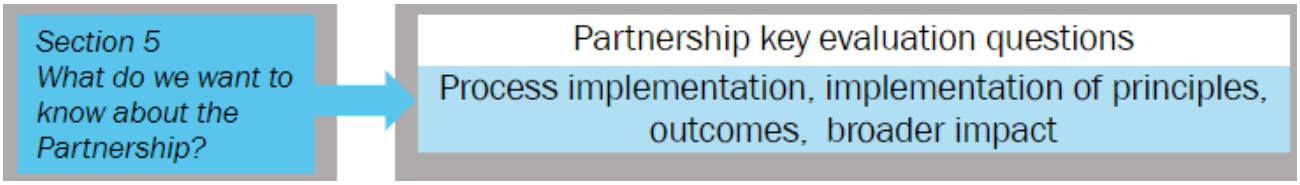
4.4 Resourcing

The Grant Agreement makes available resources for the planning and implementation of Partnership M&E. Table 1 outlines how implementation of the M&E plan is and will continue to be resourced.

Table 1. Resourcing implementation of the M&E Plan

Level	Resourcing arrangement	FTE equivalent
Component		
M&E data collection – general component activities	Component-level Program managers (guidance from Component Project Directors)	2.5 FTE
Synthesis of component activity M&E information		
Component progress reporting		
Bi-annual component reporting via progress reporting and M&E dashboards		
M&E data collection – grant project activities	Grantee	NA – grant specific
Partnership		
Additional (non-component) data collection	Partnership Program Manager and ad-hoc support from consultants (guidance from Partnership Project Director)	1 FTE
Synthesis of component-level M&E information		
Bi-annual Partnership progress reporting and dashboards		
Annual reflection workshops, annual evaluations, expert reviews and grantee capacity training		
	External resources	$100,000 per annum

5 Key evaluation questions



The Partnership key evaluation questions (KEQs) crystallise the purpose of the M&E Plan and the primary audience's information needs for understanding Partnership outcomes, impact, process implementation and adherence to principles.

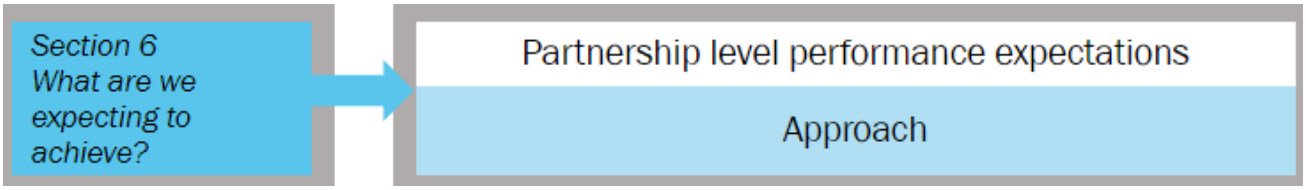
The KEQs (Table 2) provide the organising construct for all monitoring and evaluation activities at both the Partnership and component levels, guiding all M&E data collection and providing the structure against which evaluation reporting will occur. The component-level M&E plans have tailored the Partnership KEQs related to outcomes and broader impact to the unique nature of the components.

Table 2. Partnership key evaluation questions

KEQs	Sub-questions
Results	
1. How well is the Partnership upholding its strategic principles?	a) Where and how is the Partnership advancing partnerships and approaches to build and accelerate the delivery of enduring outcomes for the Reef? b) To what extent has the Partnership leveraged investment and co-investment from local and global actors? c) To what extent is the Partnership empowering Traditional Owners and Reef 2050 Plan community partners to contribute to protecting the reef? d) To what extent are Traditional Owners' ways of knowing and doing being adopted in Partnership processes? e) In what ways is the Partnership using innovation to drive/accelerate the achievement of outcomes and/or support enduring outcomes? f) In what ways is the Partnership integrating and/or creating synergies between components to maximise co-benefits and provide efficiency dividends?
2. To what extent are our strategic principles still relevant and meaningful?	a) What are we learning about our strategic principles? b) To what extent are partners bringing the required capacity and willingness to innovate, collaborate and scale up? c) How have we applied this learning for improved effectiveness and impact? d) How well are the principles laying the foundations for benefits beyond the life of the Partnership?
3. To what extent is the Partnership on track to contributing to a significant and measurable improvement in the health of the GBR WHA?	a) What progress is the Partnership making towards: i. Improving the management of the Great Barrier Reef and relevant activities in the adjacent communities? ii. Protecting the attributes that contribute to the Outstanding Universal Value of the GBR, including species, habitats and Indigenous values? iii. Managing key threats to the Great Barrier Reef? b) What are we learning about what we are doing? c) How have we applied our learning for improved effectiveness and impact?
4. What other impacts has the Partnership had to date?	a) To what extent is the Partnership contributing to the fulfilment of Traditional Owner aspirations for the Reef? b) What unintended outcomes (positive and negative) have occurred through the Partnership?

KEQs	Sub-questions
Process	
5. To what extent is the Partnership being implemented in accordance with the Grant Agreement?	a) Are funded activities being delivered as planned, on time and to budget? b) Is the Partnership operating in accordance with governance and management plans and policies? c) What processes are in place to ensure adherence to key operational principles: i. the achievement of multiple (ancillary) benefits ii. the use of best available science and expert knowledge iii. implementation complements existing investments iv. implementation addresses the highest priority threats in the highest priority locations v. deliver improvement through on-ground change? vi. What have been the significant instances of these principles?

6 Performance expectations



6.1 Introduction

Performance expectations are used in monitoring and evaluation processes in general to provide standards to judge and track the success (or otherwise) of a program over time and describe 'what success looks like'. Performance expectations can take many forms and include metrics such as key performance indicators (quantitative and qualitative), targets and rubrics, etc. that are used to describe a benchmark against which a program can be determined to be of sufficient value or quality. Where possible, benchmarks describe both the magnitude of change expected as well as the timeframe within which they are expected to be reached.

The following sections outlines the approach the Partnership M&E Plan has taken to performance expectations.

6.2 Grant Agreement expectations of performance

The objective of the Partnership as outlined in the Grant Agreement is to achieve '*significant, measurable improvement in the health of the Great Barrier Reef World Heritage Area*'. There is no definition of 'significant' in the Grant Agreement; rather, the Grant Agreement refers to the actions, targets, objectives, and outcomes of the Reef 2050 Plan as the 'target, objective and proposed outcome' for each component.[10]

As a result, performance expectations for the Partnership are outlined at the component level. It is an expectation of the Grant Agreement that performance expectations are outcome-based. Judgements of the performance of the Partnership, and its contribution to Reef 2050 Plan targets, will be provided by judgments of the performance of the components in achieving their outcomes.

6.3 Defining performance at the component level

Performance expectations at the component level include either indicators (both with and without targets), rubrics, or a combination of indicators and rubrics. The component M&E plans separate out performance expectations as follows:

- Performance expectations for prioritised **end of Partnership outcomes** – to make it clear how performance will be measured at the end of the Partnership. These expectations support assessment of the contribution of the Partnership to Reef 2050 Plan targets.
- Performance expectations for prioritised **intermediate outcomes** of the component – to make it clear how *progress* towards achievement of the end of Partnership outcomes will be tracked during the life of the Partnership.

As described in Section 2.3, indicators are deliberately pitched at the intermediate outcomes level, acting as lead indicators for the longer-term end of Partnership outcomes. Performance expectations have been defined only for those outcomes prioritised for measurement The choice of what outcomes to prioritise for measurement was made on the basis of those outcomes that, if measured, would provide credible information about component outcomes achievement and the contribution of the Partnership to Reef 2050 Plan outcomes. Setting performance expectations at the intermediate outcomes levels is very important for demonstrating the *progress* of the Partnership towards its end of Partnership outcomes.

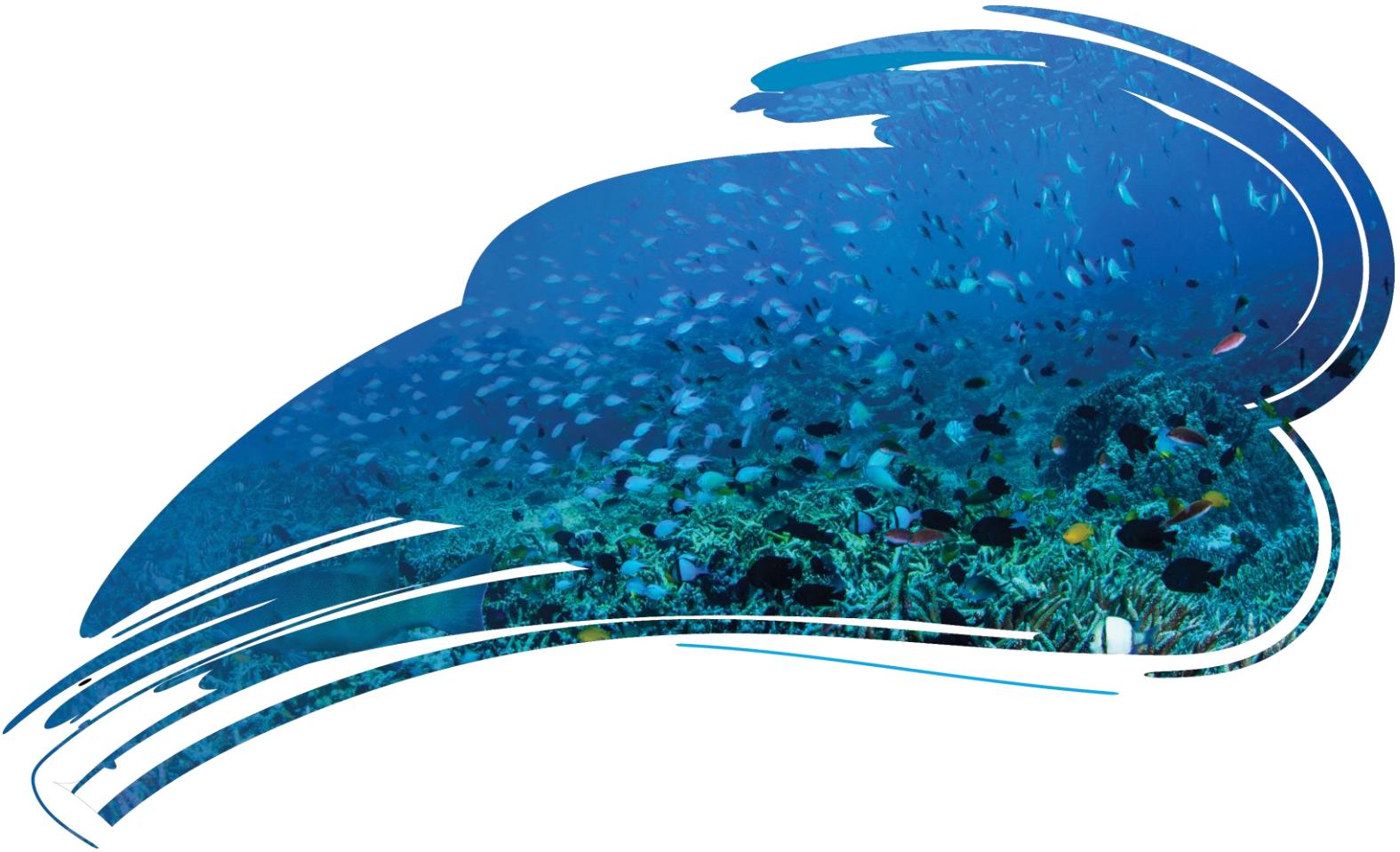
As per the Grant Agreement, the indicators are independently verifiable. Not all indicators have targets, and there are several reasons for this:

- Not all indicators require targets
- For some component outcomes, it is too early to set targets
- In some instances, it is more appropriate to set targets at the project level[11].

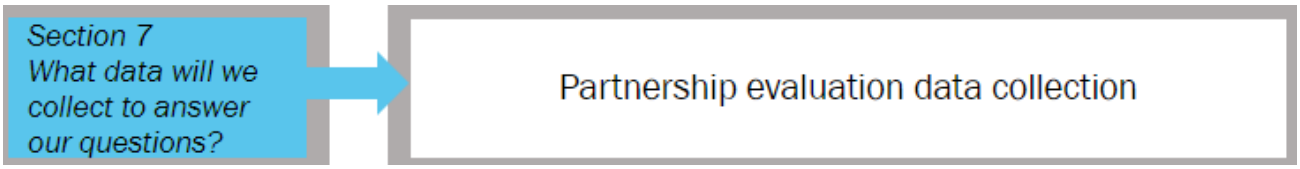
10 While the July 2018 review of the Reef 2050 Plan did not alter the vision, outcomes, objectives or targets of the Plan (except for the water quality theme), the groundwork currently being undertaken for the 2020 review of the Plan is seeing some significant revisions to the logic of the Reef 2050 Plan. The Partnership must remain cognisant of any changes to the outcomes and targets of the Reef 2050 Plan as a result of the review.
11 As described in Section 2.3, more detailed M&E planning will occur at the project level, when projects are awarded.

Some component use rubrics instead of indicators to define performance, or a combination of rubrics and indicators. Rubrics are a tool for systematically and transparently defining what constitutes poor, adequate, excellent, etc. performance in practice. They can be applied at a KEQ level (i.e. to define what poor, adequate, excellent, etc. effectiveness looks like) or to an outcome, and can be either specific or generic.

The components that have used rubrics have applied them at both KEQ and outcome levels and used specific rather than generic rubrics.



7 Data collection



7.1 Approach

Data collection to answer the KEQs essentially occurs at the component level, as almost all Partnership activity occurs via the components. The approach to data collection at the Partnership level is thus largely an exercise of synthesising component level M&E information related to the Partnership KEQs.

The relationship between the KEQs, performance expectations and data collection is presented in Table 3. As the table shows, and as explained in Section 6, performance expectations for the Partnership are outlined at the component level. As the table also shows, additional data collection to complement component level information will occur at the Partnership level, including:

- Unintended (positive and negative) outcomes occurring from the Partnership
- Processes of adaptive management and their outcomes
- The implementation of principles.

Table 4 outlines how Partnership-level data to complement component level M&E data will be collected for these areas.

Table 3. High-level approach to addressing the key evaluation questions

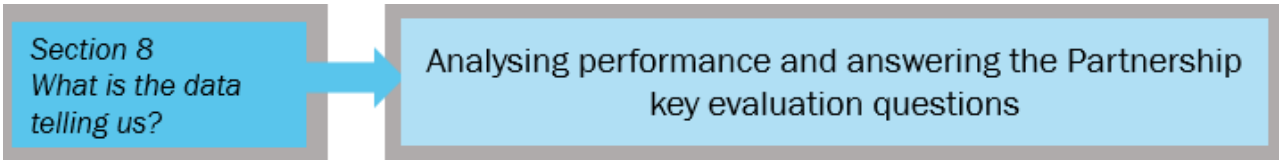
KEQs	Sub-questions	Performance expectations	Overarching approach
Results			
1. How well is the Partnership upholding its strategic principles?	a) Where and how is the Partnership advancing partnerships and approaches to build and accelerate the delivery of enduring outcomes for the Reef? b) To what extent has the Partnership leveraged investment and co-investment from local and global actors? c) To what extent is the Partnership empowering Traditional Owners and Reef 2050 Plan community partners to contribute to protecting the reef? d) To what extent are Traditional Owners' ways of knowing and doing being adopted in Partnership processes? e) In what ways is the Partnership using innovation to drive/accelerate the achievement of outcomes and/or support enduring outcomes? f) In what ways is the Partnership integrating and/or creating synergies between components to maximise co-benefits and provide efficiency dividends?	• Leveraging ratios, type and value of co-contributions • Instances and nature of adoption of Traditional Owner's ways of knowing and doing • Number and outcomes of investments and projects targeting Traditional Owner and Reef 2050 Plan community partner empowerment to contribute to Reef protection • Instances of joint and/or strategic initiatives with impact in multiple areas • Other examples of expected synergies (see Component M&E plans)	• Assessment of use of principles across Partnership • Narrative and instances of successes across Partnership • Instances of specific successes and challenges and impact on outcomes • Partnership-level monitoring log (see Table 4)
2. To what extent are our strategic principles still relevant and meaningful?	a) What are we learning about our strategic principles? b) To what extent are partners bringing the required capacity and willingness to innovate, collaborate and scale up? c) How have we applied this learning for improved effectiveness and impact? d) How well are the principles laying the foundations for benefits beyond the life of the Partnership?	*Not applicable*	Description of implementation of, and outcomes from, adaptive management at the Partnership level (log – see Table 4
3. To what extent is the Partnership on track to contributing to a significant and measurable improvement in the health of the GBR WHA?	a) What progress is the Partnership making towards: i. Improving the management of the Great Barrier Reef and relevant activities in the adjacent communities? ii. Protecting the attributes that contribute to the Outstanding Universal Value of the GBR, including species, habitats and Indigenous values? iii. Managing key threats to the Great Barrier Reef? b) What are we learning about what we are doing? c) How have we applied our learning for improved effectiveness and impact?	Components have met component-specific performance expectations (see Component M&E plans for performance expectations)	Synthesis of achievements across the Partnership from component reporting

KEQs	Sub-questions	Performance expectations	Overarching approach
4. What other impacts has the Partnership had to date?	a) To what extent is the Partnership contributing to the fulfilment of Traditional Owner aspirations for the Reef? b) What unintended outcomes (positive and negative) have occurred through the Partnership?	• Number of projects, level of investment and related outcomes that are directly contributing to Traditional Owner aspirations for the Reef	• Synthesis of achievements from component reporting • Partnership-level monitoring (log – see Table 4) • Synthesis of unintended outcomes
Process			
5. To what extent is the Partnership being implemented in accordance with the Grant Agreement?	a) Are funded activities being delivered as planned, on time and to budget? b) Is the Partnership operating in accordance with governance and management plans and policies? c) What processes are in place to ensure adherence to key operational principles: • the achievement of multiple (ancillary) benefits • the use of best available science and expert knowledge • implementation complements existing investments • implementation addresses the highest priority threats in the highest priority locations • deliver improvement through on-ground change? • What have been the significant instances of these principles?	Delivery of component activities as per relevant Annual Work Plan • No significant departures from relevant Annual Work plan (unless strategic) Delivery of activities diligently, efficiently and ethically: • delivery has met expectations of governance and management plans and policies • no significant instances of departure from governance and management plans and policies (unless strategic)	Synthesis of activity delivery – as per relevant Annual Work Plan and in accordance with governance and management plan and policies - from Component reporting

Table 4. Partnership-level data collection to complement Component M&E data

KEQ	Data collection approach at Partnership level
1d. To what extent were Traditional Owners' ways of knowing and doing adopted in Partnership processes?	A log of how the Partnership has adopted Traditional Owner ways of knowing and doing in Partnership processes that are beyond that which occurs at a component-level will be maintained (each component will monitor and report on adoption at the component-level) This will be synthesised with component-level data to report on Partnership-wide adoption of Traditional Owners' ways of knowing and doing in Partnership processes
4e. What unintended outcomes (positive and negative) have occurred?	A log will be maintained of any unintended outcomes (positive or negative) resulting from the Partnership that are not the result of any one specific component's activities (each component will monitor and report on any unintended outcomes resulting from the component's work) This will be synthesised with component-level data to report on Partnership-wide unintended outcomes

8 Evaluation



This section describes the points at which M&E data is and will continue to be brought together to make evaluative judgements of the Partnership, i.e. how data is be made sense of and performance evaluated. It also describes how and when independence is brought into the process of evaluation.

8.1 Introduction

Evaluation occurs annually, with varying levels of independence:

- Annual evaluation (without Expert Panel) – the use of component monitoring data to make evaluative judgments of the individual components and the Partnership as a whole. It includes a more substantial analysis of performance than that of the six-monthly cycle, producing findings against the KEQs. It includes an annual workshop comprising the GBRF Partnership team to collectively make sense of the data, discuss and agree findings, and develop recommendations for the next annual cycle of delivery.
- Mid-term and end-of Partnership evaluations –including an Expert Panel to bring independence to the preparation of findings and development of recommendations. This was recently completed at the mid-point of the Grant Agreement in 2021, and an end of Partnership evaluation will occur in 2024.

8.2 Annual evaluation

Annual Partnership-level evaluation includes:

- the development of results charts for each component (monitoring data collected against the component program logic models, summarised into lines of evidence), used to answer 'results' KEQs
- the collation and synthesis of data related to other KEQs (implementation, use of principles).

The Partnership-level evaluation includes an annual workshop comprising the GBRF Partnership team to discuss and agree findings and develop recommendations for the next annual cycle of delivery.

8.3 Mid-term and end of Partnership (final) evaluation

The end of Partnership evaluation will follow a similar process to the mid-term evaluation completed in 2021. This process follows the same methodology as the annual internal evaluations as described above but will also include an expert panel with no vested interest in the Partnership to bring rigour and independence to the preparation of findings and development of recommendations.

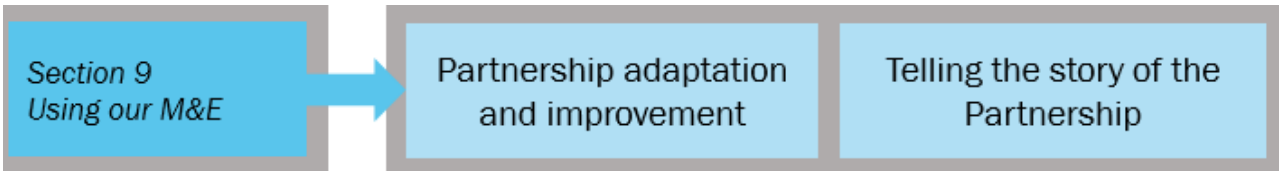
The first of these, the mid -term evaluation, was recently conducted (May-October 2021), three years from the commencement of the Grant Agreement. The purpose of the expert panel is to facilitate independent judgement of the Partnership's progress towards the principal objective of the Partnership Grant Agreement: *a significant, measurable improvement in the health of the Great Barrier Reef World Heritage Area…underpinned by innovation, science and community engagement.* This will inform the synthesis of findings against KEQ3.

The Panel is to be composed of six individuals, nominated for their component-specific context expertise that allows them to draw on their knowledge to 'benchmark' component performance, as well as more generalist expertise, to support high-level judgements of the effectiveness of the Partnership. In acknowledging the difficulty of establishing a panel that is 'truly' independent of the Partnership, processes will be established to ensure potential conflicts of interest are appropriately managed, including allocating Panel members to review components that they are not in some way involved. Panel members may also be drawn from the Reef 2050 Plan Independent Expert Panel where an appropriate level of independence has already been acknowledged.

The Expert Panel process is to be facilitated by an external facilitator, with Foundation staff not involved. The process is to involve experts reviewing Component M&E plans (logic, monitoring data plan) and draft results charts, then participating in a workshop with a facilitated discussion of results and refinements to draft findings of progress towards Grant Agreement outcomes, based on facilitated assessment of each component against three criteria:

- the **progress** of each component (limited/moderate/strong) towards the achievement of end-of-component-outcomes at mid-term
- the **strength of evidence** to support the statement of progress (low/moderate/high) based on:
- the quality of data used to support the claim
- the availability of different lines of evidence to support the claim
- the **sufficiency** of the investment (limited/moderate/high) to achieve a significant, measurable improvement in the health of the GBRWHA during the term of Partnership.

9 Using monitoring and evaluation information



This section describes the process of using M&E information for Partnership adaptation and improvement and telling the story of Partnership performance (reporting).

9.1 Adaptation and improvement

M&E information is used to inform continual improvement of both the Partnership itself and the Partnership M&E Plan. Adaptation processes is largely implemented at the component level, though it is also be necessary to consider Partnership-wide changes or improvements.

There is also a desire to capture *how* M&E information has been used to adapt both the Partnership itself and the M&E Plan, as evidence of the evolution of the Partnership and its M&E.

Improvement of the Partnership

The primary mechanism for the use of M&E information for the improvement of the Partnership is via the existing Partnership Management Committee (PMC). All key stakeholders are represented on the PMC, including the Australian and Queensland governments, Traditional Owners, the Great Barrier Reef Marine Park Authority (GBRMPA) and the tourism industry. Reflection on M&E results is a standing agenda item for PMC meetings.

The results of PMC decisions on the Partnership is reflected in regular updates to the Partnership Investment Strategy and informs the Annual Work Plan. An ongoing log of the changes made to the Partnership will be maintained throughout its duration.

Improvement of the Partnership M&E Plan

It is an expectation of the Grant Agreement that the M&E Plan will be reviewed regularly and updated where necessary. Most improvements or changes to Partnership M&E has occurred at the component level and has included:

- Refinements to the logics of the components, based on information on what is and isn't working in component implementation, including updates to assumptions
- Changes to monitoring preferences (what is measured) and arrangements (how it is measured) to better reflect what is useful
- Refinements to performance expectations, where required – and the development of targets where possible.

At the Partnership level, changes to the M&E Plan would usually be triggered by changes in the primary audience's information and reporting needs, requiring a review of the KEQs and the nature of reporting. The Partnership must remain cognisant of any changes to the outcomes and targets of the Reef 2050 Plan. The release of the updated Reef 2050 Plan, as yet unpublished as of October 2021, will likely trigger a review of the M&E Plan to ensure targets have not changed.

9.2 Reporting

Table 5 outlines the various reporting requirements under the Grant Agreement.

Six-monthly progress reporting

The GBRF is required to submit a progress report to the Department every six months for the Partnership as a whole and for each component. Prior to the six-monthly report deadline, component-level progress reporting is completed, with the first six-month cycle (period July-Dec; due February) including a synthesised description of component activity, output and outcome progress only. The second six-month reporting cycle (period Jan-Jun; due August), and, as outlined in Section 8.2, includes the results of the annual internal evaluations

Table 5. Partnership reporting requirements

Report type	Content and format	To whom	Timing
Internal progress report	To be scoped with the Partnership Management Committee (PMC)	PMC	quarterly
Six-monthly progress report	A report on the work undertaken for the Partnership, including for each component. Update of the interactive M&E dashboards located on the Foundation's website.	Reef Trust	1 Feb (1 July-31 Dec); 1st Aug (1 Jan-30 Jun) – each year
Annual Report	Financial report	Reef Trust	Within 90 days of the end of the financial year – each year
Final report	A detailed evaluation of the extent to which the objective and outcomes of the Partnership and each component were met. Includes an update to the interactive M&E dashboards located on the Foundation's website.	Reef Trust	Within 60 days of completion of agreement

10 Administrative Activities Component Monitoring Plan

10.1 Introduction

Given its nature, the Administrative Activities Component Monitoring Plan is structured differently to the overarching Partnership M&E Plan (and the monitoring plans of the outcomes-focused components), while aligning to the general expectations and requirements of Partnership M&E. The Administrative Activities Component Monitoring plan includes:

- A description of the component
- The performance expectations of the component
- The plan for monitoring the progress of the Administrative Activities Component.

10.2 The Administrative Activities Component

The purpose of the Administrative Activities Component (Component 1) is to ensure:

- good governance is in place, including systems and processes
- there is effective project management
- scaling-up activities have been undertaken.

The Grant Agreement outlines the range of scaling up activities and associated deliverables required under the Administrative Activities Component, including a range of plans (e.g. Investment Strategy and Annual Work Plan Consultation Plan, Risk Management Plan, etc), and governance arrangements (e.g. establishment of the Partnership Management Committee).

10.3 Performance expectation details

The Grant Agreement defines performance expectations for the plans and processes of the Administrative Activities Component, including a timeframe for delivery and/or descriptions of content and/or descriptions of quality. These are detailed in Table 6.

Table 6. Grant Agreement performance expectations for the Administrative Activities Component

Activity item	Performance expectations
Gantt Chart	Delivery by 31 August 2018
Partnership Management Committee	Establishment by 31 August 2018
Investment Strategy and Annual Work Plan Consultation Plan	Method of consultation for following organisations: • Reef 2050 Plan Independent Expert Panel • Reef 2050 Advisory Committee • Queensland OGBR • GBRMPA • DAWE Delivery by 31 August 2018

Activity item	Performance expectations
Resourcing Plan	Approach and activities to ensure GBRF has the resources required to commence, by 1 July 2019, the delivery of all components Grow staffing levels appropriately across the organisation, with the majority of growth taking place in the Projects team (from 15 to 39) Equipment and technology – process to: (i) review equipment and technology; (ii) determine future requirements; (iii) design a technology roadmap; and (iv) implement the roadmap – by December 2018 Systems – process to: (i) review existing systems functionality and interfaces; (ii) future system design and roadmapping; (iii) systems development and implementation; and (iv) staff training on required systems Facilities – relocate to larger office by 1 October 2018 Delivery by 30 September 2018
Co-financing Strategy Plan	Outline steps the GBRF will take to reach its fundraising target ($300M-$400M pledged by the end of the Partnership). See breakdown of target in Table 7 Delivery by 30 September 2018
Risk Management Plan	Containing: (i) Risk Management Framework; (ii) Risk Management Policy; (iii) Risk Appetite Statement; (iv) Business Continuity Plan; and (v) Disaster Recovery Plan Appointment of a Risk Compliance Officer Delivery by 30 September 2018
Communication and Stakeholder Engagement Plan	Approach, protocols and proposed activities regarding GBRF communication and stakeholder engagement processes, including: (i) expanded social media and digital strategy; (ii) detailed stakeholder map; and (iii) a separate stakeholder engagement plan for the Partnership and for each component Appointment of a Stakeholder Manager Delivery by 30 November 2018
Fraud Prevention Plan	Approach to minimising the risk of fraud occurring in connection with any of GBRF's activities, including by GBRF personnel and sub-contractors Including schedule of ongoing planning and review for mitigating the risk of fraud, bribery and corruption within GBRF (see Table 8) Delivery by 30 November 2018
Monitoring and Evaluation Plan	Focuses monitoring and evaluation on Activity outcomes Performance measures that are outcome-based and independently verifiable Drawing on insights from the ANAO's report entitled 'Reef Trust - Design and Implementation' dated 24 November 2016 Stage 1 – delivery by 30 November 2018 Stage 2 – delivery by 31 March 2019 Stage 3 – delivery by 30 June 2019
Investment Strategy	High level roadmap for delivery on each of the components within the Grant Agreement Delivery by 24 December 2018
Annual Work Plan	Detailing the GBRF's priority activities and outcomes and budget for the Partnership and each component for the relevant financial year Sets out projects to be performed, with each project having specified targets including an expected environmental outcome and provide for reporting on achievement of the targets Delivery by 30 June for each relevant year

Table 7. Breakdown of co-financing target

Source	Description	Target (pledged)	Campaign length
Capital campaign	The largest marine science fundraising campaign in Australia – an intensive fundraising campaign with a focus on philanthropy and individual giving tied to Reef Restoration and Adaptation Science (RRAS)	$100m	5 years
Corporate giving	Developing corporate partnerships with iconic Australian businesses that deliver impact and enable planned programs, specific initiatives and activities	$50m	5 years

Source	Description	Target (pledged)	Campaign length
Individual giving	Five-year strategy developed to build awareness of the Partnership and GBRF and acquire new individual donors through regular giving	$7m	5 years
Research and delivery partners	Formal agreements with collaborators on projects across the Partnership portfolio with an initial focus on RRAS that accurately capture and report investments made by research and delivery partners	$200m	5 years

Table 8. Fraud, bribery and corruption control planning and review activities

Review item	Description	Timeframe
Fraud, Anti-Bribery and Anti-Corruption Policy	Outlines GBRF's guiding principles for managing fraud, bribery and corruption within its operations	Biennial
Fraud Prevention Plan	Documents GBRF's approach to controlling fraud and corruption exposure. Includes fraud management planning, fraud and corruption prevention and detection and incident response	Ongoing
Fraud and Corruption Risk Assessments	Assessment of fraud and corruption risks prior to the commencement of any major project or substantial changes such as an outsourcing or procurement	Ongoing
Fraud and corruption training	Delivery of training to all Personnel in order to increase awareness of the risks associated with fraud, corruption and bribery and their obligations under the Fraud Prevention Plan and the Fraud and Corruption Policy	At induction and annual policy affirmation program
Conflicts of Interests Policy	Outlines GBRF's procedures to identify and manage legal conflicts of interest that arise in GBRF's business and to protect GBRF and the individuals involved from any impropriety	Biennial
Risk Management Policy	Outlines GBRF's overall approach to risk management	Annual
Risk Management Framework	Outlines GBRF's approach to risk oversight and management and sets out the methodologies adapted by GBRF for the: • Identification, analysis and evaluation of identified risks • Development and implementation of processes to monitor, treat and manage risks • Reporting of risks and mitigating controls • Response to any emerging risks or risks that may materialise as a consequence of adverse events	Annual
Risk Appetite Statement	States GBRF's risk appetite relating to fraud	Biennial
Conflicts of Interest Register	Management of the Conflicts of Interest Register	Ongoing
Gifts, Travel, Entertainment and Hospitality Register	Management of the Gifts, Travel, Entertainment and Hospitality Register	Ongoing
Code of Conduct	Create and maintain high levels of awareness of the Code of Conduct	Ongoing

11 Water Quality Component M&E Plan

11.1 Introduction

The Water Quality M&E Plan is structured around the overarching framework of the Partnership M&E Plan (Section 2), and includes:

- A description of the Water Quality Component, including:
    - A program logic model, which describes the expected cause and effect relationships between the component's activities and outcomes
    - A narrative describing the logic model
    - The interactions of the component with other components
    - The principles and key causal assumptions underpinning the Water Quality Component
- The scope of the Water Quality Component M&E
- The performance expectations for prioritised end-of Partnership outcomes for the Component
- The plan for monitoring the progress of the Water Quality component, including performance measures for prioritised intermediate outcomes.

The Water Quality Component M&E Plan was informed by an M&E planning workshop including representatives from (the then) DoEE, the Office of the Great Barrier Reef (OGBR), James Cook University, Queensland Farmers' Federation, CSIRO, Terrain NRM and GBRF. It is worth noting that the activities under the Partnership exist within a broader context of investment in water quality improvements across the Reef and the significant monitoring that supports those investments, including the Paddock to Reef Integrated Monitoring Modelling and Reporting program (P2R).

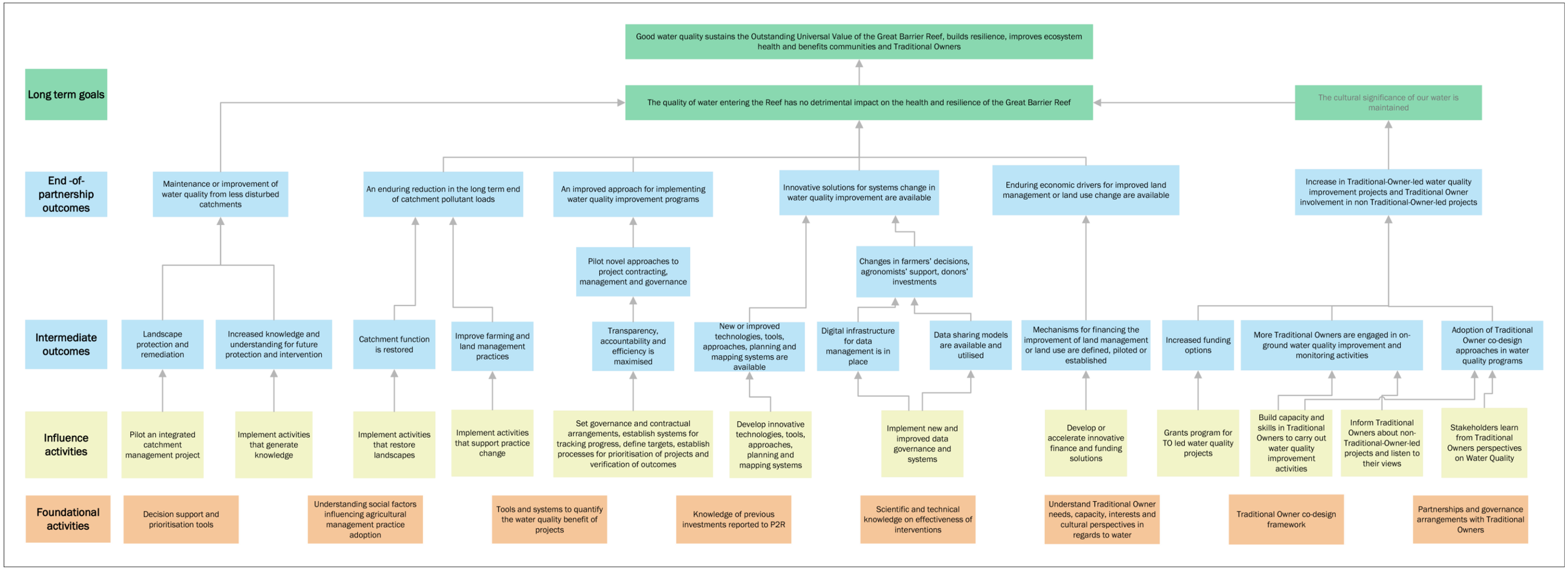
11.2 Logic of the Water Quality Component

The Water Quality Component-level logic model (Figure 6) shows how the work undertaken in the Water Quality Component is expected to bring about desired change. The logic outlines the anticipated cause-and-effect relationships between water quality activities and expected intermediate and end of Partnership outcomes (as described in Section 3). This logic is a simplified version of the complete logic. A detailed document is available upon request.

The logic is presented as a model, with a supporting narrative, the principles that guide the delivery of the Component and the key causal assumptions underpinning the logic.

The purpose of the narrative is to describe the broader goals for the Water Quality Component and how the Water Quality Component is expected to contribute to those broader goals through its activities and outcomes.

Figure 6. Water Quality Component program logic



Narrative

The long-term goals of the Water Quality Component (based on the Reef 2050 Plan) are that good water quality sustains the Outstanding Universal Value of the Great Barrier Reef, builds resilience, improves ecosystem health, and benefits communities and Traditional Owners. This will be achieved in part through the quality of water entering the Reef having no detrimental impact on the health and resilience of the Great Barrier Reef.

The Water Quality Component will contribute to these long-term goals by the end of the Partnership through:

- the **maintenance or improvement of water quality in less disturbed catchments**
- achieving **an enduring reduction in the long-term end-of-catchment pollutant loads** ('long-term' here is defined specifically as 'modelled average')
- an **improved approach for implementing water quality improvement programs** with increased accountability, transparency, efficiency and effectiveness
- **innovative solutions for system change** – ensuring the availability of innovative solutions for water quality improvement, including with respect to the planning, implementation, management, and funding of water quality improvement activities
- **enduring economic drivers** for improved land management or land use change are available
- **increasing Traditional Owner-led water quality improvement projects**

These end of Partnership outcomes will be achieved through the following pathways:

- **Maintaining or improving less-disturbed catchments**: Will be achieved through:
    - Protection of healthy landscapes by **piloting a catchment management approach**, which not only delivers water quality and catchment health outcomes, but also establishes key partnerships and builds the social capital required to deliver programs in the future
    - **Development of foundational knowledge and tools** to support future conservation and restoration investments in less-disturbed catchments, with a particular focus on wetlands restoration as a mechanism for achieving improved water quality.
- **Pollutant load reduction:** An enduring reduction in the long-term end of catchment pollutant loads will be achieved through:
    - **Restored catchment function**: Implementing activities that restore landscapes (e.g., revegetation, rehabilitation of erosion hotspots, improved riparian buffer and wetland function) will improve landscape condition. This will support catchment function to improve water quality, contributing to an enduring reduction in the long-term end-of-catchment pollutant loads.
    - **Improved farming and land management practices**: Implementing activities that support practice change (e.g. extension, agronomic support, education, incentives, and behaviour change) will address practice change/stewardship barriers (e.g. knowledge, motivation, confidence, awareness, etc.). This will lead to improved farming and land management practices. This will contribute to an enduring reduction in the long-term end-of-catchment pollutant loads. (Policy, institutional barriers and social norms will not be addressed through this program).
- **Improved program management approach:** Implementing measures to ensure transparency and accountability in the design and management of the program will maximise the impact of the investment and its efficiency. These measures will include performance-based contractual arrangements, an evidence-based prioritisation and project selection process, governance arrangements that improve accountability, a system to monitor on-ground projects, a process to avoid overlapping with past investment, and verification that funded activities are taking place to the required standard. This approach will not only improve the outcomes of the program but leave a legacy for future investors and program managers.
- **Innovation:** Piloting innovative technologies and approaches is expected to lead to new practices being available for farming, land management and stewardship. It will also lead to changes in how farmers make decisions, how agronomists provide support services, and how donors choose to invest. This will lead to improved practices (improved land management pathway) and contribute to innovative solutions for systems change in water quality improvement. Examples of innovation include:
    - Implementing new and improved data, governance and systems, which will lead to digital infrastructure being in place, and data sharing arrangements being available and utilised. The arrangements will include both traditional and local forms of knowledge, supporting them to be understood and embraced in catchment management.
    - Systematic planning undertaken and tools developed to assess suitability of, and support implementation of, on-ground improvement actions and to guide future interventions.
    - Development of new and improved approaches – including technologies, tools, systems, and methods – for reducing pollution loads associated with the primary pollutants.
- **Funding**: Through increased funding options for water quality, and their application, there will be a broader suite of market mechanisms available to fund water quality improvement activities. This will also support enduring

- economic drivers for practice change and where suitable land use change, which will lead to improved practice change (improved land management pathway), as well as support systems change.
- **Traditional Owners:** Through co-designing water quality activities with Traditional Owners, and making opportunities for engagement available, Traditional Owners will be engaged in on-ground water quality improvement and monitoring activities. Increased funding options for water quality activities will also lead to opportunities for Traditional Owner engagement. Together, these will support Traditional Owners to participate and take the lead in water quality improvement and protection activities that align with Traditional Owners' aspirations. This will contribute to the end of Partnership outcome of an increase in Traditional Owner-led water quality improvement projects. This will also apply to a significant extent to the broader community with an emphasis on fostering stewardship in water quality improvement and monitoring.

Component interactions

Table 9 outlines how the activities of the Water Quality Component interact with the activities of other Partnership components. Understanding and collecting information on these interactions is important for telling the story of the synergies the Water Quality Component has created with other components.

Table 9. Water Quality Component interaction with other Partnership components

Component	Description of interaction with Water Quality Component
Reef Restoration and Adaptation Science (Component 4)	Monitoring and modelling frameworks are aligned to connect land-based activities and reef habitats, including coral which is the subject of RRAS
Traditional Owner Reef Protection (Component 5)	Across the Program, engagement of, and leadership by, Traditional Owners in all catchment management activities will support Traditional Owners deliver significant Reef Protection and Water Quality outcomes on their land. The strongest links will be in Maintaining less-disturbed catchments pathway activities.
Community Reef Protection (Component 5)	Engagement and stewardship activities, particularly with landholders, will support the delivery of Community Reef Protection outcomes
Integrated Monitoring and Reporting (Component 6)	Water quality monitoring and evaluation will inform the knowledge value chain described in the Integrated Monitoring and Reporting Component. The alignment of monitoring and modelling decision frameworks is essential

Principles

The delivery of the Water Quality Component is guided by the following suite of component-specific principles:

- Use best available science (including community and Traditional Knowledge)
- Adopt a balanced portfolio of interventions while maintaining a focus on priority pollutants and priority locations
- Build on proven initiatives while driving innovation
- Support innovative sustainable financing models
- Establish the foundations for long term commitments/enduring improvements
- Take consideration of multiple benefits
- Maximise the impact of the investment
- Ensure transparency and accountability

Assumptions

Table 10 presents the causal assumptions that underpin the Water Quality Component program logic, along with an assessment of the assumptions for M&E planning purposes. Articulating the assumptions underpinning the Water Quality Component is important for assessing how robust the design of the Component is and identifying any assumptions that might be important to track. Those assumptions identified for further investigation/inclusion in M&E are included in the monitoring plan for the Water Quality Component (Table 13).

Table 10. Assumptions from Water Quality Component program logic

Key assumptions underpinning the logic We assume that...	Evidence for/ against assumption	Confidence in assumptions (L, M, H)*	Riskiness to achievement of end of Partnership outcomes (L, M, H)*	Investigate further/ include in M&E? Yes (Y) / No (N)
Farmers will change practices if we provide the right support	Experience from previous Reef protection initiatives	L-M	H	Y
Farmers that change practices will continue those practices into the future	Assumption used by P2R modelling	L	H	N
A suite of mechanisms is required to accommodate the diversity of landholder practice change drivers	Historical experience, literature	H	L	Y
A focus on existing proven techniques will provide significant water quality improvements	P2R modelling and science	M	H	N
Landholders will be prepared to share their data through a non-government data cooperative	Speaking to farmers. Evidence of why they have not shared data in the past, integrated into design of model	L	L	Y
Innovation will lead to a step change in water quality improvement effectiveness without sacrificing farm profitability	Examples of specific innovations having led to economic and water quality improvements	L	M	Y
Delivery partners have the capacity and capability to implement projects at the required scale	Experience with previous and ongoing Reef projects	M	H	Y
Healthy landscapes maintain catchment function and improve water quality at end-of- catchment	Best available science, local monitoring data and modelling	H	H	N

* H=High, M=Medium, L=Low

11.3 Scope of the Water Quality Component M&E Plan

This section includes the elements of the Partnership-level M&E Scope (as outlined in Section 4) that are relevant to the Water Quality Component. This includes some additions to M&E audience for the Component and their information needs.

Purpose of M&E

In addition to the general purposes of the Partnership M&E, the following are the specific purposes of M&E for the Water Quality Component:

1. To identify the gaps and needs for future investment
2. To document the merits of the approach and leave a legacy to future investors.

Audience

In addition to the primary M&E audiences for the Partnership in general (see Section 4 of this document), secondary audiences that may be interested in the results of the Water Quality Component M&E include the agricultural community.

11.4 Performance expectations for the Water Quality Component

Table 11 outlines the performance expectations for the Water Quality **end of Partnership outcomes**. As described in Section 6, these expectations make it clear how performance of the Water Quality Component will be judged at the end of the Partnership and will support:

- Assessment of the contribution of the Water Quality Component to the Reef 2050 Plan
- Assessment of the overall effectiveness of the Partnership.

The Reef 2050 Plan target for Water Quality is:

- WQT4: Water Quality in the Great Barrier Reef has a stable or positive trend.

Table 11. Water Quality Component end of Partnership outcomes performance expectations

End of Partnership outcomes	Performance expectations
Maintenance or improvement of water quality from less disturbed catchments	• Improved the condition and reduced end of catchment sediment loads at eight coastal sub-catchments in Eastern Cape York: Annan, Endeavour, McIvor, Starke, Jeannie, Howick, Wakooka, and Muck. • Enhanced capacity and collaboration of local organisations in catchment management • Improved understanding of catchment water quality, and catchment interventions • Consensus among technical experts about the impact of wetland restoration, rehabilitation, and construction for improving water quality
An enduring reduction in the long-term end-of-catchment pollutant loads	• 456t reduction in dissolved inorganic nitrogen (DIN) loads • 462kt reduction in sediment loads • 250kg reduction in pesticide loads For outcomes to be enduring. Table 14 breaks down these targets for specific catchments
An improved approach for implementing water quality improvement programs	• A new model that can be transferable to other water quality investments and is transparent, accountable, effective, and efficient
Innovative solutions for systems change in water quality improvements are available	• More cost-effective approaches to improving water quality have been identified and demonstrated • Tools to improve the effectiveness and efficiency of planning and implementation of water quality improvement activities are available • The feasibility of a platforms where landholders and agricultural organisations share data for the benefit of the industry and water quality outcomes has been tested
Enduring economic drivers for improved land management or land use change are available	• There is a broader suite of market mechanisms for funding water quality improvement
Increase in Traditional Owner led water quality improvement projects	• Increase in number of Traditional Owner groups leading, being involved in or being aware of Water Quality improvement projects and related activities

The predicted load reductions shown in Table 11 and
Table 12 for dissolved inorganic nitrogen, sediment, and pesticides refer to modelled average long-term end-of-catchment reductions. These may be adjusted to reflect improvements in the underlying modelling. The basis for predicting load reductions is set out in Alluvium, 2019.[12]

[12] Alluvium 2019. Effective and Efficient Pathways for Investment in Improved Water Quality in the Great Barrier Reef: Final Report. A report for the Great Barrier Reef Foundation, Brisbane.

Table 12. Target long-term reductions in pollutant loads

NRM Region	Catchment	Target pollutant	Predicted long-term reduction in pollutant load	Target load reduction based on the WQIP
Wet Tropics	Herbert River	Dissolved inorganic nitrogen	140t	641t
		Sediment	12kt	95kt
	Johnstone	Dissolved inorganic nitrogen	100t	471t
	Mulgrave-Russell	Dissolved inorganic nitrogen	72t	336t
	Tully	Dissolved inorganic nitrogen	70t	249t
Burdekin	Lower Burdekin	Dissolved inorganic nitrogen	48t	585t
		Pesticides	35kg	1318kg
	Bowen Bogie	Sediment	330kt	426kt
	East Burdekin	Sediment	20kt	75kt
	Upper Burdekin	Sediment	22kt	245kt
Mackay Whitsunday	Plane Creek	Dissolved inorganic nitrogen	26t	230t
		Pesticides	130kg	1271kg
	Pioneer River	Pesticides	85kg	737kg
Fitzroy	Fitzroy River (lower)	Sediment	44kt	200kt
	Mackenzie River	Sediment	6kt	62kt
Burnett Mary	Mary River	Sediment	28kt	131kt

11.5 Monitoring the progress of the Water Quality Component

Table 13 shows the plan for monitoring the progress, performance and process of the Water Quality Component as it is being implemented. The plan focuses on monitoring **prioritised intermediate outcomes, weak causal assumptions,** as well as the **efficiency, appropriateness, and legacy value** of the Water Quality Component. As outlined in Section 6.3, indicators at the intermediate outcomes level act as lead indicators for the longer-term end of Partnership outcomes. Data collection at this level: a) enables the Component to understand whether it is on track to achieving its end of Partnership outcomes; and b) generates a substantial proportion of the evidence required to evaluate the overall effectiveness of the Water Quality Component.

Table 13 is structured against the outcome pathways of the Water Quality Component program logic. For each outcome prioritised for monitoring, a sub-question and/or indicator(s) have been identified to assess their performance. Some outcomes lend themselves better to a question than an indicator, or to a question with indicator(s), while other outcomes lend themselves well to an indicator(s) only. The table also includes the Water Quality logic assumptions (from Table 10) prioritised for inclusion in M&E, as well as the data collection sources/methods that will be used to monitor the assumptions (the assumptions do not need questions or indicators).

The evaluation of projects funded under the Early Investment projects (2018-2019 investments), which were established before this M&E was formulated are described in Appendix 4.

Table 13. Plan for monitoring the outcomes and assumptions of the Water Quality Component

Priorities for monitoring and/or evaluation (from logic)	Sub-questions	Indicators and data collection
Maintaining less-disturbed catchments pathway		
Pilot an integrated catchment management approach for protecting and improving healthy landscapes for water quality	• What changes in end-of-catchment water quality did the program achieve?	• Extent of areas under specified improved management practices • Sediment reduction and other water quality improvements from project-scale monitoring • Sediment reduction and other water quality improvements from catchment-scale water quality monitoring across eight coastal sub-catchments in Eastern Cape York (Annan, Endeavour, McIvor, Starke, Jeannie, Howick, Wakooka, and Muck)
	• In what ways did the program contribute to building the necessary social capital to delivery water quality improvement programs in the future?	• Social outcomes analysis
Increased knowledge and understanding for future protection and intervention	• In what ways did the program increase the knowledge regarding the relationship between catchment condition, project activities and associated water quality outcomes? • To what extent are the learnings from the program useful for planning and prioritising future cost-effective catchment management initiatives to improve water quality?	• Synthesis report on the role of the wetlands in water quality. Approval of paper for inclusion in Reef Water Quality 2022 Scientific Consensus Statement. • Need for further monitoring identified
Pollutant load reduction pathway		

Improved farming and land management practices and Catchment function is restored	• What social factors influence agricultural management practice adoption and how do did they change over the course of the project?	• Social factors survey, assessing these aspects by
		  ○ Attitudes
		  ○ Perceived group norms
		  ○ Self-efficacy
		  ○ Motivation
		  ○ Barriers
		  ○ Attribution
		  ○ Perceived profitability
		  ○ Perceived productivity
		• Landholder characterisation

Priorities for monitoring and/or evaluation (from logic)	Sub-questions	Indicators and data collection

	• To what extent have practice change barriers been addressed and overcome?	• Survey monitoring changes in social factors about:
		  ○ Attitudes
		  ○ Perceived group norms
		  ○ Self-efficacy
		  ○ Motivation
		  ○ Barriers
		  ○ Attribution
		  ○ Perceived profitability
		  ○ Perceived productivity
		• Measuring social outcomes of interventions

	• To what extent have landholders engaged with and contributed to water quality improvement projects?	• Effectiveness of different engagement strategies, • Benefits of water quality monitoring for engagement
	• To what extent are farming management practices being improved?	• Paddock to Reef management practice questions before and after projects take place
	• To what extent have the function landscapes been improved? • To what extent have restoration and management practice change activities led to improved water quality outcomes?	• Sediment estimates from gully and streambank toolboxes • Pollutant load reduction estimates from P2R Projector • Water quality monitoring validation if/where available • Pollutant load reduction estimates from project-specific methods (approved by the RTP Water Quality Technical Advisory Group)
	• To what extent are the outcomes expected to endure beyond the life of the program and what evidence is there to say this?	• Extrapolating likelihood of continued adoption from social outcomes of the interventions for the landholders and motivations to sustain practices or maintain restored sites reported • Extent of measures in place to support reduction in threat of degradation • Extent of measures in place to support long-term maintenance of restored site • Extent of increase of social capacity and social reach of delivery agents
	• To what extent has this program/project led to strengthening the capacity and reach of delivery agents required to continue to support water quality improvement programs in the future?	• Social outcomes analysis

Priorities for monitoring and/or evaluation (from logic)	Sub-questions	Indicators and data collection
	• What findings and lessons from the monitoring are useful for the future? (Biophysical and social)	• Synthesis of monitoring data by commodity or subject area • Publicly available standalone report
Improved approach to implementation		
	• What has been done in an innovative way compared to previous programs? • How well does the program align with the RTP and water Quality Component principles? • How have transparency, accountability, efficiency, and efficacy been improved over previous programs? • Have there been any downsides to this new implementation model? • What has been learnt about improving program implementation and what legacy is available to future investors and program managers?	• Description of novel aspects of the improved approach • Interviews with partners • Comparison of cost-effectiveness to other historical investments • Reflective analysis of the implementation model (benefits and downsides), including governance, contractual arrangements, procurement approach, foundational knowledge, data management system.

Priorities for monitoring and/or evaluation (from logic)	Sub-questions	Indicators and data collection
Innovation pathway		
New technologies, tools, and approaches have been developed (or existing ones improved), validated and are cost-effective or have shown potential to be cost-effective Planning/mapping system or tools that can systematically inform future investment, program design or implementation have been developed, are accessible and have proven to work.	• What new technologies, tools, approaches planning/mapping systems have been developed and/or validated? have been improved (effectiveness and efficiency)? • What potential do these innovations have for a step change in water quality? • How are these innovations accessible and by whom? • What signs are there that these innovations are going to drive water quality improvements?	• New (or improved) technology, tool, approach, planning/mapping system, data sharing model and associated digital infrastructure • Impact/benefit of the new (or improved) technology, tool, approach, planning/mapping system, data sharing model and associated digital infrastructure • Feasibility of the new (or improved) technology, tool, approach, planning/mapping system, data sharing model and associated digital infrastructure • Cost of implementing at the scale required the new (or improved) technology, tool, approach, planning/mapping system, data sharing model and associated digital infrastructure • Cost effectiveness of new (or improved) technology, tool, or approach relative to existing practices based on Alluvium (2019) benchmarks (where relevant) • Validation of the new (or improved) technology, tool, approach, planning/mapping system, data sharing model and associated digital infrastructure • Accessibility of the new (or improved) technology, tool, approach, planning/mapping system, data sharing model and associated digital infrastructure • Readiness of the new (or improved) technology, tool, approach, planning/mapping system, data sharing model and associated digital infrastructure to be rolled out and broadly implemented at the scale required for water quality improvement • Extent to which the new (or improved) technology, tool, approach, planning/mapping system, data sharing model and associated digital infrastructure is being used and tested with examples and evidence.

Priorities for monitoring and/or evaluation (from logic)	Sub-questions	Indicators and data collection
Data sharing models and associated digital infrastructure are developed, established, available and used in decision making	• Are digital infrastructure and data models in place? • Are digital infrastructure and data models being used? • What potential do these infrastructure and data models have for improving water quality? • What signs are there that these digital infrastructure and data models going to drive water quality improvements?	• Extent to which the new (or improved) technology, tool, approach, planning/mapping system, data sharing model and associated digital infrastructure is being used and tested with examples and evidence. • Number of landholders contributing to and accessing information from the data model and associated digital infrastructure • Number of data sharing agreements in place for data models and associated digital infrastructure and nature of these agreements • User feedback on how the data model and digital infrastructure is helping decision making, used to improve water quality and user confidence in storing personal data in the system
Funding pathway		
Enduring economic drivers for practice change/land use change/ improved land management	• To what extent have new funding options or incentives for water quality improvements become available or existing ones been improved?	• New (or improved) market mechanism for water quality improvement and its potential to contribute to water quality improvement • Impact/benefit of the new (or improved) market mechanism for water quality improvement • Feasibility of the new (or improved) market mechanism for water quality improvement • Readiness of new (or improved) market mechanism for water quality improvement
Traditional Owners pathway		
More Traditional Owners are engaged in on-ground water quality improvement and monitoring activities	To what extent have water quality activities been co-designed with Traditional Owners?	Extent to which Traditional Owners have been involved in the activity design
	To what extent have Traditional Owners been engaged in on-ground water quality improvement and monitoring activities?	Number of and extent to which projects engage Traditional Owner groups in on-ground water improvement and monitoring activities
Assumptions		
Farmers will change practices if we provide the right conditions	*Not applicable*	*Not applicable*
Innovation will lead to a step change in water quality improvement effectiveness without sacrificing farm profitability	*Not applicable*	*Not applicable*

Priorities for monitoring and/or evaluation (from logic)	Sub-questions	Indicators and data collection
Delivery partners have the capacity and capability to implement projects at the required scale	*Not applicable*	*Not applicable*
Co-design can lead to improved buy-in and stewardship, and ultimately better outcomes	*Not applicable*	*Not applicable*
Legacy value	• To what extent has this program/project led to strengthening the capacity and reach of delivery agents required to continue to support water quality improvement programs in the future?	• Social outcomes analysis
	• What are findings and lessons from the monitoring are useful for the future? (Biophysical and social)	• Synthesis of monitoring data by commodity or subject area • Publicly available standalone report

12 Crown-of-thorns Starfish Control Component M&E Plan

12.1 Introduction

The COTS Control M&E Plan is structured around the overarching framework of the Partnership M&E Plan (Section 2), and includes:

- A description of the COTS Control Component, including:
    - a program logic model, which describes the expected cause and effect relationships between the component's activities and outcomes
    - a narrative describing the logic model
    - the interactions of the component with other components
    - the principles and key causal assumptions underpinning the COTS Control Component
- The scope of COTS Control Component M&E
- The performance expectations for prioritised end-of Partnership outcomes for the Component
- The plan for monitoring the progress of the COTS Control component, including performance measures for prioritised intermediate outcomes.

The COTS Control Component M&E Plan was developed via an M&E planning workshop including representatives from CSIRO, (the then) DoEE, GBRMPA and GBRF. It was then revised in October 2021. It is worth noting the following when reading the COTS Control Component M&E plan:

- For the purposes of this document, 'COTS control' includes manual in-water control (culling and surveillance), data management, decision-support, innovations in early warning systems, early intervention options, alternative control technologies, and improved prediction and decision-making
- The results of the independent review of the COTS control activities to date, as well as a cross-sectoral COTS Forum in November 2019, will further inform the activities of the COTS Control Component, which may be incorporated in future iterations of the COTS Control M&E Plan.

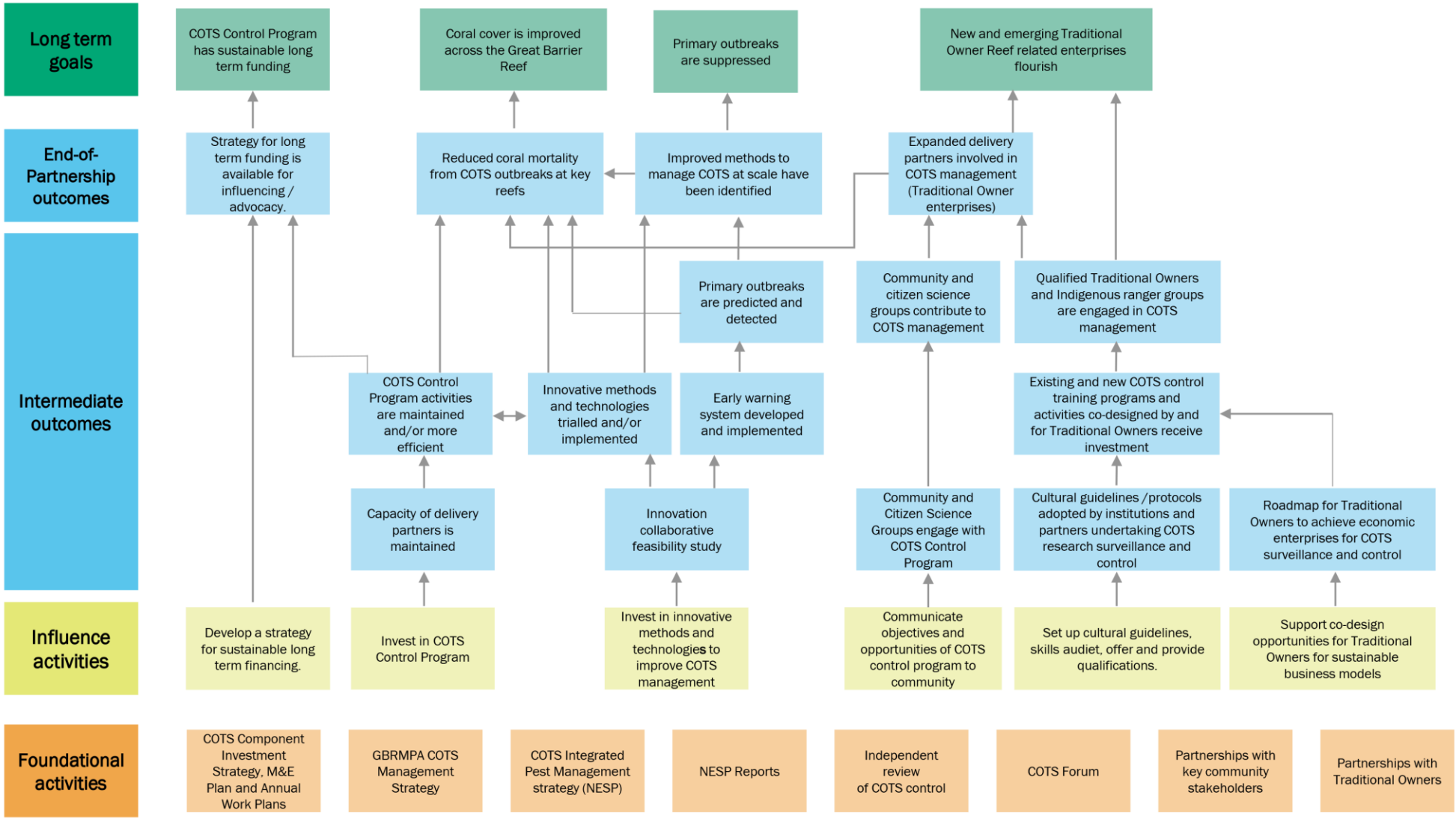
12.2 Logic of the COTS Control Component

The COTS Control Component-level logic model (Figure 7) visually shows how the work undertaken in the COTS Control Component is expected to bring about desired change. The logic outlines the anticipated cause-and-effect relationships between COTS control activities and expected intermediate and end of Partnership outcomes (as described in Section 3).

The logic is presented as a model, with a supporting narrative, the principles that guide the delivery of the Component and the key causal assumptions underpinning the logic.

The purpose of the narrative is to explain, in words, the broader goals for the COTS Control Component, and how the COTS Control Component is expected to contribute to those broader goals through its activities and outcomes.

Figure 7. COTS Control Component program logic



Narrative of the logic model

The broader long-term goals of the COTS Control Component are:

- Coral cover is improved across the Great Barrier Reef
- Primary outbreaks are suppressed
- New and emerging Traditional Owner Reef related enterprises flourish
- COTS Control Program has sustainable long-term funding.

The continued control of secondary outbreaks coupled with the suppression of future primary outbreaks are the key precursors to improved coral cover and which the COTS Control Component expects to directly contribute towards. The unique contributions of the COTS Control Component during the Partnership funding period (to 2024) are:

- Reduced coral mortality from COTS outbreaks through targeted manual in-water control at targeted reefs, and the development of innovative alternative control methods and technologies that can complement existing manual in-water control
- An enhanced ability to predict and detect primary outbreaks early, allowing for early intervention and hence suppression of larval export that supports subsequent secondary outbreaks
- Scoping and initiation of opportunities for expanded Traditional Owner and community participation in COTS control
- A strategy that presents a comprehensive business case and real options to support planning and policy development for long-term funding of COTS management.

These contributions represent the end of Partnership outcomes for the COTS Control Component. The Component includes a suite of activity pathways to achieve these end of Partnership outcomes:

- **COTS Control Program**: Through continued investment in manual in-water control activities at a level consistent with the best scientific advice and the intensity of the current secondary outbreaks, the Component expects the capacity of the delivery partners to be maintained. Through the maintenance of manual in-water control and innovations and/or efficiencies therein, it is expected that the manual in-water control will at least be maintained, but ideally be made more efficient.
- **Complementary innovative methods**: By bringing the scientific community together through dedicated COTS Forums and by investing in focussed research and development to improve COTS control, new innovative methods and technologies will be identified and trialled. These will relate to early warning systems, early intervention options, alternative control technologies, and improved prediction and decision-making. Where ready for operation, these will be implemented to complement existing manual in-water control. As a result of this investment it is expected that COTS control operational and strategic management decisions will be improved and that primary outbreaks will be more accurately predicted and detected, contributing to the suppression of primary outbreaks.
- **Expanding delivery partner involvement**: Through collaboration with the Traditional Owner Reef Protection and Community Reef Protection Components, opportunities to enhance Traditional Owner, community and citizen science groups involvement in reef management through participation in COTS control will be mapped and implemented. Traditional Owner activities will be led by and co-designed with Traditional Owners, alongside the development of biocultural guidelines. In all instances the activities will lead to expanded delivery partner involvement in COTS control, which will be likely to include training and direct participation in manual in-water control and surveillance.
- **Long-term funding strategy**: An additional long-term goal for the COTS Control Component is to secure sustainable and long-term funding support for COTS control. This goal has its own pathway, where options will be scoped to present a comprehensive business case and real options to support planning and policy development for long-term sustainable funding of COTS management.

Component interactions

Table 14 outlines how the activities of the COTS Control Component interacts with the activities of other Partnership components. Understanding and collecting information on these interactions is important for telling the story of the synergies the COTS Control Component has created with other components.

Table 14. COTS Control Component interaction with other Partnership components

Component	Description of interaction with COTS Control Component
Reef Restoration and Adaptation Science (Component 4)	COTS control planning and surveillance will provide insights into where and when to target RRAS activities
Traditional Owner Reef Protection (Component 5)	Co-designing and delivering COTS control with Traditional Owner groups will support Traditional Owner aspirations for the Reef
Community Reef Protection (Component 5)	Engaging community and citizen science groups in COTS control will support delivery of Community Reef Protection outcomes
Integrated Monitoring and Reporting (Component 6)	COTS decision-support systems and all COTS control surveillance will feed into RIMReP and the knowledge value chain described in the Integrated Monitoring and Reporting Component

Principles

The delivery of the COTS Control Component is guided by the following suite of Component-specific principles:

- The COTS Control Component is consistent with the Reef 2050 Plan, the GBRMPA COTS Control Strategy (to be released as the COTS Management Strategy), the 2017 Scientific Consensus Statement, and the COTS Integrated Pest Management (IPM) Strategy
- Build the capacity and expertise of partners to contribute and add value to improved COTS control
- Selection of activities based on an open and transparent procurement process, including value for money
- Partner to design and implement control and surveillance based on sound science
- Consistent with Traditional Owner and community engagement principles
- Consistent with the National Environmental Science Program (NESP) IPM Strategy principles, decisions are made in a timely manner based on best available (rather than future 'perfect') knowledge, complemented by adaptive management and continuous learning.

Understanding and collecting information on these is important for telling the story of how well the COTS Control Component adhered to its principles.

Assumptions

Table 15 presents the causal assumptions that underpin the COTS Control Component program logic, along with an assessment of the assumptions for M&E planning purposes. Surfacing the assumptions underpinning the COTS Control Component is important for assessing how robust the design of the Component is, and identifying any assumptions that might be important to track. Those assumptions identified for further investigation/inclusion in M&E are included in the monitoring plan for the COTS Control Component (Table 15).

Table 15. Assumptions from COTS Control Component program logic

Key assumptions underpinning the logic We assume that...	Evidence for/against assumption	Confidence in assumptions (L, M, H)*	Riskiness to achievement of end of Partnership outcomes (L, M, H) *	Investigate further/include in M&E? Yes (Y) / No (N)
Partners have the capacity (time/resources) and willingness to innovate and collaborate	A broad range of stakeholders (researchers, operators, government) have contributed to the NESP COTS activities and expressed interest to collaborate and learn	M	M	Y
Traditional Owners are interested in participating in COTS control and surveillance	CSIRO, GBRMPA and GBRF have received direct approaches from community and Traditional Owner groups. Traditional Owners expressed an interest to the Partnership to participate in COTS control	M	M	Y

Key assumptions underpinning the logic We assume that...	Evidence for/against assumption	Confidence in assumptions (L, M, H)*	Riskiness to achievement of end of Partnership outcomes (L, M, H) *	Investigate further/include in M&E? Yes (Y) / No (N)
Community are interested in participating in COTS control and surveillance	CSIRO, GBRMPA and GBRF have received direct approaches from community. The Community Reef Protection Component has identified COTS control as an opportunity for community participation in Reef protection	M	L	Y
COTS Integrated Pest Management is a sound approach, consistent with peer reviewed science	NESP IPM Strategy; NESP research; independent peer-review; peer-reviewed literature	H	H	N
Early detection and response are the most effective approach to COTS management	NESP research; peer-reviewed literature; invasive species management literature; expert opinion; ongoing monitoring results	H	H	N

* H=High, M=Medium, L=Low

12.3 Scope of the COTS Control Component M&E Plan

This section includes the elements of the Partnership-level M&E Scope (as outlined in Section 4) that are relevant to the COTS Control Component. This includes some additions to M&E audience for the COTS Control Component and their information needs.

Audience

In addition to the primary M&E audiences for the Partnership in general (Section 4 of this document), the following audiences (Table 16) are important for the COTS Control Component.

Table 16. COTS Control Component M&E audience and information needs

Primary audience	Information requirements
GBRMPA	Co-investment/future investment potential associated with long-term sustainable financing and informing the World Heritage Committee Opportunities and improvement (science and other)
NESP IPM Working Group	How well the Component is operating and where the research needs are Opportunities and improvement (science and other)
Queensland Office of the Great Barrier Reef	As for Partnership as a whole

Secondary audiences that may be interested in the results of the COTS Control Component M&E include:

- Service providers (e.g. vessel operators)
- Traditional Owners
- Tourism operators
- Community groups
- Non-government organisations.

The secondary audiences will also be considered when deciding what information to provide to whom, and in what format.

12.4 Performance expectations for the COTS Control Component

Table 17 outlines the performance expectations for the COTS Control **end of Partnership outcomes**. As described in Section 6, these expectations make it clear how performance of the COTS Control Component will be judged at the end of the Partnership and will support:

- Assessment of the contribution of the COTS Control Component to the Reef 2050 Plan
- Assessment of the overall effectiveness of the Partnership.

The Reef 2050 Plan target for COTS Control is:

EHT5: Condition and resilience indicators for coral reefs, seagrass meadows, islands, estuaries, shoals and inter-reefal habitats are on a trajectory towards at least good condition at local, regional and Reef-wide scales.

Table 17. COTS Control Component end of Partnership outcomes performance measures

End of Partnership outcomes	Sub-questions	Performance measure	Data collection
Reduced coral mortality from COTS outbreaks at key reefs	*Not applicable*	**Target:** Reduction of COTS density at priority reefs **Indicator:** Number and area of priority reefs where COTS density is maintained below ecological thresholds (the threshold at which coral cover is lost to COTS) 'Area' = total area managed (surveillance and culling) 'Priority reefs' = those with ecological (connectivity) and/or economic (tourism) value **Target:** Reduction of average size of COTS at priority reefs **Indicator:** Trend toward smaller size classes	GBRMPA COTS Control Program data and NESP reports
New methods to manage COTS at scale have been identified	*Not applicable*	Identification of new methods that generate significant effectiveness and or cost improvements in areas of surveillance, intervention and decision support	• Collation of information from COTS Working Group meeting minutes and milestone deliverables from Annual Work Plan activities arising from the collaborative feasibility study to assess opportunities for innovations in COTS management • Progress reports from innovation study, detailed R&D projects and trials (to be detailed once started) • Documentation and collation of stories, narratives and outputs from activities arising from the collaborative feasibility study to assess opportunities for innovations in COTS management

End of Partnership outcomes	Sub-questions	Performance measure	Data collection
Expanded delivery partners involved in COTS management (including Traditional Owner enterprises)	To what extent has the COTS Control Component engaged Traditional Owner Reef related enterprises and community and citizen science groups in COTS management activities?	• Number and nature of involvement of expanded delivery partners • Number of trips from involving expanded delivery partners • Dive hours from expanded delivery partners on existing fleet or new vessels	Control program reporting
Strategy for long-term funding is available for influencing/advocacy	*Not applicable*	Options for long-term funding strategy for COTS management available by June 2021	Progress report

12.5 Monitoring the progress of the COTS Control Component

Table 18 shows the plan for monitoring the progress and performance of the COTS Control Component as it is being implemented. The plan focuses on monitoring **prioritised intermediate outcomes** and **weak causal assumptions**. As outlined in Section 6.3, indicators at the intermediate outcomes level act as lead indicators for the longer-term end of Partnership outcomes. Data collection at this level: a) enables the Component to understand whether it is on track to achieving its end of Partnership outcomes; and b) generates a substantial proportion of the evidence required to evaluate the overall effectiveness of the COTS Control Component.

Table 18 is structured against the outcome pathways of the COTS Control Component program logic. For each outcome prioritised for monitoring, a sub-question and/or indicator(s) have been identified. Some outcomes lend themselves better to a question than an indicator, or to a question with indicator(s), while other outcomes lend themselves well to an indicator(s) only. The table also includes the COTS Control logic assumptions (from Table 15) prioritised for inclusion in M&E, as well as the data collection sources/methods that will be used to monitor the assumptions (the assumptions do not need questions or indicators).

Table 18. Plan for monitoring the progress of the COTS Control Component effectiveness

Priorities for monitoring and/or evaluation (from logic)	Sub-questions	Indicator (and target if required)	Data collection (source/ method)
On-water COTS Control Program pathway			
On-water COTS Control Program activities are maintained and/or more efficient	To what extent can providers continue management effort in accordance with IPM strategy?	Maintenance of current capacity to respond to current outbreak (no gap in funding due to Partnership management)	• COTS Control Program progress reports • Report of the independent scientific review
	Are effective governance and program management models in place to support the COTS Control Program in delivering activities and striving towards efficiencies?	• Number of COTS Partnership Group meetings • Number of COTS Action Group meetings	• COTS Partnership Group Terms of Reference and meeting minutes • COTS Action Group Terms of Reference and meeting minutes •
	Are COTS Control Program vessels delivering activities in accordance with IPM strategy as per the Program's Annual Work Plan?	• Number of voyages and days on water delivered by vessel program • Number of target reefs actioned • Kilometres of Target reef surveyed • Dive hours spent culling	• COTS Control Program Annual Work Plan • COTS Control Program progress reports • Voyage data dashboards
	Is data collected through the Program being managed and shared effectively to monitor progress in achieving IPM goals?	COTS Control Program data quality checked and made available to partners, vessel operators and stakeholders	• Voyage data dashboards • COTS Control Program progress reports

	Is the COTS Control Program supporting research that is aimed at improving COTS management?	• Number of hours of research support delivered • Types of research supported	• COTS Control Program progress reports
Complementary innovative methods pathway			
Innovative methods and technologies trialled and/or implemented	Are the right collaborations and governance model in place to design and deliver the COTS Control Innovation Program (CCIP)?	• Collaborative research partnership in place • Number of technical experts engaged • Number of CCIP Steering Committee meetings	• Collaboration Agreement • Third-Party Agreements • CCIP Steering Committee meeting minutes
	To what extent have the benefits, costs, feasibility, and risks of potential research opportunities been considered and prioritised in order to design the Innovation Program?	• Number of research opportunities identified, and their benefits, costs, and risks assessed • Number of expert workshops delivered to assess research opportunities • Research portfolio prioritisation workshop	• Research opportunity proposals • Feasibility assessment workshop slides (x5) • Portfolio prioritisation workshop • CCIP Design Phase Final reports
	Are CCIP R&D Phase activities being delivered as planned?	Extent to which CCIP R&D Phase project milestones and deliverables are being delivered on time and as planned	• CCIP R&D Phase Progress Reports
	To what extent has the research program developed new knowledge, tools, technologies and methods to be trialled or implemented?	Number and type of new knowledge, tools, technologies and methods developed	• CCIP R&D Phase Progress Reports • CCIP R&D Phase Final Reports • Description and examples of how CCIP knowledge, tools, technologies, and methods are being trialled and/or implemented in the COTS Control Program
	In what ways are innovative knowledge, tools, technologies and methods developed under CCIP being used to improve COTS control?	*Not applicable*	
Early warning system developed and implemented	To what extent has there been sufficient focus on developing early warning knowledge, tools and systems as part of CCIP?	*Not applicable*	

Expanded delivery partner involvement pathway			
Community and citizen science groups contribute to COTS management	*Not applicable*	Number and extent of involvement of community and citizen science groups in COTS control activities (including surveillance and reporting)	Description and documentation of community and citizen science activities related to COTS
Qualified Traditional Owners and Indigenous ranger groups are engaged in COTS management	*Not applicable*	Number and extent of involvement of Traditional Owners and Indigenous ranger groups in COTS control activities (including surveillance and reporting)	Description and documentation of Traditional Owner and Indigenous ranger activities related to COTS
Long-term funding strategy pathway			
Strategy for long-term funding is available for influence and advocacy	In what ways have strategic funding options been presented to decision and policy makers?	*Not applicable*	Strategy options report
Prioritised assumptions			
Partners have the capacity (time/resources) and willingness to innovate and collaborate	*Not applicable*	*Not applicable*	Working Group opinion/observation
Traditional Owners are interested in participating in COTS control and surveillance	*Not applicable*	*Not applicable*	• Traditional Owner Working Group opinion/observation • Track direct approaches (continuous)
Community are interested in participating in COTS control and surveillance	*Not applicable*	*Not applicable*	• Community Reef Protection Working Group opinion/observation • Track direct approaches (continuous)

13 Reef Restoration and Adaptation Science Component M&E Plan

13.1 Introduction

The Reef Restoration and Adaptation Science (RRAS) M&E Plan is structured around the overarching framework of the Partnership M&E Plan (Section 2), and includes:

- A description of the RRAS Component, including:
    - a program logic model, which describes the expected cause and effect relationships between the component's activities and outcomes
    - a narrative describing the logic model
    - the interactions of the component with other components
    - the principles and key causal assumptions underpinning the RRAS Component
- The scope of the RRAS Component M&E
- The performance expectations for prioritised end-of Partnership outcomes for the Component
- The plan for monitoring the progress of the RRAS component, including performance measures for prioritised intermediate outcomes.

The RRAS Component M&E Plan was developed via an M&E planning workshop including representatives from the Reef Restoration and Adaptation Program (RRAP), CSIRO, GBRMPA, GBRF, James Cook University, Queensland University of Technology and The University of Sydney. It is worth noting that:

- The RRAS Component builds on the outcomes of RRAP
- The RRAS activities focus on coral restoration and adaptation efforts. Other ecological reef systems (such as wetlands or seagrass) are only considered as part of the broader picture with flow on benefits.

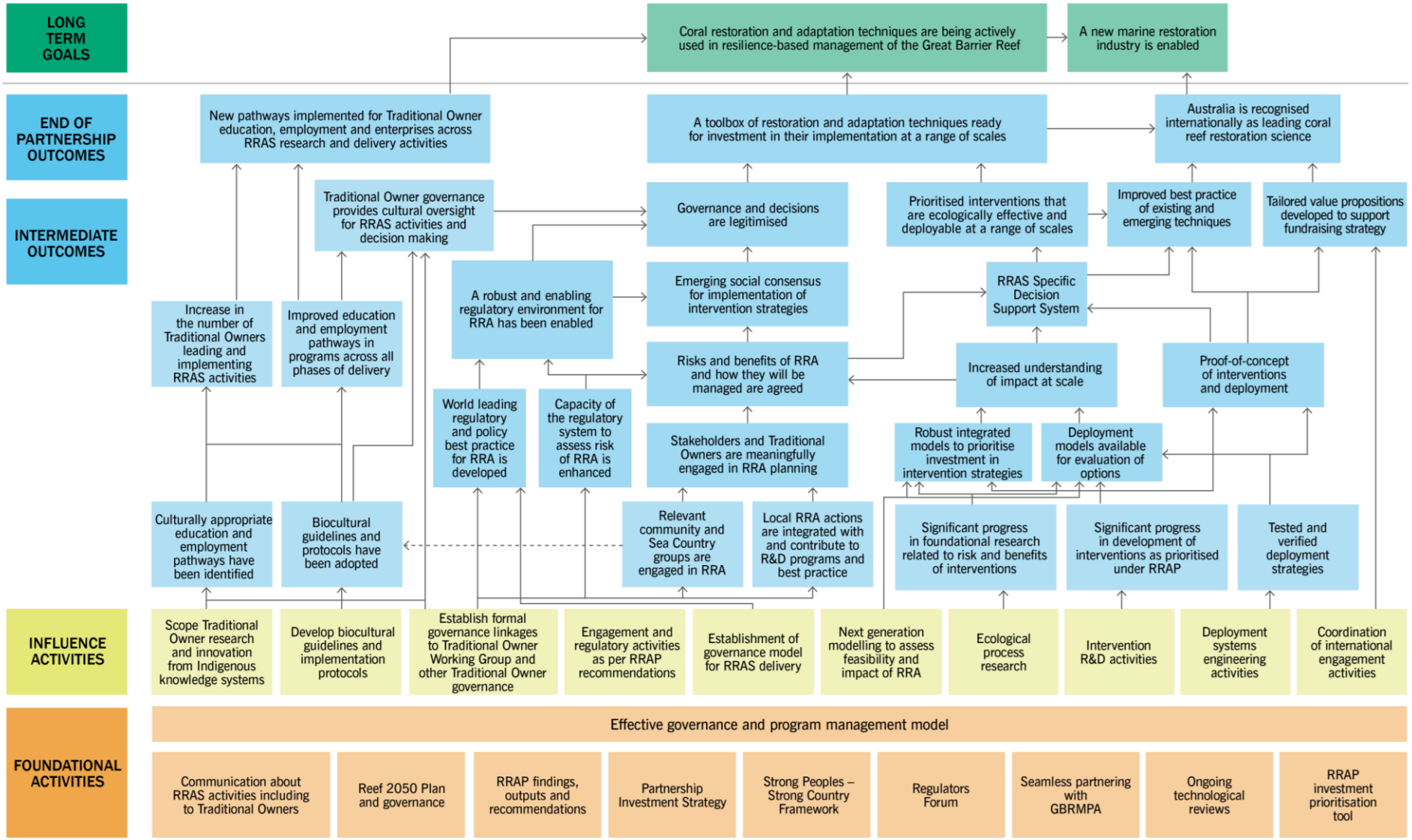
13.2 Logic of the RRAS Component

The RRAS Component-level logic model (Figure 8) visually shows how the work undertaken in the RRAS Component is expected to bring about desired change. The logic outlines the anticipated cause-and-effect relationships between RRAS activities and expected intermediate and end of Partnership outcomes (as described in Section 3).

The logic is presented as a model, with a supporting narrative, the principles that guide the delivery of the Component and the key causal assumptions underpinning the logic.

The purpose of the narrative is to explain, in words, the broader goals for the RRAS Component, and how the RRAS Component is expected to contribute to those broader goals through its activities and outcomes.

Figure 8. RRAS Component program logic



Narrative

The broader goals of the RRAS Component are that:

- Coral restoration and adaptation techniques are being actively used in resilience-based management of the Great Barrier Reef
- A new marine restoration industry is enabled.

The unique contribution of the RRAS Component to these broader goals during the Partnership funding period (to 2024) are:

- A toolbox of restoration and adaptation techniques are ready for investment in implementation, at a range of scales. These techniques will be in alignment with the objectives for the Reef
- Australia is recognised internationally as leading coral reef restoration science
- New pathways implemented for Traditional Owner education, employment and enterprises across RRAS research and delivery activities.

The development of a toolbox of restoration and adaptation techniques – ready for investment in implementation at a range of scales – requires the establishment of a transparent and inclusive governance structure and program management, focused on building distinct program components, each with their own pathways of change. These are:

- **Regulatory permission**: This will be achieved through a robust and enabling regulatory environment for reef restoration and adaptation. In partnership with GBRMPA and other entities, RRAS will enhance the capacity of the regulatory system to assess risk and will develop world leading regulatory and policy best practice for reef restoration.
- **Social consensus**: RRAS will achieve an emerging social consensus for implementation of intervention strategies and ensure that governance and decisions are legitimised, via the following activities:
    - Relevant community and Traditional Owners are engaged and involved in reef restoration and adaptation activities, both in terms of planning, designing and implementing such activities; and
    - Local reef restoration and adaptation activities are integrated with and contribute to R&D programs and best practice.

Through these activities, the RRAS Component will be materially engaging stakeholders and Traditional Owners in decisions on where and how to intervene in reef restoration and adaptation. This is expected to result in agreement on the risks and benefits of restoration activities and how they will be managed. This will lead to an emerging social consensus for implementation of intervention strategies which, along with a robust regulatory framework, is a precursor to ensuring that governance and decisions are legitimised.

- **Intervention feasibility, prioritisation and deployment**: The Component will develop and prioritise interventions that are ecologically effective and deployable at a range of scales. This will be achieved through the following pathways:
    - RRAS will achieve significant progress in research and development of interventions and ecological processes underpinning these interventions to improve understanding of risk and benefits. There is expected to be significant progress in research areas related to: shading and cooling; assisting reproduction, settlement and survival; and strategies to make corals more resilient to the impacts of climate change. This will lead to an increased understanding of impact at scale, proof-of-concepts of interventions and improved best-practice of existing and emerging techniques.
    - Through engineering in deployment systems, it is expected that deployment strategies will be tested and verified and provide inputs into robust deployment models facilitating the development and assessment of deployment scenarios. This will also enable proof-of-concept of deployment of interventions.
    - Next generation reef models will be developed to underpin feasibility testing and investment decisions, both in terms of interventions and deployment strategies. Robust, integrated and enabling, these models will underpin a RRAS-specific decision-support system, informed by agreed risk and benefits, that will allow the prioritisation of interventions that are ecologically effective and deployable at a range of scales. This will support the legitimisation of governance and decisions and development of improved best practice of reef restoration and adaptation. It is expected that the RRAS-specific decision-support system will feed into the IMR decision-support system.
- **Traditional Owner pathways**: The Component is expected to identify and implement new pathways for Traditional Owner education, employment and enterprises across RRAS research and delivery activities. This will be achieved by increasing the number of Traditional Owners leading and implementing RRAS activities and improving education and employment pathways in programs across all phases of delivery. In addition to these new pathways, Traditional Owner governance is expected to provide cultural oversight for overall RRAS activities and decision-making, alongside the development of biocultural guidelines and protocols.

Another end of Partnership outcome is that Australia is recognised internationally as leading coral reef restoration science. This will be achieved through the toolbox of reef restoration and adaptation techniques, improved best practice of existing and emerging techniques, and the coordination of international engagement activities leading to the development of tailored value propositions to support the Partnership fundraising strategy.

The RRAS activities and outcomes will be supported by the following foundational activities:

- Reef 2050 Plan and governance
- RRAP findings, outputs and recommendations
- Partnership Investment Strategy
- Strong Peoples – Strong Country Framework
- Regulators forum
- Seamless partnering with GBRMPA
- Ongoing technological reviews (environmental scans)
- Investment prioritisation tool (existing).

Component interactions

Table 19 outlines how the activities of the RRAS Component will interact with the activities of other Partnership components. Understanding and collecting information on these interactions is important for telling the story of the synergies the RRAS Component has created with other components.

Table 19. RRAS Component interaction with other Partnership components

Component	Description of interaction with RRAS Component
Water Quality (Component 2)	Investment in water quality improvement directly affects the modelling of impact and benefits of interventions under RRAS
COTS Control (Component 3)	COTS control is an essential lever in protecting coral populations and is an essential parameter of RRAS modelling and decision support
Traditional Owner Reef Protection (Component 5)	The RRAS social licence activities include engaging and involving Sea Country groups in restoration activities. This supports aspirations related to Traditional Knowledge being recognised, and Traditional Owners caring for Country
Community Reef Protection (Component 5)	Community and citizen science groups are engaged and involved in restoration activities
Integrated Monitoring and Reporting (Component 6)	The robust integrated models underpinning the prioritisation of investments in intervention strategies will interact with the IMR Decision-Support System (DSS)

Principles

The delivery of the RRAS Component is guided by the following suite of component-specific principles. These are in addition to the overarching Partnership principles that apply to all components:

- The program design will be based on three-yearly cycles of do/stop/review to reflect the investigative nature of the Component and ensure proper adaptive management structures
- The program will develop and foster a seamless interface with Reef management frameworks (especially policy and management, GBRMPA and OGBR), which will be facilitated through the design of the governance structure
- Program activities will always and increasingly move towards an “action supported by research” paradigm and away from a conventional “research, followed by action” paradigm
- The program will foster mission-oriented science – focus will be on outcomes for the betterment of the Reef, and on reef impact.

Assumptions

Table 20 presents the causal assumptions that underpin the RRAS Component program logic, along with an assessment of the assumptions for M&E planning purposes. Surfacing the assumptions underpinning the RRAS Component is important for assessing how robust the design of the Component is and identifying any assumptions that might be important to track. Those assumptions identified for further investigation/inclusion in M&E are included in the monitoring plan for the RRAS Component Table 20.

Table 20. Assumptions from RRAS Component program logic

Key assumptions underpinning the logic We assume that...	Evidence for/ against assumption	Confidence in assumption (L, M, H)*	Riskiness to achievement of end of Partnership outcomes (L, M, H)*	Investigate further/include in M&E? Yes (Y) / No (N)
Partners and stakeholders are willing to engage positively in RRAS, including embracing the mission of Reef outcome-oriented research	Design stage responsiveness is high	Mixed	H	Y
Engaging partners and stakeholders will lead to acceptance and support for RRAS	Plenty of academic evidence, if done well, but not guaranteed	M	H	Y
The RRAS R&D strategy is realistic (sufficient quality data, timeliness, etc.)	Expert review	M	H	N
Governance and management can handle the complexity of the program	RRAP progress over the past 18 months; other programs have succeeded; success factors are understood	H	H	Y
RRAS can achieve scale with some interventions	RRAP business case	H (at some scale)	H	Y
A collaborative relationship and approach/trust is maintained between RRAS and the regulators and governments	The design phase has fostered relationships	H	H	N

* H=High, M=Medium, L=Low

13.3 Scope of the RRAS Component M&E Plan

This section includes the elements of the Partnership-level M&E Scope (as outlined in Section 4) that are relevant to the RRAS Component. This includes some additions to M&E audience for the RRAS Component and their information needs.

M&E Principles

The RRAS Component identified two unique principles that would guide component M&E, in addition to the overall Partnership principles:

- Beyond 'Business as Usual' R&D. Using best practice approaches to inform the M&E strategy[13]
- Being open about the 'failures' and lessons learnt (not promoting the notion that we 'always know' what the outcomes will be).

Audiences

In addition to the primary M&E audiences for the Partnership in general (Section 4 of this document), the RRAS-specific governance structure is also important for the RRAS Component. Their information needs will be the same as the Partnership Management Committee, namely the effectiveness of the Partnership; the co-benefits generated through Partnership implementation; and delivery of the Partnership against its principles.

13.4 Performance expectations for the RRAS Component

Table 21-Table 23 outline the performance expectations for the RRAS end of Partnership outcomes. Three effectiveness rubrics have been developed to define levels of performance of the RRAS Component against its core end of Partnership outcomes. As described in Section 6, these expectations make it clear how performance of the RRAS Component will be judged at the end of the Partnership and will support:

13 Drawing on CSIRO's Socially Responsible Research Innovation initiative.

- Assessment of the contribution of the RRAS Component to the Reef 2050 Plan
- Assessment of the overall effectiveness of the Partnership.

The Reef 2050 Plan targets for RRAS are:

- EHT5: Condition and resilience indicators for coral reefs, seagrass meadows, islands, estuaries, shoals and inter-reefal habitats are on a trajectory towards at least good condition at local, regional and Reef-wide scales
- BT2: Trends in the availability and condition of habitat for species of conservation concern are improving at Reef-wide and regionally relevant scales

Table 21. RRAS Component end of partnership outcome performance measures

End of Partnership outcomes	Sub-questions	Performance measure (indicators and targets if required)	Data collection (source/ method)
A toolbox of restoration and adaptation techniques ready for investment in implementation, which are ecologically effective, and deployable at a range of scales	Not applicable	See Rubric in Table 22	Expert elicitation, mid-term independent peer review and annual program reviews
Australia is recognised internationally as leading coral reef restoration science	Not applicable	See Rubric in Table 23	Program review of success criteria and mid-term independent review
New pathways implemented for Traditional Owner education, employment and enterprises across RRAS research and delivery activities	Not applicable	• Number and nature of involvement of Traditional Owners in RRAS activities • Number of RRAS projects involving or led by Traditional Owners	RRAS program reporting

Table 22. Effectiveness rubric for RRAS Component KEQ1.a.i

KEQ1.a.i: To what extent has the RRAS component delivered a toolbox of restoration and adaptation techniques ready for investment in implementation, which are ecologically effective, and deployable at a range of scales?	
Rating	**Criteria**
Very good	In addition to that defined as 'good': • the toolbox of restoration and adaptation techniques is at a price point that it is affordable to deploy across significant scales, impacting a sufficient percentage of the Reef to retain core functional values
Good	In addition to that defined as 'adequate', the toolbox of restoration and adaptation techniques is logistically feasible to deploy at scales required to have the necessary impact
Adequate	The toolbox of restoration and adaptation techniques is: • Logistically feasible and able to be deployed at reasonable scales to have at least local impact • Culturally appropriate • Supported by effective and robust regulatory frameworks and permission systems • Socially acceptable and supported by Reef stakeholders and communities
Poor	The toolbox of restoration and adaptation techniques: • Does not demonstrate improvements to already existing restoration and adaptation technology • Is logistically feasible and able to be deployed at reasonable scales to have at least local impact
Detrimental	The toolbox of restoration and adaptation techniques: • Is culturally and socially unacceptable • Has detrimental impacts on the coral reef ecosystem

Table 23. Effectiveness rubric for RRAS Component KEQ1.a.ii

KEQ1.a.ii: To what extent has the RRAS Component contributed towards Australia being recognised internationally as leading coral reef restoration science?	
Rating	**Criteria**
Very good	As for 'good', plus: • Active engagement with international partner organisations • International funding agencies and governments are investing in collaborations with Australian teams • Partner countries increase investment in reef restoration and adaptation R&D
Good	As for 'adequate', plus: • Formalised international collaboration pathways are being used and supported • Co-publication of high impact papers
Adequate	• Evidence of international uptake of guidelines, techniques, policy and regulations • Improved best practice based on shared knowledge and R&D outcomes
Poor	No apparent international impact or collaboration towards Australia being recognised internationally as leading coral reef restoration science
Detrimental	• Australia gets a poor reputation due to lack of sharing or through poor or non-existent forms of collaboration • Australia exports technologies or interventions that have detrimental impacts on coral reefs or associated (or unintentionally impacted) ecosystems

13.5 Monitoring the progress of the RRAS Component

Table 24 shows the plan for monitoring the progress and performance of the RRAS Component as it is being implemented. The plan focuses on monitoring **prioritised intermediate outcomes** and **weak causal assumptions**. As outlined in Section 6.3, indicators at the intermediate outcomes level act as lead indicators for the longer-term end of Partnership outcomes. Data collection at this level: a) enables the Component to understand whether it is on track to achieving its end of Partnership outcomes; and b) generates a substantial proportion of the evidence required to evaluate the overall effectiveness of the RRAS Component.

Table 24 is structured against the outcome pathways of the RRAS Component program logic. For each outcome prioritised for monitoring, a sub-question and/or indicator(s) have been identified. Some outcomes lend themselves better to a question than an indicator, or to a question with indicator(s), while other outcomes lend themselves well to an indicator(s) only. The table also includes the RRAS logic assumptions (from Table 20) prioritised for inclusion in M&E, as well as the data collection sources/methods that will be used to monitor the assumptions (the assumptions do not need questions or indicators).

Table 24. Plan for monitoring the progress of the RRAS Component effectiveness

Priorities for monitoring and/or evaluation (from logic)	Sub-questions	Performance measure (Indicators and targets if required)	Data collection (source/method)
Strong, transparent, inclusive and effective governance and program management (foundational activity)	*Not applicable*	See Rubric in Table 25	Mid-term independent review
Regulatory permission pathway			
A robust and enabling regulatory environment for Reef restoration and adaptation has been enabled	Has the program actively influenced the policy and regulatory planning current undertaken by regulatory agencies, to enable the implementation of Reef restoration and adaptation interventions?	• Timely progress of research permits • Extent to which proposed interventions have been considered from a policy and regulatory perspective as part of the prioritising process • Extent to which regulatory bodies are informed, engaged and facilitating policy change where appropriate	• Evidence of functional research permit issuing processes (do permits get approved? If not, what are the blocks? Are the blocks being addressed?) • Evidence of policy/permitting adjustments
Social consensus pathway			
Emerging social consensus for implementation of intervention strategies	Has the program identified and agreed on the risks and benefits and how they will be managed?	Extent to which the public trusts that risks around interventions are being managed	Annual surveys
	Are stakeholders engaged in restoration planning in a meaningful way?	• Level of active engagement and overall acceptance is increasing • Number and quality of opportunities for consultation/feedback	Annual surveys
	Are local, community-led restoration activities integrated with, and contributing to, R&D programs and best practice?	• Number of local organisations/people engaged in restoration activities • Extent to which community is contributing to learning, planning, implementing, monitoring, and sharing outcomes of restoration sites • Human dimensions indicators are included in evaluation and show positive trends	Project reporting and qualitative feedback from partners

Priorities for monitoring and/or evaluation (from logic)	Sub-questions	Performance measure (Indicators and targets if required)	Data collection (source/method)
Intervention feasibility, prioritisation and deployment pathway			
RRAS specific decision-support system	• Are ecosystem and process models improving their capacity to deal with uncertainty? • Are underpinning models improving predictive capacity?	• Extent to which models are proven effective to deal with uncertainty • Extent to which model outputs are relied upon to guide prioritisation and investments regarding interventions	Quantitative data from program partner progress reports – relating to reduced uncertainty, the use of model outputs, scientific publications and updates and improvements of decision-support models and their application
Prioritised interventions[14] that are ecologically effective and deployable at a range of scales	*Not applicable*	• Number of interventions progressing towards field trials (or being removed as they are proven to be ineffective) • Number and extent to which interventions are being implemented and shown to be effective	Program reports contain quantitative data relating to field trials (increased survival/ decreased bleaching mortality/reduced cost/ increased scale)
Traditional Owners pathway			
Traditional Owner governance provides cultural oversight for RRAS activities and decision making	*Not applicable*	• Increase in Traditional Owner-led governance for strategic and cultural oversight of RRAS • Processes in place that build mutual understanding of risks and benefits and appropriate sharing of Indigenous Knowledge with western science • Indicators that Traditional Owners have a voice and are actively involved in decisions that affect their Sea Country	• Description of specific engagement, co-design mechanisms, co-design outcomes • Noting and action on issues/knowledge/ opportunities delivered through the cultural ethics committee •
International leaders' pathway			
Improved best practice of existing and emerging technologies	Are improved best practices being communicated and taken up by managers and restoration practitioners in Australia and elsewhere?	Extent to which Australian-led R&D can be attributed to improvements in best practice globally	Mid and end of program review to quantify international uptake and impact of Australian-led interventions/technology pathways
Tailored value propositions to support fundraising strategy	*Not applicable*	• Number of tailored value prepositions developed • Amount and type of funding attracted through tailored value propositions	Reporting on additional funding made available

14 Interventions include technologies such as solar radiation management, improved broodstock, improved deployment, increasing survival of existing and restored coral.

Table 25. Effectiveness rubric for RRAS Component foundational activity

KEQ for foundational activity: To what extent has the RRAS component established strong, transparent, inclusive and effective governance and program management ?	
Rating	**Criteria**
Very good	As for 'good', plus: Program/intervention prioritisation frameworks and decision support tools are in place, are being used, are continually evaluated and adapted, and they: • Contribute to a robust and informed discussion around decision making • Reduce uncertainty • Integrate with broader Reef-related DSS • Consider single as well as combinations of interventions • Include technical and governance/funding elements
Good	As for 'adequate', plus: • The governance and program management team actively engages the best possible program partners and is perceived as open, transparent and inclusive • Program/intervention prioritisation frameworks and decision support tools are continually evaluated and adapted, and they contribute to a robust and informed discussion around decision making
Adequate	• The governance system ensures relevant, scientifically sound, effective and efficient progress • The program committees and sub-committees are engaged and actively contributing to decisions • Program/intervention prioritisation frameworks and decision support tools are in place and are being used
Poor	One or more of the following: • The governance system does not facilitate progress • The governance and program management team are perceived as exclusive and have a poor record of engaging with teams outside the core research partners • The Program committees and sub-committees do not engage • There are no useable program/intervention prioritisation frameworks and decision-support tools
Detrimental	The governance system and program management team are dysfunctional and are contributing to, or worsening the divisions within the coral reef science community

14 Traditional Owner Reef Protection Component M&E Plan

14.1 Introduction

The Traditional Owner Reef Protection Component M&E Plan is structured around the overarching framework of the Partnership M&E Plan (Section 2), and includes:

- A description of the Traditional Owner Reef Protection Component, including:
  - a program logic model, which describes the expected cause and effect relationships between the component's activities and outcomes
  - a narrative describing the logic model
  - the interactions of the component with other components
  - the principles underpinning the Traditional Owner Reef Protection Component
- The scope of the Traditional Owner Reef Protection Component M&E
- The performance expectations for prioritised end-of Partnership outcomes for the Component
- The plan for monitoring the progress of the Traditional Owner Reef Protection Component for prioritised intermediate outcomes, including performance measures.

The Traditional Owner Reef Protection Component M&E Plan was developed via an M&E planning workshop including Traditional Owners from[15] the Lama Lama, Eastern Kuku Yalanji/Mualgal, Nywaigi, Yirrganydji, Wulgurukaba, and Koinmerburra groups. Organisations represented include the Dawul Wuru Aboriginal Corporation, Koinmerburra Aboriginal Corporation, the Australian Institute of Marine Science (AIMS) and GBRF. Minor revisions were made in October 2021.

It is worth noting the following when reading the Traditional Owner Reef Protection Component M&E Plan:

- The tight timeframes to develop a component-level M&E Plan presented significant challenges
- The M&E planning workshop was able to build on and progress work already approved by Traditional Owners, i.e. the Reef 2050 Traditional Owner Aspirations Project16, coordinated via the Reef and Rainforest Research Centre. The Partnership Traditional Owner Reef Protection Component has taken into consideration the theory of change developed for the Reef 2050 Traditional Owners Aspirations Project in late 2018, and the recommendations and priorities presented in the report for that Project
- There was limited representation at the M&E Planning workshop from other Partnership components and further work took place to ensure a shared understanding across the Partnership about how the components can specifically support the delivery of Traditional Owner aspirations for the Reef. This included a Traditional Owner Reef Protection co-design planning workshop in Townsville in May 2019.

14.2 Logic of the Traditional Owner Reef Protection Component

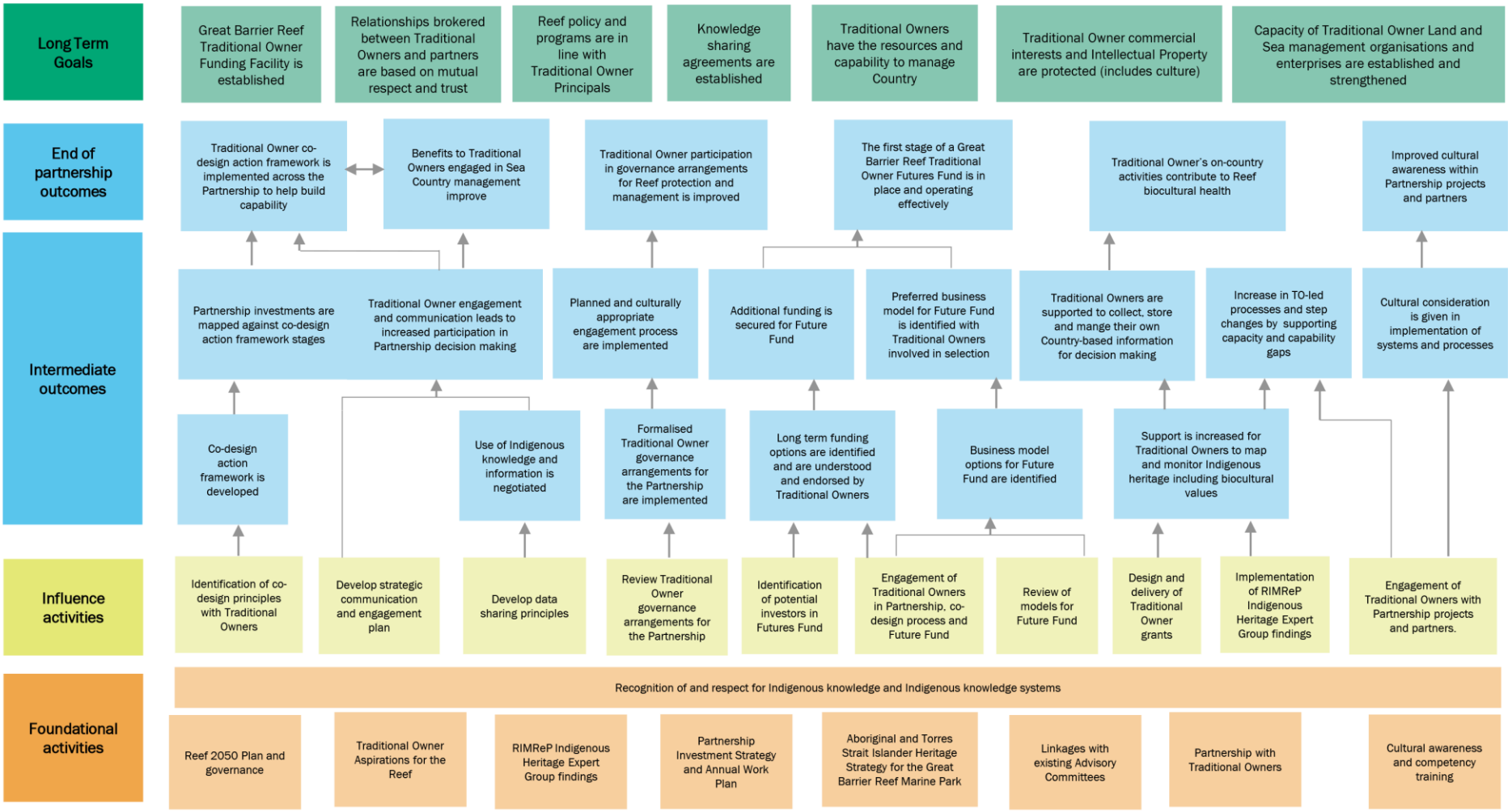
The Traditional Owner Reef Protection Component-level logic model (Figure 9) visually shows how the work undertaken in the Component is expected to bring about desired change. The logic outlines the anticipated cause-and-effect relationships between Traditional Owner activities, and the expected intermediate and end of Partnership outcomes (as described in Section 3).

The logic is presented as a model with a supporting narrative, the principles that guide the delivery of the Component, and the key causal assumptions underpinning the logic. The purpose of the narrative is to explain, in words, the broader goals for the Traditional Owner Reef Protection Component, and how the Component is expected to contribute to those broader goals through its activities and the outcomes of its activities.

15 There are 70 Traditional Owner groups across the GRBWHA. While the Traditional Owners present at the M&E Planning workshop cannot speak for other people's Sea or Country, they are able to provide insight into the interests and issues that are continually discussed by Traditional Owners along the Great Barrier Reef coastline.

16 Reef 2050 Traditional Owner Aspirations Project (Reef and Rainforest Research Centre): https://www.rrrc.org.au/reef-2050/

Figure 9. Traditional Owner Reef Protection Component program logic



Narrative

The broader goals of the Traditional Owner Reef Protection Component are that:

- Great Barrier Reef Traditional Owner Funding Facility is established
- Relationships brokered between Traditional Owners and partners are based on mutual respect and trust
- Reef policy and programs are in line with Traditional Owner principles
- Knowledge sharing agreements are established
- Traditional Owners have the resources and capability to manage country
- Traditional Owner commercial interests and Intellectual Property are protected (includes culture)
- Capacity of Traditional Owner Land and Sea management organisations and enterprises are established and strengthened.

The unique contribution of the Traditional Owner Reef Protection Component to these broader goals during the Partnership funding period (to 2024) are:

- A Traditional Owner co-design action framework is implemented across the Partnership to help build capacity
- Benefits to Traditional Owners engaged in Sea Country management improve
- Traditional Owner participation in governance arrangements for Reef protection and management is improved
- The first stage of a Great Barrier Reef Traditional Owner Futures Fund is in place and operating effectively
- Traditional Owners' on-country activities contribute to Reef biocultural health
- Improved cultural awareness within Partnership projects and partners.

Achieving these outcomes requires a multi-faceted approach based on the following pathways of change:

- **A Traditional Owner co-design action framework:** Co-design means different things to different people including Reef 2050 partners. This Traditional Owner-led framework will define what constitutes 'co-design' in the Reef space and pathways (including tools, skills and resources) to achieve this at scale. Principles will be developed underpinning the development of a framework which will ensure projects deliver equitable outcomes and maximise co-benefits. Partnership investments will be mapped against the framework and its co-design stages ultimately leading to a full implementation of the framework that delivers increased Traditional Owner capacity and shared benefits.
- **Traditional Owner engagement and communication to increase participation and benefits:** There is a need to raise the profile and awareness of the contribution Traditional Owners make to Reef protection; to keep culture strong by promoting, sharing and celebrating Traditional Owner stories and language; and to build cultural awareness across Reef 2050 Plan partners and the broader community. Underpinned by a strategic communication and engagement plan, a Traditional Owner-led communication and knowledge sharing platform will be developed, supporting an increased recognition and culturally appropriate use of Indigenous Knowledge, resulting in increased Traditional Owner participation in decision making and improvement in benefit sharing.
- **Traditional Owner participation in governance arrangements:** Interim arrangements in the form of a Traditional Owner Working Group (TOWG) were established in December 2018 to guide early investments and program establishment. Governance arrangements and engagement processes will be reviewed to ensure these are fit-for-purpose and culturally grounded for the purpose of guiding investments as the program transitions into operational phase.
- **Design and implementation of a Futures Fund:** Independent and sustainable financing is needed to support: localised governance and a Reef-wide Sea Country Alliance; strategic investments which build Traditional Owner capacity and capability in Reef management and benefit sharing; and fit-for-purpose policy and programs. Business model options for a Futures Fund will be identified and systematically assessed, alongside the identification of potential co-investors, leading to the selection and implementation of a preferred model (first stage) to demonstrate the feasibility and potential impact of this approach to create sustainable funding.
- **Indigenous heritage and biocultural information to support decision-making and Reef protection:** Traditional Owners are the keepers of Indigenous Knowledge and cultural values and have been observing dramatic changes on their Country. There is a need to increase awareness of Indigenous Knowledge and cultural values while putting appropriate safeguards in place to protect Traditional Owners' Intellectual Property and culturally sensitive information. Recommendations of the RIMReP Indigenous Heritage Expert Group and the 'Strong Peoples – Strong Country' Framework will be reviewed and implemented, leading to a more holistic approach to design and delivery of programs within a highly interconnected biocultural landscape. Support will be provided to Traditional Owners to enable the mapping, monitoring, recording and appropriate sharing of Indigenous Knowledge including biocultural information as part of the design and delivery of Partnership investments.
- **Improving cultural awareness and competency:** There is a direct causal link between the cultural competency of partners and being able to effectively and respectfully deliver projects and achieve meaningful outcomes. Improving cultural awareness is also fundamental for effective co-design and a legitimate outcome for this Component. Undertaking targeted cultural awareness and competency training, systematically engaging Traditional Owners with Partnership projects and partners, and giving due consideration to culture in the implementation of systems and processes are key enabling activities and outcomes for this pathway.

Component interactions

As a cross cutting component, the Traditional Owner Reef Protection Component outcomes interact with the activities and end of component outcomes of other Partnership components (see Table 26). The components interact in both directions, but the following pathways outline how they support the delivery of Traditional Owner aspirations for the Reef (details are also provided in the component-specific logic models):

Table 26. Traditional Owner Reef Protection Component interaction with other Partnership components

Component	Description of interaction with Traditional Owner Reef Protection Component
Water Quality (Component 2)	Traditional Owners are engaged in on-ground water quality improvement and monitoring activities, which leads to water being ecologically healthy and its cultural significance maintained. This aligns with the aspiration of Traditional Owners caring for Country and maintaining bio-cultural diversity across the Great Barrier Reef
COTS Control (Component 3)	Through co-designing and implementing COTS Control training programs with Traditional Owners, there will be an increase in Traditional Owner-led COTS Control programs. This aligns with the aspiration of new and emerging Traditional Owner Reef related enterprises flourishing
Reef Restoration and Adaptation Science (Component 4)	The Component will engage and involve relevant Sea Country groups in restoration activities and will support aspirations related to Traditional Knowledge being recognised, and Traditional Owners caring for Country
Community Reef Protection (Component 5)	All outcomes associated with the community also consider Traditional Owners specifically. This includes communication and education campaigns such as a National Reef Protection Challenge that also recognises Traditional Owners. It also includes shared knowledge and decision making, and community action This Community Reef Protection Component also supports the aspirations of implementing country-based planning
Integrated Monitoring and Reporting (Component 6)	The knowledge value chain and decision-support system will integrate and include provisions for Traditional Knowledge. This aligns with the aspirations of Traditional Owners setting their own research agendas and Traditional Knowledge being recognised and embedded at equal standing to western knowledge in Reef governance

Each of the components support the Traditional Owner co-design action framework implementation across the Partnership areas to enhance Traditional Owner capacity.

Principles

The principles for Traditional Owner aspirations for Reef, as outlined in the theory of change model, are the principles for the Traditional Owner Reef Protection Component, and include:

- Empowerment – enhance not replace fit-for-purpose Traditional Owner structures (rights based)
- The Traditional Owner way
- Sharing communication and celebration between and amongst Traditional Owners
- Mandate and effective Indigenous advocacy
- Inscription not prescription – genuine co-governance at all scales
- Overarching and legitimised – learn and leverage from existing structures
- All Traditional Owners have equal voice at the scales that are important to them
- Traditional Owner rights are inherent, not permitted.

14.3 Scope of the Traditional Owner Reef Protection M&E Plan

This section includes the elements of the M&E scope relevant to the Traditional Owner Reef Protection Component. This includes some additions to M&E audience for the Component and their information needs.

Purpose of M&E

In addition to the general purposes of Partnership M&E, the following are the specific purposes of M&E for the Traditional Owner Reef Protection Component:

3. To know about the health of Country and people
4. To identify the gaps and needs
5. To have a seat at the table
6. To understand what is important to Traditional Owners (as opposed to what other researchers/government want to know)
7. To support Traditional Owners to set the Traditional Owner research and management agenda
8. To capitalise on Indigenous strengths – the strengths and expertise of Traditional Owner communities are identified and drawn upon
9. To share their knowledge.

Audience

In addition to the primary M&E audiences for the Partnership in general (see Section 4 of this document), the following audiences (Table 27) were identified as important for the Traditional Owner Reef Protection Component.

Table 27. Traditional Owner Reef Protection Component M&E audience and information needs

Primary audience	Information requirements
Traditional Owners (including Indigenous organisations, i.e. ranger programs) Senior officials from relevant government agencies (GBRMPA, OGBR, DAWE, etc.) GBRF component directors	• The extent to which the Partnership investment reflects priorities identified by Traditional Owners • The extent to which the money allocated for Traditional Owners was spent on Traditional Owners • The extent to which the Component and Partnership are achieving their intended outcomes • The challenges experienced • The extent to which flexibility was built in to accommodate Traditional Owners' ways of knowing and doing • How innovation was used to achieve Traditional Owner outcomes • The unintended outcomes (positive and negative)

Secondary audiences that may be interested in the results of the Traditional Owner Reef Protection Component M&E include Torres Strait Islander Traditional Owners.

14.4 Performance expectations for the Traditional Owner Reef Protection Component

Table 28 outlines the performance expectations for the Traditional Owner Reef Protection Component **end of Partnership outcomes**. As described in Section 6, these expectations make it clear how performance of the Traditional Owner Reef Protection Component will be judged at the end of the Partnership and will support:

- Assessment of the contribution of the Traditional Owner Reef Protection Component to the Reef 2050 Plan
- Assessment of the overall effectiveness of the Partnership.

The Reef 2050 Plan target for Traditional Owner Reef Protection is:

- HT3: Partnerships between Traditional Owners and all stakeholders are increased to ensure key Reef heritage values are identified, documented, and monitored.
- WQT5: Traditional Owners, industry and community are engaged in on-ground water quality, improvement and monitoring.

Table 28. Traditional Owner Reef Protection Component end of Partnership outcomes performance measures

End of Partnership outcomes	Sub-questions	Performance measure	Data collection
Traditional Owner co-design action framework is implemented across the Partnership to help build capacity	To what extent is the co-design action framework utilised and helping build capacity?	• Co-design action framework is available and number of times it is used • Increase in skills, training or governance systems for Traditional Owners	• Skills and training mapping • Survey/interviews • Partnership progress reports •
Benefits to Traditional Owners engaged in Sea Country management improve	What benefits are identified by Traditional Owners?	• List of Traditional Owner benefits • Number of Traditional Owners reporting improvement in sea country management	• Collation of information from workshops/ forums and Traditional Owner involved meetings • Traditional Owner Working Group • Most significant change evaluation
Traditional Owner participation in governance arrangements for Reef protection and management is improved	• What different forms of governance are Traditional Owners able to access or establish? • What are the participation options for Traditional Owners?	• List of governance arrangements • Number of Traditional Owners participating in governance • Number of opportunities made available • Number of Traditional Owners participating in governance arrangements (include demographic breakdown) • Types of governance arrangements Traditional Owners are accessing (and why)	• Documentation and collation of stories, narratives and outputs from activities arising from Traditional Owner involvement. • Minutes from Traditional Owner Working Group meetings and other governance meetings where Traditional Owners are involved

End of Partnership outcomes	Sub-questions	Performance measure	Data collection
The first stage of a Great Barrier Reef Traditional Owner Futures Fund is in place and operating effectively	• What options are available for a Great Barrier Reef Traditional Owner Futures Fund? • Which Futures Fund model best suits the operational needs of Great Barrier Reef Traditional Owners?	• Futures Fund model is selected, endorsed by Traditional Owners and implemented • Number of projects and initiatives funded by the facility	• Reporting on Futures Fund progress • Collation of information Workshops/forums and Traditional Owner involved meetings • Traditional Owner Working Group
Traditional Owners' on-country activities contribute to Reef biocultural health	How are planning and implementation activities (identified by Traditional Owners) contributing to Reef biocultural health?	Reef biocultural health values are documented and shared	• Collation of information from workshops/ forums and Traditional Owner involved meetings • Traditional Owner Working Group • Traditional Owner grant reports • Documentation and collation of stories and narratives from Traditional Owners, scientists and managers • Project reporting (via grants, direct engagement and Partnership activity reports)
Improved cultural awareness within Partnership projects and partners	To what extent has cultural awareness improved within the Partnership?	Number of training and capacity building initiatives Evidence of inclusion of cultural awareness in processes associated with delivery of investment	Surveys and systematic project reviews Partnership progress reporting Traditional Owner Working Group

14.5 Monitoring the progress of the Traditional Owner Reef Protection Component

Table 29 shows the plan for monitoring the progress and performance of the Traditional Owner Reef Protection Component as it is being implemented. The plan focuses on monitoring **prioritised intermediate outcomes** and **weak causal assumptions**. As outlined in Section 6.3, indicators at the intermediate outcomes level act as lead indicators for the longer-term end of Partnership outcomes. Data collection at this level: a) enables the Component to understand whether it is on track to achieving its end of Partnership outcomes; and b) generates a substantial proportion of the evidence required to evaluate the overall effectiveness of the Component.

Table 29 is structured against the outcome pathways of the Traditional Owner Reef Protection Component program logic. For each outcome prioritised for monitoring, a sub-question and/or indicator(s) have been identified. Some outcomes lend themselves better to a question than an indicator, or to a question with indicator(s), while other outcomes lend themselves well to an indicator(s) only. The table also includes the program logic assumptions prioritised for inclusion in M&E, as well as the data collection sources/methods that will be used to monitor the assumptions (the assumptions do not need questions or indicators).

Table 29. Plan for monitoring the progress of the Traditional Owner Reef Protection Component effectiveness

Priorities for monitoring and/or evaluation (from logic)	Sub-questions	Indicator (and target if required)	Data collection (source/ method)
Traditional Owner co-design action framework pathway			
Traditional Owner-led co-design action framework is developed	• Has the Traditional Owner position on co-design and co-governance been clearly identified? • To what extent have co-design principles underpinning the action framework been identified? •	• Co-design principles have been established, reviewed by co-design experts and the work has been workshopped with Traditional Owners • Number of Traditional Owners contributing to co-design action framework • Endorsement of co-design action framework by Traditional Owners	• Co-design framework description • Project team reflections, Traditional Owner Working Group reflections • Reports and/or meeting notes from collaborations on co-design •

Partnership investments are mapped against co-designed actions	• What Partnership investment opportunities are being implemented? • What is the benchmark for Traditional Owner capabilities and planning? • Have Traditional Owner training priorities been delivered through investments? •	• Identification of the skill gaps • Number, type and format of capacity building opportunities. • Demographic data • Types and number of partnership investments, mapped against the co-designed actions • Types and number of workshops, training and products that have been delivered • Types of skills and qualifications achieved	• Partnership progress report, activity and investment tracking • Attendance sheets for workshops and training • Findings of audits and reviews
Traditional Owner engagement and communication to increase participation and benefits pathway			
A Traditional Owner-strategy for communication is developed	*Not applicable*	• Extent to which communication and knowledge sharing activities is strengthening active participation and decision making	• Traditional Owner Working Group opinion/observation • Description and documentation of Traditional Owner activities
Participation in governance arrangements pathway			
Planned and culturally appropriate engagement processes are implemented	How has engagement been maintained, increased and enhanced?	Traditional Owners engaged as demonstrated by: • Number of Traditional Owners involved in component activities	• Project reporting (via grants, direct engagement and Partnership activity reports), including qualitative feedback from those engaged. • Case studies
	What guidelines or protocols are used to provide advice on culturally appropriate engagement?	Endorsed list of guidelines and protocols available to the Partnership (project delivery managers and partners)	Traditional Owner Working Group
Design and implementation of a Futures Fund pathway			
Additional funding is secured for a Futures Fund	*Not applicable*	Extent to which additional funding has been secured demonstrated by number and quantum of investments	Partnership progress reporting

Preferred business models for Futures Fund are identified with Traditional Owners involved in selection	• What options are available for a Great Barrier Reef Traditional Owner Futures Fund? • Which Futures Fund model best suits the operational needs of Great Barrier Reef Traditional Owners?	Business model options have been identified and prioritised through a transparent process	Partnership report on Futures Fund design and decision making including independent review
Indigenous heritage and biocultural information to support decision making and Reef protection pathway			
Support is increased for Traditional Owners to map and monitor Indigenous heritage including biocultural values	• What activities are Traditional Owners applying for and implementing? • What does Reef biocultural health constitute for Traditional Owners? • What Indigenous heritage and biocultural values are targeted?	• Number and type of Traditional Owner grants • Indigenous Heritage Expert Group recommendations are implemented	• Grantees and Partnership progress reports • IMR Component progress reports • Traditional Owner Working Group • Documentation from innovation investment activities
Use of Indigenous Knowledge and information is negotiated	• Have any formal data sharing agreements been negotiated? (What for/with whom?) • What benefits have been derived from these agreements? • Is there a best practice model for commercial interest and copyright protection for Traditional Owners?	• Number of data sharing agreements with Traditional Owner groups • Features of agreements • Benefits have been systematically identified • A best practice model has been identified •	• Systematic analysis of data sharing agreements • Traditional Owner survey and audit of Partnership grants and projects • Desktop study and reviews by independent experts
Improving cultural awareness and competency pathway			
Engagement of Traditional Owners with Partnership projects and partners	To what extent have Traditional Owners been engaged in Partnership investments?	Number of Traditional Owners and Traditional Owner groups engaged	• Attendance sheets • Activity records • Description and documentation of Traditional Owner activities
Prioritised assumptions			
Partners have the capacity and willingness to engage and collaborate with Reef Traditional Owners	*Not applicable*	*Not applicable*	• Traditional Owner Working Group opinion/observation • Findings from forums and workshops • Partnership progress reporting

Traditional Owners are interested in participating in GBRF Partnership programs	*Not applicable*	*Not applicable*	• Traditional Owner Working Group opinion/observation • Findings from forums and workshops • Track direct approaches • Partnership progress reporting
GBRF is able to target programs to meet Traditional Owner prioritised needs	*Not applicable*	*Not applicable*	• Traditional Owner Working Group opinion/observation • Findings from forums and workshops • Track direct approaches • Partnership progress reporting

15 Community Reef Protection Component M&E Plan

15.1 Introduction

The Community Reef Protection Component M&E Plan is structured around the overarching framework of the Partnership M&E Plan (Section 2), and includes:

- A description of the Community Reef Protection Component, including:
    - a program logic model, which describes the expected cause and effect relationships between the Component's activities and outcomes
    - a narrative describing the logic model
    - the interactions of the Component with other components
    - the principles and key causal assumptions underpinning the Component
- The scope of the Community Reef Protection Component M&E
- The Community Reef Protection Component KEQs and summary approach to answering the questions
- The performance expectations for prioritised end-of Partnership outcomes for the Component
- The plan for monitoring the progress of the Component, including performance measures for prioritised intermediate outcomes.

The Community Reef Protection Component M&E Plan was initially developed via an M&E planning workshop that included representatives involved in a range of organisations and networks including the Australian World Heritage Advisory Committee, GBRMPA and Local Marine Advisory Committees (LMACs), the Reef Advisory Committee, researchers from Queensland University of Technology and The University of Queensland, and GBRF. Participants had a wide background in grassroots conservation, policy, natural resource management, citizen science, education, governance, and social science. Feedback from the three-day Traditional Owner planning workshop in May 2019 also informed development. The M&E Plan was then revised in October 2021.

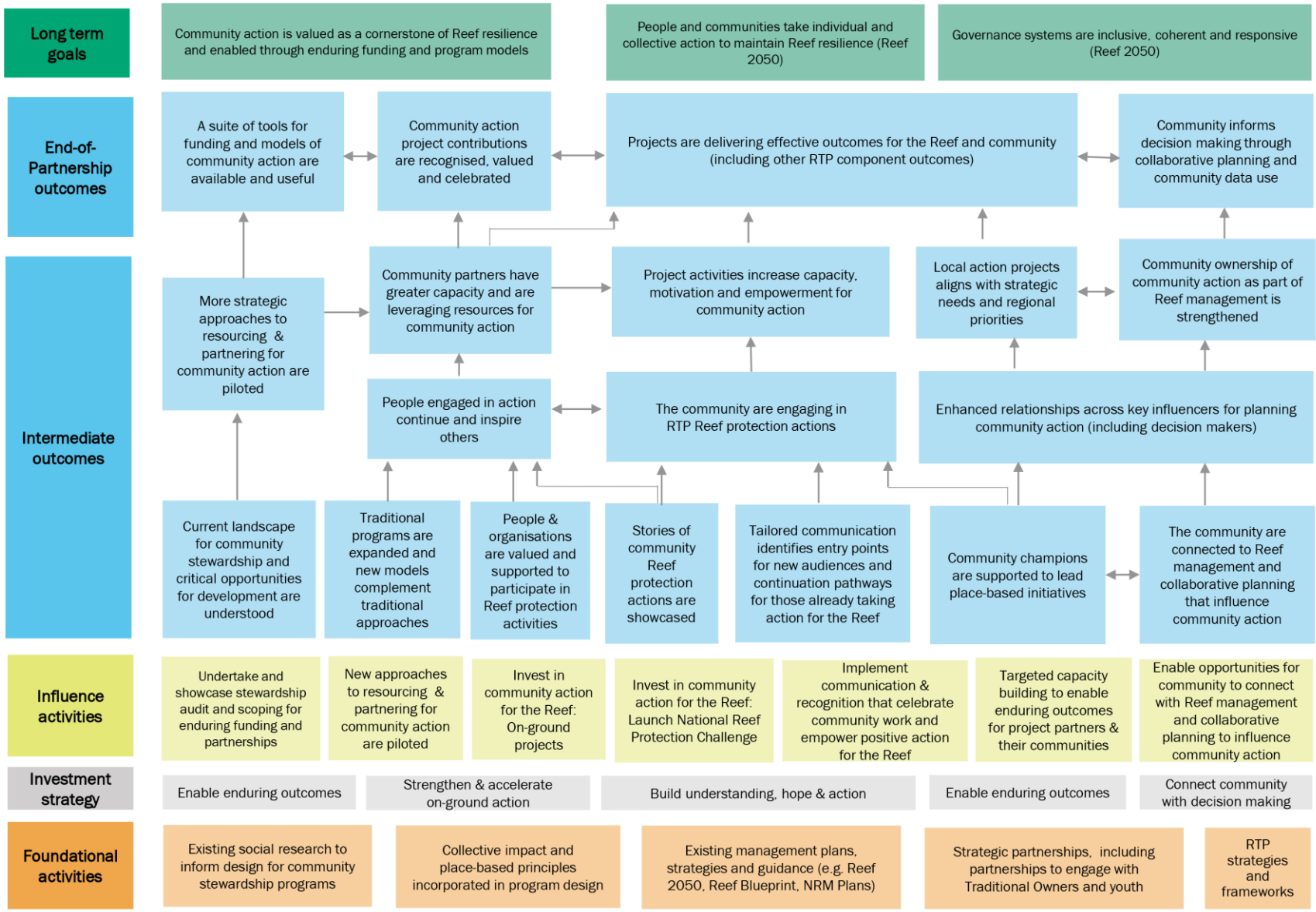
15.2 Logic of the Community Reef Protection Component

The Community Reef Protection Component-level logic model (Figure 10) visually shows how the work undertaken in the Component is expected to bring about desired change. The logic outlines the anticipated cause-and-effect relationships between Component activities and expected intermediate and end of Partnership outcomes (as described in Section 3).

The logic is presented as a model, with a supporting narrative, the principles that guide the delivery of the Component and the key causal assumptions underpinning the logic.

The purpose of the narrative is to explain, in words, the broader goals for the Community Reef Protection Component, and how the Component is expected to contribute to those broader goals through its activities and the outcomes of its activities.

Figure 10. Community Reef Protection Component program logic



Narrative

The broader goals of the Community Reef Protection Component are that:

- Community action is valued as a cornerstone of Reef resilience and enabled through enduring funding & program models
- People and communities take individual and collective action to maintain Reef resilience (Reef 2050)
- Governance systems are inclusive, coherent and adaptive (Reef 2050).

Reef resilience is defined holistically as the capacity of reef ecosystems and the individuals, businesses and communities that depend upon them to survive, adapt, and recover from the stresses and shocks that they experience (Resilient Reefs[17]).

The Community Reef Protection Component will contribute to these broader goals by the end of the Partnership:

- A suite of tools for funding and models of community action are available and useful
- Community action project contributions are recognised, valued and celebrated
- Projects are delivering effective outcomes for the Reef and community (including other RTP component outcomes)
- Community informs decision making through collaborative planning and community data use.

These end of Partnership outcomes will be achieved through the following suite of pathways (aligned with the Community Reef Protection Investment Strategy):

- **Enable enduring outcomes**: This pathway is focused on creating an enabling environment for community Reef protection. There are two key focus areas – Setting up tools and capacity for more enduring funding to support community programs.

  1) Enduring funding and program models – Through undertaking a stewardship audit and scoping options for enduring funding and partnership models, it is expected that the current landscape for community stewardship is better understood and 'what works' to grow and maintain investment and co-investment will be understood, applied and scaled. This will lead to business case(s) being built, and a strategic approach to community action being delivered, valued and resourced. This will support dynamic models for more sustainable funding to support community networks through revising frameworks for delivering community funding, and increasing capacity for community projects to raise funds and access ongoing funding sources.

  2) Capacity building and leadership - Through enabling opportunities for connecting community with Reef management and targeted capacity building (with a focus on organisational capacity and collaborations to empower engaging with youth and Traditional Owners), it is expected that champions within communities (geographic, place-based and within industry) will be supported to lead place-based initiatives. By empowering people through targeted capacity building and opportunities to connect with collaborative planning and Reef management, it is expected that there are enhanced relationships across key influencers for planning community action. Through this approach, more champions will emerge within both community and industry, facilitating structural leadership opportunities that support transformation of whole supply chains (e.g. tourism and businesses) and supporting enhanced networks for action. Building the capacity of youth and the organisations that can support them will result in stronger pathways for future leaders. Enhanced opportunity, capacity and leadership can help more closely align local action with strategic needs and build ownership and leadership of community action as part of Reef management.

  Working with the Traditional Owner Reef Protection Component to support Traditional Owner partnerships and build the capacity of the community to understand holistic cultural perspectives will lead to enhanced complementary planning and project frameworks, and greater opportunities for Aboriginal Peoples and Torres Strait Islanders to contribute to projects under the Component.

  Capacity for local leadership will in turn support how community informs decision making through collaborative planning and community data use and deliver effective outcomes for the Reef and community.

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- **Strengthen and accelerate on-ground action:** Through piloting new approaches to resourcing and partnering for community action and investing in on-ground community Reef protection activities, it is expected that:
  - Traditional programs are expanded, and new models complement traditional approaches
  - People and organisations are valued and supported to participate in Reef protection activities

  It is expected that these outcomes will support people who are already engaged to continue to be engaged and inspire others to participate to maintain and improve community organisations capacity to deliver action. With greater participation capacity and telling the stories of impact, community partners are able to leverage resources for community action, which is expected to contribute to enhanced collective action for Reef resilience (along with the large-scale behaviour change action and leadership pathways), including community benefits.

- **Build understanding, hope and action:**
  This pathway involves investing in:
  - Communication that identifies entry points for new audiences and continuation pathways for those already taking action for the Reef
  - High-profile public mobilisation initiatives (e.g. a National Reef Protection Challenge)

  These activities are expected to empower positive action projects for the Reef, eliciting the desired changes for perceptions of capacity to take action, sense of responsibility and establishment of social norms for Reef action. From this it is expected that 'less engaged' people will have a greater understanding of entry points and pathways for taking action for the Reef' and the potential benefits, creating a sense of responsibility and identity.

  It is also expected that the 'already/more engaged' people will feel supported to further 'improve' their actions for the Reef, with their success stories being reinforcing mechanisms for 'ramping' people further up the participation spectrum. Through these approaches more people will be informed and empowered to take more action to build the resilience of the Reef (e.g. through 'decarbonising' their lifestyle).

  Underlying the pathway is a behaviour change theory informed by behavioural science and psychological research. The theory indicates that behaviours are influenced by a range of factors, including:
  - Attitudes about the behaviour
  - Perspectives about whether others perform or support the behaviours
  - Personal capacity to take action
  - Perceived effectiveness of certain actions
  - Opportunity and contextual factors
  - Habits
  - Identity – how an individual views themselves
  - Sense of responsibility

  The Community Reef Protection Component initiatives may target any of these factors to promote change. Research indicates that successful behaviour change programs typically target multiple drivers of behaviour. For example, promoting stewardship programs can create new opportunities for individual action, while concurrent communication initiatives may highlight effectiveness of certain actions and foster a sense of collective responsibility.

- **Connect community with decision making:** Through enhancing and expanding community and Traditional Owner involvement in opportunities to connect with Reef management and collaborative planning to influence community action, it is expected that the community and Traditional Owners can become more connected to management and collaborative planning that influence community action, and in turn this enables enhanced relationships across key influencers.

  This is expected to result in action planning being more 'owned' and more relevant at local and broader scales. These are expected to lead to more trust and ownership, which will enhance governance and delivery models to support enduring outcomes. This knowledge sharing and integrated decision-making can in turn support more targeted local action that aligns with strategic needs and strengthens how community informs decision making through collaborative planning and community data use.

Component interactions

Table 30 outlines how the activities of the Community Reef Protection Component will interact with the activities of other Partnership components. Understanding and collecting information on these interactions is important for telling the story of the synergies the Component has created with other components.

Table 30. Community Reef Protection Component interaction with other Partnership components

Component	Description of contribution from Community Reef Protection Component
Water Quality (Component 2)	Community and citizen science activities may support water quality conservation and protection activities. Stewardship is a key factor in implementation of changes in land management practices.
Crown-of-thorns Starfish Control (Component 3)	Community and citizen science activities will support delivery of COTS surveillance and control activities.
Reef Restoration and Adaptation Science (Component 4)	Community Reef Protection Component activities including the Cairns-Port Douglas Hub and local coral restoration and stewardship grants will support engagement, social licence, and capacity for scaling current local-scale, place-based restoration approaches.
Traditional Owner Reef Protection (Component 5)	Many of the Community Reef Protection Component activities including the Community Action Plan Program and Traditional Owner-led CAP projects and the Cairns Port Douglas Hub will directly support the delivery of Traditional Owner Aspiration outcomes, including supporting Sea Country Alliances.

Component	Description of contribution from Community Reef Protection Component
Integrated Monitoring and Reporting (Component 6)	Citizen science monitoring activities will feed into RIMReP and the knowledge value chain described in Integrated Monitoring and Reporting Component. Collaborative work on Human Dimensions stewardship monitoring with deliver benefits for community program partners and targeted community action.

Principles

The delivery of the Community Reef Protection Component is guided by the following suite of Component-specific principles:

- Be inclusive in developing and delivering projects, including participatory and collaborative design where suitable
- Build on what works
- Support partnerships for enduring outcomes, including a focus on youth and Aboriginal and Torres Strait Islander peoples (including Traditional Owners)
- Introduce a "fresh" approach that brings the traditional and new together
- Collaborate for planning and action (to scale)
- Support the planning and implementation for community activities to be more strategic and targeted
- Integrate support for community resilience in the face of climate change, including supporting community response to large disturbance events with the intent to foster wellbeing, help to maintain momentum for positive project outcomes, and support new innovative approaches to adaptation

Assumptions

Table 31 presents the causal assumptions that underpin the Community Reef Protection Component program logic, along with an assessment of the assumptions for M&E planning purposes. Surfacing the assumptions underpinning the Component is important for assessing how robust the design of the Component is and identifying any assumptions that might be important to track. Those assumptions identified for further investigation/inclusion in M&E are included in the monitoring plan for the Community Reef Protection Component (Table 34).

Table 31. Assumptions from Community Reef Protection Component program logic

Key assumptions underpinning the logic We assume that...	Evidence for/against assumption	Confidence in assumptions (L, M, H)*	Riskiness to achievement of end of Partnership outcomes (L, M, H) *	Investigate further/include in M&E? Yes (Y) / No (N)
Aboriginal Peoples and Torres Strait Islanders, including Traditional Owners want to be engaged in Reef action	Desire is documented in the Reef 2050 Traditional Owners Aspirations Project, Caring for our Country, etc. The cultural obligations Traditional Owners have as custodians	H	H	N
Youth want to be engaged in Reef action	Reef Guardians program identifies, through their schools program, youth desire to be involved. Social media engagement. Feedback from schools	H	H	N
Community want to be engaged in Reef action	Participation and interest in projects, results from Social and Economic Long-Term Monitoring Program and similar Community disengagement in response to ongoing Reef impacts and the complexity of issues must be considered	H	H	N
There is a spectrum of engagement levels in Reef protection across the community	Interest in the multiple pathways for engagement that exist, such as Cane Changer program, many levels of citizen science programs	H	M	N

Key assumptions underpinning the logic We assume that...	Evidence for/against assumption	Confidence in assumptions (L, M, H)*	Riskiness to achievement of end of Partnership outcomes (L, M, H) *	Investigate further/include in M&E? Yes (Y) / No (N)
We can influence 'intention' and social norms through tailored mass communication	Behaviour change research and campaigns across a range of disciplines support this, but further understanding of effectiveness and endurance will be required to implement an adaptive approach	L-M	H	N
There is a willingness for co-investment	The research that underlies the collaborative co-investment strategy. NGOs' ability to engage co-investors	M	H	N
There is a desire by funders to move away from short-term funding models and support long-term sustainable community-based funding models	The principle is well recognised, but the practice of it is not for the Reef per-se	L	H	Y
The biophysical sciences community (scientist/ managers) have greater acceptance of and support for the value of community-based contributions/actions	Evidence is emerging e.g. Reef 2050 RIMReP human dimensions. Yet, greater exchange, integration and support pathways needed between biophysical and social sciences	L-M	M-H (loss if integration)	N
Strategic community action will accelerate and scale achievement of outcomes	Lots of evidence of the outcomes of community action approaches, but limited evidence of scaling and accelerating	H	H	N
People / decision makers accept/ understand/apply/are aware of the linkages between resilient communities and a resilient Great Barrier Reef	Limited evidence of multi-disciplinary processes, but growing recognition of importance and frameworks (Queensland Climate Adaptation strategy, Reef Guardian Councils, 100 Resilient Cities)	L	H	Y

* H=High, M=Medium, L=Low

15.3 Scope of the Community Reef Protection M&E Plan

This section includes the elements of the Partnership-level M&E Scope (as outlined in section 4) that are relevant to the Community Reef Protection Component. This includes the following clarifications of the boundaries specific to this Component M&E Plan:

- As the Component has both specific outcomes, and also acts as a cross-cutting theme, the Community Reef Protection Component M&E focuses on Component specific outcomes. Outcomes associated with the interaction of the Community Reef Protection Component with the other Partnership components are (or will be) captured in the respective Component M&E Plans
- Co-investment, communication and engagement activities driven by Component 1 – Administrative Activities, are out of scope of the Community Reef Protection M&E Plan.

15.4 Performance expectations for the Community Reef Protection Component

Table 32 outlines the performance expectations for the Community **end of Partnership outcomes**. An effectiveness rubric has been developed to define levels of performance of the Community Reef Protection Component against its core end of Partnership outcomes. As described in Section 6, these expectations make it clear how performance of the Community Reef Protection Component will be judged at the end of the Partnership and will support:

- Assessment of the contribution of the Community Reef Protection Component to the Reef 2050 Plan
- Assessment of the overall effectiveness of the Partnership.

The draft Reef 2050 Plan Human Dimensions Objectives for Community by 2050 are:

- Uses of the Reef are ecologically sustainable as the system changes, in turn sustaining economic benefits to people
- People maintain or grow their attachment to the Great Barrier Reef
- People and communities take individual and collective action to maintain its resilience
- Intangible and tangible historic heritage and contemporary cultural values remain intact
- Governance systems to prioritise, adapt and engage communities in systems for Reef management are effective

Table 32. Community Reef Protection Component end of Partnership outcome performance measures

End of Partnership outcomes	Sub-questions	Performance measure (indicators and targets if required)	Data collection (source/method)
Community informs decision making through collaborative planning and community data use.	• The extent to which community data is being used to inform Reef management and strategic decisions that inform community Reef protection actions. • The extent of benefits from collaborative decision making. • The extent to which project partners and their partners/participants report an increased sense of community ownership and leadership of Reef protection actions and outcomes.	See Rubric	• Synthesis of monitoring data • User survey and expert elicitation
Projects are delivering effective outcomes for the Reef and community (including other RTP component outcomes).	• The extent to which projects are delivering targeted Reef protection outcomes. (environmental, social, economic and/or cultural) • The extent to which projects are increasing participation, including engagement with Traditional Owners and youth.	See Rubric	• Synthesis of monitoring data • Partner survey and expert elicitation • Independent review for behaviour change outcomes
Community action project contributions are recognised, valued, and celebrated.	• The extent to which project partners report increased perception of the value of community Reef protection activities. • The extent to which initiatives recognise and celebrate community contributions.	See Rubric	• Synthesis of monitoring data • Partner survey and expert elicitation

End of Partnership outcomes	Sub-questions	Performance measure (indicators and targets if required)	Data collection (source/method)
A suite of tools for funding and models of community action are available and useful.	• The extent to which project partners report that the models and tools and program models are enhancing their community capacity for community leadership and program sustainability now and will, into the future. • The extent to which the models and tools have secured notable co-investment in and outside of RTP.	See Rubric	• Synthesis of monitoring data • Partner survey and expert elicitation

Table 33. Effectiveness rubric for Community Reef Protection Component for the four End of Program outcomes

	Community informs decision making through collaborative planning and community data use.	Projects are delivering effective outcomes for the Reef and community (including other RTP component outcomes)	Community action project contributions are recognised, valued and celebrated	A suite of tools for funding and models of community action are available and useful
Excellent (3)	There are extensive examples of community data being used to inform Reef management and strategic decisions that inform community action. Partners report multiple examples of enhanced outcomes from collaborative decision making, and approaches will continue to be used in the future. Community feels strong sense of ownership and leadership of Reef protection actions and outcomes.	Community engagement to deliver Reef protection outcomes is improved, as measured by growing participation, and the delivery of targeted Reef protection outcomes (environmental, social, economic and/or cultural). Many projects have enduring outcomes.	There are multiple examples of effectively celebrating and recognising the value of community contributions. Many project partners and participants report a notable increase in the perception of the value of their community Reef protection activities.	A suite of proven models and tools are available to enable Community Reef protection. This includes a Community Funding stream is established with demonstrated investment that offers enduring mechanism for community funding beyond RTP. Partners report that the program and funding models enhance their capacity for program sustainability now and will, into the future. The tools have secured notable co-investment in and outside of RTP.
Good (2)	There are multiple examples of community data being used to inform Reef management and strategic decisions that inform community action. Partners report some examples of enhanced outcomes from collaborative decision making, and approaches will continue to be used in the future. Community feels a sense of ownership of Reef protection actions and outcomes.	Community engagement to deliver Reef protection outcomes is improved, and the delivery of targeted Reef protection outcomes (environmental, social, economic and/or cultural). Some projects have enduring outcomes.	There are some examples of effectively celebrating and recognising the value of community contributions. Some project partners and participants report a notable increase in the perception of the value of their community Reef protection activities.	A suite of proven models and tools are available to enable Community Reef protection. This includes a Community Fund established with some investment that offers enduring mechanism for community funding beyond RTP. Partners report that the program and funding models enhance their capacity for community leadership and program sustainability now and may, into the future. The tools have secured some co-investment in and outside of RTP.
Adequate (1)	There are several examples of community data being used to inform Reef management and strategic decisions that inform community action. Partners report early signs of enhanced outcomes from collaborative decision making, and approaches. Community feels some ownership of Reef protection actions and outcomes.	Community engagement to deliver Reef protection outcomes is improved, and the delivery of some targeted Reef protection outcomes (environmental, social, economic and/or cultural). A few projects have enduring outcomes.	There are a few examples of effectively celebrating and recognising the value of community contributions. A few project partners and participants report a notable increase in the perception of the value of their community Reef protection activities.	A suite of proven models and tools are available to enable Community Reef protection. Partners report that the program and funding models have offered some benefits for their capacity for community leadership and program sustainability. The tools have secured some co-investment in and outside of RTP.
Poor	Activities are ineffective and/or cause unintended negative consequences.	Activities are ineffective and/or cause unintended negative consequences.	Activities are ineffective and/or cause unintended negative consequences.	Activities are ineffective and/or cause unintended negative consequences.

15.5 Monitoring the progress of the Community Reef Protection Component

Table 34 shows the plan for monitoring the progress and performance of the Community Reef Protection Component as it is being implemented. The plan focuses on monitoring **prioritised intermediate outcomes** and **weak causal assumptions**. As outlined in Section 6.3, indictors at the intermediate outcomes level act as lead indicators for the longer-term end of Partnership outcomes. Data collection at this level: a) enables the Component to understand whether it is on track to achieving its end of Partnership outcomes; and b) generates a substantial proportion of the evidence required to evaluate the overall effectiveness of the Community Reef Protection Component.

Table 34 is structured against the outcome pathways of the Community Reef Protection Component program logic. For each outcome prioritised for monitoring, a sub-question and/or indicator(s) have been identified. Some outcomes lend themselves better to a question than an indicator, or to a question with indicator(s), while other outcomes lend themselves well to an indicator(s) only. The table also includes the Community logic assumptions (from Table 31) prioritised for inclusion in M&E, as well as the data collection sources/methods that will be used to monitor the assumptions (the assumptions do not need questions or indicators).

Table 34. Plan for monitoring the progress of the Community Reef Protection Component effectiveness

Priorities for monitoring and/or evaluation (from logic)	Sub-questions	Performance measure (Indicators and targets if required)	Data collection (source/method)
Intermediate Outcome			
The community are engaging in RTP Reef protection actions.	To what extent are the community engaging in community reef protection activities?	• # community member engagements • % youth engagements • % new engagements • # of Indigenous people involved • # volunteer hours	• Reported through direct GBRF initiatives • Project partner reporting • Project partner qualitative interviews • Stakeholder surveys
Enhanced relationships across key influencers for planning community action (including decision makers).	To what extent are the community connected to Reef management and decisions that influence community action and building strengthened relationships.	• Strengthened relationships between community and key influencers for Reef management • Greater understanding of how community actions contribute towards shared goals	• Reported through direct GBRF initiatives • Project partner reporting • Project partner qualitative interviews • Stakeholder surveys
More strategic approaches to resourcing and partnering for community action are piloted.	To what extent are strategic approaches to resourcing and partnering for community action being piloted and scaled?	• # and type of strategic approaches • Evidence of changes observed	• Reported through direct GBRF initiatives • Project partner reporting • Project partner qualitative interviews • Stakeholder surveys
Community partners have greater capacity, are leveraging resources for community action and sharing impact stories.	Project partners have greater capacity for community action.	• Project partners leverage funding • Project partners have enhanced skills and capability	• Reported through direct GBRF initiatives • Project partner reporting • Project partner qualitative interviews • Stakeholder surveys

Project activities increase capacity, motivation, and empowerment for community action.	• Not applicable	Indicators of increased community motivation and empowerment include: • Participants have gained new knowledge, skills and/or capabilities • Community networks grow leadership capability • Participants feel their contributions are meaningful and valued • Participants indicate they have greater capacity to be a steward of the GBR • New entry points are available for those wanting to take action (but not currently participating) • Precursors for enabling behaviour change are evident	• Reported through direct GBRF initiatives • Project partner reporting • Project partner qualitative interviews • Stakeholder surveys • Participant surveys
End of Partnership Outcomes			
Community action project contributions are recognised, valued, and celebrated.	To what extent are community action contributions recognised, valued, and celebrated?	• Develop core indicators that help demonstrate the value of community work and communicate stories of impact • Community partners, their networks and key Reef management stakeholders report an increased sentiment in how community activities and contributions are valued	• Reported through direct GBRF initiatives • Project partner reporting • Project partner qualitative interviews • Stakeholder surveys
A suite of tools for funding and models of community action are available and useful.	To what extent are enduring funding and models for community action available?	• Community funding stream established • Community partners report accessibility and usefulness of models, support and tools for enhancing Reef protection outcomes, including that tools help to secure co-investment in and outside of RTP	• Reported through direct GBRF initiatives • Project partner reporting • Project partner qualitative interviews • Stakeholder surveys
Community informs decision making through collaborative planning and community data use.	To what extent is community informing decision making through collaborative planning and community data use?	• Community data outcomes, including instances of community informing formal Reef management planning and Reef protection actions • Management partners report positive outcomes from collaborative approaches in decision making and planning • Community report increased sense of ownership and leadership of for community Reef protection • Inclusive and collaborative planning further empowers community action	• Reported through direct GBRF initiatives • Project partner reporting • Project partner qualitative interviews • Stakeholder surveys

Projects are delivering effective outcomes for the Reef and community (including other RTP component outcomes).	To what extent is community action delivering outcomes for the Reef? • Biophysical outcomes • Social outcomes • Cultural outcomes • Economic outcomes		• Reported through direct GBRF initiatives • Project partner reporting • Project partner qualitative interviews • Stakeholder surveys
Prioritised assumptions			
There is a desire by funders to move away from short-term funding models and support long-term sustainable community-based funding models	*Not applicable*	*Not applicable*	Regular feedback from government departments and other funders, observation of relevant funding programs
People / decision makers accept/ understand/ apply/ are aware of the linkages between resilient communities and a resilient Great Barrier Reef	*Not applicable*	*Not applicable*	Monitoring communication products from funded project activities for examples of a more holistic definition of Reef resilience being adopted and applied for Reef science, management and policy

16 Integrated Monitoring and Reporting Component M&E Plan

16.1 Introduction

The Integrated Monitoring and Reporting (IMR) Component M&E Plan is structured around the overarching framework of the Partnership M&E Plan (Section 2), and includes:

- A description of the IMR Component, including:
    - a program logic model, which describes the expected cause and effect relationships between the component's activities and outcomes
    - a narrative describing the logic model
    - the interactions of the component with other components
    - the principles and key causal assumptions underpinning the IMR Component
- The scope of the IMR Component M&E
- The performance expectations for prioritised end-of Partnership outcomes for the Component
- The plan for monitoring the progress of the IMR Component, including performance measures for prioritised intermediate outcomes.

The IMR Component M&E Plan was initially developed via an M&E planning workshop including representatives from AIMS, CSIRO, DoEE, GBRMPA, GBRF and The University of Queensland. It was then revised in October 2021. It is worth noting the following when reading the IMR Component M&E Plan:

- The purpose of the IMR Component is to support the implementation of the Reef 2050 Integrated Monitoring and Reporting Program (RIMReP), which is led by the Great Barrier Reef Marine Park Authority (GBRMPA). The IMR Component will both support and be informed by the design and implementation of RIMReP.
- When the term 'monitoring' is used in reference to RIMReP and the IMR Component, it is inclusive of 'monitoring and modelling'.

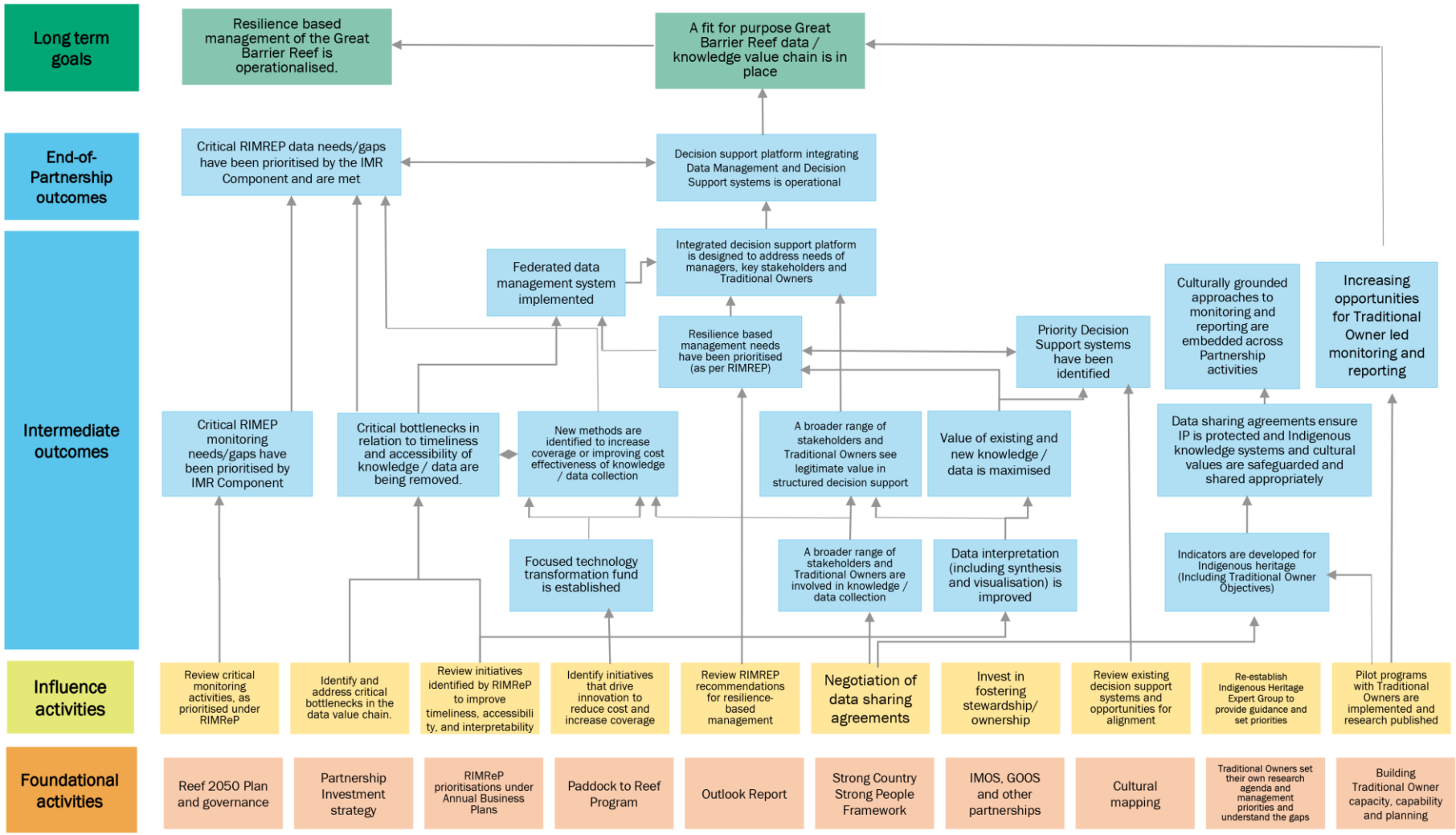
16.2 Logic of the IMR Component

The IMR Component-level logic model (Figure 11) visually shows how the work undertaken in the IMR Component is expected to bring about desired change. The logic outlines the anticipated cause-and-effect relationships between IMR activities and expected intermediate and end of Partnership outcomes (as described in Section 3).

The logic is presented as a model, with a supporting narrative, the principles that guide the delivery of the Component, and the key causal assumptions underpinning the logic.

The purpose of the narrative is to explain, in words, the broader goals for the IMR Component, and how the IMR Component is expected to contribute to those broader goals through its activities and the outcomes of its activities.

Figure 11. IMR Component program logic



Narrative

The broader goals for the IMR Component are that resilience-based management of the Great Barrier Reef is operationalised and that a fit for purpose data/knowledge value chain is in place, which includes the following elements:

- Knowledge/data acquisition (including data processing)
- Knowledge/data management and sharing
- Interpretation (including synthesis and visualisation)
- Translation into decision response options/adoption.

By the end of the Partnership (2024), the IMR Component will contribute to these goals through two key outcomes:

- An integrated decision support platform integrating Data Management and Decision Support systems is operational, and
- Critical RIMReP needs/gaps, prioritised by the RIMReP, are being met.

The first outcome addresses longer term needs, while the second outcome addresses urgent needs. The two outcomes inform each other, i.e. the decision support platform, once established, will continue to inform critical monitoring and reporting needs, and identified critical needs will continue to feed the decision support platform.

The influence activities and pathways of change for the IMR Component align with key principles articulated in the Partnership Investment Strategy. Since the IMR Component is to support the implementation of RIMReP, these activities and pathways are being informed by RIMReP's design and implementation processes. The following pathways will be at the core of the IMR component:

- **Scoping, development, prototyping and operationalisation of a Great Barrier Reef decision-support platform**: The Reef needs a consistent and transparent approach to decision making based on data that is current and accurate and on models that enable forecasting and scenario planning. In that sense, the DSS will include catchment (Paddock to Reef program) and marine components (multiple programs). The initial focus of integration between the catchment and marine components is the Marine Monitoring Program and Marine Modelling Program components of the broader Paddock to Reef program.

  To realise its value, the decision support platform needs to be operational by the end of the Partnership and, to ensure its legitimacy and usefulness, be based on a design that addresses needs of managers (especially GBRMPA), Traditional Owners and key stakeholders. The latter will be achieved by reviewing and prioritising recommendations from RIMReP in terms of resilience-based management, and by fostering stewardship/ownership to ensure a broader range of stakeholders and Traditional Owners are involved in both knowledge/data collection and DSS design.

  Technically, the decision support platform will be underpinned by fit-for-purpose DSS and modelling frameworks being prioritised by RIMReP as well as a federated data management system streamlining access to data.
- **Supporting critical monitoring activities identified via RIMReP**: Critical data needs as defined by RIMReP are much wider than the funding capacity of the Partnership. These will therefore need to be prioritised for funding by the IMR Component based on the Partnership objectives and principles, as well as through the RIMReP prioritisation processes. Delivery mechanisms will vary based on the type of monitoring activities, existing programs and delivery providers.
- **Catalysing innovation in technology to increase coverage, efficiency and impact**: Beyond increasing funding for monitoring, addressing unmet monitoring needs can also be achieved by identifying and removing critical bottlenecks in timeliness and accessibility of data, where relevant via investment in technology transformation and identification of new methods to increase coverage or improve cost-effectiveness of knowledge/data collection.
- **Embedding Traditional Knowledge and sharing benefits:** There is a need to foster stewardship and to promote the involvement of Traditional Owners and a range of stakeholders in knowledge/data collection. In particular, Traditional Owner innovations and Indigenous Knowledge systems are expected to inform the finalisation and implementation of the Strong Peoples – Strong Country Framework, inclusive of data sharing agreements. Through this pathway the IMR Component will also build or maintain capacity of Traditional Owners and support transition into sunrise industries for increased business enterprise opportunities.

The foundational activities that underpin the IMR logic more broadly are:

- Reef 2050 Plan and governance
- Partnership Investment Strategy
- RIMReP prioritisations under the Annual Business Plans
- Paddock to Reef Integrated Monitoring, Modelling and Reporting Program
- eReefs project
- Outlook Report
- Strong Peoples – Strong Country Framework
- Integrated Marine Observing System (IMOS), Global Ocean Observing System (GOOS) and other partnerships
- Appropriate and effective engagement with Traditional Owners

- Cultural mapping
- Loreful relationships with government, NGOs and research
- Building Traditional Owners' capability and planning

Component interactions

Table 35 outlines how the activities of the IMR Component will interact with the activities of other Partnership components. Understanding and collecting information on these interactions is important for telling the story of the synergies the IMR Component has created with other components.

Table 35. IMR Component interaction with other Partnership components

Component	Description of interaction with IMR Component
Water Quality (Component 2)	Interactions with the Marine Monitoring Program elements of the Water Quality Component across the knowledge value chain, in terms of monitoring and modelling needs to measure the impact in the marine environment of changes in land management practices or land restoration activities and with the decision-support system(s)
COTS Control (Component 3)	Multiple interactions across the knowledge value chain, in terms of monitoring of COTS and coral cover, and with the decision-support system(s) around the continuous improvement of existing regional and site prioritisation models enabling targeted COTS control
Reef Restoration and Adaptation Science (Component 4)	Multiple interactions across the knowledge value chain, in terms of monitoring of ecological processes and with the decision-support system(s) to support recovery efforts, in particular around the development of next generation models and RRAS-specific decision-support systems to enable reef restoration and adaptation
Traditional Owner Reef Protection (Component 5)	Interactions across the whole knowledge value chain, around critical monitoring and capacity building priorities as defined under RIMReP and with the decision-support system(s)
Community Reef Protection (Component 5)	Interactions across the whole knowledge value chain, around strategies to invest in fostering stewardship/ownership and with the decision-support system(s)

Principles

The delivery of the IMR Component is guided by the following suite of Component-specific principles:

- Alignment to RIMReP goals of developing an 'effective', 'efficient' and 'evolving' knowledge system
- The role of the IMR is to support RIMReP implementation, not to provide component performance monitoring for the Partnership. The data collected via RIMReP and the IMR Component will however play a significant role in evaluating the Partnership performance
- Demonstrate mutual benefits for those inputting data and contributing to components of the knowledge value chain
- Opportunities for Traditional Owners and community groups to be involved in monitoring – creating space for Traditional Owners and community to lead on what is important to them
- Make decisions based on best available evidence, not waiting for 'perfect' information/knowledge
- Consider all parts of the knowledge value chain in the prioritisation process and recognise the dependencies within the value chain elements
- Be strategic about tactical responses.

Assumptions

Table 36 presents the causal assumptions that underpin the IMR Component program logic, along with an assessment of the assumptions for M&E planning purposes. Surfacing the assumptions underpinning the IMR Component is important for assessing how robust the design of the IMR Component is, and identifying any assumptions that might be important to track. Those assumptions identified for further investigation/inclusion in M&E are included in the monitoring plan for the IMR Component (Table 40).

Table 36. Assumptions from IMR Component program logic

Key assumptions underpinning the logic We assume that...	Evidence for/against assumption	Confidence in assumptions (L, M, H)	Riskiness to achievement of end of Partnership outcomes (L, M, H)	Investigate further/include in M&E? Yes (Y) / No (N)
There is institutional willingness to embrace a fully integrated and open approach to IMR	Key institutions (universities, CSIRO, etc) are part of this. There is a global movement in science towards this	H	H	Y – whether institutions are actually enabling the sharing of data
There is the technical expertise to embrace a fully integrated and open approach to IMR	e-Reefs and RRAP projects have demonstrated feasibility and suitable skills in the Great Barrier Reef and Australia	H	H	N
The technical experts have the capacity to contribute to a fully integrated and open approach to IMR	Evidence that capacity of experts may be restricted	L	H	N – critical risk. Mitigation strategies to be considered
Governance arrangements can support the implementation of an operational decision-support system	RIMReP has implemented a functioning multi-tiered governance	M	H	Y – to what extent current governance arrangements enable or impede implementation of DSS
The integration of human and Traditional Owner dimensions will be successful, and we will know what to monitor	Evidence of successful integration of social dimension within RRAP. RIMReP and Reef Water Quality Improvement Plan identified path to integration and initial attempts at monitoring program design	L to M	H	N – sits within critical bottlenecks to be addressed

* H=High, M=Medium, L=Low

16.3 Scope of the IMR Component M&E Plan

This section includes the elements of the Partnership-level M&E Scope (as outlined in Section 4) that are relevant to the IMR Component. This includes some additions to M&E audience for the IMR Component and their information needs.

Audiences

In addition to the primary M&E audiences for the Partnership in general (see Section 3.2 of this document), specific sections within GBRMPA relevant to the IMR Component were explicitly identified as an IMR M&E audience, as information going into Partnership Management Committee (PMC) may not flow to them. Their information needs will be the same as the PMC, namely the effectiveness of the component; the co-benefits generated through component implementation, and delivery of the component against its principles.

16.4 Performance expectations for the IMR Component

Table 37-Table 39 Outline the performance expectations for the IMR Component **end of Partnership outcomes**. Two effectiveness rubrics have been developed to define levels of performance of the IMR Component against its core end of Partnership outcomes. As described in Section 6, these expectations make it clear how performance of the IMR Component will be judged at the end of the Partnership and will support:

- Assessment of the contribution of the IMR Component to the Reef 2050 Plan
- Assessment of the overall effectiveness of the Partnership.

The Reef 2050 Plan Target for IMR Component is:

- GT5: A comprehensive Integrated Monitoring and Reporting Program is established and operational and the reporting informs review and updating of this Plan
- GT4: Investment in actions is prioritised using evidence-based risk assessment to maximise benefits for Reef health and resilience
- GT3: Actions under this Plan are prioritised and tailored to reflect local or regional differences in threats to the values of the Reef.

Table 37. IMR Component end of Partnership outcome performance measures

End of Partnership outcomes	Sub-questions	Performance measure (Indicators and targets if required)	Data collection (source/ method)
An integrated decision support platform is operational	To what extent has the IMR Component delivered and made operational an integrated decision support platform? *(KEQ1.a.i)*	See Rubric in Table 38	End user survey
Critical RIMReP needs/gaps have been prioritised by the IMR Component and are met	To what extent have critical RIMReP needs/gaps been prioritised and met by the IMR Component? *(KEQ1.a.ii)*	See Rubric in Table 39	Independent review and expert elicitation

Table 38. Effectiveness rubric for IMR Component KEQ1.a.i

KEQ1.a.i: To what extent has the IMR Component delivered and made operational an integrated decision-support system?	
Rating	**Criteria**
Very good	• The DSS is fully functional addressing a broad range of strategic and tactical issues. It is aligned with DIPSR and integrates a broad range of drivers and pressures • The DSS is operational, fully scalable and maintenance and operating costs are fully funded • Key Reef 2050 partners are using the DSS and the broader community is supportive of the DSS and how it enables transparent management decisions • The DSS is highly innovative and a unique example is being replicated or inspiring similar initiatives outside the Great Barrier Reef and Australia
Good	• The DSS is functional addressing a limited range of key strategic and tactical issues. It is aligned with DIPSR and integrates key drivers and pressures • The DSS is operational, maintenance and operating costs are funded for a limited number of critical applications • Key Reef 2050 partners are using the DSS and the broader community is aware of its role in management • The DSS is innovative and is generating interest outside the Great Barrier Reef and Australia
Adequate	• The DSS allows decision making of limited complexity and scenario running by integrating key drivers and pressures • The DSS is operational for a limited number of critical applications and a model has been recommended for long-term maintenance and operation • GBRMPA and policy makers are using the DSS but it remains out of reach for the broader community • The DSS builds on existing systems and can be applied outside the Great Barrier Reef but is not flexible enough to attract interest outside Australia
Poor	• The DSS only allows decision making and scenario running for simple situations involving few drivers and pressures • The DSS runs in research mode, is not operational as such and presents no clear path to long-term funding and operation • GBRMPA and policy makers do not have confidence in using the DSS outside research projects; it is opaque to the broader community • The DSS adds limited value and cannot compete with other existing systems
Detrimental	• The DSS is not capable of dealing with any significant level of integration of multiple drivers and pressures • The DSS displays limited functionality and can only be deployed as a research product and at great cost • GBRMPA, policy makers and the broader community see no value in the DSS or any specific application which would benefit from the DSS • The DSS is not seen by experts as a step forward and negatively impacts the decision-making space

Note: Factors being considered in this rubric are: a) Functionality and integration; b) Operation, maintenance and scalability; c) End users and their needs; d) Innovation and quality

Table 39. Effectiveness rubric for IMR Component KEQ1.a.ii

KEQ1.a.ii: To what extent have critical RIMReP needs/gaps been prioritised and met by the IMR Component?	
Rating	**Criteria**
Very good	• Monitoring priorities are fully aligned with RIMReP. The IMR Component and RIMReP are fully integrated and adding value to each other • Investment in monitoring is underpinned by a clear and transparent prioritisation process supported by key partners and stakeholders • Monitoring activities are delivered very effectively and efficiently (high return on investment) and outputs add value across a range of areas • Data is fully available to the broader community in a variety of formats and is used across multiple platforms
Good	• Monitoring priorities are mostly aligned with RIMReP. The IMR Component and RIMReP are well aligned and contribute to each other • Investment in monitoring is underpinned by a transparent prioritisation process which involves key partners and stakeholders • Monitoring activities are delivered effectively and efficiently (good return on investment) and outputs add value across a range of areas • Data is generally available to the broader community in a variety of formats and can be used across multiple platforms
Adequate	• Monitoring priorities are generally aligned with RIMReP. The IMR Component and RIMReP collaborate and do not conflict with each other • Investment in monitoring is underpinned by a prioritisation process developed in collaboration with a select number of key partners and stakeholders • Monitoring activities are delivered effectively and according to current practice, with limited opportunities for co-benefits from outputs • Data is partly available to the broader community in a few key formats, and can be used across a limited number of platforms
Poor	• Monitoring priorities are only partly aligned with RIMReP. The IMR Component and RIMReP operate in relative isolation • Investment in monitoring is justified but not consistently or transparently prioritised • Monitoring activities are partly delivered; cost effectiveness and return on investment are low • Data is not generally available to the broader community and outputs can only be accessed in a few formats on a single platform
Detrimental	• Monitoring priorities are conflicting with RIMReP in some instances. The IMR Component and RIMReP operate mostly in isolation • Investment in monitoring is not subjected to a consistent prioritisation process • Monitoring activities are poorly delivered; cost effectiveness and return on investment are very low • Data is not available externally and outputs can only be accessed by a limited number of users on a 'research grade' platform

Note: Factors being considered in this rubric are: a) Alignment and collaboration with RIMReP; b) Prioritisation and transparency; c) Delivery and quality; d) Availability of data

16.5 Monitoring the progress of the IMR Component

Table 40 shows the plan for monitoring the progress and performance of the IMR Component as it is being implemented. The plan focuses on monitoring **prioritised intermediate outcomes** and **weak causal assumptions**. As outlined in Section 6.3, indicators at the intermediate outcomes level act as lead indicators for the longer-term end of Partnership outcomes. Data collection at this level: a) enables the Component to understand whether it is on track to achieving its end of Partnership outcomes; and b) generates a substantial proportion of the evidence required to evaluate the overall effectiveness of the IMR Component.

Table 40 is structured against the outcome pathways of the IMR Component program logic. For each outcome prioritised for monitoring, a sub-question and/or indicator(s) have been identified. Some outcomes lend themselves better to a question than an indicator, or to a question with indicator(s), while other outcomes lend themselves well to an indicator(s) only. The table also includes the IMR Component logic assumptions (Table 36) prioritised for inclusion in M&E, as well as the data collection sources/methods that will be used to monitor the assumptions (the assumptions do not need questions or indicators).

Table 40. Plan for monitoring the progress of the IMR Component effectiveness

Priorities for monitoring and/or evaluation (from logic)	Sub-questions	Performance measure (Indicators and targets if required)	Data collection (source/ method)
Supporting critical monitoring activities identified via RIMReP pathway			
Critical RIMReP monitoring needs/gaps have been prioritised by the IMR Component	In what ways have RIMReP recommendations been considered and monitoring needs prioritised under the IMR Component?	List of Stage 1 critical monitoring priorities established by 31 January 2020. List of Stage 2 critical monitoring priorities established by 31 January 2021.	Deliverable list and description of prioritisation process and alignment with RIMReP
Critical bottlenecks in relation to timeliness and accessibility of knowledge/ data are being removed	In what ways have critical bottlenecks in relation to timeliness and accessibility of knowledge/ data been removed?	Innovations in data capture, storage, processing and sharing	Description of improvements (such as infrastructure, system, process, data management) improvements and how these have led to bottlenecks being removed
Federated data management system implemented	To what extent has a federated data management system been implemented?	Innovations in data capture, storage, processing and sharing	Description of improvements (such as infrastructure, system, process, data management) improvements and how these have led to bottlenecks being removed
Scoping, development, prototyping and operationalisation of a Great Barrier Reef decision-support platform pathway			
A decision-support platform[18] is designed that addresses needs of managers, key stakeholders and Traditional Owners	In what ways have RIMReP monitoring, data access and decision-making needs informed the design of the decision support platform under the IMR Component?	Data management system (DMS) designed by 31 December 2021 DMS built and operational by 31 December 2022 User testing study shows that most needs have been addressed satisfactorily	Findings of DMS design Evidence of DMS prototype Findings user testing
Priority Decision Support systems have been identified	In what ways has RIMReP analysis of decision needs informed the prioritisation of DSS under the IMR Component?	DSS and modelling frameworks have been identified and mapped against agreed resilience-based management needs by 30 June 2022 DSS prototypes functional by 30 June 2023	List of modelling frameworks and findings of mapping and gap analysis List of priority DSS Evidence of DSS prototypes Findings of user testing

[18] The decision support platform comprises a Data Management System (DMS), Management Information Systems (MIS) and Decision Support Systems (DSS)

Priorities for monitoring and/or evaluation (from logic)	Sub-questions	Performance measure (Indicators and targets if required)	Data collection (source/ method)
Resilience-based management needs have been prioritised (as per RIMReP) and a broader range of stakeholders and Traditional Owners are involved and see legitimate value in structured decision support.	In what ways has RIMReP analysis of resilience-based management needs informed the IMR Component?	Review and prioritisation of RIMReP recommendations for resilience-based management and consultation of end users completed by 31 December 2021.	Deliverables and reports on review, consultation and prioritisation process
Value of existing and new knowledge/data is maximised	To what extent have data collection, sharing, management and processing been optimised to maximise the value of existing and future data?	Design of DMS provides information on: • Type and number of users • Proportion of data that is fully accessible • Time lag between data collection and availability for use/application • Level of cross-discipline and cross-institution data sharing Number of data sharing agreements established.	Findings of DMS design Benchmarking against other equivalent systems/environments (e.g. IMOS) Case studies
Catalysing innovation in technology to increase coverage, efficiency and impact pathway			
New methods are increasing coverage or improving cost effectiveness of knowledge/data collection	In what ways have coverage or cost effectiveness of knowledge/data collection been improved with new monitoring methods?	*Not applicable*	Description of new methods and how these have contributed to improving coverage and cost-effectiveness of data collection
Focused technology transformation fund is established	To what extent has a focused technology transformation fund been established?	First funding round of technology transformation fund delivered by 30 June 2020	Deliverable
Embedding Traditional Knowledge and sharing benefits pathway			
Traditional Knowledge is recognised and embedded at equal standing to western knowledge in Great Barrier Reef governance	In what ways has Traditional Knowledge been recognised and embedded at equal standing to western knowledge in Great Barrier Reef governance?	*Not applicable*	Description of recognition and inclusion of Traditional Knowledge in decision making and integrated monitoring and reporting program
Benefits are shared from knowledge	In what ways have benefits from knowledge been shared?	Proportion of sharing agreements supporting data collection programs	Description of shared benefits from knowledge / data collection Case studies
Prioritised assumptions			
There is institutional willingness to embrace a fully integrated and open approach to IMR	*Not applicable*	*Not applicable*	Evidence of effectiveness of collaboration and flexibility of institutions to consider new approaches developed within IMR Component

Priorities for monitoring and/or evaluation (from logic)	Sub-questions	Performance measure (Indicators and targets if required)	Data collection (source/ method)
Governance arrangements can support the implementation of an operational decision-support system	*Not applicable*	*Not applicable*	Assessment of governance arrangements for second phase of RIMReP and impact of establishment of operational decision-support system

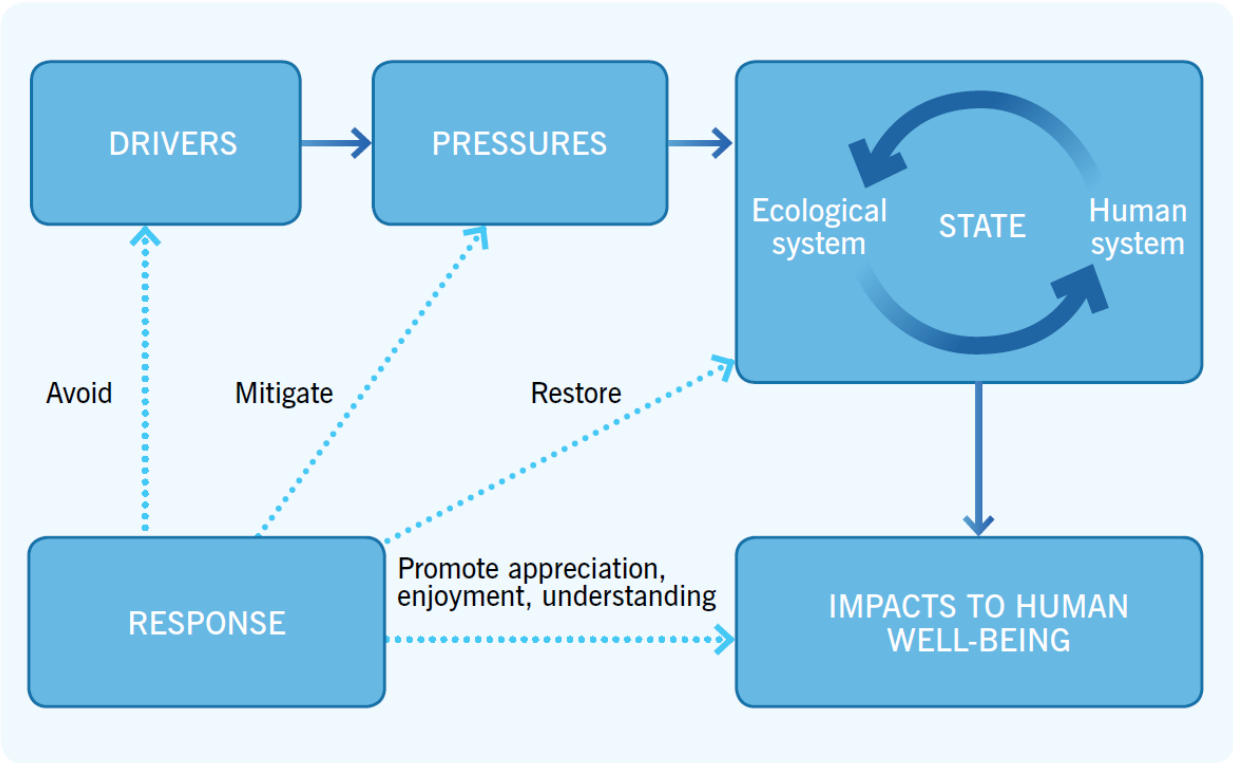
Appendix 1. How does Partnership M&E align with the DPSIR framework?

The driver-pressure-state-impact-response (DPSIR) framework (Figure 12) is a conceptual framework widely used as a tool to structure conversations of how human-environmental systems can be understood or represented. It has been adopted by the Reef 2050 Integrated Monitoring and Reporting Program (RIMReP) as a unifying framework to characterise the Great Barrier Reef system. The Partnership can be thought of as a collection of investments aligned to the 'R' (Response) part of the DPSIR model.

The Partnership M&E Plan provides information on the performance of Partnership activities across the typical responses of: avoiding (drivers), mitigating (pressures), restoring (the state of the Great Barrier Reef ecological-human system), as well as its efforts in enhancing community support for a mandate to implement response actions.

The Partnership is investing, through Component 6, in supporting the implementation of RIMReP, which invests in improved monitoring and reporting against the DPSIR model. The Partnership M&E for Component 6 focusses on how well the Partnership supports RIMReP to achieve its goals rather than collect additional monitoring data against DPSIR itself.

Figure 12. Driver-Pressure-State-Impact-Response framework



Source: Reef 2050 Integrated Monitoring and Reporting Program Strategy Updated 2018, Commonwealth of Australia, Great Barrier Reef Marine Park Authority

Appendix 2. Audience for Partnership M&E

Table 41 outlines the information requirements for the primary audience for M&E, and the interests of secondary audiences, i.e. those who will be interested in the results of the Partnership but are not required to use the information in the same way as the primary audiences.

Table 41. Partnership M&E audience and information needs

Audience	Information requirements
Primary	
GBRF Board	• Effectiveness of the Partnership • The co-benefits generated through Partnership implementation • Delivery of the Partnership against its principles
Partnership Program team	As above
Partnership Management Committee (PMC) – including representatives of: Traditional Owners, Queensland Government and the Great Barrier Reef Marine Park Authority (GBRMPA)	As above
Australian Department of Agriculture, Water and the Environment	• Partnership outcomes (the core requirement defined in the Grant Agreement) • Extent to which Grant Agreement expectations in relation to process, spending, etc. are being met (accountability)
Component-specific working groups	• Effectiveness of Components • The co-benefits generated through Component implementation • Delivery of the Component against its principles
Delivery partners (those involved in implementation and operationalisation)	Effectiveness of relevant components
Secondary	
Relevant advisory bodies (i.e. the Reef Advisory Committee and the Independent Expert Panel)	General interest in Partnership results – key role is to respond to Partnership requests for advice

Appendix 3. Alignment with other relevant frameworks

Table 42 outlines how the Partnership M&E Plan links to, or is aligned with, other related programs and frameworks.

Table 42. Partnership M&E Plan links to, or alignment with, other related programs and frameworks

Audience	Information requirements
ANAO requirements	ANAO expectations for performance monitoring and reporting, especially the ability to credibly demonstrate outcomes and impact, have been incorporated into the design of the M&E plan
Paddock to Reef (P2R)	Data collected through P2R will likely provide useful information for the contribution analysis undertaken as part of the Partnership evaluation
RIMReP	Data collected through RIMReP will likely provide useful information for the contribution analysis undertaken as part of the Partnership evaluation
2020 review of the Reef 2050 Plan (not yet released as of Oct 2021)	The 2020 review, and preparations being undertaken for that review (e.g. the current program logic development process), will likely produce revised language and guidance for the Partnership, including outcomes and targets. The Partnership is designed to deliver on the Reef 2050 Plan – any changes to the Reef 2050 Plan will need to be accommodated in the design and therefore M&E planning for the Partnership
Reef 2050 WQIP	The Water Quality Component of the Grant Agreement, and associated investment strategy, is aligned to the Reef 2050 WQIP
Traditional Owner Aspirations Project	The Traditional Owner Reef Protection Component of the Partnership is strongly guided by the Traditional Owner Aspirations Project, including its logic and principles
Reef Trust M&E	The Grant Agreement accommodates Reef Trust M&E expectations. The Partnership M&E Plan is based on Grant Agreement expectations
Great Barrier Reef Blueprint for Resilience	The Reef 2050 Plan adopts the Blueprint. The Grant Agreement is tasked with making significant progress towards the Reef 2050 Plan
GBRMPA Outlook report	Information provided by the Outlook Report will likely provide useful information for the contribution analysis undertaken as part of the Partnership evaluation.

Appendix 4. M&E approach for 2018-2019 investments

Table 43 describes the Partnership's approach for monitoring and evaluating early investment projects

Table 43. M&E approach for 2018-2019 investments

Component	Number of investments	Description of projects and allocation of funds	Monitoring and evaluation approach
Water Quality	11	**Water Quality Improvement Grants Stage 1** Projects focused on maintaining or developing capacity, and building on existing programs with proven beneficial outcomes	Grantees will prepare specific M&E Plans for their projects based on the targets and indicators identified in the Water Quality Component M&E Plan. These plans will be submitted to GBRF as part of their first progress report •
Reef Restoration and Adaptation Science	3	**"*Coral spawning*" project** Project focused on methods to fast-tracking knowledge to breed, settle and field deploy corals required for restoration at scale through (inter) national collaboration and step-change method development	Ongoing project. The RRAS Component Director will capture the performance measures (indirectly) reported by the delivery partner in its first progress report. Some additional communication with the delivery partner may be required to make sure all relevant data is being collected The delivery partner will then be asked to report against the performance measures identified in the RRAS Component M&E Plan in the final report The performance measures to consider will be those identified for the following RRAS Component pathway (from the program logic): • Intervention feasibility, prioritisation and deployment
		"*RRAP – Restoration regulation*" project Project focused on developing hypothetical use cases for regulatory and permitting planning for RRAP	Project to be completed in June 2019. The RRAS Component Director will capture the performance measures (indirectly) reported by the delivery partner in its progress and final reports. Some additional communication with the delivery partner may be required to make sure all relevant data is being collected The performance measures to consider will be those identified for the following RRAS Component pathway (from the program logic): • Regulatory permission
		"*Coral bleaching processes*" project Project designed to collect field-based information during a bleaching event to fill critical knowledge gaps associated with several (most) of the proposed environmental adjustment interventions	This project has been placed on hold since no significant coral bleaching event was experienced in 2018-2019

Component	Number of investments	Description of projects and allocation of funds	Monitoring and evaluation approach
Community Reef Protection	15	**Community Reef Protection Grants Stage 1: Citizen Science** Projects aimed to boost capacity and collaboration for activities that engage the community in collecting, sharing, and applying Reef health data	Grantees will confirm that they have an M&E Plan as part of their first progress report. Grantees were provided with an optional template for their M&E Plans, along with a series of short videos on M&E. A webinar session was offered to review the planning process, present draft reporting templates and discuss questions The performance measures to consider will be those identified for the following Community Reef Protection pathways (from the program logic): • Local action • Large-scale behaviour change • Leadership • Decision-making
	10	**Community Reef Protection Grants Stage 2: Catalysing Local Action with Local Marine Advisory Committees** Projects designed to empower community Reef protection actions through projects which collaboratively address local Reef threats	Grantees will confirm that they have an M&E Plan as part of their first progress report. Grantees were provided with an optional template for their M&E Plans, along with a series of short videos on M&E. A webinar session was offered to review the planning process, present draft reporting templates and discuss questions The performance measures to consider will be those identified for the following Community Reef Protection pathways (from the program logic): • Local action • Large-scale behaviour change • Leadership • Decision-making
Traditional Owner Reef Protection	18	**Reef Traditional Owner Grants Stage 1** Projects aimed to expand Traditional Owners' Reef protection activities in three priority areas: Indigenous junior ranger programs, country-based planning and implementation of existing land and sea country plans	Grantees will be provided with an optional template for their M&E Plans, along with a series of short videos on M&E. A webinar session will be offered to review the planning process, present draft reporting templates and discuss questions The performance measures to consider will be those identified for the following Traditional Owner Reef Protection pathways (from the program logic): • Traditional Owner co-design action framework • Indigenous heritage and biocultural information to support decision making and Reef protection • Improving cultural awareness and competency
Integrated Monitoring and Reporting	1	**"*Essential coral reef monitoring in the Northern Great Barrier Reef*" project** Critical project granted to AIMS to provide an updated 'baseline' assessment of reef condition and recovery in the northern Great Barrier Reef ahead of a potential bleaching event in early 2019	Project to be completed in June 2019. The IMR Component Director will capture the performance measures (indirectly) reported by the delivery partner in its progress and final reports. Some additional communication with the delivery partner may be required to make sure all relevant data is being collected The performance measures to consider will be those identified for the following IMR Component pathway (from the program logic): • Supporting critical monitoring activities

Appendix 5. 2021 M&E Plan change log

Changes made to October 2021 revised M&E Plan

- Section 3: Partnership Outcomes Framework:
    - Updated the Partnership Outcomes Framework to reflect changes to end of component outcomes for some components (three changes)
- Section 5: Partnership key evaluation questions:
    - Key evaluation questions revised to remove duplication in the way process and principles were previously addressed; now clustered around RTP Results, Principles and Processes (instead of effectiveness, impact, etc). Effectiveness and impact are still addressed - under the Results category
- Section 7: Data collection:
    - Approach to addressing key evaluation questions updated to reflect revised questions. Overarching approach remains the same.
- Section 8: Evaluation
    - Biennial evaluation updated to Mid-Term and end-of-Partnership evaluation
    - Expert Panel process approach updated to reflect actual process used for Mid Term Evaluation
- Section 9: Reporting
    - M&E Dashboards replace MERIT reporting
- Sections 11 – 16: Component-level M&E Plans
    - Component logics updated
    - Component level key evaluation questions removed – these were largely duplicated of the Partnership level questions
    - Component performance expectations updated
    - Component monitoring plans updated to reflect changes in logics and/or a better understanding of what measures are useful and meaningful now that the components have been in operation for some time.