

REGIONAL PLASTICS RECYCLING OPPORTUNITY

30 July 2021



BUSINESS CASE FOR A REGIONAL PLASTICS HUB

This document presents the business case for investment in plastics recycling capacity in Far North Queensland (FNQ). This document builds on a 2020 feasibility study that concluded that such an investment is likely to be economically and financially feasible, and provide net benefits to the community. This business case and the earlier feasibility study were commissioned by Regional Development Australia Tropical North Inc. (RDATN).

The case for investment is supported by a range of strategic policy drivers. From a policy perspective, the federal, state and local governments have implemented policy to promote a circular economy, with a strong focus on reducing the use of unnecessary single use plastics, increasing the rate of plastics recycling, and increasing the use of recycled content in products and infrastructure. Underpinning these policy goals is an export ban on unprocessed plastics, which has coincided with a tightening of standards by export markets, and funding support to develop domestic recycling capacity.

The purpose of this business case was to build on the feasibility work conducted in 2020, by investigating the market's capability and appetite to invest in the region, the potential solutions market participants are able to offer, additional data on the likely costs and benefits, and outline how such an investment could be funded and delivered.

A potential funding pathway for eligible investments is the Queensland Recycling Modernisation Fund (QRMF), which the Queensland Government announced was open for applications from 13 July 2021. Applications to the QRMF are due by 7 September 2021. The QRMF will operate as competitive grant funding and assess projects based on their contribution to resource recovery, project viability, deliverability, value for money, and community engagement. The QRMF will support projects that will increase the value of resources recovered and promote a circular pathway for materials, including through recycling and remanufacturing.

Based on market sounding conducted as part of this business case, the private sector is able to offer a range of potential recycling solutions to increase plastic recycling in FNQ. These solutions vary in terms of their feedstock, technologies, end-products, and alignment with circular economy principles. An updated feasibility analysis utilising data from the market sounding reinforced the previous finding of economic and financial viability, and estimated that an investment which is co-funded by the QRMF has the potential to:

- Deliver a private sector investment return of 17%,¹
- Provide a benefit-cost ratio to the community of 1.2, and
- Support direct employment of approximately 40 full-time equivalent (FTE) employees during construction (total employment of approximately 110 FTE including supply chain and wage effects).

A key action required to support the investment as indicated by the market participants was the development of a Circular Economy Strategy, including a policy position and action plan for plastic recycling in FNQ. As such, this business case outlines a delivery plan for the Project that includes the development of this strategy by RDATN. The delivery plan also envisages a role for RDATN to support the Project to successfully integrate into and deliver benefits to the FNQ economy.

¹ Assuming that the QRMF funding provides for 50% of capital costs (i.e. capital costs funded 50% by the private sector and 50% by the public sector)

Contents

Business Case for a Regional Plastics Hub	i
1 INTRODUCTION	1
Service Need	2
2 NEED FOR INVESTMENT	3
2.1 National context	3
2.2 Regional context	4
3 STRATEGIC ALIGNMENT	5
3.1 Federal context	5
3.2 State context	6
3.3 Local context.....	7
The Opportunity	9
4 RECYCLING MODERNISATION FUND	10
4.1 Queensland Recycling Modernisation Fund	10
4.2 Eligibility	11
4.3 Assessment process.....	12
4.4 Assessment criteria.....	13
5 ASSESMENT OF FEASIBILITY AND MARKET POTENTIAL	14
5.1 Initial feasibility assessment.....	14
5.2 Market sounding	14
5.3 Economic and financial assessment.....	20
6 SUMMARY OF OPPORTUNITY	23
Implementation	24
7 ACTIONS REQUIRED TO SUPPORT INVESTMENT	25
8 KEY MILESTONES	26
9 PROJECT DELIVERY	27
10 RISK MANAGEMENT	28
11 NEXT STEPS	29

Tables

Table 3.1: Waste stream recycling targets	7
Table 4.1: Assessment criteria	13
Table 5.1: Assumptions used in updated feasibility assessment	22
Table 8.1: Projected Project milestones	26
Table 9.1: Roles and responsibilities.....	27
Table 10.1: Key Project risks.....	28

Figures

Figure 2.1: Progress against Australia’s 2025 national recycled content packaging targets	4
Figure 4.1: Assessment process	12
Figure 5.1: Scope of market engagement.....	16
Figure 5.2: Business case information memorandum.....	17
Figure 5.3: Responses received from the market	17
Figure 5.4: Market feedback received	20
Figure 5.5: Diversity of market solutions	20
Figure 9.1: Project delivery framework.....	27

1 INTRODUCTION

RPS has been commissioned by Regional Development Australia Tropical North Inc. (RDATN) to prepare a business case for investment in plastics recycling capacity in Far North Queensland (FNQ).

This business case builds on prior investigations, including:

- A feasibility study of establishing a plastics recycling hub in FNQ, prepared by RPS in 2020,
- Stakeholder engagement to investigate opportunities for education and awareness to improve plastics recycling, and
- Market sounding to investigate the market's capacity and capability to provide solutions.

The business case was prepared in anticipation of the opening of the Queensland Recycling Modernisation Fund (QRMF), which will provide an opportunity to project developers to obtain funding support for a recycling projects in Far North Queensland (FNQ).

The business case is structured as follows:

- The need for recycling capacity in FNQ,
- The opportunity, and
- The proposed next steps.

SERVICE NEED



2 NEED FOR INVESTMENT

2.1 National context

An evolving global landscape has resulted in waste management becoming a key focus area for the Australian governments at all levels. This was the context for the 'Plastics Industry Feasibility Study',² a study supported by Regional Development Australia Tropical North (RDATN), Commonwealth Department of Agriculture, Water and the Environment (DAWE), Queensland Department of Environment and Science (DES), and Cairns Regional Council (CRC).

The need for investment in plastics recycling capacity is underpinned by:

- **Embracing circular economy principles:** Australia's guiding policy on waste management, the *2018 National Waste Policy* embodies a circular economy, shifting away from 'take, make, use and dispose' to a more circular approach where we maintain the value of resources for as long as possible.
- **Changes to plastic exports:** Informed by the *Recycling and Waste Reduction Act 2020*, from 1 July 2022 plastics will only be allowed to be exported if they have been either sorted into single resin or polymer type and processed for further use (e.g. flakes or pellets), or processed with other materials into processed engineered fuel. This is significant given that in 2018/19, Australia exported around 149,000 tonnes of mixed plastics – excluding those of polymers of ethylene, styrene or vinyl chloride, which form part of the 2022 ban – and in 2019/20, around 75,000 tonnes were exported at a value \$19.3 million. Approximately 83 per cent of these plastics will be banned from 1 July 2021 unless they are processed further,³ illustrating the considerable impact this change in policy will have on the plastics export market.
- **Demand for local recycled content:** Driven by the consistent *Reduce-Reuse-Recycle* messaging, consumers have an increased desire to purchase products which contain local recycled content. This is highlighted by a global study which established that of 6,000 people surveyed, more than half indicated that they would be willing to pay more for sustainable products designed to be reused or recycled.⁴ This increased demand has the benefits of reducing the reliance of the industry on export markets, and developing domestic markets that will result in better environmental and social outcomes (local jobs, and reduced transport impacts).

Of particular relevance to the Project are the 2025 National Packaging Targets (the 2025 Targets). These are supported by Australian industry and government to deliver a new and sustainable approach to packaging that is made, used and sold in Australia.

Australian Packaging Covenant (APCO) is the organisation charged by government to facilitate the delivery of the 2025 Targets, which are summarised below:

- 100% reusable, recyclable or compostable packaging,
- 70% of plastic packaging being recycled or composted,
- 50% of average recycled content included in packaging (revised from 30% in 2020), and
- The phase out of problematic and unnecessary single-use plastics packaging.⁵

² RPS Group was engaged by Regional Development Australia Tropical North to support their investigation into the potential development of a plastic recycling and production industry in Far North Queensland, as a pilot for future regional centres across Australia. RPS, 2020, [Plastics Industry Feasibility Study – Feasibility of a Plastics Industry Hub in Far North Queensland](#).

³ Waste management review, 2021, *Waste export ban on mixed plastics: is Australia ready?*, <https://wastemanagementreview.com.au/waste-export-ban-on-mixed-plastics-is-australia-ready/>, visited 06/07/21.

⁴ Australian Retailers Association, 2019, *Survey shows more than half of consumers would pay more for sustainable products*, <https://blog.retail.org.au/newsandinsights/survey-shows-more-than-half-of-consumers-would-pay-more-for-sustainable-products>, visited 19/07/21.

⁵ It is acknowledged that beyond plastics, the phasing out of other single use items will be required to achieve future sustainability goals.

Figure 2.1 illustrates how Australia is tracking against these targets. As shown, the plastics recycling rate achieved was only 18% in 2018/19, well below the target of 70%. This highlights the significant opportunity that exist within the market for innovation and increased recycling capacity.

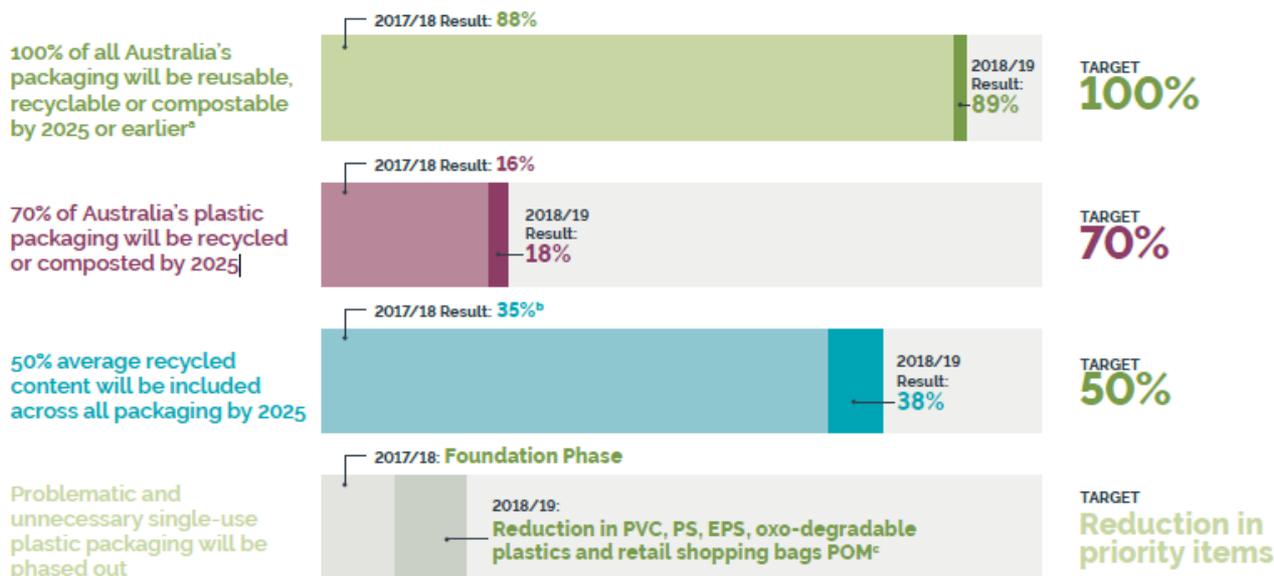


Figure 2.1: Progress against Australia's 2025 national recycled content packaging targets⁶

2.2 Regional context

Investing in recycling infrastructure in regional areas supports employment and regional businesses. On average recycling creates more jobs per tonne of material processed than landfilling.⁷

At a regional level, the cost of waste collection is typically higher due to reduced economies of scale associated with lower populations and an increased transport distance. However, despite these inherent challenges, there are significant opportunities to improve packaging waste management and resource recovery in remote and regional (particularly outer regional) areas of Australia. These opportunities were identified by APCO in their 'Remote and Regional Report'.⁸

The report concluded that there are five key areas that should be targeted to improve waste management outcomes in regional areas:

- Capability development, planning and governance,
- Packaging waste and collection,
- Transportation,
- Recycling, and
- End-markets.

The Project would have strong alignment with the transportation, recycling and end-market opportunity areas. The facility has the potential to support the establishment of a regional hub for the aggregation of plastic waste enabling an increase in transport efficiency, storage capacity and production of useful end-market products, as well as supporting FNQ to become a more self-sustaining region.

In addition to the impact the Project could have in regional FNQ, there is also an opportunity for it to be used as a model that could be replicated at other regional centres across Australia.

⁶ APCO, 2021, *Project Report – Packaging Consumption & Recycling Data 2018-19*, January 2021.

⁷ EEA. 2011, *Earnings, jobs and innovation: the role of recycling in a green economy*.

⁸ APCO, 2020, *Remote and Regional Report*, November 2020.

3 STRATEGIC ALIGNMENT

The Project supports the targets and objectives of existing policies related to plastic waste management in Australia.

There are several policies and strategies at a federal, state and local level that aim to support a circular economy, minimise the impacts of human activities on the environment, encourage waste prevention, and promote sustainable solid waste management. These policies and strategies provide a set of principles and targets to guide decisions and achieve positive outcomes.

The strategies of relevance to the Project are summarised in the following sections.

3.1 Federal context

2018 National Waste Policy

The *2018 National Waste Policy* provides a framework for collective actions by business, governments, communities and individuals until 2030. The policy identifies five overarching principles underpinning waste management in a circular economy, including:

- Avoid waste,
- Improve resource recovery,
- Increase the use of recycled material and build demand and markets for recycled products,
- Better manage material flows to benefit human health, the environment and the economy, and
- Improve information to support innovation, guide investment and enable informed consumer decisions.

2019 National Waste Policy Action Plan

The *2019 National Waste Policy Action Plan* creates targets and actions to support implementation of the *2018 National Waste Policy*. The following targets and actions will guide investment and national efforts to 2030 and beyond:

- Ban the export of waste plastic, paper, glass and tyres, commencing in the second half of 2020,
- Reduce total waste generated in Australia by 10 per cent per person by 2030,
- Achieve an 80 per cent average recovery rate from all waste streams by 2030,
- Significantly increase the use of recycled content by governments and industry,
- Phase out problematic and unnecessary plastics by 2025,
- Halve the amount of organic waste sent to landfill by 2030, and
- Make comprehensive, economy-wide and timely data publicly available to support better consumer, investment and policy decisions.

Recycling Modernisation Fund

By mid-2024 when the full waste export ban comes into effect, Australia must be in a position to recycle around 645,000 additional tonnes of waste plastic, paper, glass and tyres each year. Consequently, the waste and recycling industry will need to capture more materials for recycling and to do so cost-effectively.

Taking a national and strategic approach to finding these infrastructure solutions, The *Recycling Modernisation Fund* (RMF) will generate over \$600 million of recycling investment from Australian Government, state and territory governments and industry investments.

3.2 State context

Queensland Waste Management and Resource Recovery Strategy

The *Queensland Waste Management and Resource Recovery Strategy* provides a plan to better manage waste in Queensland. The strategy outlines the following targets for 2050 that aim to improve economic growth and jobs by recovering more materials and gaining additional value from those recovered materials:

- 25 per cent reduction in household waste,
- 90 per cent of waste is recovered and does not go to landfill, and
- 75 per cent recycling rates across all waste types.

Plastic Pollution Reduction Plan

The Queensland Government's 2019 *Plastic Pollution Reduction Plan* takes a holistic approach to managing plastics, detailing the following key actions:

- Introduce legislation to ban the supply of specific plastics products including straws, cutlery, plates, stirrers from 1 July 2021,
- Expand on the Plastic Free Places,
- Focus further investment on developing plastic recovery and processing infrastructure in Queensland in 2020/21,
- Exclude the use of specific single-use plastic items from Queensland Government sponsored events from 2020 onwards,
- Use government purchasing power to reduce plastic use, require recycled plastic content, and transform the supply market from 2020 onwards, and
- Build community capacity and engagement to reduce plastic pollution in 2020/21.

Far North Queensland Regional Plan 2009–2031

The FNQ Regional Plan builds on the former non-statutory regional plan – *Far North Queensland Regional Plan 2010*. The primary focus of the plan is to manage urban growth; however, the plan also addresses various rural and natural resource management issues.

One of the regional policies relates to infrastructure in FNQ, with the following objective specific to the Project:

- Manage solid waste in the region to minimise adverse impacts on the environment and the community and promote sustainable waste management practices.

3.3 Local context

FNQROC – Regional Waste Management Prioritisation & Resource Recovery Options

The FNQROC – *Regional Waste Management Prioritisation & Resource Recovery Options* report (Arcadis, 2016) adopted the then Queensland Waste Strategy Recycling Targets for 2024 (refer to Table 3.1).⁹

Table 3.1: Waste stream recycling targets

Waste stream	Recycling Target (2024)
Municipal Solid Waste	Regional areas 45% Remote areas – improve practices
Commercial and Industrial Waste	55%
Construction and Demolition Waste	80%

The FNQROC report recommended that a feasibility assessment be undertaken to establish a local plastics reprocessing facility which could address the problem waste stream of film plastic, as well as existing rigid plastics, and provide a new local industry with employment opportunities. It was also recommended that the feasibility assessment include an assessment of plastic waste generation across all sectors (domestic, commercial, and agricultural), review of technologies, options for collections, and potential products and associated markets.

This feasibility assessment was undertaken in 2020.¹⁰

Waste Reduction and Recycling Strategy 2018 – 2027

Cairns Regional Council have developed a Waste Reduction and Recycling Strategy 2018 – 2027 which includes the following five objectives focused on addressing the current resource recovery and waste management challenges and opportunities in the Cairns region:

- 1. Provide education and awareness:** empowering the community to embrace waste avoidance, reduction and use.
- 2. Reduce waste:** where Council and community take responsibility for reducing their own waste and using resources effectively.
- 3. Maximise resource recovery:** to reduce landfill disposal through resource recovery opportunities.
- 4. Secure our future needs:** where our capacity and capability to manage future waste is secured.
- 5. Advocacy and collaboration:** to lead strategic alliances and partnerships to support best practices in waste management.

⁹ Both state and federal recycling targets have since been revised.

¹⁰ RPS, 2020, [Plastics Industry Feasibility Study – Feasibility of a Plastics Industry Hub in Far North Queensland](#).

Corporate Plan 2017-2022

The *Corporate Plan 2017-2022* provides direction for Cairns Regional Council to achieve a sustainable future for the region and optimum social, economic and cultural benefits for residents.

One of the Plan's strategic objectives relates to natural assets. Specifically, over the next five years Council has a desire to maintain clean air, water and waste.

Cairns 2050 Shared Vision

Cairns 2050 presents a bold vision for the future of Cairns that seeks to build upon the natural setting, existing quality of life and the established character of the city.

One of the eight pillars in this Vision relates to the natural and living environment. Specifically, the pillar indicates that the living environment is influenced by several factors, including the provision of waste services.

THE OPPORTUNITY



4 RECYCLING MODERNISATION FUND

Australia's waste and recycling industry will be transformed by the RMF, a federal initiative that recognises waste as a valuable resource whose value should be kept in the Australian economy. The RMF will support investment in new infrastructure to sort, process and remanufacture materials such as mixed plastic, paper, tyres and glass. Specifically, the RMF will provide funding for infrastructure projects that address the specific national waste export bans for:

- Mixed plastics that are not of a single resin/polymer type and/or further sorting, cleaning and processing is required before use in re-manufacturing,
- Single resin/polymer plastics that have not been re-processed (e.g. cleaned and baled PET bottles),
- Mixed and unsorted paper and cardboard,
- Unprocessed glass, in a whole or broken state (both formed packaging and flat sheet glass), and
- All whole used tyres, including baled tyres, but not including bus, truck and aviation tyres exported for re-treading to a verified re-treading facility.

The Australian Government will invest \$190 million into the fund, leveraging over \$600 million of recycling infrastructure investment to drive a billion-dollar transformation of Australia's waste and recycling capacity. The RMF, along with other measures that support Australia's National Waste Policy Action Plan (refer to section 3.1), will create approximately 10,000 new jobs and divert over 10 million tonnes of waste from ending up in landfill sites across the country.

Through the National Partnership Agreement (NPA) on Recycling Infrastructure,¹¹ funding will be provided to the states and territories who will independently assess their jurisdictions to establish major gaps in local reprocessing capacity.

4.1 Queensland Recycling Modernisation Fund

Through the NPA between the Queensland and Australian Governments, \$40 million is being invested into the Queensland Recycling Modernisation Fund (QRMF) to boost Queensland's recycling industry. This investment comprises \$20 million from the Australian Government and \$20 million in co-funding from the Queensland Government.

Funding applications are now open and should focus on how recycling projects can or will:

- Improve sorting, processing, recycling and remanufacturing of waste,
- Divert waste from landfill (including stockpile diversion/reduction),
- Create jobs, especially development opportunities in regional areas,
- Create economic development opportunities,
- Build a stronger onshore recycling industry by developing new domestic markets for recycled materials, and
- Address Queensland's regional and remote challenges, where possible.

¹¹ The Commonwealth, States and Territories recognise that they have a mutual interest in improving outcomes in Australia's waste and recycling sector and need to work together to achieve those outcomes. This Agreement will contribute to improved recycling outcomes by addressing critical gaps in Australia's recycling infrastructure needed to support successful implementation of the Council of Australian Governments (COAG) March 2020 decision to phase out the exports of waste plastic, paper, glass and tyres (COAG waste export ban).

4.2 Eligibility

Under the QRMF, each organisation and project must meet minimum eligibility criteria to be considered for funding. These are summarised below, however, further information can be within the Queensland Governments Program Guidelines.¹²

The application form can be found at the following URL:

<https://haveyoursay.dsd.qld.gov.au/statedevelopment/18cf3815/consultation/subpage.2019-10-14.3133507320/>

Organisation eligibility

To be eligible to apply for funding under the QRMF the organisation must:

- Be a legal entity with an active Australian Business Number (ABN) or Australian Registered Body Number (ARBN),
- Propose capital investment in resource recovery facilities and infrastructure to be located in Queensland,
- Have obtained internal approval to make the application, including approval to co-fund the project to at least 50 per cent of the eligible capital costs, before applying for a grant,
- Have the financial and technical capacity to deliver the project, and
- Have a history of effective regulatory compliance.

Project eligibility

A project must meet all of the following eligibility criteria:

- Be located in Queensland,
- Recycle waste plastics, mixed and unsorted paper and cardboard, unprocessed glass or whole used tyres that are currently being landfilled or recovered to low value outlets,
- Increase the capacity for domestic sorting, processing, recycling and remanufacturing of materials,
- Deliver new or improved resource recovery infrastructure,
- Use only technology and equipment that have successfully demonstrated commercial capability nationally or internationally, and
- Be completed by 30 June 2024.

Eligible project costs

The applicant should demonstrate that local suppliers and contractors will be engaged in accordance with the Queensland Charter for Local Content Ongoing Opportunities for Industry.¹³ Where significant expenditure outside of Queensland is required and unavoidable (e.g. purchase of specialised equipment not available in Queensland), this should be identified and explained in the application.

Eligible project costs must be auditable and must be capital costs for project specific investments such as for new, upgraded or expanded resource recovery facilities, large-scale technologies or for the purchase and installation of fixed plant and equipment required to fully commission new infrastructure.

¹² Department of State Development, Infrastructure, Local Government and Planning, 2021, *Queensland and Australian Government Joint Initiative – \$40 million Queensland Recycling Modernisation Fund – Program guidelines*, https://www.statedevelopment.qld.gov.au/data/assets/pdf_file/0021/56091/qrmf-program-guidelines.pdf, visited 19/07/21.

¹³ Department of State Development, Infrastructure, Local Government and Planning, 2021, *Queensland Charter for Local Content Local Industry Policy: Opening opportunities for industry*, https://www.statedevelopment.qld.gov.au/data/assets/pdf_file/0014/33260/queensland-charter-for-local-content.pdf, visited 19/07/21.

4.3 Assessment process

The QRMF is competitive grant funding round where access to the QRMF will involve the following three-step process:

- **Step one – application and assessment:** submit an application which is assessed according to eligibility, assessment criteria and program objectives.
- **Step two – inter departmental panel review:** if the application is successful at step one, a detailed economic and technical assessment will be undertaken. At this step, you may be requested to provide further details in relation to your application. The application will then be considered by an inter departmental panel who will recommend projects for funding. The Australian Government will then be consulted about these recommendations.
- **Step three - financial delegate approval:** if your application is successful, funding approval will be sought from the financial delegate. Once funding approval is received, the Australian Government will be consulted about the outcome. A conditional letter of offer will be issued with information about the terms on which funding will be made available.

Figure 4.1 summarises the three-step process.



Figure 4.1: Assessment process

4.4 Assessment criteria

Proposals will be assessed against the criteria outlined in Figure 4.1.

Table 4.1: Assessment criteria

Criteria No.	Weighting	Assessment criteria
1	35%	<p>Contribution to the development of an improved, more robust resource recovery industry including:</p> <ul style="list-style-type: none"> • Achievement of Queensland Government and Australian Government diversion targets for the waste streams of plastics, mixed and unsorted paper and cardboard, unprocessed glass or whole used tyres. • Acceleration of private sector investment. • Development of the waste industry supply chain and secondary markets. • The contribution to transitioning Queensland towards a circular economy and increasing the value of new products produced from the processed waste.
2	30%	<p>Viability of the project including:</p> <ul style="list-style-type: none"> • Access to feedstocks demonstrated through Heads of Agreement, Letters of Support, Memorandums of Understanding or similar. • Access to offtake markets similarly demonstrated through Heads of Agreement, Letters of Support, Memorandums of Understanding or similar. • Access to secure and confirmed financial sources to deliver the project. • Ability to secure all necessary planning and environmental approvals and other licenses/permits as required within a reasonable timeframe. • Demonstrating regulatory compliance.
3	15%	<p>Project delivery and risk management including:</p> <ul style="list-style-type: none"> • Demonstrated experience and capability in delivering similar projects. • Comprehensive project plan. • Well considered risk identification and management plan.
4	15%	<p>Value for money including:</p> <ul style="list-style-type: none"> • Government investment per tonne of waste diverted. • Amount of private sector investment compared to government investment. • Local benefits particularly employment.
5	5%	<p>Community engagement and social licence including:</p> <ul style="list-style-type: none"> • Consideration of community and broader social impacts. • Community perception of project and organisation.

5 ASSESMENT OF FEASIBILITY AND MARKET POTENTIAL

5.1 Initial feasibility assessment

A 2020 study investigated the feasibility of establishing a plastics recycling hub in FNQ.¹⁴ The study was supported by and incorporated input from DAWE, DES, RDATN and CRC. Based on an extensive analysis of Queensland and national waste datasets, published reports and industry consultation, the study found that FNQ currently has a low rate of recovery of plastics of 1.9 per cent, which compares to:

- 5.7 per cent in Queensland, and
- 9.4 per cent in Australia.

The rate is projected to continue to decline as population and economic growth increases waste generation, but no further investment in recycling infrastructure limits recovery.

Following an assessment of the region's unique strengths, weakness, opportunities and threats (SWOT), and discussions with the project steering group, the study found that the development of a multi-polymer (i.e. HDPE and PET) mechanical recycling plant located in Cairns is likely to provide a positive returns on investment and positive benefits to the community.

Moreover, the SWOT and steering group discussions suggested that there is likely to be demand for manufacturing plastic products from recycled resin in both the FNQ and SEQ regions. A plastic recycling hub in FNQ could also service the demand in SEQ due to its relative proximity, facilitating a circular pathway for the recovered material and generating value-added activity. This type of a solution for recovered plastics in FNQ would also align with the objectives of the waste hierarchy (e.g. by preferring recycling solutions over energy recovery, assuming that opportunities to avoid, reduce and re-use have already been considered).

The proposed plant would source material from FNQ households, businesses and existing programs (Containers for Change and drumMUSTER), and prefer to supply local end-markets to encourage a circular approach.

Analysis of the multi-polymer model showed that it is likely to:

- Divert approximately 5,500 tonnes of plastic per year, increasing the recycling rate to 17.1 per cent in 2022, and reducing embodied GHG emissions by around 5,000 tCO₂-e / year,
- Deliver a net benefit to Queensland of \$50.6m NPV and BCR of 3.1,
- Provide economic stimulus to the region, including the creation of up to 83 FTE direct and indirect jobs during construction and up to 6 during operation, and
- Provide a potential return to investors of 39 per cent IRR and a payback period of 4 years.

5.2 Market sounding

Summary and recommendations

The Preliminary Assessment involved discussions with 22 operators active in most of the recycling streams being contemplated for the FNQ Plastics Recycling Hub.

Participants were mostly receptive to the project and were keen to be involved. Several are quite advanced in their commercial considerations.

Interest to operate onsite varied among participants, as some indicated their companies may use technologies that are more complex or proprietary thus would be hesitant to bring operations onsite due to commercial sensitivities.

¹⁴ RPS Group was engaged by Regional Development Australia Tropical North to support their investigation into the potential development of a plastic recycling and production industry in Far North Queensland, as a pilot for future regional centres across Australia. RPS, 2020, [Plastics Industry Feasibility Study – Feasibility of a Plastics Industry Hub in Far North Queensland](#).

Feedback collected from participants indicated that companies involved in plastics recycling (especially those active in, or those looking to enter the FNQ market) were familiar with providing services to municipalities in varied capacities, via a multitude of contractual arrangements. It was indicated that these arrangements typically included a certain level of guaranteed volumes from the municipality in exchange for an agreed price per tonne for a period of two to five years.

Risks and concerns at a high level:

- Volume risks,
- Quality of plastics available for recycling,
- Commodity pricing risks,
- Permitting and licensing risks, and
- Government commitment to regulatory frameworks and approvals.

Challenges identified included sorting, infrastructure, price, policy, design, incentive and purchasing of final end-market commodities or products.

Purpose of the market sounding

This section presents the outcomes of industry engagement activity (market sounding) and confirms how these outcomes have informed the development of the business case.

This section outlines:

- The purpose of the market sounding process,
- The methodology followed to undertake market sounding, and
- Key findings of the market sounding process.

Key market sounding findings were used to inform delivery options analysis and the final delivery model selected for the Project (refer to Section 9).

Market sounding objectives

The market sounding process maximised industry input at the early stages of the business case by providing a two-way communication forum between the business case writers and local and international industry participants and key stakeholders. The key objectives and outcomes achieved were:

- Confirmation of key industry customers, stakeholders and potential Project participants,
- Identification, capture and assessment of prospective technical options including:
 - Opportunities for innovation in design, development, funding, finance, delivery and/or operation
 - Delivering the best overall value for money outcome,
- Increased awareness of the Project through understanding, communicating, and drawing out the Project requirements in a targeted market engagement process,
- Defined and aligned key project, technical, commercial, and operational drivers with key market and potential industry participants to inform future stages of the business case and Project,
- Understanding what the market and supply chain can or cannot do (capability), can or cannot bear (capacity) and are prepared or not prepared to bid (appetite) for development, delivery, funding, financing and future operation of the Project,
- Provided the market with an insight into the Project opportunities so they began to understand the risks and rewards thereby promoting future business planning, and
- Working collaboratively and seamlessly with the Project Owners, business case team and stakeholders to deliver the market sounding processes.

Market sounding strategy

Market sounding was required to inform further development of the business case and Project and help optimise the design, delivery, operations, procurement, and funding. To do this, there was a need to inform industry about the Project and, through consultation, draw insight and expertise from industry to finesse key facets such that the optimal project scope and phasing is conceived, developed and delivered. The process was primarily made up of the following key activities:

- Contractor engagement,
- Market sounding, including broad industry engagement on the issues/opportunities,
- Written submissions,
- Market Sounding Findings Report (documentation of the key messages, recommendations and next steps), and
- Informing the delivery model.

Client engagement

One-on-one meetings with RDATN, DAWE, DES, and CRC were held to provide an update on the rationale for the project scheme to:

- Confirm the service need,
- Understand any concerns with the scheme, and
- Address any concerns raised.

Assessment process

Step 1: Undertook market sounding with potential industry participants

- Engaged with potential market participants (mix of local and international contractors and suppliers)

Market sounding involved the receipt of written submission from invited industry participants who responded to a series of questions designed to address key project deliverability options. The written submissions were designed to inform the Project objectives, outcomes and requirements (the ‘Why’) and the project definition, scope, design and operations (the ‘What’). Invited stakeholders included market / industry / project stakeholders.

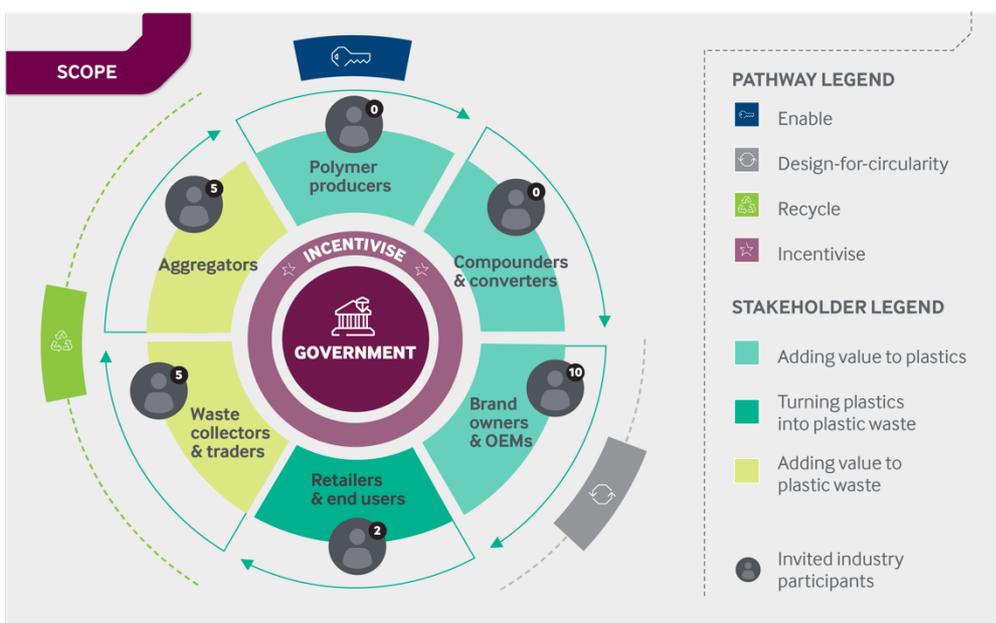


Figure 5.1: Scope of market engagement

BUSINESS CASE

A total of 22 participants from four of the six ecosystems were approached. No known participants were acquired or approached in the polymer, compound, and converters segments.

The market sounding process including the development of an information memorandum, including a questionnaire, which was shared with all 22 participants.



Figure 5.2: Business case information memorandum

Responses were sought from participants during May and June 2021. A total of 3 written responses were received.

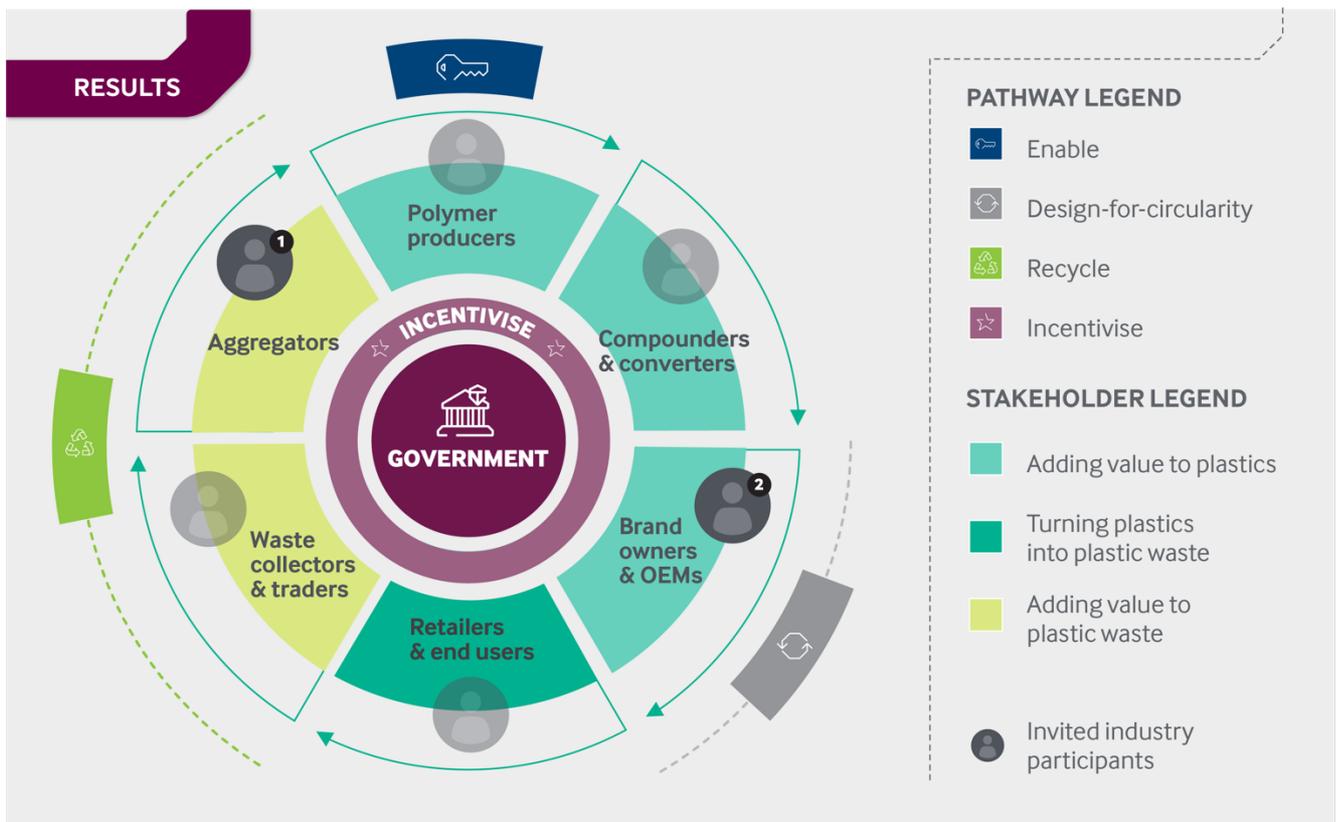


Figure 5.3: Responses received from the market

BUSINESS CASE

A summary of the response process is as follows:

- Over 50 conversations and clarifications regarding the process, aims and objectives of the market engagement,
- High degree of enthusiasm in the business case,
- Many of the participants are small businesses and lack the time and resources to fully engage at this stage of the process,
- These businesses are however very willing and would welcome further engagement as the project progresses,
- No interest from larger market players at present, and
- Clarifications – any issues raised during the market sounding process that required further information were clarified with participants.

Outputs from market sounding informed development of the Packaging and Procurement Options Assessment. Participants were informed:

- They were under no obligation to submit a written response,
- There was a written response template and eight-page limit for written responses, and
- Written submissions were summarised into a short report to RDATN.

Step 2: Analysed relevant project characteristics

- Previewed the specific project characteristics that influenced approaches to packaging and procurement

Step 3: Definition of work elements and packaging options

- Identified and reviewed different types of traditional and hybrid delivery models

Step 4: Established a list of delivery options for analysis

- Identified relevant delivery options for the project based on project characteristics and evidence derived from precedent projects

Step 5: Established project objectives:

- Allocated project objectives including a weighing for each objective (out of 100%)

Step 6: Qualitatively assessed delivery options

- Assessed each possible delivery option identified in Step 4 against the project objectives identified in Step 5.

Step 7: Considered implementation considerations and document delivery model assessment outcomes

- Consider key issues during implementation such as commercial principles and program. Document the outcomes in the business case.

Industry Targets

Market sounding targeted firms in Queensland and nationally and included stakeholders identified from the previous feasibility assessment (RPS, 2020).

Industry topics

The market sounding process covered the following engagement themes and topics:

- a. Company particulars
- b. Level of experience in recycling plastics recovery
- c. Sources of waste plastics
- d. Major recovery / recycling processes
- e. Outlets or processed materials
- f. Commercial model and packaging type of waste plastics
- g. Proposed arrangement for the collection of waste plastics
- h. Government levels of assistance
- i. Estimated capital costs
- j. Estimated operational costs

Market feedback

A summary of the feedback received from the market is detailed below:

- Several companies noted that the first stage for companies in FNQ in advancing their circular economy agenda is to set out clear business objectives and the rationale for a circular strategy, based on clear understanding of what government wants and is prepared to invest,
- At this stage, industry said it is essential that government fully supports the approach, and gets ready to champion the strategy throughout the region,
- FNQ companies said they would benefit from a visual representation of the flow of materials in their value chain, detailing circular flows within the region and externally within the broader ecosystem,
- In this way, executives said they can see the various inputs and outputs, and pinpoint where the main value opportunities are to be found. They stated it was unclear to them the size and materiality of the circular economy in FNQ. However, the 2020 feasibility study explored this issue, finding that there was limited recycling in FNQ and identifying where the main opportunities are likely to be.
- Having analysed these flows, the next practical step should be to identify initial projects that are likely to produce impressive results in a relatively short time frame, with the potential to increase their scale and scope over time, thus building confidence and belief in the broader circular economy agenda throughout FNQ,
- Companies said that a successful circular strategy requires more than formulating initiatives and then executing them efficiently. Practical implementation must be accompanied by far-reaching regional change,
- Industry commented that regular links with government are essential,
- Companies in FNQ cannot go it alone if the surrounding environment does not facilitate the circular economy,
- Participants know and understand that they must engage with policymakers, regulators, and government agencies to support the establishment of an ecosystem of suppliers and customers for the circular plastics recycling industry,
- Participants know that such an ecosystem will require companies put in place the right incentives and regulations based on government, and
- Policies and plans,
 - Institutional frameworks
 - Regulatory frameworks

BUSINESS CASE

- Fiscal frameworks
- Undertake more private sector outreach and public awareness
- Public procurement and asset management

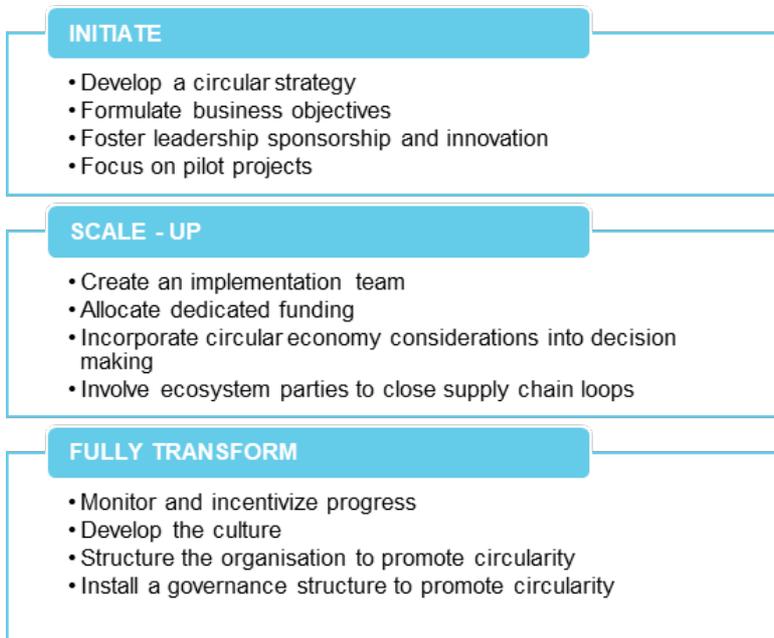


Figure 5.4: Market feedback received

5.3 Economic and financial assessment

The market presented the project team with a range of potential solutions, summarised in Figure 5.5 below.

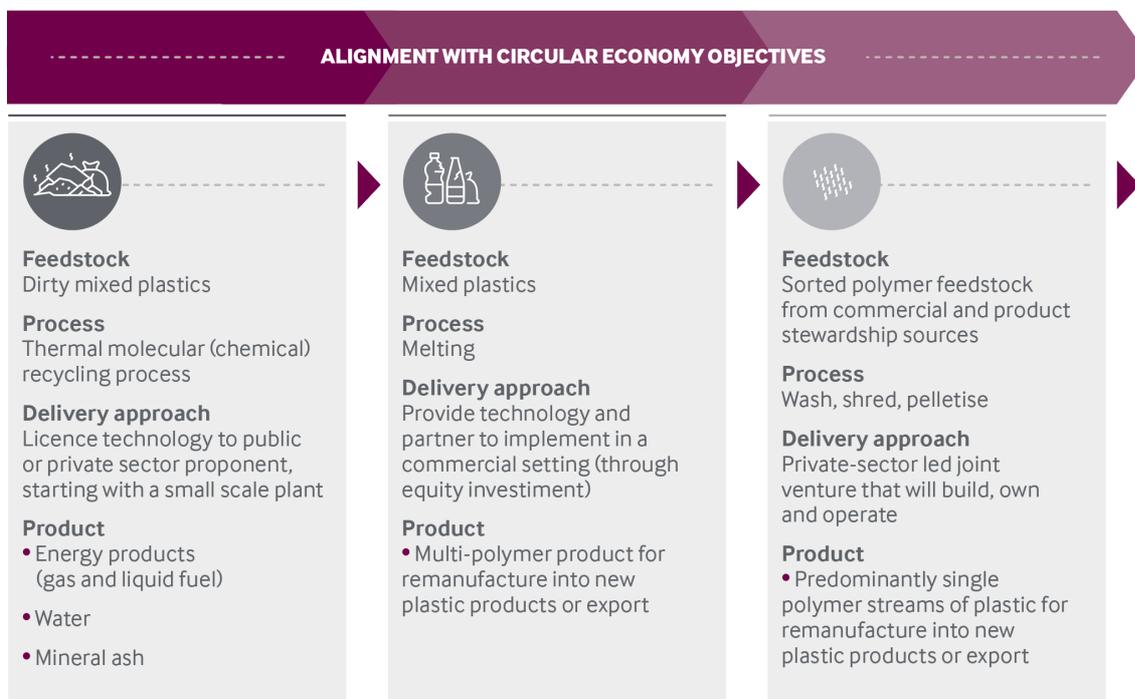


Figure 5.5: Diversity of market solutions

The results of the market sounding show that a wide variety of potential solutions for the region are possible and each is likely to present unique benefits, opportunities and risks.

Alignment of solutions with government strategy

Based on the government strategies outlined in Section 3, solutions that promote a more circular approach are more closely aligned with government objectives, all else equal. For example, solutions that utilise single-polymer streams of feedstock, and produce single-polymer recycled plastics, support a circular approach. By retaining the purity of the material, the plastic can be recycled multiple times.

By contrast, solutions that involve blending polymers or transforming the plastic into another product (e.g. energy) support less circular outcomes. Waste to Energy initiatives are also excluded from the RMF grant round. As such solutions closer to the right end of spectrum shown in Figure 5.5 are more likely to be viewed favourably, with waste-to-energy being explicitly stated as being ineligible for funding.

Other economic, environmental and social objectives

Other than the alignment with circular economy objectives, other common policy considerations for public funding support of private sector projects include:

- The ability of public sector funding to leverage a larger amount of private sector investment,
- The potential for job creation and economic stimulus,
- The environmental footprint of the project and likely compliance with planning frameworks,
- The resilience of the investment to market, environmental and policy risks, and
- Technical feasibility.

RPS did not assess the potential alignment of the market solutions against these considerations, but it should be noted that these are common considerations adopted by government.

Update to feasibility assessment

RPS used the information obtained from the market sounding to revise the assessment of economic and financial feasibility of the investment. The market sounding provided more detailed data on capital and operating costs, and the potential technical solutions that are likely to be feasible for the region.

The updated feasibility is based on the predominantly single-polymer to single-polymer model.¹⁵ Table 5.1 summarises the assumptions used in the updated feasibility assessment, which were informed by the market sounding. It should be noted that the assumptions are aggregated and rounded versions of the specific data provided to maintain commercial confidentiality.

It should also be noted that many of the assumptions used by the feasibility assessment are conservative, such as market values for plastic pellets, which are assumed to remain constant in real terms.

Table 5.1: Assumptions used in updated feasibility assessment

Feasibility assumptions updated using detailed market data on capital and operating costs		
Polymer production	Monthly volume	
PET	50 tonne per month	
HDPE	50 tonne per month	
LDPE	50 tonne per month	
PP	50 tonne per month	
Mixed pellets	50 tonne per month	
Capital cost item	Assumption	Comments
Construction equipment	\$1,100,000	Crane, vehicles etc.
Site costs	\$3,600,000	Land, buildings and on-site equipment
Plant and equipment	\$4,600,000	Recycling equipment
Manufacturing	\$2,100,000	Moulders and extruders
Staff, utilities and other overheads	\$2,500,000	Includes insurance and finance costs
Total capital cost	\$14,000,000 (approx.)	
Operating costs	Assumption	Comments
Total annual operating costs	\$1,000,000	Approximately 6-8% of capital costs

Note: The market sounding data has been aggregated and rounded to protect the confidentiality of the data provided

Based on the refined assumptions, the results of the updated feasibility assessment that a multi-polymer plant is likely to:

- Deliver a private sector investment return of 17%,¹⁶
- Provide a benefit-cost ratio to the community of 1.2, and
- Support direct employment of approximately 40 full-time equivalent (FTE) employees during construction (total employment of approximately 110 FTE including supply chain and wage effects).

¹⁵ The solution is mostly single-polymer to single-polymer but does include the production of mixed pellets from streams that contain excessive cross-contamination.

¹⁶ Assuming that the RMF funding provides for 50% of capital costs (i.e. capital costs funded 50% by the private sector and 50% by the public sector)

6 SUMMARY OF OPPORTUNITY

The updated economic and financial assessment, incorporating the information obtained through market sounding, confirms the initial feasibility results of the potential benefits and attractiveness of a plastics recycling investment in FNQ.

The market sounding showed that there are diverse market offerings that align with the opportunity. These solutions align with government objectives, and circular economy objectives, to different degrees and in different ways. Government objectives would need to be considered by potential project proponents when seeking to apply for any government funding support, such as funding through the QRMF.

Consistent with its mandate to support and develop the regional economy, RDATN has the potential to play a beneficial role in supporting the development of a plastics recycling project. The development of a recycling facility would attract investment to the region, create jobs and economic activity during construction, and contribute to ongoing economic activity when operational.

Importantly, the development of a facility would help catalyse the circular economy in the region, providing a range of triple-bottom line benefits. RDATN can support the development to deliver better outcomes for the region by developing a strategy that assists a proponent to understand:

- The regional economic profile
- The businesses that consume and use the targeted plastics, and
- Other aspects required for a successful implementation (e.g. a suitable labour force, supply chain businesses etc.).

It is proposed that this would be delivered by RDATN developing a **Circular Economy Strategy**, which is outlined Section 7.

IMPLEMENTATION



7 ACTIONS REQUIRED TO SUPPORT INVESTMENT

The market sounding reported that confidence on feedstock supply, end-markets and government policy are key considerations for investment. RDATN can play an active role providing this confidence through the development of a **Circular Economy Strategy**.

The Circular Economy Strategy would:

- Outline the region's vision for a circular economy in the region,
- Include a policy position and action plan for plastics, as a material that is a key focus for local, state and federal governments,
- Further identify and profile businesses that have the potential to contribute to a circular economy, including users and producers of plastics and plastic products, and
- Involve stakeholder engagement with businesses and member councils to inform the above.

The aim of the strategy will be to provide a clear policy position to potential private sector proponents in support of the development. The strategy will also provide an opportunity to RDATN to work in partnership with a proponent and shape the development in a way that delivers both commercial and community returns.

The strategy will also stress the importance of a circular economy in meeting goals relating to the protection of the environment, including preventing plastic leakage into the ocean and impacts on the Great Barrier Reef.

8 KEY MILESTONES

Table 8.1 provides a summary of the Project's projected milestone dates. These would be refined as the Project progresses.

Table 8.1: Projected Project milestones

Milestone	Projected date
Delivery of regional recycling opportunity report (business case) to the market	Mid 2021
Proponent contacting RDATN to seek support of the Project	Mid 2021
Funding application with letter of support from RDATN issued to the QRMF	Mid 2021
Grant agreement signed by the Proponent and QRMF	Early 2022
Detailed design	Early 2022 – Late 2022
Planning approvals and environmental assessment	Early 2022 – Late 2022
Construction and commissioning	Early 2023 – Mid 2023
Commencement of operations	Mid 2023

9 PROJECT DELIVERY

Figure 9.1 summarises the anticipated delivery arrangements for the Project, illustrating the collaboration between the RDATN and the Proponent that would be required to support delivery of the facility.

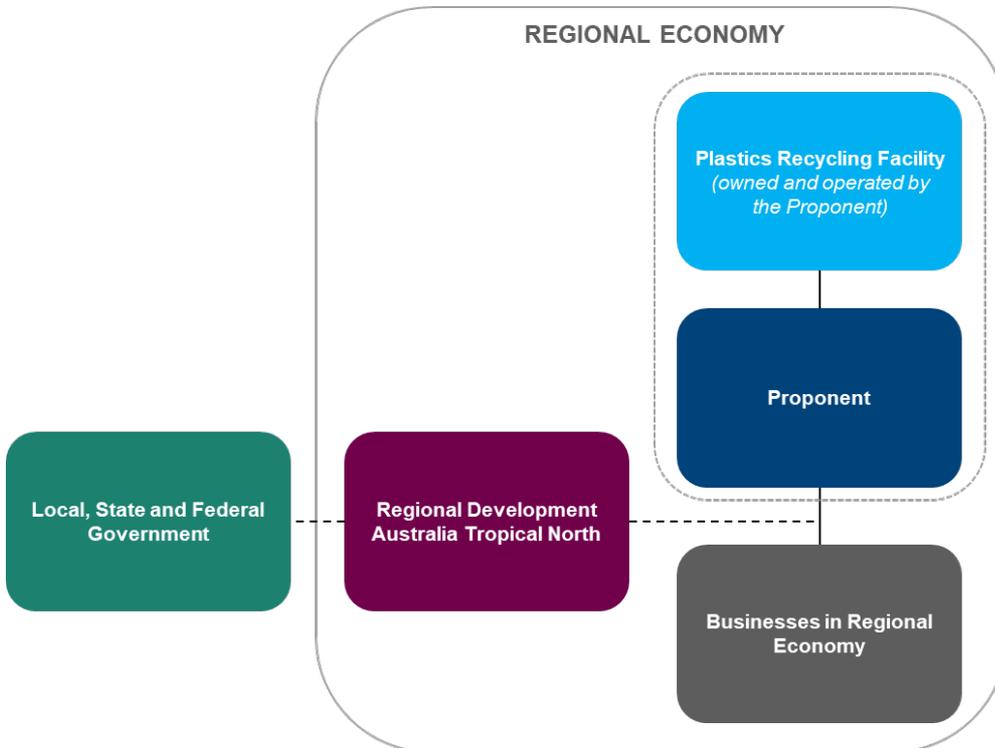


Figure 9.1: Project delivery framework

Table 9.1 details the respective roles and responsibilities of each group.

As shown, the RDATN would support the Proponent by delivering a Circular Economy Strategy for FNQ, providing project management services and facilitate stakeholder engagement activities during the planning phase. These actions would enable the Proponent to establish the resource flows (or circular opportunities) through gaining an appreciation of the regional economy and businesses that operate within it. This would support development of an optimal commercial strategy benefiting both the Proponent (or investors) and the regional economy.

To undertake the activities described, it is anticipated that RDATN would need to commit approximately 1.5 full-time equivalent (FTE) employees at the expense of the Project.

Table 9.1: Roles and responsibilities

Name	Key role description
Proponent	<ul style="list-style-type: none"> Fund and finance the Project (noting that some of the funding would be received from the QRMF) Design, build and operate the facility
RDATN	<ul style="list-style-type: none"> Provide a letter of support for the Project Develop a Circular Economy Strategy for FNQ (0.5 x FTE) Provide project management services and facilitate stakeholder engagement activities (1 x FTE)

10 RISK MANAGEMENT

Risk management is the identification, assessment, treatment, assurance, monitoring and reporting of all potential risks that could materially impact upon the stated objectives of the Project. Management of risk reduces uncertainty, maximises opportunities and better prepares the organisation to respond to crises.

Specific risks associated with the development, delivery and operation of the Project are identified in Table 10.1.

Table 10.1: Key Project risks

Category	Risk statement
Policy	Changes to government policy during the development and delivery phases reducing the Project's need and strategic alignment.
Market	The market value of output products from the facility decreasing leading to reduced revenue and financial returns for investors.
Stakeholder	Insufficient stakeholder engagement (i.e. with the local community relevant government agencies) during the development process leading to a lack of support for the Project.
Approvals	Gaining approval for the facility takes longer than anticipated leading to program and cost implications.
Delivery	The delivery strategy does not align with market expectations reducing private industry interest in supporting the Project.

A potential mitigation measure to address market risk is ensuring that there is flexibility and resilience in the markets where the plastic product would be sold (e.g. establishing several end-markets that exist locally, intrastate, interstate and internationally).

However, successful risk management requires perpetual identification, review and management by a committed and focused project team. Accordingly, future phases would involve a detailed review of all key risks and opportunities relevant to the Project, including the development of appropriate mitigation measures where necessary.

11 NEXT STEPS

Proponents are invited to investigate and develop investment plans that align with the opportunity presented in this business case. Based on the investigations conducted for the preparation of this business case, the proposed next steps are for:

- A private sector proponent to develop a more detailed commercial feasibility assessment,
- The proponent to obtain funding for the project from appropriate private and public funding sources, including the QRMF if appropriate, with the express support of RDATN,
- RDATN to develop a Circular Economy Strategy, and
- The development of regional recycling capacity once funding is secured.

RDATN would be happy to discuss this opportunity further with qualified and interested parties.