FNQROC Regional Resource Recovery Plan

Plan Summary

APRIL 2023


Mareeba Shire Council © Tourism Tropical North Queensland

Foreword

Mayor Michael Kerr
FNQROC Chair

The Regional Resource Recovery Plan is a vital document that will guide our region as we work towards Queensland Government's resource recovery targets. It provides a comprehensive set of actions that will enable us to work collaboratively to manage our resource recovery effectively and efficiently, while reducing the impact of waste on the environment. It also defines a roadmap for harnessing new technologies and innovations that support responsible waste management practices.

Through this plan, our region can capture the value that exists in our waste streams, create new economies, and move towards a more sustainable future for all. Our goal is to reduce the amount of waste sent to landfills and promote the recycling and re-use of resources.

I would like to thank all stakeholders who have contributed to the development of this plan and urge everyone to support the implementation of this vital initiative for the benefit of our region's future generations.

Mayor Angela Toppin
FNQROC RRR Advisory Committee Chair

It is with great pleasure that I introduce to you the comprehensive Regional Resource Recovery Plan for Far North Queensland.

This plan is aimed at addressing the growing concern of waste management in our region. It intends to provide a framework that will lead to improved resource recovery, minimising waste generation, and the creation of a circular economy that will benefit both the environment and the region. It is a culmination of the efforts of various stakeholders, including state and local government, waste experts, and industry players who have contributed their expertise and knowledge to this project.

It has been a pleasure to be involved in the development of this comprehensive Regional Resource Recovery plan. This plan provides FNQROC councils with the opportunity to transform resource recovery in our region, whilst identifying the support needed for councils to respond to the challenges they face.

I am excited about the opportunities that the implementation of this plan will bring to the region.

Mayor Ross Andrews
Mayor Yarrabah Aboriginal Shire Council

Indigenous peoples have been living in this country for millennia and cared for the natural environment, including our plants and animal species. These are significant to our heritage of who we are and where we come from. Our totemic kinship and its affiliation are embedded into our spiritual beliefs. Our mountains, river systems, oceans, mangroves, lands, and our skies are all significant to our ancient storyline.

Whilst our ancestral ties to Mother Nature remains intact, we also walk in two worlds of caring for country. Our greatest challenge is to be agile in our thinking and be courageous in our efforts of looking after it.

Cultural heritage remains high on the agenda for our indigenous peoples, however finding the right balance of economic prosperity, standard of living and our rightful place of looking after these ancient lands will be a challenge into the future.

Therefore, traditional custodians and our local governments must work in partnership in minimising more damage to our environment and natural assets.

As first custodians and discrete indigenous local government communities, we are mindful of modernisation and the impact of combining forward thinking whilst caring for country. We need to ensure governments and various sectors acknowledge that our country depends on a sustainable environmental management strategy that is complementary to First Nations cultural heritage.

Glossary

Cairns Regional Council (CRC)

Cassowary Coast Regional Council (CCRC)

Cook Shire Council (CSC)

Croydon Shire Council (CrSC)

Douglas Shire Council (DSC)

Etheridge Shire Council (ESC)

Hope Vale Aboriginal Shire Council (HVASC)

Mareeba Shire Council (MSC)

Tablelands Regional Council (TRC)

Wujal Wujal Aboriginal Shire Council (WWASC)

Yarrabah Aboriginal Shire Council (YASC)

Executive summary

The Far North Queensland Regional Organisation of Councils (FNQROC) has developed a Regional Resource Recovery Plan (RRR Plan) that presents a series of actions to collaboratively deliver resource recovery outcomes and provide positive impact across its 11 council areas. Together, these councils represented by FNQROC, have committed to sharing and cooperating to minimise waste and maximise resilient and effective resource recovery systems for FNQ.

The Far North Queensland (FNQ) region covered by the RRR Plan spans approx. 250,000km^2 with each of the 11 councils comprising diverse communities, natural environments, geographical areas, and primary industries, with varying drivers and capacities when it comes to waste and resource management. The RRR Plan aims to address this diversity in supplying outcomes for each individual council and the region as a whole.

In 2019, the Queensland Government released the Queensland Waste Management and Resource Recovery Strategy. The Strategy focuses on a transition to a zero-waste society by harnessing the value of resources, supported by the waste hierarchy and circular economy principles, with 2030 and 2050 targets for municipal solid waste (MSW) replicated below:

Year	Waste diversion from landfill	Recycling rate	Household waste reduction
2030	70%	60%	15%
2050	95%	70%	25%

The resource recovery sector in FNQ is facing a range of challenges, driven by changing policy, large transport distances, low economies of scale, lack of local markets, community behaviours and capacity to pay, and lack of infrastructure or aging assets.

These challenges result in decreased participation in recycling, low resource recovery rates, and increased volume of waste to landfill. Without support and planning the region has low capacity to meet the State strategy targets and improve regional resource recovery outcomes.

The RRR Plan sets out eight key actions which have been developed with the aim to improve economics of resource recovery operations, encourage economic development, meet or move toward State targets and improve environmental and social outcomes for the region. Development of these eight key actions took into consideration the current issues, capacity and needs of each council and set out an implementation pathway of initiatives. The eight key actions are summarised below:

Action 1
Step-change in customer engagement

Action 2
Optimise regional servicing arrangements

Action 3
New transfer station facilities and closure of facilities with regulatory or environmental issues

Action 4
Enhance kerbside collection approach

Action 5
Maximise diversion of organic waste from landfill

Action 6
Optimise regional network of resource recovery facilities

Action 7
Develop centralised resource recovery precinct

Action 8
Develop alternatives to landfill for residual waste

These eight actions work together to provide improved regional resource recovery, economic viability and development outcomes for FNQ. The potential environmental, social and economic benefits associated with roll out of the RRR Plan actions include:

Year	Total Cost (PV)	Total Benefits (PV)	Direct Jobs*	MSW Landfill Diversion Rate	Avoided Carbon
2030	$143.6 million	Up to $32.2 million	46.5	54%	279,500 tCO_2e
2050	$246.6 million	Up to $126.5 million	46.5	87%	1.8+ million tCO_2e

*direct jobs does not include jobs created through construction or associated works.

RRR Plan implementation roadmap

Legend

- **Action 1** Step-change in customer engagement
- **Action 2** Optimise regional servicing arrangements
- **Action 3** New transfer station facilities and closure of facilities with regulatory or environmental issues
- **Action 4** Enhance kerbside collection approach
- **Action 5** Maximise diversion of organic waste from landfill
- **Action 6** Optimise regional network of resource recovery facilities
- **Action 7** Develop centralised resource recovery precinct
- **Action 8** Develop alternatives to landfill for residual waste

BASELINE WASTE DATA

2020

2022

YOU ARE HERE
Implement FNQROC *Regional Resource Recovery Plan*

2024

- Develop ***Regional Education and Marketing Strategy.***
- Develop ***Regional Servicing Strategy.***
- Construction of **4 Small Transfer Stations** for **ESC, HVASC, WWASC,** and **YASC**.
- Implement **Comingled Recycling Collection** for **CCRC.**
- Regional assessment of reliance on **single privately-owned landfill facility.**

2026

- Employ **4 x FTE Regional Educational and Data Management Officers.**
- Employ **15.5 x FTE Local Engagement and Data Resourcing Officers** collectively across all councils.
- Roll out ***Customer Engagement and Behavioural Change Program.***
- Employ **0.5 x FTE Regional Coordination Officer.**
- Regional Processing and Collection of **Tyres, Concrete Crushing** and **Green Waste Mulching.**
- Develop regional ***Procurement Strategy***.
- Construction of **Large Transfer Station** for **CRC** and **Medium Transfer Station** for **CSC**.
- Consider Sub-regional kerbside collection contract for **Groups 1, 2** and **YASC**.
- **Transfer Station Upgrade** for **CrSC** and construction of **Small Transfer Station** for **ESC**.
- Construction of **Regional Organics Processing Facility** in Cairns. Roll out of **FOGO Collection** for **CRC.**

2028

- Construction of **2 x Small Transfer Stations** for **ESC**.
- Implement **Comingled Recycling Collection** for **MSC**.
- Enhance and optimise **CRS capture** for **CSC, CrSC, ESC, HVASC, WWASC** and **YASC**.
- Roll out of **FOGO Collection** for **DSC, TRC, MSC,** and **CCRC**.
- Incentivise **Home Composting** and **free green waste disposal** for **CSC, CrSC, ESC, HVASC, WWASC** and **YASC**.

2030

- Implement **Comingled Recycling Collection** for **CSC.**
- Reduction in Self-Haul through **Transfer Station optimisation**.
- Recovery of items on **Minister's Priority List.**
- Regional review and gap analysis to identify **Residual Waste Management risks and opportunities.**
- Regional Governing Body to monitor opportunities for **Multi-Sector** and **Inter-Regional Collaboration**.

2035

- Regional review and gap analysis for **Regional Hub and Spoke Model** and **Increased Processing Capacity.**
- Regional Governing Body to monitor delivery of RRR Plan to **optimise opportunities for RR and Infrastructure Development.**
- Assess feasibility of **Centralised Precinct**.
- Final **Feedstock Consolidation** point in **Cairns.**
- Consider viability for **EfW Facility** in **CRC.**
- Optimise **management** of **existing landfill capacity**.

2040

- Potential for roll out of **'Transform' Precinct in Cairns** and **'Prepare' Precinct** in **Mareeba**.

2045

2050

Introduction

Resource recovery in Far North Queensland (FNQ) is at a crossroads. FNQ has the opportunity to move toward the Queensland Government's resource recovery targets and capitalise on the significant opportunities to enhance the regional economy, community, national parks and broader environment.

Note: Hinchinbrook Shire Council is a member of FNQROC but is excluded from the FNQROC RRR Plan as it is included in the North Queensland Regional Waste Management Plan.

The FNQ region is home to pristine natural landscapes, including the Great Barrier Reef and the Daintree Rainforest – both recognised world heritage sites. These internationally significant areas are vital to the FNQ community and national economy. It is therefore important that resource recovery initiatives enhance and support the local environment and industries. However, viability of these outcomes is impacted by a range of factors including vast transport distances, vulnerable transport routes, low economies of scale, lack of local secondary markets, tourism impacts and aging infrastructure. Without planning and support the region may not be able to realise these resource recovery opportunities.

In response, the Far North Queensland Regional Organisation of Councils (FNQROC) has developed a Regional Resource Recovery Plan (RRR Plan) that presents a series of actions to collaboratively deliver resource recovery outcomes and provide positive impact across its 11 council areas. Together, these councils represented by FNQROC, have committed to sharing and cooperating to minimise waste and maximise resilient and effective resource recovery systems for FNQ.

The FNQ region covered by the RRR Plan spans approximately 250,000km^2 with each of the 11 councils comprising diverse communities, natural environments, geographical areas, and primary industries, with varying drivers and capacities when it comes to waste and resource management. It is therefore critical that resource recovery initiatives in this RRR Plan represent the needs of these diverse councils and for the region as a whole.

The RRR Plan sets out for the region a series of coordinated actions required to improve regional resource recovery, through investment in infrastructure and non-infrastructure solutions in FNQ.

In 2019, the Queensland Government released the Queensland Waste Management and Resource Recovery Strategy, which focused on a transition to a zero-waste society by harnessing the value of resources, supported by the waste hierarchy and circular economy principles. The waste and resource management hierarchy is shown in Figure 1.

To support the State's vision of transiting to a zero-waste society, stretch targets are outlined in the strategy for municipal solid waste (MSW), commercial and industrial (C&I) and construction and demolition (C&D) waste streams. For councils within FNQROC to meet these targets, regional MSW diverted from landfill will need to increase from the current 52% to 70% in 2030 and 95% in 2050 (Figure 2).

25% reduction
in household waste generation by 2050*

* target from the QLD Government 2019 Waste Management & Resource Recovery Strategy

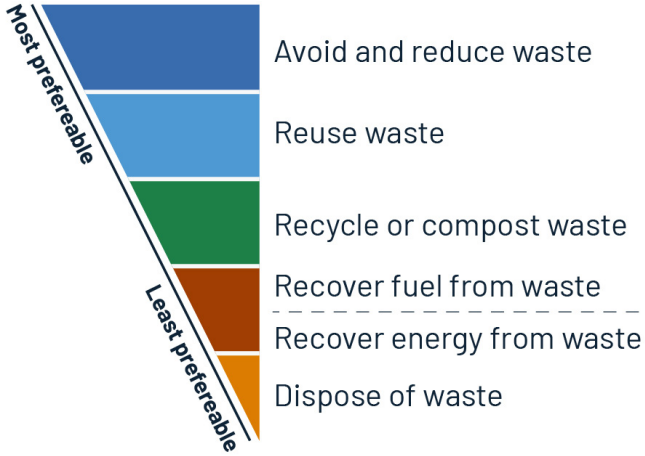


Figure 1: Waste and resource management hierarchy

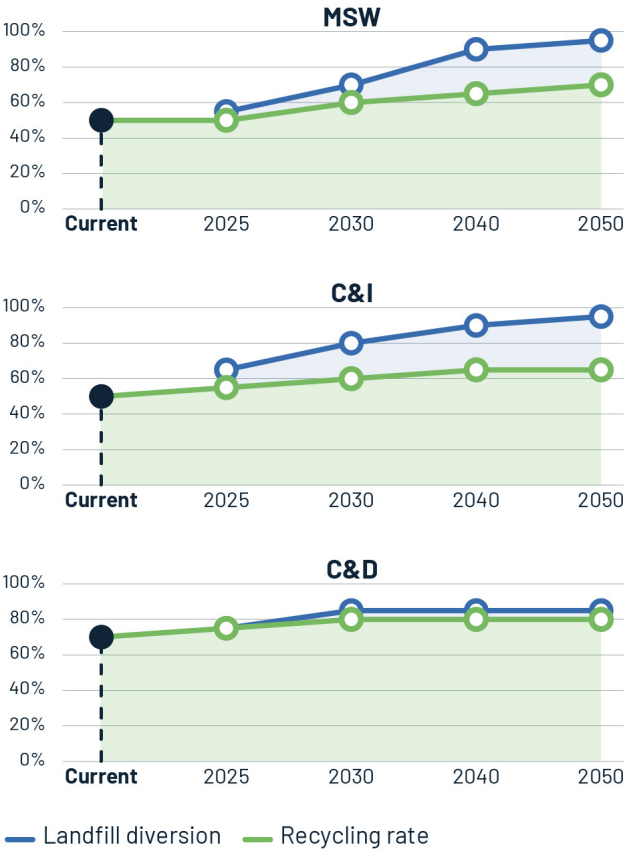
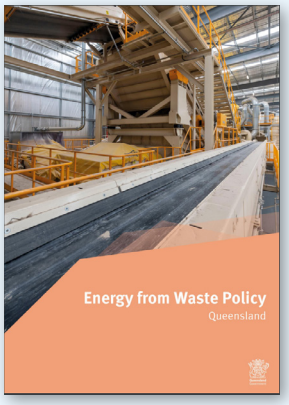


Figure 2: State targets and current FNQ recovery rates for MSW, C&I and C&D

Queensland has seen recent resource recovery policy reforms, including bans on single use plastics, uptake of product stewardship schemes, such as the Container Refund Scheme, and implementation of both an Organics Strategy and Energy from Waste Policy, however, more support and certainty from State government is needed to realise the full benefits of these reforms.

This RRR Plan has been developed in conjunction with the supporting documentation outlined below.

Supporting documents



Federal targets

The National Waste Policy and Action Plan federal targets include a 10% waste reduction per person by 2030, improving resource recovery to 80% by 2030, enabling reuse of recycled material, and building secondary markets. These targets aim to support improved resource recovery at a national level.

The Australian Government has integrated key principles to enable a transition to a circular economy, including improvements to material flows to benefit human health, the environment and economy, and information to support innovation, guide investment and enable informed consumer decisions. Bans on waste exports commenced in 2020, along with national targets to phase out problematic and unnecessary plastic by 2025 and halve organic waste to landfill by 2030.

Funding

The State government announced a $2.1 billion waste investment package in December 2021, with $1.1 billion allocated to a Recycling and Jobs Fund to be delivered over the next 10 years. This $1.1 billion fund is to support increased household recycling, new resource recovery infrastructure and more industry jobs. MSW annual payments for councils are included in the additional $1 billion package to offset the cost of the waste disposal levy.

The councils of FNQ need continued funding and regulatory support from the State and Federal government to improve resource recovery in the region and move toward key targets.

This RRR Plan represents the first stage of collaborative waste and resource recovery planning for the region in working towards these targets, whilst achieving the wider benefits of resource recovery. Following from this RRR Plan, further feasibility studies and business cases need to be developed for priority projects to ensure effective investment decisions. This would include more detailed cost assessments to inform a staged investment process for these vastly important initiatives for the region.

The problem

The resource recovery sector in FNQ is facing a range of challenges, driven by changing policy, large transport distances, community behaviours and capacity to pay, and lack of infrastructure or aging assets.

A low understanding about the urgency to reduce and effectively manage waste as a valued resource results in:

- decreased participation in recycling,
- low resource recovery rates, and
- increased volume of waste to landfill.

Further, global influence and disruption, fast changing or uncertainty in regulation, and regional complexity impacts the life of resource recovery assets and rate of return on investments. This increases in adverse impacts to the environment, operating costs to council, carbon emissions and lost opportunities for enhancement of resource recovery.

Policy changes creates a significant driver for councils to establish resilience in their resource recovery networks. For example, the reduction of local government annual repayments for the waste disposal levy, which are set to be reduced annually from 105% to 20% in 2030 for Cairns Regional Council and from 105% to 100% for other councils in the Regional Levy Zone, commencing 2023/24 FY. The impact of the landfill levy and reduced annual payments for councils present a significant financial impact and incentive to increase diversion of waste from landfill. A review on levy policy is scheduled for 2025, which may see ongoing changes to the levy rates and annual payments for councils within the region.

The current state

The FNQ region is home to a population of approximately 280,000 residents, who generate approximately 205,000 tonnes of waste annually, handled through council's facilities. It is estimated an additional 115,000 tonnes of C&I and C&D waste is generated annually within the Cairns region and handled by private facilities. This increases the total annual regional waste generation from 205,000 tonnes to 320,000 tonnes. The current recovery and disposal of materials handled by council facilities is outlined below in Figure 3.

Future waste generation

It is expected that population in the FNQ region will reach approximately 390,000 by 2050, with a growing population directly linked to growth in MSW generation. Between 2021 and 2050 waste generation is expected to increase be 28% for MSW, 43% for C&I and 45% for C&D respectively under a business-as-usual scenario (if no progress towards targets is undertaken). This accounts for approximately 100,000 tonnes of additional material annually that could be generated in the region by 2050 (Figure 4).

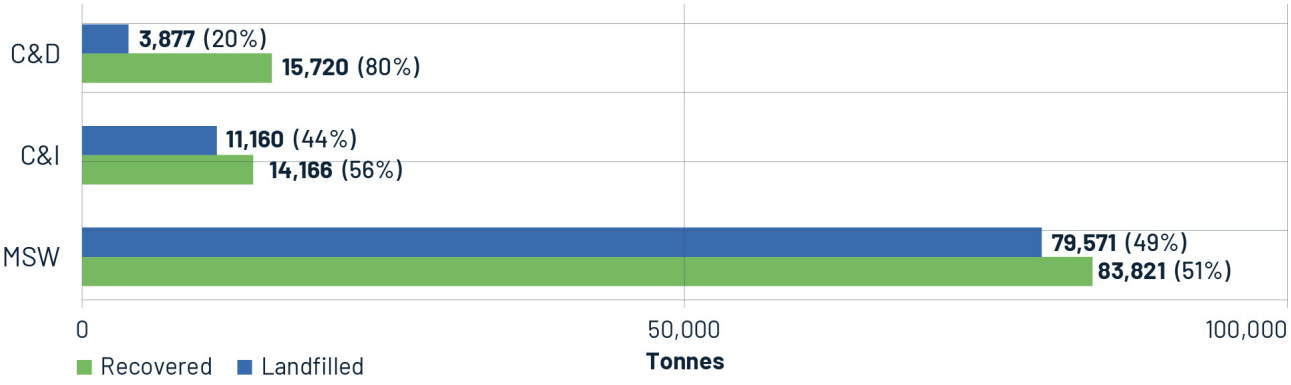


Figure 3: Current FNQ council waste recovery and disposal rates

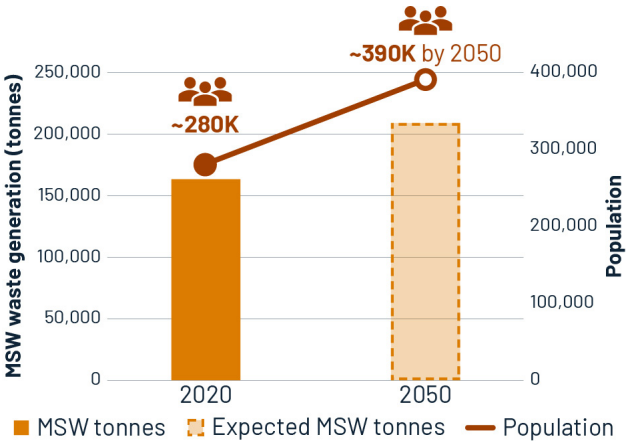


Figure 4: MSW waste generation increase with population to 2050

If there are not adequate resource recovery systems and processes in place, and an engaged community ready to support these systems, increasing volumes of waste will put further strain on council infrastructure and contribute to landfill disposal. To avoid the environmental, financial, and social impacts of increased waste generation, urgent action and change to current waste behaviour and recycling practices is needed.

Waste infrastructure

The key waste streams are handled by a range of council assets in FNQ, distributed throughout the region, including landfills, transfer stations and resource recovery facilities. The distribution of these assets across the region is shown in Figure 5.

Much of the existing waste infrastructure is designed to facilitate residual waste disposal rather than maximise resource recovery and as such is not well positioned to respond to a circular economy approach to resource management. Key parts of the network in each council will require upgrade or replacement to fulfil future resource recovery needs, supported by roll out of non-infrastructure initiatives.

Although some councils still operate a local landfill facility, many councils have recently closed council-owned landfills and rely primarily on the privately operated Springmount Waste Management Facility in Mareeba for the disposal of residual waste. The reliance on a private facility, with no regional competition to manage gate fee rises, compounded with the predicted increase of the landfill levy, poses a risk for many councils in the region.

While landfill capacity in the region is understood to not be an imminent risk, the need for resilience and for other avenues for residual waste management is a key focus point for FNQ. Without effective resource recovery, councils will face increased volumes of MSW to landfill, making councils very susceptible to rising cost impacts for residual waste disposal.

The Advanced Resource Recovery Facility (ARRF, also referred to as the 'Bedminster' facility) located in Cairns is due to close in 2026. The Bedminster facility currently receives MSW general waste from Douglas Shire Council, Mareeba Shire Council and Cairns Regional Council. This facility currently provides good resource recovery rates and if a replacement facility is not operational by 2026, residual waste from those councils who use the Bedminster facility will end up in landfill, posing a significant impact on resource recovery rates for the region (Figure 6).

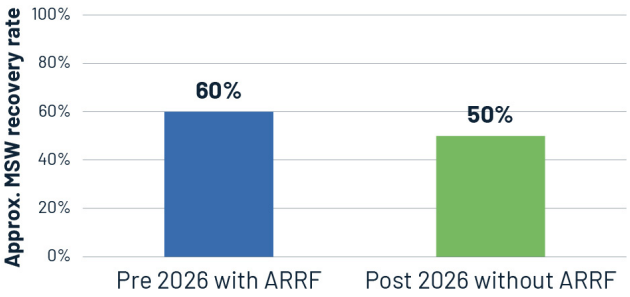


Figure 6: Regional MSW recovery rate (post ARRF without resource recovery intervention)

Cairns Regional Council have recently upgraded their Materials Recovery Facility which is currently utilised by a number of councils in the region. This facility operates at approximately 50% capacity and has the potential to accept increased volumes of material.

Of the 11 councils, only Cairns Regional Council, Douglas Shire Council and Tablelands Regional Council provide a recycling bin for kerbside collection. No councils currently offer a green waste collection bin.

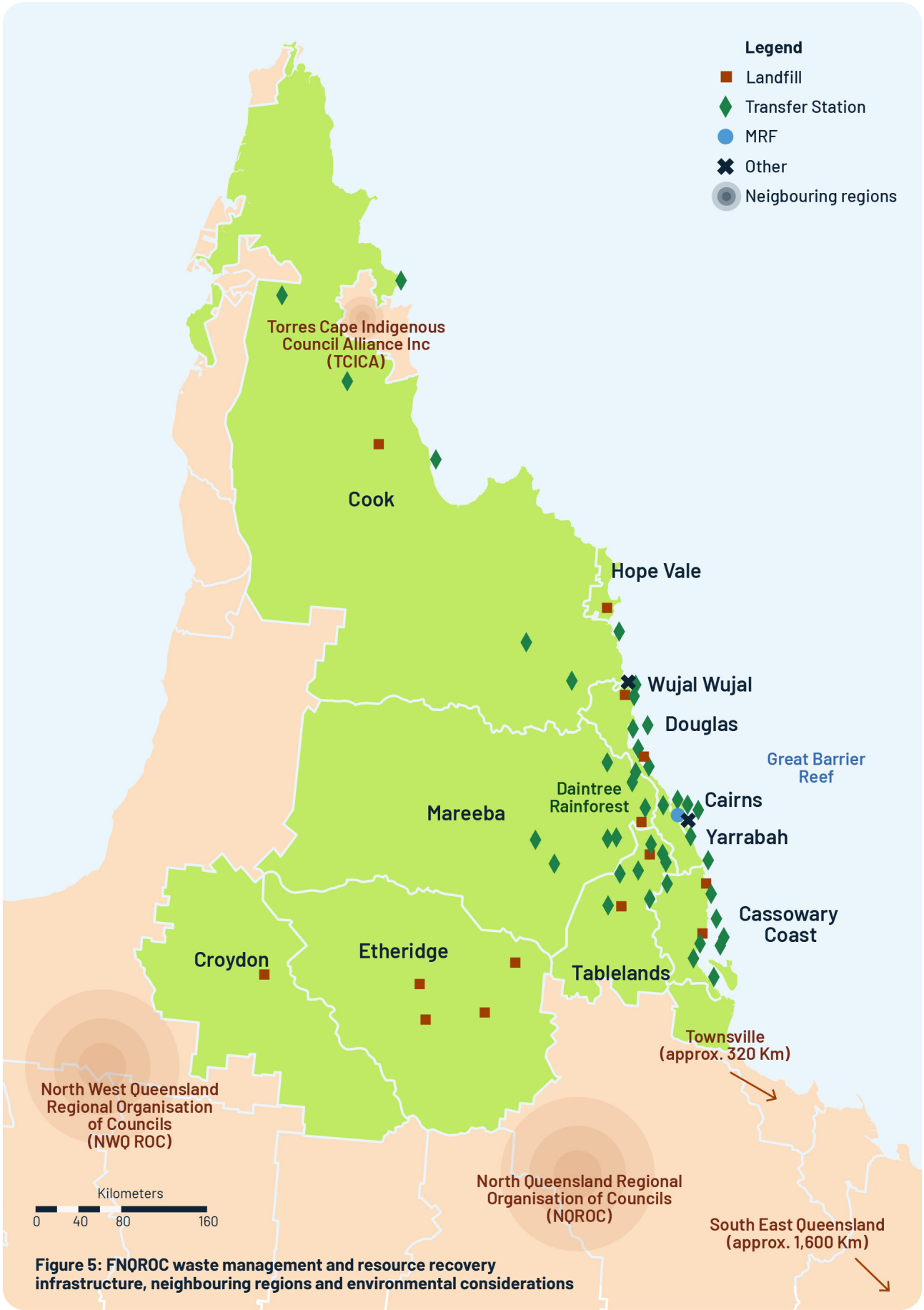


Figure 5: FNQROC waste management and resource recovery infrastructure, neighbouring regions and environmental considerations

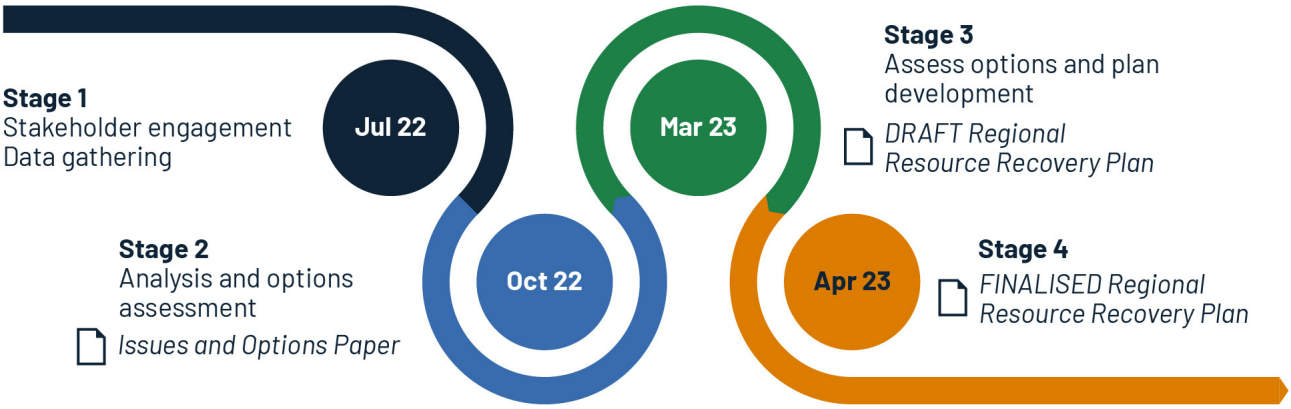
Opportunities and challenges

Transforming resource recovery systems and assets across FNQ presents many opportunities for enhancing the region. To realise this transformation a range of challenges presented across political, infrastructure, economic, social, and environmental aspects will need to be considered, as set out below:

Opportunities
Attracting new secondary industries
Increased investment in the region
Creating local jobs
Increased reputation of FNQ
Increased rate of return on investments
Protecting reef and rainforest
Enhancing environmental values
Increased system productivity and efficiency, resulting in reduced cost to councils
Incorporate First Nations participation and knowledge on caring for country into resource recovery activities
Enhanced tourism and destination reputation
Create an engaged and empowered community
Support communities and environmental health through resource recovery and education programs
Increased land, water and air quality
Decreased risks to environment through disposal of contaminated material and/or infrastructure failure
Decreased greenhouse gas emissions from waste operations and disposal
Decreased reliance on landfills
Increased resource recovery rates
Reduced carbon emissions (for example through more efficient operations and reduced transport)

Challenges
High variability in population density from 100.3 persons per km^2 in Cairns Regional Council and 0.02 persons per km^2 in Etheridge Shire Council
Low waste generation and economies of scale for waste transportation
Long transport distances within LGA and to markets and processing infrastructure
Suitable transport routes (e.g., in particular the Kuranda range) and vulnerable routes that can be impacted by the wet season
Lack of local secondary markets, with most product needing to be transported to SEQ
Low community engagement with respect to waste management
Lack of ability or willingness from community to pay for waste services
Inconsistent data capture and reporting, limited capacity and issues with data accuracy
Aging assets nearing end of life and designed for waste disposal rather than resource recovery purposes
Increasing waste disposal levy, and reduction in annual payments for local government
Increasing landfill gate fees
Regulatory changes and uncertainty, including emerging contaminants, landfill bans and infrastructure approval processes
Potential cost impact to ratepayers if burden of resource recovery initiatives is passed on to residents
Tourism generated waste in national parks left for councils to manage at their own cost

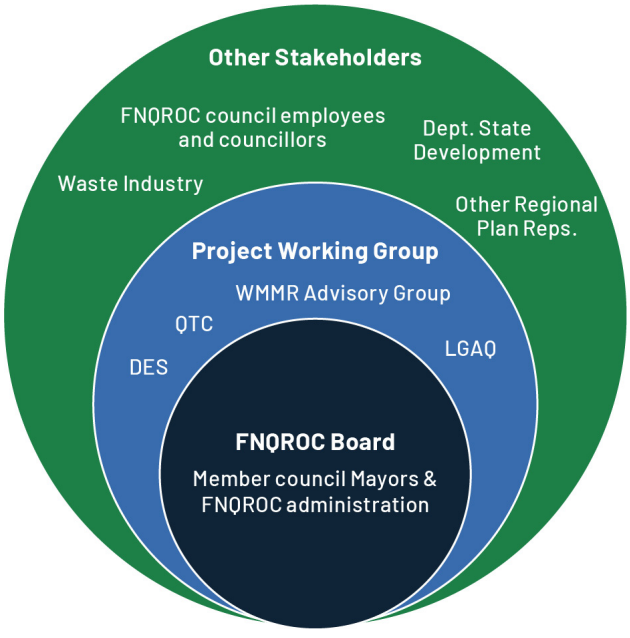
Our response



The RRR Plan has been developed through extensive engagement with all 11 councils, including data collation, face to face stakeholder interviews and site visits. Any information gaps have been informed by local government survey data provided by the Department of Environment and Science (DES) and other publicly available reports.

Stakeholder engagement discussions highlighted the unique challenges currently faced by FNQ hindering current resource recovery practices and emphasised the importance of State and Federal funding and regulatory support in tackling these issues, enhancing current systems and moving toward key targets.

The RRR Plan has been guided by the FNQROC Working Group, comprising representation from the FNQROC Waste Management and Materials Recovery Framework Advisory Group, Queensland Treasury Corporation, Local Government Association of Queensland and the Department of Environment and Science, and endorsed by the FNQROC board.



The process undertaken to develop the RRR Plan is outlined within the RRR Plan Technical Document (Arup, March 2023). A brief summary of this process and key outputs is provided below:

Sub-regional grouping

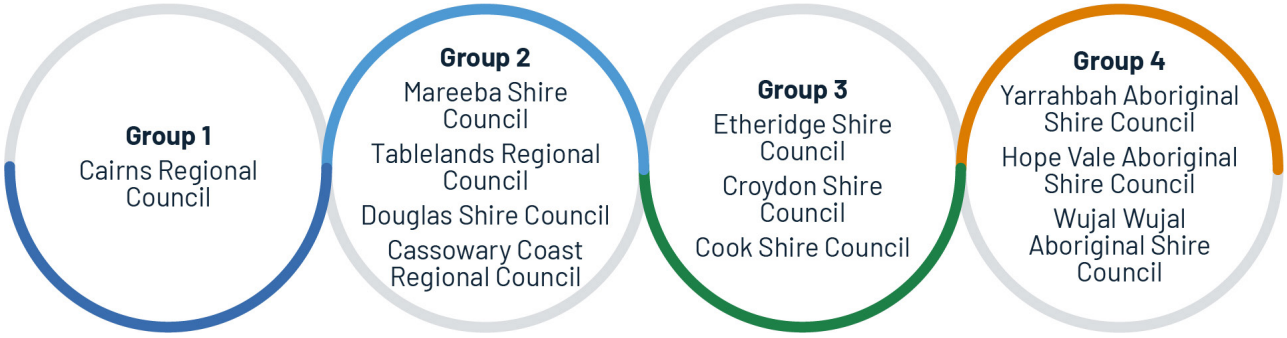
The RRR Plan recognises that it is essential to provide implementation strategies that are fit for purpose and fit for place. The guiding principle of the RRR Plan is to holistically assess key benefits for both the region and each individual council, without imposing constraints on individual councils who may not have the capacity to meet the proposed outcomes.

To support this principle, a sub-regional grouping approach has been undertaken for implementation of actions under the RRR Plan. Groupings highlight councils on a similar trajectory with respect to roll out of actions, however, do not limit collaboration between groups, regionally or collaboration with external councils.

The sub-regional groups are formed based on the following key criteria:

- Landfill levy liability zoning,
- Size of local government area,
- Waste volumes/population, and
- Influence by other policies and plans (for example Respecting Country, A sustainable waste strategy for First Nation Communities)

By including First Nations participation and perspectives on caring for country into resource recovery practises, there are opportunities for protecting the environment and strengthening First Nations Peoples connection to country.



Actions overview

The RRR Plan sets out eight key actions to address the ranging priorities, issues and opportunities identified across the 11 councils within FNQ. The implementation initiatives and timing for each action are impacted by drivers and influences within and outside the region, including:

- National and State policy, bans, strategy outcomes and targets,
- Local issues or risks, including geographical challenges, gaps in market, capacity, or skills, and
- Local changes to infrastructure, resourcing, and capability.

The eight key actions are:

Action 1
Step-change in customer engagement

Action 2
Optimise regional servicing arrangements

Action 3
New transfer station facilities and closure of facilities with regulatory or environmental issues

Action 4
Enhance kerbside collection approach

Action 5
Maximise diversion of organic waste from landfill

Action 6
Optimise regional network of resource recovery facilities

Action 7
Develop centralised resource recovery precinct

Action 8
Develop alternatives to landfill for residual waste

Impacts and Benefits

These eight key actions work together to provide improved regional resource recovery, economic viability, and development outcomes for FNQ. The potential environmental, social, and economic benefits associated with roll out of the eight RRR Plan actions include:

Year	Total Cost (PV)	Total Benefits (PV)	Direct Jobs*	MSW Landfill Diversion Rate	Avoided Carbon
2030	$143.6 million	Up to $32.2 million	46.5	54%	279,500 tCO_2e
2050	$246.6 million	Up to $126.5 million	46.5	87%	1.8+ million tCO_2e

*direct jobs does not include jobs created through construction or associated works.

The impact to regional landfill diversion rates against the State targets is provided in Figure 7:

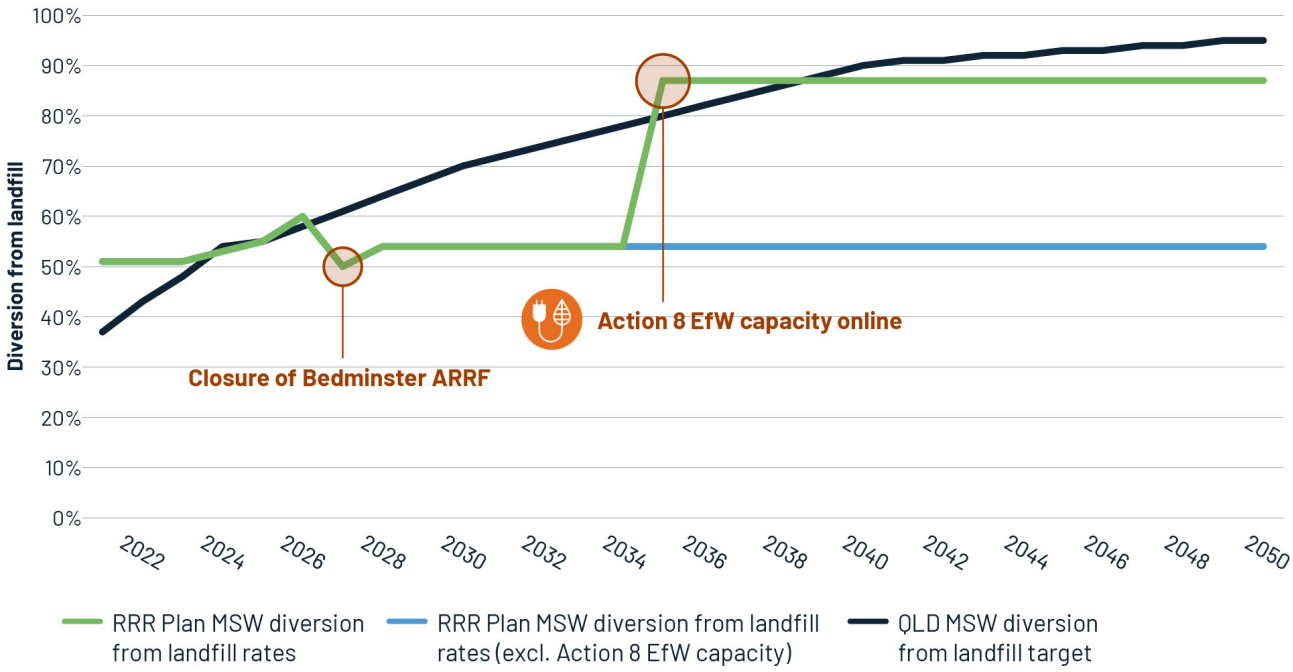


Figure 7: Regional RRR Plan MSW diversion from landfill rates

The roll out of the eight RRR Plan actions equates to achieving a 54% recycling rate and an 87% regional landfill diversion rate (nearly 150,000 tonnes) for MSW by 2050, assuming energy from waste infrastructure capacity becomes available by 2035. These results highlight a shortfall from the 2050 MSW recycling target by 16% and waste diversion target by 8%. The above results are based on practical and available actions suitable for roll out in the region based on the current infrastructure and regulatory climate. However, further regulatory and funding support is required at a State and National level to support councils in making further progress against the 2050 State targets. These results also highlight the importance of residual waste management solutions for the region, accounting for over 40% of the MSW stream.

Future infrastructure requirements

The eight RRR Plan actions include expansion of the following services to the 11 councils across the region by 2050:

Waste type	CRC	CCRC	CSC	CrSC	DSC	ESC	HVASC	MSC	TRC	WWASC	YASC
Kerbside Residual Waste Collection	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Kerbside Commingled Collection	✓	✓	✓		✓			✓	✓		
Container Refund Scheme access	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Kerbside Organics Collection	✓	✓			✓			✓	✓		
Home Composting or similar organics capture initiatives			✓	✓		✓	✓			✓	✓

New infrastructure for the region will require funding to support site selection, design, planning, construction and operation phases. The large-scale regional infrastructure identified as needed to support the proposed goals of the RRR Plan include:

Material Recovery Facility
~30,000 tpa
in 2035

Organics Processing Facility
~39,000 tpa
by 2026

Regionally available potential EfW feedstock*
~90,000 tpa
by 2050

*This could capture MSW kerbside general waste, and residual waste streams for MSW, C&I and C&D self-haul material

The implementation roadmap and summary of each action is outlined on the following pages.

RRR Plan implementation roadmap

Legend

- **Action 1** Step-change in customer engagement
- **Action 2** Optimise regional servicing arrangements
- **Action 3** New transfer station facilities and closure of facilities with regulatory or environmental issues
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- **Action 8** Develop alternatives to landfill for residual waste

BASELINE WASTE DATA

2020

2022

YOU ARE HERE

Implement FNQROC *Regional Resource Recovery Plan*

2024

Develop ***Regional Education and Marketing Strategy.***

Develop ***Regional Servicing Strategy.***

Construction of **4 Small Transfer Stations** for **ESC, HVASC, WWASC,** and **YASC**.

Implement **Comingled Recycling Collection** for **CCRC.**

Regional assessment of reliance on **single privately-owned landfill facility.**

2026

- Employ **4 x FTE Regional Educational and Data Management Officers.**
- Employ **15.5 x FTE Local Engagement and Data Resourcing Officers** collectively across all councils.
- Roll out ***Customer Engagement and Behavioural Change Program.***

- Employ **0.5 x FTE Regional Coordination Officer.**
- Regional Processing and Collection of **Tyres, Concrete Crushing** and **Green Waste Mulching.**
- Develop regional ***Procurement Strategy***.

Construction of **Large Transfer Station** for **CRC** and **Medium Transfer Station** for **CSC**.

Consider Sub-regional kerbside collection contract for **Groups 1, 2** and **YASC**.

Transfer Station Upgrade for **CrSC** and construction of **Small Transfer Station** for **ESC**.

Construction of **Regional Organics Processing Facility** in Cairns. Roll out of **FOGO Collection** for **CRC.**

2028

Construction of **2 x Small Transfer Stations** for **ESC**.

- Implement **Comingled Recycling Collection** for **MSC**.
- Enhance and optimise **CRS capture** for **CSC, CrSC, ESC, HVASC, WWASC** and **YASC**.

- Roll out of **FOGO Collection** for **DSC, TRC, MSC,** and **CCRC**.
- Incentivise **Home Composting** and **free green waste disposal** for **CSC, CrSC, ESC, HVASC, WWASC** and **YASC**.

2030

Implement **Comingled Recycling Collection** for **CSC.**

- Reduction in Self-Haul through **Transfer Station optimisation**.
- Recovery of items on **Minister's Priority List.**

- Regional review and gap analysis to identify **Residual Waste Management risks and opportunities.**
- Regional Governing Body to monitor opportunities for **Multi-Sector** and **Inter-Regional Collaboration**.

2035

- Final **Feedstock Consolidation** point in **Cairns.**
- Consider viability for **EfW Facility** in **CRC.**
- Optimise **management** of **existing landfill capacity**.

Regional review and gap analysis for **Regional Hub and Spoke Model** and **Increased Processing Capacity.**

- Regional Governing Body to monitor delivery of RRR Plan to **optimise opportunities for RR and Infrastructure Development.**
- Assess feasibility of **Centralised Precinct**.

2040

Potential for roll out of **'Transform' Precinct in Cairns** and **'Prepare' Precinct** in **Mareeba**.

2045

2050

Action 1: Step-change in Customer Engagement (NOW)

Action 1a Education and engagement & Action 1b Data capture and reporting
This action focuses on delivery of marketing and education campaigns, including signage and wayfinding and support for improvement to data capture and reporting.

This action aims to:

- Raise awareness and reduce waste generation across households, businesses, and tourism industries,
- Standardise waste education across the region, and
- Improve data capture and waste monitoring to track progress against State targets.

Key Initiatives

Action 1a

- Develop Regional Education and Marketing Strategy
- Employ 2 x Regional Educational Officers to roll out Customer Engagement and Behaviour Change Program, provide support for training and brokering of relationship management between councils.
- Regional marketing and coordination budget.
- Employ touch point in every council in the form of Engagement Officers.

Action 1b

Employ additional local and regional resourcing for routine waste audits, improved data capture, analysis and reporting.

Costs and Benefits

Year	Total Cost (PV)	Total Benefits (PV)	Direct Jobs	Household Waste Reduction	Avoided Carbon
2030	$8.9 million	Up to $5.4 million	19.5	7.5%	63,700 tCO_2e
2050	$20.1 million	Up to $25.1 million	19.5	12.5%	488,000 tCO_2e

Action 2: Optimise Regional Servicing Arrangement (NOW)

This action focuses on providing better servicing for rural and remote communities, enhancing recovery opportunities of select problem waste streams and reducing the costs associated with these processes across all councils. Cost efficiencies may be realised through better economies of scale and competitive tender of a single regional contract.

This action also explores the feasibility of sub-regional kerbside collection contracts and a regional strategy for procurement of recycled product, to enhance development of secondary markets.

This action aims to:

- Assist economies of scale by optimising existing and new servicing arrangements through regional contracts,
- Provide servicing for remote communities and areas to enable improved resource recovery options,
- Enhance recovery opportunities for select problem materials,
- Enhance regional collaboration, and
- Enhance product sharing and reuse.

Key Initiatives

- Develop Regional Servicing Strategy.
- Regional contract for processing of concrete, and green waste and collection of tyres for all councils on a set schedule.
- 0.5 x FTE regional coordinator for contract procurement, advocacy of product stewardship and managing ad-hoc collection of recyclables and hazardous material.
- Development of procurement strategy and guidelines for recycled material including crumb rubber, crushed glass, and crushed concrete.*
- Consider investment in mobile infrastructure (such as a crusher and shredder) for shared servicing should this be more economically viable.*
- Consider sub-regional kerbside collection contract for Groups 1, 2 and YASC.*

Costs and Benefits

Year	Total Cost (PV)	Total Benefits (PV)	Direct Jobs	Waste Recovery Rate	Avoided Carbon
2030	$2.7 million	Up to $2.3 million	0.5	2% average increase in MSW recovery across councils impacted.	251 tCO_2e
2050	$6 million	Up to $5.7 million	0.5	2% average increase in MSW recovery across councils impacted.	1,000 tCO_2e

*Indicate items not included in the cost benefit analysis results

Action 3: New Transfer Station facilities and closure of facilities with regulatory or environmental issues (NOW)

This action focuses on development of new transfer stations, closure of existing rural landfill sites and consolidation of current transfer station facilities. The aim of this action is to provide all councils with the needed infrastructure to support long term regional resource recovery initiatives.

This action aims to:

- Enhance social and environmental outcomes through improved facilities,
- Improve opportunities for material reuse and enrich secondary markets,
- Provide a long-term efficient network for resource recovery through optimisation of transfer station facilities, and
- Divert material from landfill.

Key Initiatives

- Roll of new or upgraded transfer station facilities for Groups 1, 3 and 4 councils,

Regional support for*:

- Site consolidation, optimisation, and upgrades to current sites to support product stewardship and recovery of key material streams for Group 2 councils.
- Sharing of planning, design, and tender advice for infrastructure development.
- Identifying funding opportunities and preparation of funding applications.
- Roll out of security and monitoring provisions at all sites.
- Integration of signage and data collection for all councils.

Costs and Benefits

Year	Total Cost (PV)	Total Benefits (PV)	Direct Jobs	Waste Recovery Rate	Avoided Carbon
2030	$48.8 million	Up to $2.5 million	15.5	1% average increase in recovery across all impacted councils	27,700 tCO_2e
2050	$58.2 million	Up to $7.5 million	15.5	1% average increase in recovery across all impacted councils	142,000 tCO_2e

*Indicate items not included in the cost benefit analysis results

Action 4: Enhance Kerbside Collection approach (SHORT TERM)

This action focuses on enhancement of kerbside collection systems, in particular increase in capture of comingled kerbside recycling. This includes roll-out of a yellow comingled bins for councils without the service or enhancement of the Container Refund Scheme (CRS) capture where kerbside collection is not feasible.

This action aims to:

- Increase in resource recovery of comingled recyclables from the MSW stream,
- Increase household engagement and awareness about recycling, and
- Divert material from landfill.

Key Initiatives

- Roll out of kerbside comingled recycling for Group 2 councils and Cook Shire Council.
- Processing of additional kerbside comingled recycling material at the existing Cairns MRF.

Regional support for*:

- Assessment of benefits of sub-regional kerbside collection contracts for Groups 1 and 2.
- Advocacy for secure and sustainable CRS access across remote councils, in particular Groups 3 and 4.
- Resource sharing of contract specifications to support resourcing limitations.

Costs and Benefits

Year	Total Cost (PV)	Total Benefits (PV)	Direct Jobs	Waste Recovery Rate	Avoided Carbon
2030	$11.5 million	Up to $2.7 million	1.5	4% average increase in recovery for the three councils impacted	25,000 tCO_2e
2050	$26.7 million	Up to $7.6 million	1.5	5% average increase in recovery for the three councils impacted	92,000 tCO_2e

*Indicate items not included in the cost benefit analysis results

Action 5: Maximise diversion of Organic Waste from landfill (SHORT TERM)

This action focuses on supporting collection of organic material from households that would otherwise be disposed to landfill. This action is particularly important for Douglas Shire Council, Mareeba Shire Council and Cairns Regional Council post closure of the ARRF.

This action aims to:

- Increase recovery and recycling of organic material,
- Create a high value product,
- Increase diversion of waste from landfill, and
- Enhance community engagement, social and environmental outcomes.

Key Initiatives

- Roll out of kerbside FOGO for Groups 1 and 2 councils.
- A new organics processing facility located in Cairns, assumed IVC technology but open windrow may also be appropriate. Further assessment required.

Regional support to*:

- Undertake engagement with councils in development of regional processing facility.
- Roll out home composting or community garden initiatives for councils where FOGO roll out is not feasible.
- Resource sharing of contract specifications to support resourcing limitations.

Cost and Benefits

Year	Total Cost (PV)	Total Benefits (PV)	Direct Jobs	Waste Recovery Rate	Avoided Carbon
2030	$71.8 million	Up to $19.3 million	9.5	12% average increase for impacted councils	162,000 tCO_2e
2050	$135.6 million	Up to $80.7 million	9.5	12% average increase for impacted councils	1,092,000 tCO_2e

*Indicate items not included in the cost benefit analysis results

Action 6: Optimise regional network of Resource Recovery facilities (MED TERM)

This action focuses on implementation of a hub and spoke transfer station network, utilising existing and new facilities, and the expansion into new recovery and processing facilities in the region.

This action aims to:

- Increase local material processing capacity,
- Improve economies of scale,
- Increase local market development,
- Reduce long haul transportation costs, and
- Optimise regional networks and support precinct development.

Key Initiatives

Regional support and coordination to:

- Undertake gap analysis in the medium term to identify need for regional hub and spoke model and increased local processing capacity to accommodate:
  - Emerging infrastructure gaps for processing of high-value, high-volume or hazardous streams,
  - Changes to market dynamics and viability of local processing, and
  - Infrastructure gaps for emerging and increasing material volumes, including future product stewardship materials (such as mattresses, photovoltaic systems, electronic products, plastics, and textiles).
- Designate adequate storage capacity at current facilities to align with regional service contracts.

Providing suitable transfer station and processing facilities as a key anchor point will support subsequent development of local businesses, creating value and economic opportunities. In development of new transfer stations, the consideration of additional space to accommodate management of future waste streams such as mattresses and solar, and modular storage can incentivise investment in local processing capacity.

Action 7: Develop Centralised Resource Recovery Precinct (MED TERM)

Development of a centralised resource recovery precinct within the FNQ region is a high priority across all councils. Implementation of Actions 3 and 6 in particular will support feed in of materials for a centralised precinct.

This action aims to:

- Increase local material processing capacity,
- Increase local market development,
- Realise product sharing efficiencies and savings,
- Reduce long haul transportation costs, and
- Support regional facility networks.

Key Initiatives

Regional governing body to monitor delivery of the RRR Plan outcomes and associated pieces of work to optimise opportunities for resource recovery and infrastructure developments and align development of precincts with the Recycling Enterprise Precinct Location Strategy developed in 2022.

The aim of the precinct should include support for processing of problematic waste materials and product stewardship scheme materials (tyres, photovoltaic systems, textiles, batteries, e-waste, soft plastics) to maximise reuse, processing and secondary recovery opportunities through regional aggregation and proximity to other processing infrastructure.

Development of all new infrastructure should encourage investment in data technologies and innovative technologies to leverage opportunities for accurate and consistent measurement and reporting given single point of capture at entry/exit to precinct.

Action 8: Develop alternatives to landfill for Residual Waste (LONG TERM)

This action focusses on providing the region with long term residual waste management security and identifying long-term alternatives to landfill for residual waste streams.

This action aims to:

- Provide long term planning and security for disposal of residual waste, and
- Improve landfill diversion and resource recovery rates.

Key Initiatives

Regional support to:

- Monitor opportunities for multi-sector and inter-regional collaboration.
- Undertake assessment in the short term to identify vulnerability associated with reliance on single privately-owned landfill (Springmount Waste Management Facility) and the need to develop regional resilience.
- Medium term regional review and gap analysis to identify risks and opportunities associated with long term management of residual waste and potential to transition away from landfill (where feasible).

The majority of councils within FNQROC are reliant on the Springmount WMF for disposal of residual waste. The reliance on one private facility is a risk for the region, particularly with predicted increases to the landfill levy, decreases in annual payments (for Cairns Regional Council) and uncertainty regarding increases to gate fees.

While landfill capacity in the region is understood to not be an imminent risk, the need for other avenues for residual waste management needs to be assessed, to mitigate risk associated with reliance, predominantly on one landfill. In addition, acknowledging that there will always be a need for some residual waste to go to landfill, the region should consider developing a long-term plan to transition to alternative methods of residual waste management.

It is likely that recovery of residual waste through an EfW facility will form part of an ultimate long-term solution to manage residual waste within the region. Streams that could be accommodated within an EfW facility include:

- MSW kerbside residual,
- MSW self-haul residual,
- C&I residual,
- Timber, and
- Biosolids.

The region is unlikely to have economy of scale for EfW to be economically viable in the short term (low volumes/high transport distances), however, opportunities for multi-sector collaboration (e.g., with agricultural industry) and inter-regional collaboration between regional groups should be monitored.

Implementing the plan

Governance Structure

The RRR Plan actions must be underpinned by an effective governance structure, implemented at a regional level, and supported by State government.

There are long standing and established relationships and trust between councils within FNQ. FNQROC has had success in operating for 30 years, which provides a great foundation for a governance structure to leverage the extensive depth and understanding of the region and support implementation of the RRR Plan.

DES and FNQROC have commenced conversations regarding establishment of a bilateral agreement to enable efficient and effective governance and timely delivery of the actions under the RRR Plan. These discussions are still evolving, and the final agreement is yet to be finalised. A bilateral agreement would provide clear project pathway structure, clear contact points, channels of communication between the FNQROC and State government.

The governing body structure aims to be streamline and will follow the existing structure of FNQROC, including a dedicated program coordinator who is responsible for administering actions under the RRR Plan, a working group to guide project prioritisation and decision making, the FNQROC board for priority project endorsement. A dedicated project coordinator will require adequate and sustained resourcing to deliver on the actions outlined within the RRR Plan.

The RRR Plan governance structure is provided below:

Governance structure role	Participants	Responsibilities
Program Coordinator	Dedicated FNQROC program coordination resource	Coordination of RRR Plan deliverables and project prioritisation process.
FNQROC Working Group	Member council waste and resource management technical officers	Undertake initial assessment of projects against key criteria e.g., regional economic, social and environmental benefit, alignment with RRR Plan outcomes and resource recovery targets.
FNQROC board	Member council Mayors	Endorsement of priority project proposals.
Investment Review Committee	DES Executive Director Department of State Development Executive Director Local Government Association of Queensland (observer) Queensland Treasury Corporation (advisory body)	Review and assessment of priority project documentations including business cases or summary documents, request further information as required prior to approval.
State Funding and Approvals Gateway	As required based on project value.	Priority project funding assessment and approval.

FNQROC would provide a mechanism for regional collaboration and communication, including a contact point for other governing bodies, responsible for roll out of Queensland resource recovery plans and strategies.

It is important that a clear pathway is established by the Queensland Government to progress initiatives developed by regional governing bodies under the RRR Plan. This pathway must consider support for regional collaboration and not create competition between councils when bidding for available funding.

Funding and Regulatory Support

The total costs included in this RRR plan, indicate that substantial investment is required for the region to achieve key outcomes, move toward State targets, and improve overall resources recovery practices. For FNQ councils, this cost of transition will need to be heavily supported by funding levers from the State and Federal government.

The Queensland State government has clearly outlined targets for improvements to resources recovery and waste generation, and while it is recognised that South East Queensland will contribute a large portion of heavy lifting towards these targets, if the Queensland State government is committed to improving resource recovery practices within the regions, they will need to financially support regional and remote councils to do so.

Communities within FNQ have a limited ability and willingness to pay for waste services, and low-rate bases (or no rate bases in the case of First Nation councils) reduces the funding available within councils to invest in improved waste and resource recovery services. Therefore, to minimise the pass on of costs to the rate payer and provide a FNQ councils with the opportunity to improve resource recovery, a large amount of funding support will be required by State and Federal governments to achieve the RRR Plan outcomes.

Large investments in new infrastructure, are not economically viable for all councils without sustained funding support for the planning, development, design, construction and operational phases, and transportation costs of materials. Funding should be allocated to support resource recovery outcomes identified within the RRR Plan, both in the immediate and longer term.

The roll out of the eight RRR Plan actions demonstrate that it currently not possible for the region to meet current State 2050 targets and that while funding support is important for transition to improved resource recovery, additional and timely regulatory and policy reform such as expansion of Product Stewardship Schemes, mandated recycled product, support for market development and landfill bans will be critical to make further progress toward achieving the State and Federal targets.

Measuring our Success

The actions administered under the RRR Plan need a clear pathway for reporting, to capture progress and provide accountability for the governing body, including:

1. Annual reporting of progress against the RRR Plan to assess projects complete and identify key limitations or barriers for any actions not undertaken. This reporting structure will provide a mechanism for regional tracking and reporting on progress and outcomes. Annual reporting requirements would seek to create internal accountability for progress and program decisions.
2. The RRR Plan should be agile and able to be updated to incorporate changes in policy, materials and local capability or needs. Criteria should be established to trigger review of the plan and undertake update of implementation actions and timings to capture of changes to infrastructure capacity, community needs, technology, and material streams.

What's Next?

Following from this RRR Plan, the required governance arrangements will be established to support the initiatives, and any funding and assistance required by the State and Federal Government to move toward the 2050 Queensland State targets.

Additionally, each of the 11 individual councils will need to incorporate relevant RRR Plan outcomes into their forward planning, strategy, and capital works budgets.

Sunrise in the maize, Tablelands Regional Council © Andrew Sigmund