

Economic contribution, unique benefits and skills assessment of NRM Groups

Natural Resource Management
Regions Queensland

October 2021

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EY acknowledges Aboriginal and Torres Strait Islander people as the first peoples of Australia and Traditional Custodians of this land its waters.

We pay our respects to Elders, knowledge holders and leaders both past and present.

We respectfully acknowledge Traditional Owners living within Queensland. We respect Traditional Owners' relationship, connection and association to "country" and that it is an integral part of their identity and cultural expression.



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15 October 2021

Mr Chris Norman
Chief Executive Officer
NRM Regions Queensland
Unit 11, 120 Russell Street
Toowoomba Qld 4350

Economic contribution, unique benefits and skills assessment of NRM Groups

Dear Chris

This report has been prepared for Natural Resource Management Regions Queensland ('NRMQR') to provide an evidence-based report of the economic contribution, unique benefits and skills assessment of NRM regional bodies in Queensland and the contribution of NRIP funding.

We would like to thank you, your team, and the NRM regional bodies for the assistance provided to us during this engagement. Their support and feedback was instrumental in enabling us to meet your expectations for this work.

We look forward to discussing this report or any other aspects arising from our work with you. We also look forward to the opportunity for future collaboration as NRMQR continues on its journey.

If you have any queries in the meantime, please feel free to contact me on +61 7 3011 3111 or Robert Kyne on +61 3 8664 9767.

Elizabeth Rose
Partner

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Executive Summary

Executive Summary

Natural Resource Management (NRM) bodies in Queensland have played a key role in supporting the agricultural, construction, manufacturing, conservation, education, research, tourism sectors and regional communities over the last 20 years. The not-for-profit community based NRM organisations make significant direct and indirect economic, environmental and social contribution through their programs and activities. This contribution supports regional economies and livelihoods through employment, wages, procurement and encouraging growth in other sectors. The direct and indirect economic contributions were approximately \$183m with over \$90m value add, supporting over 268 FTE employment with a further 367 indirect employment created.

NRM regional bodies have recognised the scale of the challenge and the opportunities. With the support of the Queensland Government, NRM regional bodies are establishing market-based innovations such as:

- ▶ Eco-markets Australia - the first voluntary environmental market in Australia to create opportunities for farmers, graziers and land managers to be paid for the work they do in improving our environment.
- ▶ Reef Credits is an innovative, market-based solution offering a new way to improve the quality of water entering the Great Barrier Reef.
- ▶ Cassowary Credits - independently verified and tradeable credit to attract new investment and boost the funds available to landholders for habitat restoration
- ▶ State-wide Indicators Framework that enables the NRM sector to demonstrate the investment and outcomes delivered
- ▶ Natural Capital initiatives

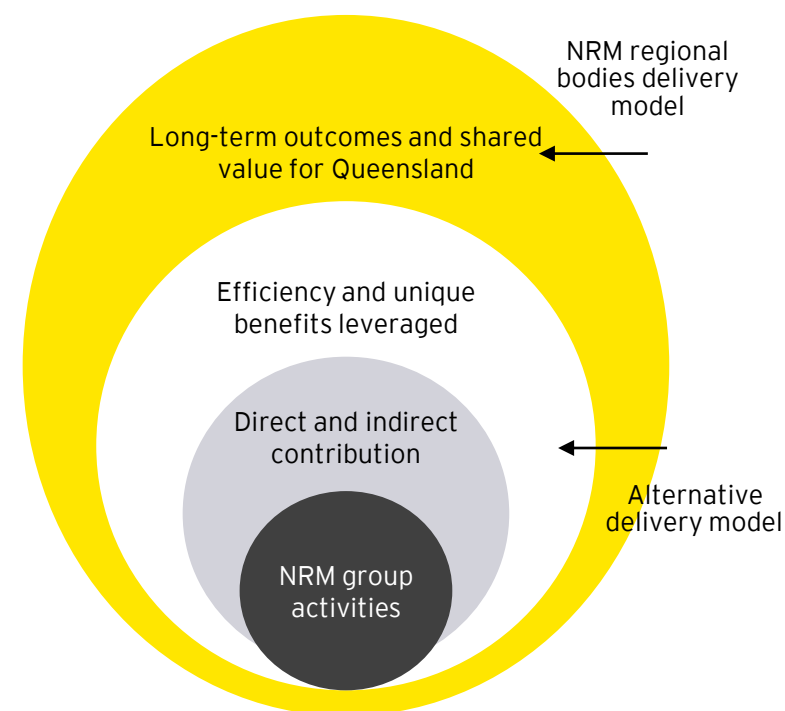


Executive Summary







Creating long-term outcomes and shared value for Queensland

NRM regional bodies create shared value for Queensland in the unique benefits and efficiencies leveraged through the specific NRM delivery model.

Generate shared value for Queensland	<ul style="list-style-type: none"> ▶ Socio-economic impact ▶ Social impact ▶ Environmental impact
Leverage efficiency and provide unique benefits	<ul style="list-style-type: none"> ▶ Lower support to delivery FTE ratio enabling a focus on outcomes: 91.4% delivery (NRM groups) vs 80% delivery (Benchmark) ▶ \$1:\$4.2 of state funding leveraged (including in-kind contribution) ▶ More efficient pay structures able to pay market rates
Direct and indirect contribution	<ul style="list-style-type: none"> ▶ Over \$180 million direct and indirect economic output and over \$90 million value-add ▶ Over 600 direct and indirect jobs created through investment in NRM groups
NRM group activities	<ul style="list-style-type: none"> ▶ Integrated land management ▶ People and communities ▶ Science and Knowledge ▶ Cost Benefit ratios exceeding 1 for almost all activities identified



Highlight of NRM regional bodies' economic contribution

Direct contribution			Indirect contribution		
 Economic contribution	NRIP Direct output*	NRIP Direct value-add	 Economic contribution	NRIP Indirect output	NRIP Indirect value-add
	\$10.9 million	\$5.5 million		\$16.9 million	\$8.3 million
 Employment contributions	NRM Direct output	NRM Direct value-add	 Employment contributions	NRM Indirect output	NRM Indirect value-add
	\$71.9 million	\$36.2 million		\$111.7 million	\$55.8 million
 Employment contributions			 Employment contributions		
NRIP contribution to jobs 39 jobs			NRIP contribution to jobs 53 jobs		
NRM contribution to jobs 268			NRM contribution to jobs 367 jobs		

**Output is a measure of the value of economic activity undertaken over a given time period. Direct NRIP output is equivalent to the funding provided through NRIP*

Highlight of NRM regional bodies' unique benefits

Long-term outcomes and shared value for Queensland



Resilience and sustainability of local economy

Increased value in natural capital



Inclusive and diverse employment

First Nations engagement



Resilient and cohesive neighbourhoods

Improved physical and mental health



Environmental behaviour change



Ongoing improvement and capacity building

Ecological resilience



Species richness

Improved water access and quality

Efficiencies and unique benefits of regional NRM bodies

Unique benefits and efficiencies are leveraged through the NRM regional bodies' activities including integrated land management, people and community engagement, and science and knowledge. These benefits are the result of both NRIP and NRM other funded projects. In particular, NRM regional bodies:

- ▶ Are trusted by government and community through over 20 years of proven delivery from technical and delivery expertise and strong and effective governance, financial management systems and processes
- ▶ Provide innovative solutions to complex problems using the collective intelligence of our staff, partners, landholders, traditional owners, scientists and other technical specialists
- ▶ Have demonstrated ability to leverage and attract investment from other government and private sector investment sources
- ▶ Measure and report on the outcomes and impact created
- ▶ Maintain unparalleled knowledge of the long-term priorities and challenges facing each of the regions as custodians of the NRM plan for the regions, which transcends short-term political cycles
- ▶ Provide value for money compared to government and private sector
- ▶ Undertake activities that generate economic benefits for broader society. Benefit Cost Ratios (BCR) found for these activities in almost all cases exceed 1 indicating for every \$1 invested in these activities greater than \$1 is returned in benefits for society

An aerial photograph of a tropical coastline. On the left, a dense, lush green forest covers a hillside. To the right, a wide, sandy beach stretches along the shore. Turquoise ocean waves with white foam are breaking onto the beach, creating a rhythmic pattern. A bright yellow rectangular box is overlaid on the left side of the image, containing the word 'Introduction' in black text.

Introduction

Introduction

NRM Regional Bodies Queensland

Natural Resource Management Regions Queensland (NRMQR) is a peak body that represents the interests and services the needs of 12 regional Not-for-Profit NRM bodies in Queensland. NRMQR was formed in 2002 to strengthen the state-wide delivery of regional NRM outcomes in partnership with industry, community and government, and to act as a representative body for NRM in Queensland by providing a single, strong voice for its members. The collective is funded by these members - the 12 regional natural resource management bodies in Queensland.

Regional NRM bodies are a key partner in delivering environmental and sustainable agriculture outcomes with the Queensland Government to support jobs, grow regions, invest in skills and protect the environment.



Regional NRM Bodies

- ▶ Burnett Mary Regional Group
- ▶ Cape York NRM
- ▶ Desert Channels Group
- ▶ Fitzroy Basin Association
- ▶ Healthy Land and Water
- ▶ Gulf Savannah NRM
- ▶ NQ Dry Tropics
- ▶ Reef Catchments
- ▶ Southern Gulf NRM
- ▶ SQ Landscapes
- ▶ Terrain NRM
- ▶ Torres Strait Regional Authority

Introduction

Purpose of this report

The Queensland Government currently invests in natural resource management across the state through the Natural Resources Investment Program (NRIP). As part of the NRIP, the Queensland Government is investing more than \$61 million between 2018 and 2022 to support the sustainable management of Queensland's natural land and water resources.

NRIP funding acknowledges the important role that the NRM bodies and the community play in repairing and improving Queensland's unique assets for future generations. With the continued support of the Queensland Government, NRM organisations can continue to innovate to attract increased investment from the Australian Government and private sectors to support the management, regeneration, and resilience of our natural assets while simultaneously increasing economic investment and high-value job creation in Queensland.

NRMRQ is working with the 12 regional NRM bodies to target their application to the next iteration of NRIP funding. The purpose of this report is to outline:

- ▶ Economic contribution of NRM group activities
- ▶ Unique benefits and efficiency that is provided through NRM groups
- ▶ Non-monetary benefits and efficiency that is provided through NRM activities
- ▶ Capability assessment and skills taxonomy of NRM regional bodies support in regional Queensland and how it diversifies the economy, including leveraging employment growth and COVID-19 recovery

Supporting Natural Resources Investment Program objectives

NRM groups' focus is on adoption of best practice to ensure activities and associated outcomes are aligned with NRIP objectives and principles including:

NRIP 2018-2022 Principles

Integration	Integrating natural resource management planning and delivery across regions
Collaboration	Providing a framework that promotes effective collaboration
Efficiency	Targeting funding for maximum return on investment and encourage projects to leverage other sources of funding
Outcome-based	Investing in evaluating and reporting on landscape and community program impacts
Adaptive management	Building upon past success, and experimental approaches will be considered, along with opportunities for learning and informing the iterative processes that support future investment decisions.
Regional coordination/delivery	Organising project delivery at the regional scale to ensure effective NRM outcomes state-wide. Regional delivery organisations are well-placed to align and integrate efforts
Public benefit	Funding will be provided where activities are considered to provide a significant public outcome, which would not occur without government intervention

Introduction

EY's approach to measuring NRM groups' contribution and unique benefits



Literature Review and impact narrative

A regional body mapping exercise was conducted which entailed a review of project activities for each of the NRM groups. This was effective in establishing context around the common activities performed within projects, the social and environmental outcomes achieved and the main stakeholders involved.

Based on the information available from the literature review, impact pathways were created, which made connections between NRM regional bodies activities and associated economic, social and environmental contributions. A series of indicators were identified, aligned with contribution categories and informed by insights from the benchmarking research. These indicators quantify the value of outcomes achieved by each of the NRM groups.



Data Request

A data request which collated all selected indicators was sent to NRM groups, requesting information where publicly available information was absent. Following this, data discussion meetings were scheduled with each NRM group to explain additional context around the data request and provide clarifications where necessary. EY liaised with NRM groups to obtain data in a consistent format.



Economic Contribution Analysis And Linked Skills Assessment

Using available input and data from the 12 regional NRM bodies, an assessment has been conducted to analyse the socio-economic impact of the NRM sector and contribution of NRIP funding. The economic contribution of NRM group activities and the unique benefits and efficiencies created have been calculated. In addition, non-monetary benefits of these activities, including leveraged funding and environmental and social benefits have been identified.

A capability assessment and skills taxonomy that NRM activities support will be conducted, focusing on how it diversifies the economy and leverages employment growth. Finally, opportunities to further grow the impact of NRM, specific to growing jobs and diversifying economies will be identified.

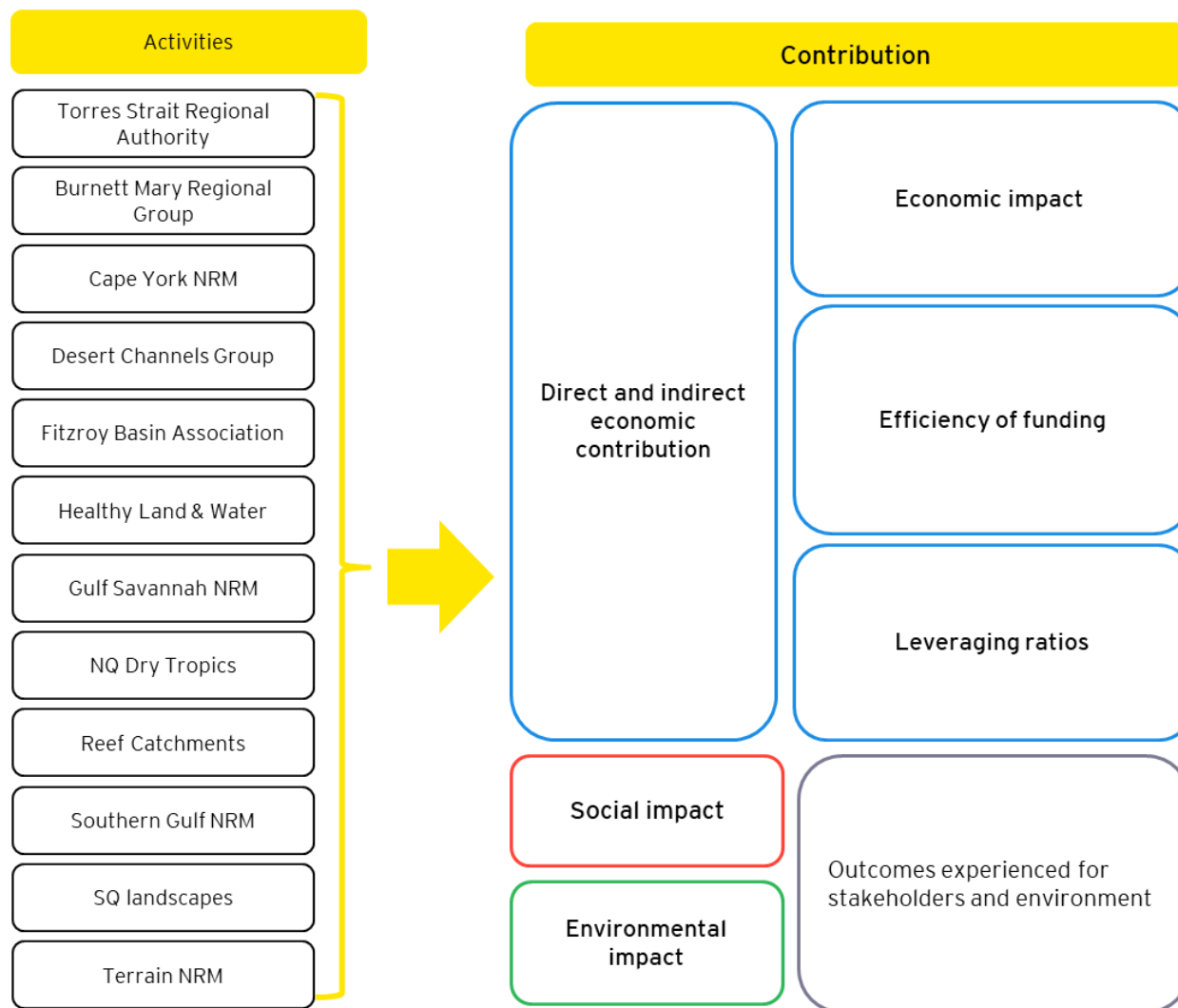
Introduction

Approach to measuring NRM groups' contribution and unique benefits

NRM groups directly and indirectly contribute to the Queensland economy and communities through their program activities. These include regional economic activities such as education, research, ecotourism, integrated land management and job opportunities.

NRM groups also contribute through local community engagement and capacity building such as networking, partnerships and skills development.

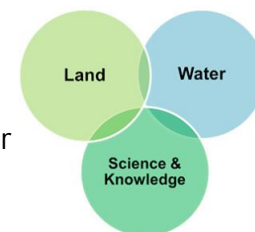
Direct and indirect economic contribution is made up of economic impact which includes gross value added, output income and multiplier effects from input-output modelling at the state or national level. Economic contribution also demonstrates the efficiencies extracted through the delivery model and funding leveraged.



Introduction

NRM regional bodies activities and programs

NRM regional bodies in Queensland deliver programs that support healthy and productive environments, viable communities and sustainable industries. NRM bodies do this by coordinating state-wide programs, providing mentoring and leadership, advocacy for improved investment in natural resource management, and identifying areas for training and improvement. Additional value and unique benefits are leveraged beyond those that would be achieved through a centralised program.



Integrated land management

NRM groups are focused on an integrated land management approach across the regions' diverse landscapes.

NRM groups leverage tools and data in a joint effort to maximise outcomes across all of the regions. This enables NRM bodies to plan, prioritise and better manage interventions to maximise environmental outcomes.



People & communities

One of the most significant benefits of the NRM delivery model is the ability to engage and support local communities. NRM groups develop trust with their communities, enhancing outcomes.

The dynamic social relationships and cohesion developed through NRM groups form an intrinsic part of the social fabric, in many cases filling gaps in the community beyond the agricultural and environmental domain.



Science & knowledge

NRM groups are engaged in a collective effort and draw on established knowledge and networks of capability.

A unique outcome of the NRM model is the increased awareness and knowledge of the landscape and the relationship of people to that landscape. NRM groups provide coordinated opportunities at a range of scales for experimentation, learning, increased awareness, observation and skill development.



A hand holding a glowing lightbulb in a field at sunset. The background is a vast field of tall grasses under a warm, golden sky. The lightbulb is held up, and its glow is reflected in the grass. A yellow rectangular box is overlaid on the left side of the image, containing the title text.

Economic contribution of NRM regional bodies

Economic contribution

How NRM regional bodies create economic activity and deliver efficient use of services



Economic contribution analysis is used to understand how economic activity cycles through a region's existing economy. NRM regional bodies contribution is defined by total inputs into economic activity cycle in the region and the secondary activity that it generates. The analysis is retrospective and data is considered over the past three years.

The economic model used to estimate this contribution represents the economy and mimics its structure through coefficients between industries, households and other linkages. This can be further broken down into spending on intermediate inputs, labour, taxes and returns to capital. Multipliers for economic activity are also derived from the model to estimate the flow on effects from the initial injection of economic activity.

EY's analysis has been undertaken to understand economic contribution and uncover the impact and importance of NRM regional bodies to Queensland economies.

NRIP funded and funding from other sources

NRM regional bodies make direct and indirect economic contribution through their annual activities and projects.

These activities are funded by both the Natural Resources Investment Program as well as additional government funding, commercial funding and other sources of funding. The unique benefits and contribution of the funding are distinguished and analysed in this report. Importantly, efficiencies delivered through the NRM delivery model apply to both NRIP funded activities as well as broader activities.

	Contribution	Indicator
Direct and indirect economic contribution	Economic impact	<ul style="list-style-type: none"> Gross value added Employment Wages
	Efficiency of funding	<ul style="list-style-type: none"> \$ wage spend/FTE Support vs delivery ratio \$ per seniority level
	Leveraging ratios	<ul style="list-style-type: none"> Source of funding (\$/%) Leverage funding \$ Number of volunteer hours leveraged

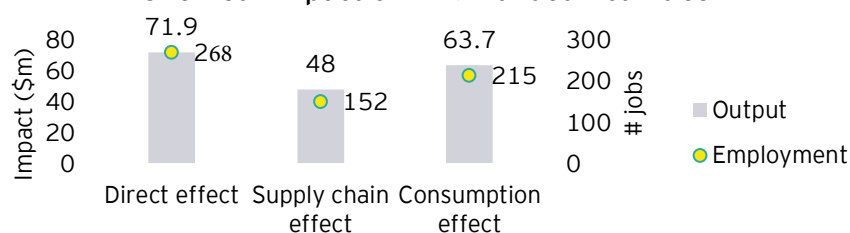
Economic contribution

Economic impact

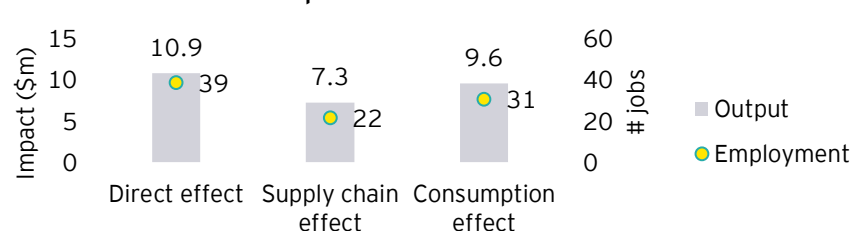
Land management projects delivered by NRM groups unlock opportunities throughout Queensland. These projects provide employment opportunities and economic stimulus which can have major impacts on the wellbeing and resilience of all communities.

NRM regional projects and initiatives (including those funded by NRIP) contribute significantly to economic activity both directly through their own operations as well as indirectly through both supply chain and consumption effects. These indirect effects are borne through direct economic activity as well as value created to the economy upstream in the agricultural sectors, the manufacturing sector and construction sectors. Value is also created downstream in the retail, tourism, hospitality and transport industries. Efficiencies in funding imply that for a constant amount of funding, the benefits are relative to delivery efficiencies. As such, they positively impact the creation of jobs and economic activity as well as the achievement of outcomes, particularly in regional areas.

One Year Impact of NRM Funded Activities



One Year Impact of NRIP Funded Activities



	Total	Direct (\$m)	Indirect*		
			Supply chain	Consumption	Total
Contribution (\$m)		\$71.9	\$48.0	\$63.7	\$183.7
Employment		268 Jobs	152 Jobs	215 Jobs	635 Jobs
Value added (\$m)		\$36.2	\$22.8	\$33.0	\$91.9

	NRIP	Direct (\$m)	Indirect*		
			Supply chain	Consumption	Total
Contribution (\$m)		\$10.9	\$7.3	\$9.6	\$27.8
Employment		39 Jobs	22 Jobs	31 Jobs	92 Jobs
Value added (\$m)		\$5.5	\$3.4	\$4.9	\$13.9

**Note – Indirect impact includes the impact of local industries buying goods and services from other local industries as well as consumption spending via wages*

Economic contribution

Regional economic impact

Economic impact can be calculated at a regional level to understand the potential impact on employment creation in vulnerable regional communities. Regional economic employment is particularly important for post COVID-19 recovery with the Queensland Government making this a top priority, specifically calling out the creation of employment in Queensland's region "Growing our regions is the key to building Queensland's economic recovery from the COVID-19 pandemic". NRM's are in a unique position where the activities carried out and the jobs generated are centralised in the regions that they operate. As a result, injections of funding into NRM bodies go directly to these regions, stimulating jobs, incomes and providing valuable economic activity. The tables below show the range of regional economic impact of the NRM groups. Individual NRM results can be found in the Appendix.

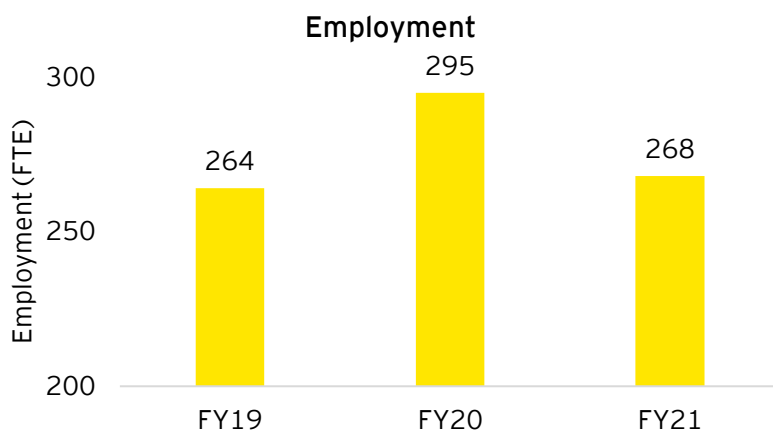
Total	Direct (\$m)	Indirect			NRIP	Direct (\$m)	Indirect		
	Output	Supply chain	Consumption	Total		Output	Supply chain	Consumption	Total
Contribution (\$m)	\$1.8 - 15.3	\$0.4 - 7.7	\$0.5 - 8.9	\$2.7 - 32.1	Contribution (\$m)	\$0.5 - 1.5	\$0.2 - 0.8	\$0.2 - 0.9	\$0.9 - 3.2
Employment	7 - 62	1 - 27	2 - 34	10 - 123	Employment	2 - 6	1 - 3	1 - 3	4 - 12
Value-added (\$m)	\$0.9 - 7.5	\$0.2 - 3.7	\$0.3 - 5.0	\$1.4 - 16.2	Value-added (\$m)	\$0.2 - 0.8	\$0.1 - 0.4	\$0.1 - 0.5	\$0.5 - 1.6

Economic contribution

Inclusive and diverse employment

Natural resource management projects provide opportunities to build resilience through more innovative and sustainable methods, while providing inclusive employment and capacity building for a wider range of regional communities. Inclusion is about supporting access to economic, environmental and social participation for all people.

NRM projects are also located in Indigenous communities and empower the inclusion of First Nations Peoples on country. In FY21, NRM groups provided 268* full-time equivalent jobs to Queenslanders.



**Note –Extrapolated dataset*

Case study: Diversifying Terrain's board through the Emerging Board Leader Program

Terrain NRM developed an Emerging Board Leader Program, as a year-long knowledge exchange and mentoring program. The program aims to expose a future board leader to the board process and help extend their knowledge and skills.

Participants are able to establish networks and gain experience. They are able to see what it's like working with a high performing not-for-profit organisation. It also enables Terrain to diversify their board.



A man in a plaid shirt is walking away from the camera through a vast field of green crops. The field is filled with rows of plants, and the horizon is visible in the distance under a bright sky. A yellow text box is overlaid on the left side of the image.

Unique benefits of NRM regional bodies

Unique benefits

Efficiency of FTE distribution

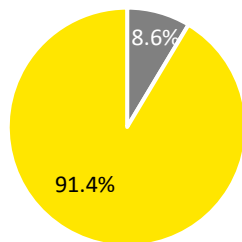
The average support vs delivery* ratio of NRM groups' full time equivalent (FTE) employees provides an indication of relative efficiency of NRM service delivery.

On average, NRM groups have 91.4% of their FTEs directly contributing to the delivery of projects as compared with the broader Queensland Public Sector Workforce benchmark, where 91.1% of FTEs are devoted to delivery. This potentially understates the difference, given that this benchmark includes services such as police, education and health who have a large delivery workforce relative to their corporate function.

Evidence indicates that NRM groups have a lower support to delivery ratio than the Queensland Public Service, implying that their overheads are lean and their delivery networks and connections are efficient.

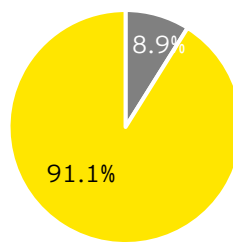
Support vs Delivery Ratio (Analysis)

■ Corporate ■ Delivery & Delivery Support



Support vs Delivery (Benchmark)

■ Corporate ■ Delivery & Delivery Support



Source: Queensland Public Sector Workforce Profile 2021

Delivery, Delivery Support and Corporate Definitions

Definitions for delivery and delivery support are consistent with the Queensland Public Sector Biannual workforce profile.

Delivery and delivery support roles are focused on the provision of services, programs and outcomes directly to the community, or provide essential support enabling the development and delivery of frontline services programs and outcomes. This can be in-office or in-field.

Corporate roles provide organisation-wide support so that the organisation can deliver objectives and outcomes. It's worth noting that often corporate-type roles are still defined as delivery under the definitions but in these instances the support they provide to the service directly links to providing an outcome to the community.

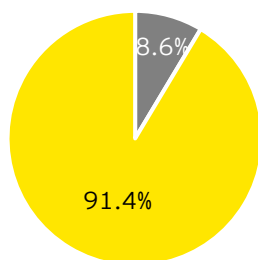
Unique benefits

Efficiency of FTE distribution (cont.)

FTE distribution is a useful indication of how funding is efficiently used. Greater proportions of delivery staff mean funding is focused directly on generating activity and outcomes on the ground. This is not a measure of administration costs (as someone focused on delivery would likely still need to undertake some level of admin), but rather an indication of the proportion of the workforce devoted to delivery of projects.

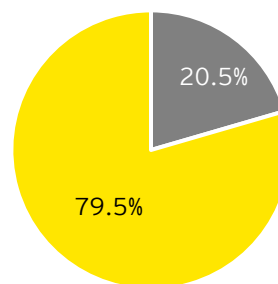
Benchmarks of both small and medium sized government organisations have been used as relevant comparators to NRMs, though small organisations would likely be the most relevant comparison. As shown, this difference in delivery versus support is more prominent, with 8.6% of NRM regional bodies' FTEs devoted to corporate services, in comparison to a comparison of approximately 20.5% and 18.5% respectively. This indicates that a greater proportion of funding is used directly in generating outcomes and activities that benefit the environmental and social systems throughout Queensland.

Support vs Delivery FTE (NRM Groups)



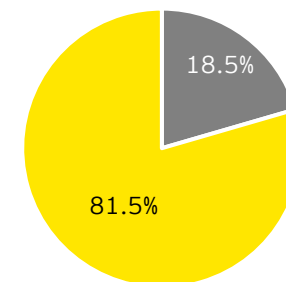
■ Corporate ■ Delivery

Support vs Delivery FTE (Small Organisations)



■ Corporate ■ Delivery

Support vs Delivery FTE (Medium Organisations)



■ Corporate ■ Delivery

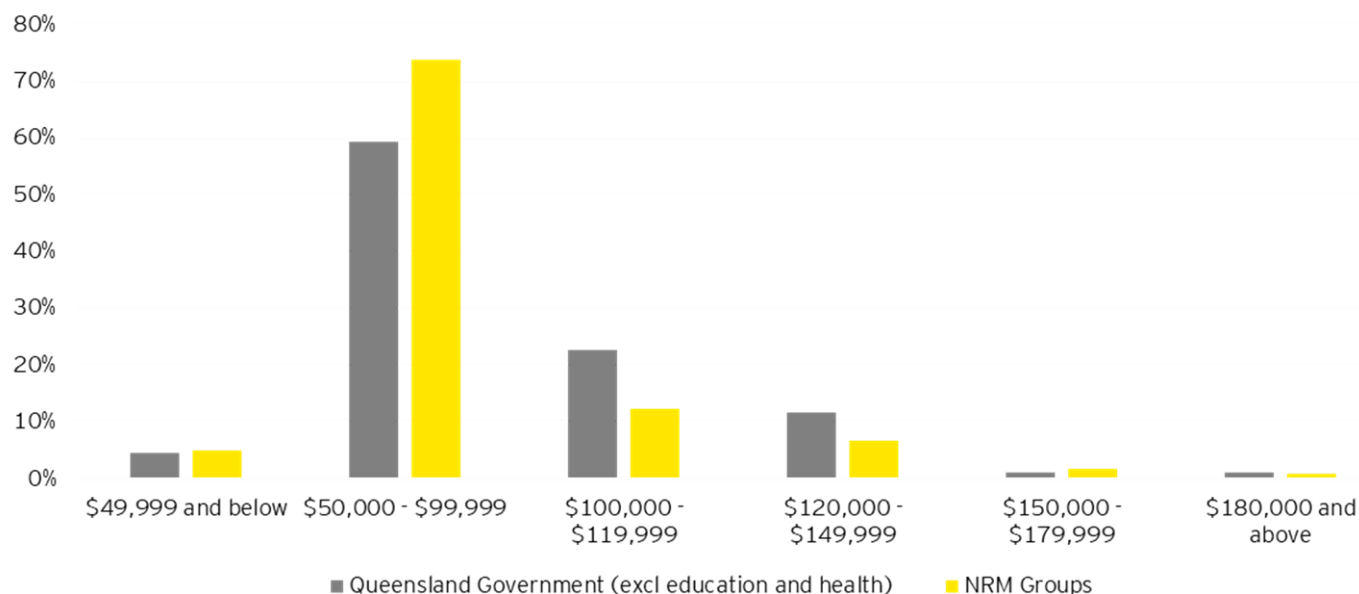
Source: Benchmarking of Commonwealth and State Government corporate services, benchmarks relate to medium and small sized organisations within Government

Unique benefits

Efficiency of wage spend

There are further efficiencies borne through the NRM regional bodies' wage spend. The current average wage spend per FTE for the NRM regional bodies is approximately \$82,500* as opposed to the Queensland Government average of \$110,000. This implies that NRM groups have lower unit costs and better economic efficiency than the benchmark. While NRM regional bodies' salaries are reflective of market rates as part of the Enterprise Agreement and typical for on-the ground delivery staff, overall there is a greater proportion of employees within lower salary bands.

The distribution of salaries suggest NRM regional bodies can be nimble in their salaries offered and are not limited by existing enterprise agreements and award structures. In the absence of the NRM regional bodies, the Queensland Government would be likely required to deliver these services. Therefore it is more efficient for NRMs rather than government to deliver these services for a given budget.

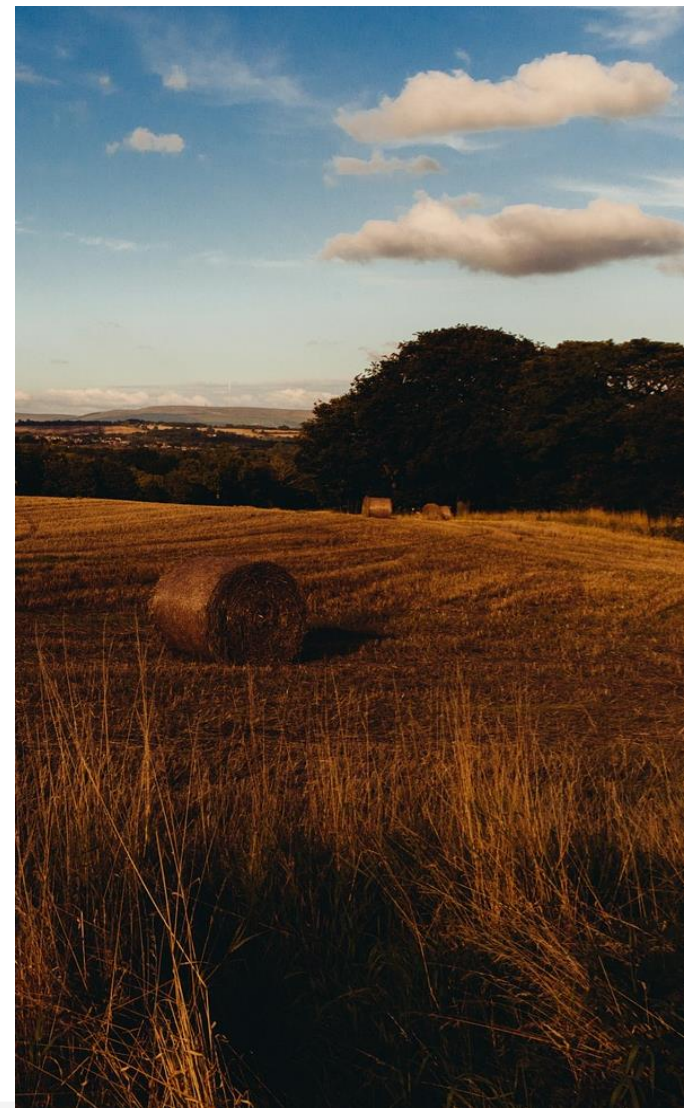


Unique benefits

Efficiency observations

It is evident that NRMs currently operate under a lean model that allows for a significant proportion of resources to be devoted to delivery of services and outcomes rather than management of the organisation. Furthermore, NRM regional bodies can avoid the inherent inefficiencies of larger organisations. Summary observations can be made regarding the efficiencies of NRM regional bodies:

- ▶ When comparing FTE distributions to a benchmark, NRM groups demonstrated a more efficient model, with 91% of FTE resources devoted to delivery of services which was in comparison to the 80% benchmark
 - ▶ This difference in ratio indicates that a substantial portion of resources can be devoted to delivering programs and generating outcomes
- ▶ Wage spend is concentrated in the lower ranges for NRMs. This implies that a greater number of staff can be “on the ground” delivering services than would otherwise be able to be provided for the same amount of money
- ▶ The reasons for efficiencies are not obvious but it is apparent that they are seen across the NRM bodies that provided data. This is likely to be borne out of necessity or through organisational culture allowing a more all-in style where everyone contributes, resulting in less need for regimented corporate functions
- ▶ From an external perspective, it may be that efficiency is driven by the current funding arrangements. Where a gap in the market exists and due to the unique skills that NRM regional bodies offer, there is no need for a tender process. As a result, this effort can be devoted to other functions. As competition grows, there may be a need for more business development functions to be developed within NRM groups. Were such a model to become more mainstream that necessitated tendering and greater fundraising, it may reduce the efficiencies observed.

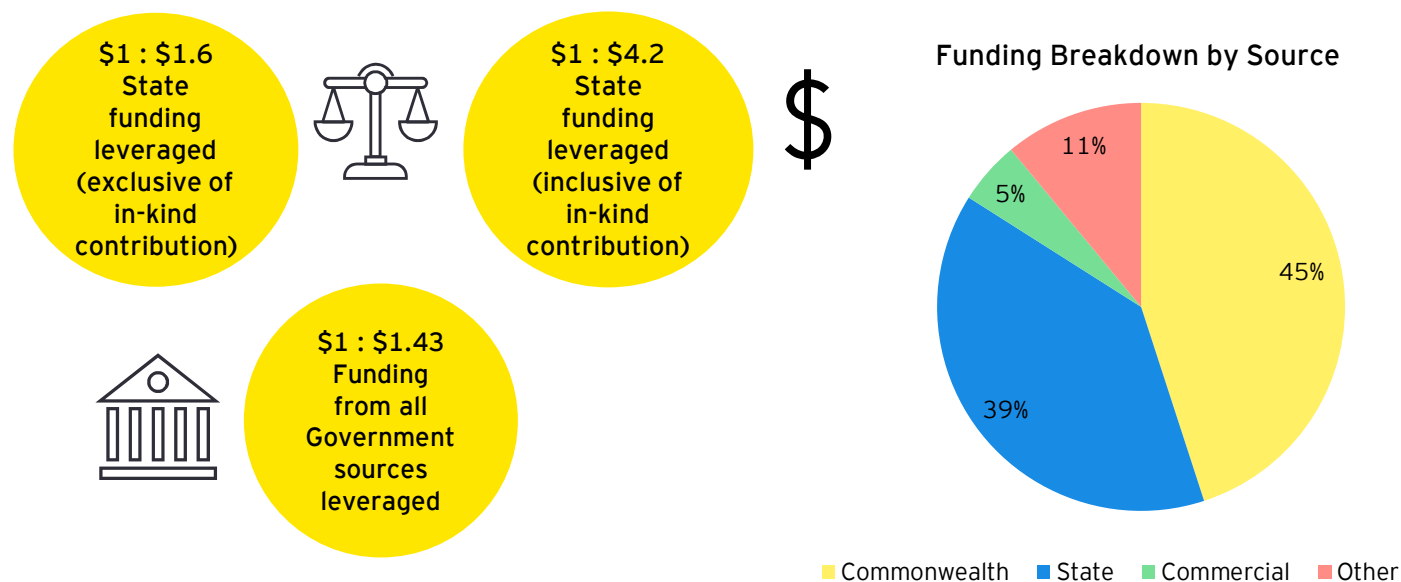


Unique benefits

Leveraging ratios

Leveraged funding is financial contribution to NRM regional bodies from other sources that government would not have received. NRM groups deliver unique benefits because government can leverage not only the experience and expertise of the NRM groups but also other funding sources, maximising impact. For every dollar of state funding received by NRM Groups, an additional \$1.6 of funding is attracted, when in-kind contribution is included, this number increases to \$4.2*.

Relative to government, NRM Groups have the ability to leverage additional funds and in-kind contributions, including through commercial funding as well as other miscellaneous sources. Ultimately this means that \$1 of state funding invested leverages \$4.2 of other “investment”, either through in-kind contributions or commercial and other funding arrangements. This enhances the impact of state government funding, supporting enhanced achievement of outcomes such as environmental benefits, as well as economic outcomes such as job creation. It should be noted that this information is not collected regularly and further collection of this data may solidify or even prove to demonstrate increased leverage. The sources of funding for NRMs are broken down below by Commonwealth funding, state funding, commercial funding and other sources.



- Globally, 90% of total funding between 2009 and 2015 for land conservation was from government

Source: Trust for Nature (2018)

- Not for profit sector as a whole derives approximately 33.2% of its funding from the Government

Source: Productivity Commission (2010)

- Charities typically obtain 43% of funding from Government but have greater access to philanthropic funds

Source: ACNC

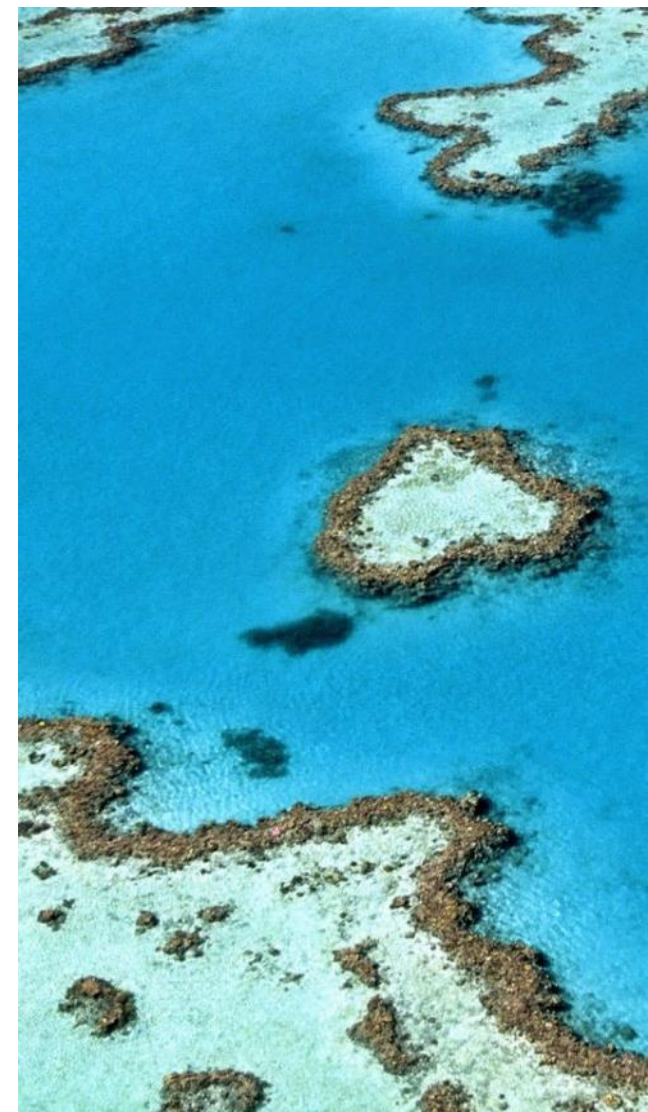
**Note – Derived from NRMs who provided sampled projects including both greater and lesser land manager contributions*

Unique benefits

Funding observations

Funding data for both external funding and in-kind and volunteering hours is incomplete. It was observed that this data was not collected uniformly across the cohort. Despite this, EY has utilised techniques that have anchored ratios where data was provided and then extrapolated this across the entire dataset. This is believed to be adequate to make high level estimates.

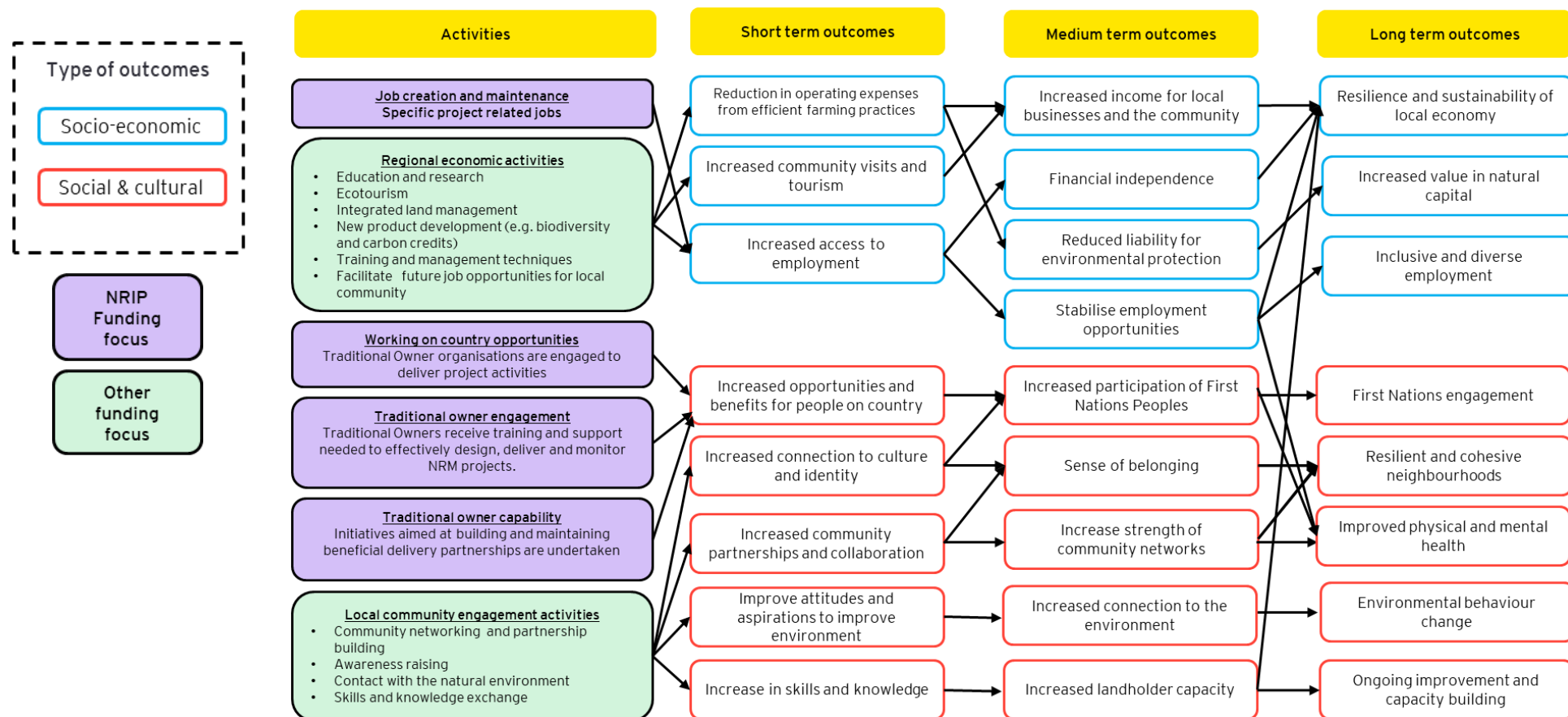
- ▶ Overall funding appears to be leveraged well. State funding in particular achieves a ratio of \$1.6* (with only funding considered) to \$4.2* (when in-kind contributions and volunteering is included) for every \$1 of state funding invested. This is viewed as an extremely favourably cost benefit ratio. In essence, this funding indicates that \$1 of state funding tends to leverage a further \$2.7 - \$3.5 of value into the Queensland economy. Importantly, this funding is regionally focused meaning that many of the jobs created are focused in the region where they are most needed during COVID-19
- ▶ Currently the split of funding is slanted toward government which is not unusual given the public nature of the benefits that NRMs convey through environmental and social improvements
- ▶ Although the split of funding could be considered high in relation to other NFPs which derive 33-43% of their funding from government, NRM regional bodies' funding split is more diverse than the global benchmark of (90%) for conservation funding. This points to a more self sufficient funding model that is less reliant on government funding
- ▶ Similarly, in-kind contribution and volunteering is equal to approximately 22% of total output and sits between comparable benchmarks of 19 and 30% within Australia and New Zealand
- ▶ NRM regional bodies explore alternative forms of funding through accessing green bonds and developing outcome based funding models to enhance the share of private sector funding that can be offered. This will need to be considered on a case by case basis for commercially viable projects
- ▶ All funding will be predicated on the ability to develop a consistent approach to environmental accounting so that standards can be adopted and developed and credible metrics reported against for cost effectiveness data. The use of standard datasets and definitions will improve reporting in the sector and provide new avenues to funding.



Unique benefits

Long-term outcomes and shared value of NRM regional bodies

NRM groups generate socio-economic, social and cultural outcomes for the community in the long term through their programs. These include regional economic and local community engagement activities.



Unique benefits

NRM regional bodies supporting cohesive and resilient communities

The work undertaken by NRM regional bodies not only provides healthy physical environments but also contributes to healthier individuals and communities. They enable community members to have meaningful contact with their physical environments and increased social connectedness and participate in community activities. Networks, trust and norms that facilitate co-operation and cohesion in communities are a key determinant of community health.

NRM groups promote cohesive communities through collaborating with other organisations (e.g. other community-oriented local businesses and national businesses with a local presence as well as local councils) to tackle community wide problems collectively. Community cohesion and resilience developed through NRM group activities form an intrinsic part of community networks and response to external pressures such as natural disasters.

The total economic cost of natural disasters is growing and is expected to reach \$39 billion per year by 2050.

NRM group activities play a significant role in community resilience through promoting complex networks that allow communities to support each other when faced with adversity. This includes ongoing engagement and collaboration with government agencies, stakeholders, and communities to prioritise recovery activities, planning, and mitigation initiatives to build landscape and community resilience.

For example, NRM interventions could promote resilience to drought through increasing groundcover, increasing water use efficiency, reducing loss of pasture during dry times and increasing planning for risks associated with drought.



Case study: Gulf Savannah Ongoing Community Support

In partnership with Tagalaka Aboriginal Corporation, Gulf Savannah are undertaking a community-based aquaponics garden project in Croydon. The objective of this project is to help the Croydon community build disaster recovery and resilience by addressing food security issues.

When the highways to Croydon are cut off by floodwaters, so too are the food supply chains into Croydon. By producing fruit, vegetables, herbs and fish, an aquaponics garden offers a fantastic alternative food supply to that which is normally transported into town from wholesale food suppliers. A food security consultant has also been engaged to help the community develop a food security strategy.

The Croydon garden project is ongoing and has been funded for many years demonstrating the ongoing support for resilient local communities. It further reinforces the Croydon community's disaster preparedness and recovery.



Unique benefits

Ongoing improvement and capacity building

Capacity building is critical for achieving environmental and social outcomes in the long-term. A differentiating benefit of the NRM regional bodies' delivery model is the ongoing continual improvement process through the independent sharing of ideas, beliefs and skills. This is enabled through the network of the twelve regional bodies and their communities.

NRM regional bodies build the capacity of the community by:

- ▶ providing information to the community
- ▶ stakeholder consultation; requesting input or feedback from the community
- ▶ decision-making, delegating decisions and planning
- ▶ participation in activities facilitated by regional NRM organisations
- ▶ undertaking or coordinating on-ground works
- ▶ capacity building, training and agricultural extension

NRM regional bodies enable capacity building through the local delivery model as the level of community involvement is increased and therefore the community are more empowered to participate in community decision making.

NRM groups support the economic sustainability of regional communities through the contribution of professional skills to the community. It is estimated, NRM activities can generate an economic return in the order of 2-5 times the original investment through the development of knowledge and skills (*Multiple Benefits of Landcare and Natural Resource Management, Final Report, 2013*). Many NRM initiatives work closely with landholders and community to support them in better managing the land and ecosystems which ultimately supports the productivity and profitability of the region.

The skills and capacity of NRM regional bodies - further details are included in our skills assessment below.

Case study: Gulf Savannah NRM 'Bush Business'

Each month, local women who have been affected by the recent drought meet at the Gulf Savannah NRM office to encourage and give the skills and confidence to put themselves and their business ideas out there.

Participants include women with unique skills and talents that have seen a need to find an extra income to supplement their family businesses through tough times. Some of these skills and experience include beef production, horticulturalists, hay producers, livestock carrying and contract mustering.

The workshops are designed to bring out the best in each one and hopefully turn their idea into an income generating business.

With funding from the Mareeba Shire Council, each participant attended 6 workshops over 6 months and had to complete workbooks, homework and exercises. Many of the participants attended the Arts In The Park event held in Mareeba



Unique benefits

First Nations engagement

NRM group activities provide significant First Nations inclusion and participation benefits. The benefits for First Nations inclusion and participation in NRM activities are wide ranging and include income and employment, health and wellbeing, social, cultural and environmental benefits.

In particular, NRM groups:

- ▶ Provide an economic base for indigenous employment
- ▶ Support Indigenous people, including youth and Elders to get back on country
- ▶ Provide related mental health benefits, particularly in terms of mitigating social disconnection and the risk of suicide
- ▶ Enable individual and community healing, cultural reinvigoration and ability to practice cultural activities and care for sites and landscapes of cultural importance
- ▶ Provide training and skill development, including skills in business management, reduced substance abuse, more functional families, improved early childhood development, increased social harmony and increased community pride

NRIP Priority Principles: Traditional Owner capability building, engagement and on-country opportunities

The design of NRIP acknowledges the deep cultural, social, environmental, spiritual and economic connections of First Nations peoples to their lands and their waters. NRIP funding recipients are encouraged to build respectful, inclusive and equitable partnerships with First Nations peoples on the lands where work is undertaken. Important is the extent to which the First Nations peoples themselves feel they have benefitted from the NRIP in a range of ways, including the opportunity to share their knowledge, and opportunities to learn. This requires involvement in planning (cultural acknowledgement), project decision-making (empowerment benefits) and on-ground works delivery (economic benefits). This NRIP outcome ensures that approaches to on-ground work by delivery organisations encompass the holistic meaning and values First Nations peoples bring to caring for country, transforming project delivery through exposure to traditional knowledge.

Case study: Cape York Indigenous fire workshop

Cape York NRM is a proud supporter of the Indigenous Fire Workshop. Fire is continually identified as the biggest issue for land managers on Cape York. Wildfires strip the land of vegetation, create erosion, release carbon into the atmosphere and reduce food sources and shelter for cattle and wildlife. The fire workshops are held annually on Cape York, with participants from across Australia.

Fire management is crucial for maintaining and improving the condition of vegetation communities upon which these species rely—this is why improving fire management is a key component of all regional land partnership programs.

These workshops are helping to support the building of an Indigenous Fire Network across Cape York, Gulf Savannah and Terrain natural resource management regions. It also enables the ancient traditions of land management by fire which have been handed down to generations of Aboriginal people.



Unique benefits

Improved attitudes and aspirations towards the environment

The local delivery aspect of the NRM regional bodies enables community empowerment in protecting and enhancing their own natural assets and habitat.

Participation in natural resource management enables direct experiences in the physical environment which encourages the community to examine and adapt their attitudes and behaviours for the benefit of the natural world.

There is empirical evidence suggesting a positive link between direct experiences in nature and people's environmental attitudes and behaviours towards the environment. Similarly, a study on environmental attitudes and behaviours (Janmaimool and Khajohnmanee) found that environmental knowledge can impact attitudes and behaviour toward land management. The strongest association was found between awareness (of problem and/or action strategies) and perceived consequences of individual's actions. This finding is unsurprising, as people who are conscious of an environmental problem (e.g. diffuse water pollution from agriculture) and best management practices are more likely to be concerned with the consequences of engaging in practices that could cause or induce such environmental problems.

A unique feature of the NRM regional body delivery model is the sharing of ideas and skills, leading to the improvement of attitudes and aspirations towards the environment and society over time. This importantly also provides linkages to ongoing improvement, particularly to further NRM-based education and research. This creates a positive feedback-loop, further improving environmental and social capital over time.

Case study: Fitzroy Basin Association Team Turtle

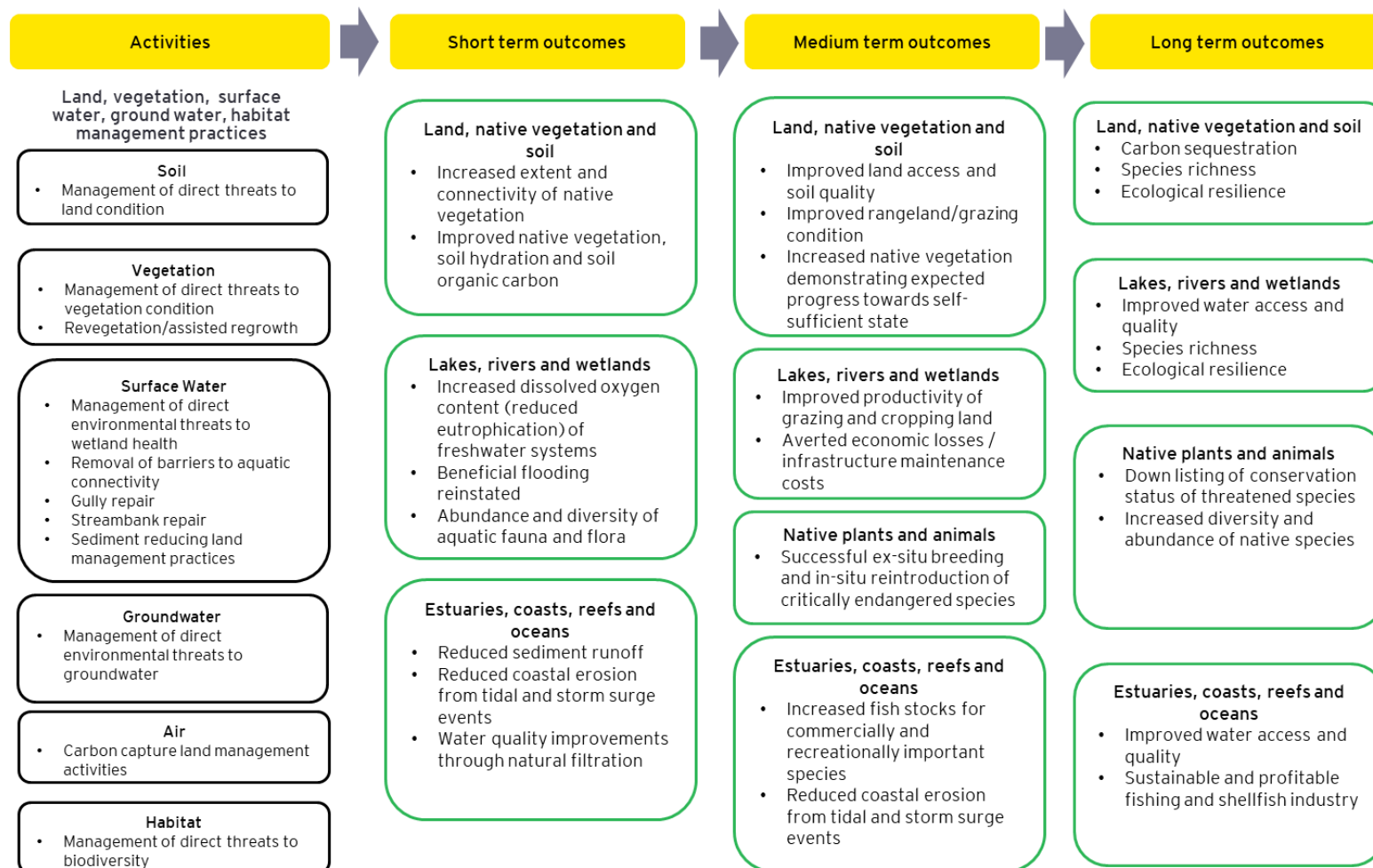
The Team Turtle CQ project is a collection of volunteers along the Capricorn and Curtis Coast who participate in citizen science by recording data on nesting marine turtles and hatchlings. Walking along local beaches volunteers record nesting turtle tracks, successful nests or nest attempts, presence of threats including evidence of predators (foxes, goannas etc.), 4WD tracks or light impacts.

Community volunteers are trained through a series of workshops to positively identify marine turtle tracks on beaches throughout the nesting and hatching season.



Unique benefits

Environmental impacts of NRM regional bodies



Unique benefits

Increase in natural capital

Ecosystem services provide economic value to society through examples of filtration, provisioning services (e.g. timber) or through regulating, servicing and cultural services. Each of these aspects is difficult to value to society and is often unquantified in economic decision making. As a result, these resources are often exploited as their true cost is unknown. A 2019 OECD report Biodiversity: Finance and the Economic and Business Case for Action found that the world lost an estimated USD 10 - 31 trillion per year from 1997 to 2011 owing to land cover change and land degradation.

These economic benefits provided by ecosystem services are protected and sustained by NRM activities. These activities are beneficial to society, and it is evident that they deliver huge economic values. While they are difficult to quantify on a micro basis, a mounting body of evidence points toward the benefit that it delivers society.

Innovative natural resource management

NRM's have recognized the scale of the challenge and the opportunities. With the support of the Queensland Government, NRM regional bodies are establishing market-based innovations such as:

- ▶ Eco-markets Australia is the first voluntary environmental market in Australia to create opportunities for farmers, graziers and land managers to be paid for the work they do in improving our environment
- ▶ Reef Credits is an innovative, market-based solution offering a new way to improve the quality of water entering the Great Barrier Reef.
- ▶ Cassowary Credits - independently verified and tradeable credit to attract new investment and boost the funds available to landholders for habitat restoration
- ▶ State-wide Indicators Framework that enables the NRM sector to demonstrate the investment and outcomes delivered

These examples of eco-markets are all evidence of new and innovative ways to attach market values to services which were previously seen as something without economic value.

Case study: Healthy Land and Water Report Card

Healthy Land and Water (HLW) has been looking at how they can do things differently and more innovatively. The HLW Report Card is a system on which other Australian and global monitoring and reporting systems have subsequently been modelled. The success of the Report Card is the result of a huge amount of collaboration. It has contributed greatly to justifying billions of dollars of investment over the last two decades by government, industry, and community, all focused on improving the health and integrity of our region's waterways. Through the evolution and next iteration of the Report Card, HLW hope to deliver an increased understanding of environments and the required on-ground action, planning, support, and investment. Past investments in catchment health are continuing to reap dividends. Some parts of Moreton Bay are reporting better conditions than at any other time in the last 20 years, and there has also been some noticeable regeneration of vulnerable habitats, including seagrass, mangroves, and vegetation in areas.



Unique benefits

Southern Queensland Landscapes NRM Case Study

Southern Queensland Landscapes NRM has strong extensive networks which enable them to quickly and efficiently engage people and progress action.

In response to the 2019 bushfires, the Australian Government funded a disaster response initiative to restore degraded land impacted by fire. The main impact to be addressed was the influx of weeds (blackberry and lantana).

Southern Queensland Landscapes was able to quickly mobilise a project team to undertake weed management, working closely with 17 regional land managers who had been impacted. The project team determined who needed support and distributed funding where it was needed most.

The speed at which assistance was delivered can be attributed to Southern Queensland Landscape's trust within communities and connections within the region.



Lantana bush regrowth following the bushfires



Weed spraying



Lantana bushes post-spraying

Unique benefits

Economic benefit of NRM activities

A variety of valuable natural capital exists in Australia, comprising vast land features, ecosystems, flora and fauna. However, the gradually declining biodiversity and the health of natural assets are occurring at an accelerating pace. This threatens ecosystem services and the benefits they bring to the various industries and society.

To assist with understanding and demonstrating the anticipated benefits delivered through each activity, EY has developed a number of logic models which represent a hypothesis of how value is created through NRMs' activities. These logic models are designed to provide an understanding of how NRM activities deliver beneficial outcomes. The Benefit Cost Ratios* (BCRs) have been inserted between the activities that they related to and before the outcomes that are expected to be achieved. This draws a logical chain borne from the activity and outcomes produced by NRMs.

To quantify the expected economic benefits that have come about through NRIP and broader NRM land management activities, EY has undertaken comprehensive research to identify appropriate benefit cost ratios (BCR) or NPV values for these NRM activities within literature. A BCR is a ratio that presents the relationship between the relative costs and benefits of a proposed intervention. BCRs are commonly used in assessing policy options and in capital budgeting to analyse the overall value of undertaking a particular intervention. The BCRs and NPVs used in this analysis express a financial or quantitative outcome attached an activity. A BCR greater than 1.0 represents an intervention that is expected to deliver a positive return on investment, similarly an NPV above 0 indicates the same. Multiple studies were considered but EY has focused on Australian studies where possible due their greater contextual match. Despite this, it is worth noting that the activities undertaken in the study may differ in context to the activities of specific NRMs.

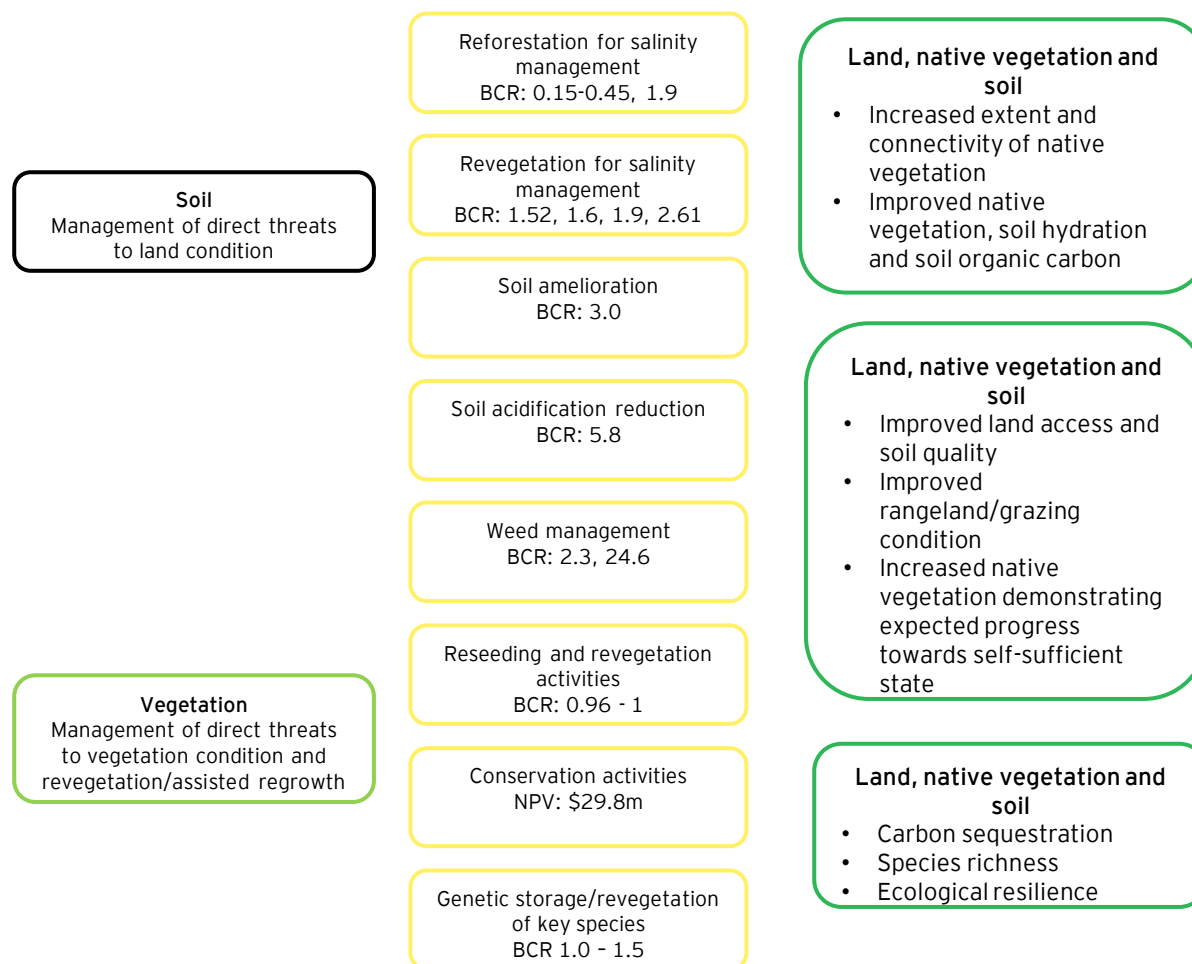
This analysis provides a comprehensive and robust grounding for understanding how benefits and costs are accrued. There is no uniform approach for calculating BCRs and throughout our research, multiple methods were observed. Variations included:

- ▶ Timeframe under which benefits are assessed
- ▶ Completeness of expected outcomes upon which a benefit is calculated
- ▶ Spatial elements within the study
- ▶ Discount rates used throughout the NPV calculation
- ▶ Ranging levels of detail in costings

The aim of these studies is to provide a comprehensive evidence base to demonstrate the benefits of NRM activities as they relate to both economic, environmental and social benefits to society. Through these studies we can develop a picture of the benefits that NRM groups deliver via the investments provided to them.

**Note – A benefit cost ratio is a calculation that identifies the ratio of benefit provided to society from any given cost*

Economic Benefit of NRM Activities

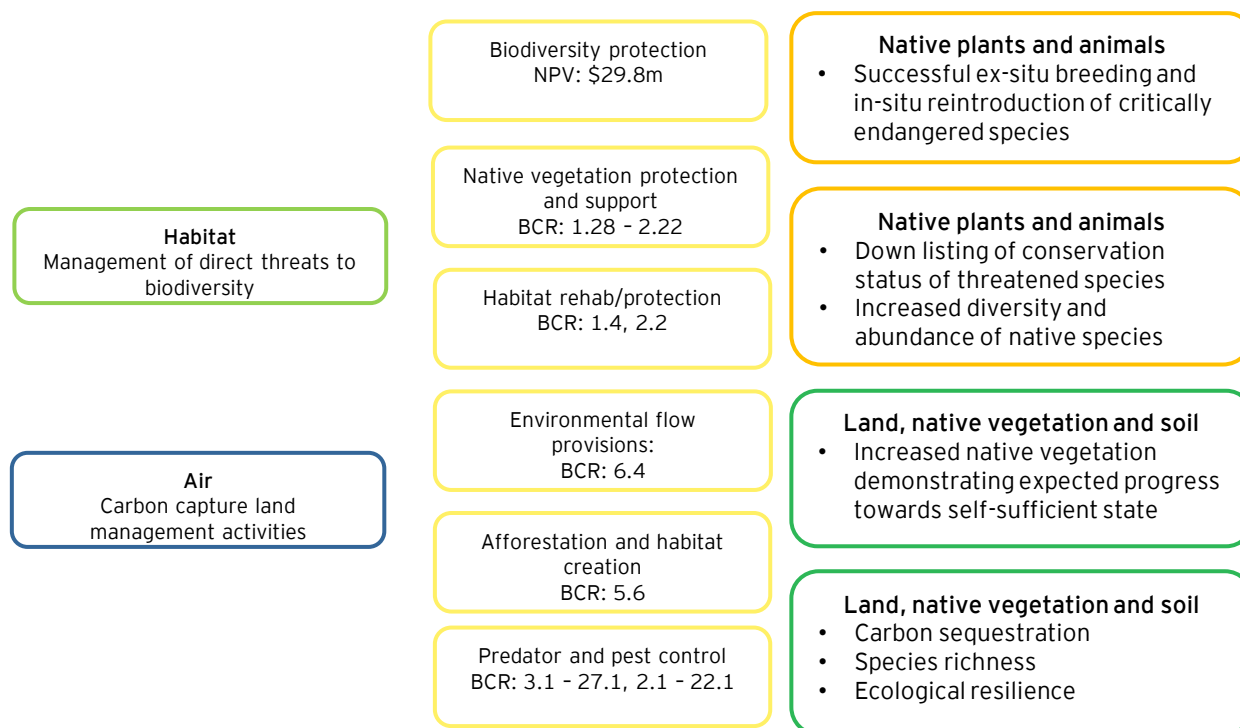


NRM regional activities have a significant focus on the restoration and protection of land. This takes many forms, ranging from management of soil, protection against threats (e.g. weed management) or restoration of saline damaged land, reintroduction of species (both fauna and flora) and developing species conservation habitats. The core outcomes of these activities are presented in our logic model at the start of this chapter as well as in the logic model on this page. For example, the specific NRM activities and the outcomes they provide have been linked to specific cost benefit ratios of studies that mirror the activities that NRM groups undertake. This provides some quantitative rigour to the logic models by illustrating what the potential benefit of every dollar invested, is.

BCRs identified related to the management of soil, land condition and vegetation range from 0.15 - 0.45 up to 5.8 or 24.6 in one specific instance. The benefits that were measured and quantified in these studies varied study to study but included productivity benefits, ecosystem services such as provisioning and regulating services, reduction in maintenance of public infrastructure (i.e. avoided cost), changes in land use, consumer surplus improvements and improved recovery from drought periods, among others.

The range of positive benefits identified is indicative of the extent that NRM activities related to vegetation and soil improve society, enhance productivity and provide cost effective returns on investment into the sector. It is evident on a business case perspective

Economic Benefit of NRM activities



NRM activities related to the management of flora and fauna habitat and air improvement can include:

- ▶ Afforestation and habitat creation
- ▶ Carbon capture project support
- ▶ Habitat rehabilitation and protection (e.g. the provision of self sustaining habitats)
- ▶ Native vegetation and support
- ▶ Predator and pest control

Each of these activities provide a range of benefits to society and support positive outcomes within the environments that ultimately support communities on a local to community scale. Benefits can accrue privately or publicly, but studies have indicated that cost benefit ratios found for these activities can range from 1.28 to 6.4. The range of studies collected indicate a positive for society where money is invested in these activities.

The benefits quantified in studies identified include impacts such as reduction in salinisation, sequestration benefits (e.g. cleaner air, social costs of carbon), wildfire management, intrinsic and extrinsic biodiversity benefits (equivalent to fines related to destruction), human health and safety and avoided costs.

It is evident that NRM activities related to the protection of biodiversity and carbon capture and management activities generate significant benefit to society with up to 6.4 times benefit relative to the level of investment based on the studies found.

Economic Benefit of NRM activities

Surface Water

- Management of direct environmental threats to wetland health
- Removal of barriers to aquatic connectivity
- Gully repair
- Streambank repair
- Sediment reducing land management practices

Groundwater

- Management of direct environmental threats to groundwater

Removal of barrier/connectivity (e.g. physical/hydraulic/chemical/behavioural)
BCR: 3.6

Riparian restoration activities
BCR: 0 - 6.5

Maintain, develop or improve wetland habitats
BCR: 1.9 - 3.07

Prevent acidification and salinisation of waterways:
BCR: 2.61

Conservation management practices for sediment reduction
Net benefit: \$94.5 ha⁻¹ y⁻¹

Improve natural coastal habitats
BCR: 2.62, 1.62

Lakes, rivers and wetlands

- Increased dissolved oxygen content (reduced eutrophication) of freshwater systems
- Beneficial flooding reinstated
- Abundance and diversity of aquatic fauna and flora

Lakes, rivers and wetlands

- Improved productivity of grazing and cropping land
- Averted economic losses / infrastructure maintenance costs

Lakes, rivers and wetlands

- Improved water access and quality
- Species richness
- Ecological resilience

Estuaries, coasts, reefs and oceans

- Increased fish stocks for commercially and recreationally important species
- Reduced coastal erosion from tidal and storm surge events

Estuaries, coasts, reefs and oceans

- Reduced sediment runoff
- Reduced coastal erosion from tidal and storm surge events
- Water quality improvements through natural filtration

Estuaries, coasts, reefs and oceans

- Improved water access and quality
- Sustainable and profitable fishing and shellfish industry

NRM activities are critical to protecting Queensland water environments from externalities caused through human influence. Activities that NRM groups undertake to do this include:

- Removal of barriers impeding aquatic connectivity
- Soil conservation and land management activities reducing run-off
- Aquatic habitat restoration and protection

Water is often an exploited resource and protection of it will and does ultimately benefit society. The cost benefit studies reviewed illustrate this with most studies showing a positive ratio, ranging from 1 to 0 - 6.5.

The benefits quantified within these studies range from provisioning services such as recreational and tourism benefits, reductions in disease, carbon sequestration, environmental non-use values, improvements in water quality and water supply, reductions of impact of acid sulphate in soils, averted economic losses (e.g. infrastructure maintenance cost reduction due to reductions in floods)

Outcomes related to these activities will also notably benefit those in catchments around the waterways. Such outcomes include the benefits stated above but also include ecological resilience and a variety of non-use benefits. The combination of positive cost benefit and beneficial outcomes achieved is indicative of the value that NRM groups bring to the region.

Appendix



Regional Economic Impact

NRM #1

NRIP	Direct (\$m)	Indirect		
		Output	Supply chain	Consumption
Contribution (\$m)	\$0.24	\$0.05	\$0.08	\$0.37
Employment	1	0	0	1
Value-added (\$m)	\$0.13	\$0.02	\$0.05	\$0.20

Total	Direct (\$m)	Indirect		
		Output	Supply chain	Consumption
Contribution (\$m)	\$2.06	\$0.45	\$0.62	\$3.14
Employment	8	2	2	12
Value-added (\$m)	\$1.00	\$0.22	\$0.37	\$1.60

NRM #2

NRIP	Direct (\$m)	Indirect		
		Output	Supply chain	Consumption
Contribution (\$m)	\$1.05	\$0.55	\$0.62	\$2.22
Employment	4	2	2	8
Value-added (\$m)	\$0.51	\$0.26	\$0.34	\$1.12

Total	Direct (\$m)	Indirect		
		Output	Supply chain	Consumption
Contribution (\$m)	\$9.23	\$4.87	\$5.41	\$19.51
Employment	36	17	21	74
Value-added (\$m)	\$4.51	\$2.32	\$2.99	\$9.82

Regional Economic Impact

NRM #3

NRIP	Direct (\$m)	Indirect		
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$0.89	\$0.20	\$0.27	\$1.36
Employment	3	1	1	5
Value-added (\$m)	\$0.44	\$0.10	\$0.16	\$0.69

Total	Direct (\$m)	Indirect		
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$4.24	\$0.93	\$1.28	\$6.45
Employment	17	3	5	25
Value-added (\$m)	\$2.06	\$0.46	\$0.77	\$3.29

NRM #4

NRIP	Direct (\$m)	Indirect		
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$0.88	\$0.19	\$0.27	\$1.33
Employment	3	1	1	5
Value-added (\$m)	\$0.43	\$0.10	\$0.16	\$0.68

Total	Direct (\$m)	Indirect		
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$3.33	\$0.73	\$1.01	\$5.08
Employment	13	3	4	20
Value-added (\$m)	\$1.63	\$0.36	\$0.60	\$2.59

Regional Economic Impact

NRM #5

NRIP	Direct (\$m)	Indirect		
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$0.58	\$0.13	\$0.18	\$0.88
Employment	2	0	1	3
Value-added (\$m)	\$0.28	\$0.06	\$0.11	\$0.45

Total	Direct (\$m)	Indirect		
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$1.77	\$0.39	\$0.54	\$2.70
Employment	7	1	2	10
Value-added (\$m)	\$0.86	\$0.19	\$0.32	\$1.38

NRM #6

NRIP	Direct (\$m)	Indirect		
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$0.54	\$0.12	\$0.16	\$0.81
Employment	2	0	1	3
Value-added (\$m)	\$0.26	\$0.06	\$0.10	\$0.42

Total	Direct (\$m)	Indirect		
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$2.74	\$0.61	\$0.81	\$4.15
Employment	11	2	3	16
Value-added (\$m)	\$1.31	\$0.30	\$0.48	\$2.09

Regional Economic Impact

NRM #7

NRIP	Direct (\$m)		Indirect	
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$0.90	\$0.42	\$0.40	\$1.72
Employment	4	1	2	7
Value-added (\$m)	\$0.44	\$0.20	\$0.22	\$0.86

Total	Direct (\$m)		Indirect	
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$5.87	\$2.75	\$2.62	\$11.23
Employment	23	9	10	42
Value-added (\$m)	\$2.87	\$1.31	\$1.46	\$5.63

NRM #8

NRIP	Direct (\$m)		Indirect	
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$0.50	\$0.30	\$0.33	\$1.12
Employment	2	1	1	4
Value-added (\$m)	\$0.25	\$0.14	\$0.18	\$0.56

Total	Direct (\$m)		Indirect	
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$9.38	\$5.56	\$6.07	\$21.01
Employment	36	19	23	78
Value-added (\$m)	\$4.60	\$2.65	\$3.29	\$10.54

Regional Economic Impact

NRM #9

NRIP	Direct (\$m)	Indirect		
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$1.54	\$0.79	\$0.90	\$3.22
Employment	6	3	3	12
Value-added (\$m)	\$0.75	\$0.38	\$0.50	\$1.62
Total	Direct (\$m)	Indirect		
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$15.33	\$7.86	\$8.92	\$32.11
Employment	62	27	34	123
Value-added (\$m)	\$7.46	\$3.74	\$4.97	\$16.18

NRM #10

NRIP	Direct (\$m)	Indirect		
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$1.15	\$0.59	\$0.67	\$2.40
Employment	5	2	3	10
Value-added (\$m)	\$0.56	\$0.28	\$0.37	\$1.21
Total	Direct (\$m)	Indirect		
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$8.29	\$4.25	\$4.82	\$17.37
Employment	34	15	18	67
Value-added (\$m)	\$4.03	\$2.02	\$2.69	\$8.75

Regional Economic Impact

NRM #11

NRIP	Direct (\$m)	Indirect		
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$0.50	\$0.20	\$0.23	\$0.92
Employment	2	1	1	4
Value-added (\$m)	\$0.24	\$0.09	\$0.13	\$0.46

Total	Direct (\$m)	Indirect		
	Output	Supply chain	Consumption	Total
Contribution (\$m)	\$9.31	\$3.64	\$4.26	\$17.20
Employment	37	13	16	66
Value-added (\$m)	\$4.54	\$1.72	\$2.41	\$8.66

Input-Output methodology

The method used in this report to estimate the economic impact from initial investment is Input-Output (IO) analysis. The basic premise is that each sector of the economy uses inputs from other sectors, along with labour, to produce their output. As an example, the agriculture sector requires inputs from agriculture itself (e.g. fertiliser), transport, construction, manufacturing, energy, wholesale trade, professional services, and accommodation and food services, all to varying extents to produce its output, e.g. grains or other broadacre crops. These inputs (resulting in outputs) are presented as transaction matrices in an IO model. They are often specified in dollar values. At a regional level, IO transaction matrices detail all the buying and selling interactions between industry sectors in a region, the value of sales to the household and government sectors, the value of imports, exports, payments of wages and salaries, payment of taxes and the value of industry sectors' gross operating surpluses. The IO transaction matrices used in this report is for Queensland and sub regions within Queensland

The matrices are put together into a model where economists are able to study the impact of input 'shocks' to a sector of the economy to trace through the ultimate impact to other sectors and the wider economy.

A useful feature of IO analysis is the ability to calculate indirect effects. In the case of employment, an indirect impact captures other jobs that are required to produce the output. An example of this is, to produce canola, transport and logistics are required to move supplies to and from the fields. Hence, the model allows for the calculation of scenarios such as: for every 1 agriculture job in a region, how many other jobs are created in the transport and logistics sector that are ultimately for the purpose of producing canola.

It is common for the indirect effects to be classified into two categories. First, supply-chain flow on effects are generated by servicing (or supply chain) industries. Second, consumption flow on effects derive from income increasing as the result of the direct economic activity, and that income is used in spending in the local regional economy.

In examining indirect effects, the concepts of Type I and Type II multipliers are useful metrics to consider. A Type I multiplier captures the initial direct impact and supply-chain effects. It is calculated as $(\text{Direct} + \text{Supply-Chain}) / \text{Direct}$. The multiplier is a unit free number. As an example, a Type I multiplier of 1.6 means that for every direct \$1 increase in output you would expect to see an extra \$0.60 of activity generated within the region due to the induced supply-chain activities.

A Type II multiplier captures the initial direct impact, and both supply-chain and consumption effects. It is calculated as $(\text{Direct} + \text{Supply-Chain} + \text{Consumption}) / \text{Direct}$ or, simply and equivalently, $\text{Total} / \text{Direct}$. This multiplier is also a unit free number. By way of another example the interpretation is as follows. A Type II multiplier of 2.3 means that for every direct \$1 increase in output you would expect to see an extra \$1.30 of activity generated within the region due to the supply-chain effects plus the consumption effects.

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