

Torres Strait Island
REGIONAL COUNCIL

AGENDA

CLIMATE CHANGE ADAPTATION AND ENVIRONMENT COMMITTEE

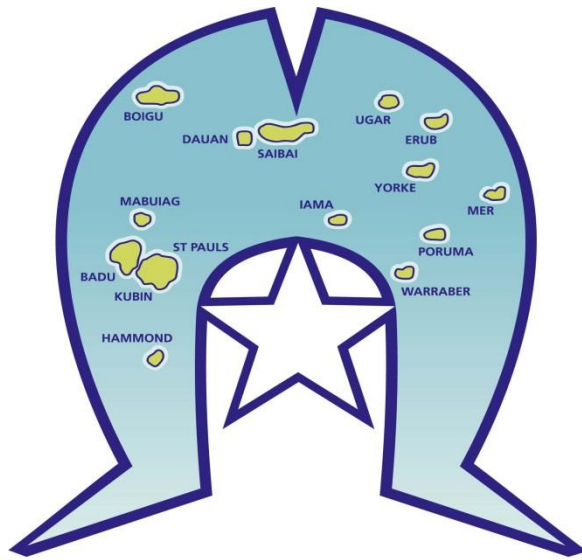
Date: Friday, 11th March 2022

Time: 10:00am – 12:00pm

Venue: Video Conference

Agenda

1. Welcome (Chair)
2. Opening Prayer
3. Apologies
4. Declaration of Conflict of Interest (COI) (Prescribed and Declarable)
5. Noting of previous Ratified minutes – 3rd November 2021
6. Action Items List
7. Engineering - CHAS Update
8. Engineering - Waste Management and Climate Change Adaptation Brief
9. Legal – Joint Statement on Climate Change in the Torres Strait – Late
10. General/ Other Business (on notice)
11. Next meeting date
 - Wednesday, 25th June 2022
12. Closing Prayer



Torres Strait Island
REGIONAL COUNCIL

MINUTES

CLIMATE ADAPTATION AND ENVIRONMENT COMMITTEE

Date: Wednesday 03rd November 2021

Time: 10:15am – 12:25pm

Venue: VMR #8 02 9916 5402

Attendees

Cr Hilda Mosby – Chair

Cr Seriako Dorante – Committee member

Adeah Kabai – Acting Executive Director, Engineering Services

Jarrah Doran-Smith – Waste and Sustainability Engineer

Ursula Nai – Senior Executive Assistant and acting Secretariat Officer

Apologies

Cr. Kabay Tamu

1. Welcome (Chair)

Cr Hilda Mosby welcomed everyone to the meeting today and acknowledged the Traditional Landowners of the land we meet today.

2. Opening Prayer

Cr Seriako Dorante opened with a word of prayer.

3. Apologies

- Cr Kabay Tamu
- Ewan Gunn
- Dawson Sailor

4. Conflict of Interest (COI)/ Material Personal Interest (MPI) Declaration

Cr Hilda Mosby advised the meeting that she holds the following positions:

- Board member for Torres Strait Regional Authority
- Portfolio Member for Environment with Torres Strait Regional Authority
- Climate Change National Group CSIRO

Cr Hilda Mosby did not declare a conflict of interest as there are no matters involving Torres Strait Regional Authority or CSIRO on the agenda.

Cr Seriako Dorante advised the meeting that he holds the following position:

- Board member for Torres Strait Regional Authority

Cr Seriako Dorante did not declare a conflict of interest as there are no matters involving Torres Strait Regional Authority on the agenda.

5. Noting of previous minutes – 25th August 2021

RESOLUTION:

Moved: Cr Hilda Mosby, Second: Cr Seriako Dorante

That the committee note the Minutes from 25th August 2021 previously ratified at the September Ordinary Meeting 2021

MOTIONED CARRIED

6. Action Items List

Action Items to be discussed offline and updated before next meeting

RATIFIED Minutes – Climate Adaptation and Environment Committee – 03rd November 2021

A discussion was held on Boigu and Saibai Seawalls concept design.

10:30am – Cr Kabay Tamu joined the meeting.

Cr. Tamu declared a Declarable Conflict of Interest as he is involved in legal proceedings against the Australian Government in relation to climate change.

7. Engineering Services Projects/ Works update

Acting Chief Engineer, Mr Adeah Kabai spoke to this agenda topic and provided an update on projects being undertaken by Council's Engineering Services Department being:

- Coastal Defence Works/Projects
- Metal Waste legacy Clean-up Projects
- Coastal Hazards and Adaptation Study (CHAS)
- Rain

8. Metal Waste – Verbal

Waste and Sustainability Engineer, Mr Jarrah Doran-Smith spoke to this agenda topic and presented a Waste and Sustainability presentation.

Cr Kabay Tamu queried if this project is long term and if TSIRC staff will be involved in the Biosecurity part of transporting the waste to Badu. Mr Jarrah Doran-Smith advised this is a one-off project and the Contractors will complete the majority of works however there is IEOP in place and the Contractors will also be engaging with TSIRC Engineering staff and Environmental Health Officers for assistance if and where required.

Cr Seriako Dorante queried if part costs would be forwarded onto Contractors and Community Members.

ACTION: acting Executive Director, Engineering Services to call an out of session workshop on Metal Waste with the Committee during the first quarter of 2022.

9. CHAS Update – Verbal

Waste and Sustainability Engineer, Mr Jarrah Doran-Smith spoke to this agenda topic and presented a CHAS presentation.

Mr Jarrah Doran-Smith discussed CHAS Communication Material and discussed a proposal for a workshop with the Committee on CHAS along with Committee Member interviews and photos.

ACTION: Waste and Sustainability Engineer to call an out of session workshop, interviews and communication materials on CHAS with the Committee during the first quarter of 2022.

10. Environmental Health Update – Verbal

This topic will be discussed at the next meeting.

ACTION: Manager Environmental Health to provide a briefing paper on Environmental Health to the next Committee meeting.

11. General/ Other Business (on notice)

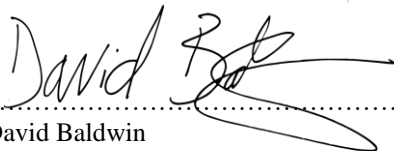
Nil topics raised.

12. Next meeting date

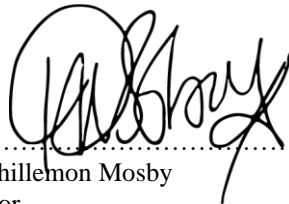
To be discussed offline during the November Workshop

13. Closing Prayer

Cr Seriako Dorante closed the meeting with a word of prayer.



Mr David Baldwin
Acting Chief Executive Officer
Torres Strait Island Regional Council
15th November 2021



Cr Phillemon Mosby
Mayor
Torres Strait Island Regional Council
15th November 2021

ACTION ITEM REGISTER

| Date | Agenda Item | Action Item | Action Officer | Update/ Comments | Due Date | Recommendation |
|----------|-----------------------------|---|--|--|-----------|----------------|
| 3-Nov-21 | Metal Waste | Acting Executive Director, Engineering Services to call an out of session workshop on Metal Waste with the Committee during the first quarter of 2022. | Acting Executive Director Engineering Services | Currently in progress | 11-Mar-22 | |
| 3-Nov-21 | CHAS Update | Waste and Sustainability Engineer to call an out of session workshop, interviews and communication materials on CHAS with the Committee during the first quarter of 2022. | Waste and Sustainability Engineer | Currently in progress | 11-Mar-22 | |
| 3-Nov-21 | Environmental Health Update | Manager Environmental Health to provide a briefing paper on Environmental Health to the next Committee meeting. | Manager Environmental Health | To be provided to next committee meeting | 11-Mar-22 | |



TORRES STRAIT ISLAND REGIONAL COUNCIL

AGENDA REPORT

| | |
|----------------------------|--|
| STANDING COMMITTEE: | Climate Change Adaptation and Environment Committee |
| DATE: | Friday 11 th March 2022 |
| ITEM: | Agenda Item for noting by Committee |
| SUBJECT: | Coastal Hazard Adaptation Strategy (CHAS) Briefing |
| AUTHOR: | Jarrah Doran-Smith – Waste & Sustainability Engineer |

Recommendation:

That the Climate Change Adaptation and Environmental Committee notes the report and support the content to be referred to full Council at the March 2022 Council Ordinary Meeting.

Purpose:

The purpose of this report is to provide an update and overview to the Climate Change Adaptation and Environmental Committee in relation to the Coastal Hazard Adaptation Strategy (CHAS). This report also seeks CHAS Phases 6-8 Recommendation in March 2022 Agenda Report (open business).

Summary:

The QCoast2100 is a one-off funding program administered by the Queensland Government's Local Government Association of Queensland (LGAQ). It is designed to assist coastal Councils in making decisions regarding long-term management and response to the coastal hazards facing their communities, through the development of a CHAS.

The Coastal Hazard Adaptation Strategy considers the risks to all 15 TSIRC communities posed by coastal hazards, including coastal erosion, permanent tidal inundation at highest astronomical tides (HAT) due to sea-level rise (SLR) and inundation due to storm tide. It follows an eight-Phase prescribed process, as set out in QCoast2100's Developing a Coastal Hazard Adaptation Strategy: Minimum Standards and Guideline for Queensland Local Governments.

The following Phases (1 & 2) have previously been completed (GHD):

- Phase 1: Plan for life-of-project stakeholder communication and engagement;
- Phase 2: Scope coastal hazard issues for the area of interest.

Council completed Phase 3 (GHD) in February 2021:

- Phase 3: Identify areas exposed to current and future coastal hazards

Council completed Phase 4 (Alluvium Consulting) in August 2021:

- Phase 4: Identify key assets potentially impacted;

Council Completed Phase 5 (Alluvium Consulting) in November 2021:

- Phase 5: Risk assessment of key assets in coastal hazard areas;

Council had residual budget for the Phases 4 & 5 project and used remaining budget to develop communication materials, including posters and a plan for a series of short vox pop videos to be developed. These planned engagement activities will continue into Phases 6-8.

The funding application to LGAQ for additional \$245,025 to complete CHAS Phases 6-8 was successful and notified to Council in December 2021.

Phases 6-8 include:

Phase 6 – Identify potential adaptation actions.

Phase 7 – Socio-economic appraisal of adaptation options.

Phase 8 – Strategy development, implementation, and review.

Council has received the funding sub-agreement from LGAQ and intends to seek Council Resolution at the March 2022 Council Ordinary Meeting to engage Alluvium Consulting to complete the remaining 6, 7 & 8 Phases.

Modelling coastal hazards

Phase 3 of the CHAS has provided detailed modelling of the impacts of coastal hazards, including coastal erosion, permanent inundation due to sea level rise (SLR), and storm tide inundation at three different planning horizons (Present, 2050 and 2100). Once hazards were modelled for each island, they were applied to geographic information system (GIS) mapping program to provide visual aid of the coastal hazard extents.

Permanent inundation due to sea level rise (SLR)

The permanent inundation due to SLR has been mapped using the current day Highest Astronomical Tide (HAT) extents with a progressive SLR. The rise follows an exponential trend to reach HAT +0.8 m by 2100. With the predicted SLR overlayed with elevation data for each island, inundation extents were mapped for each island. This mapping considers all adaptation structures, such as seawalls and bunds as of the year 2020 but does not consider design or planned structures. Figures 1 and 2, below, are examples of the modelled inundation extent for Saibai Island and Warraber Island. The mapping is shown with progressive extents in different colours so that it is easy to identify the increasing extent of the inundation.

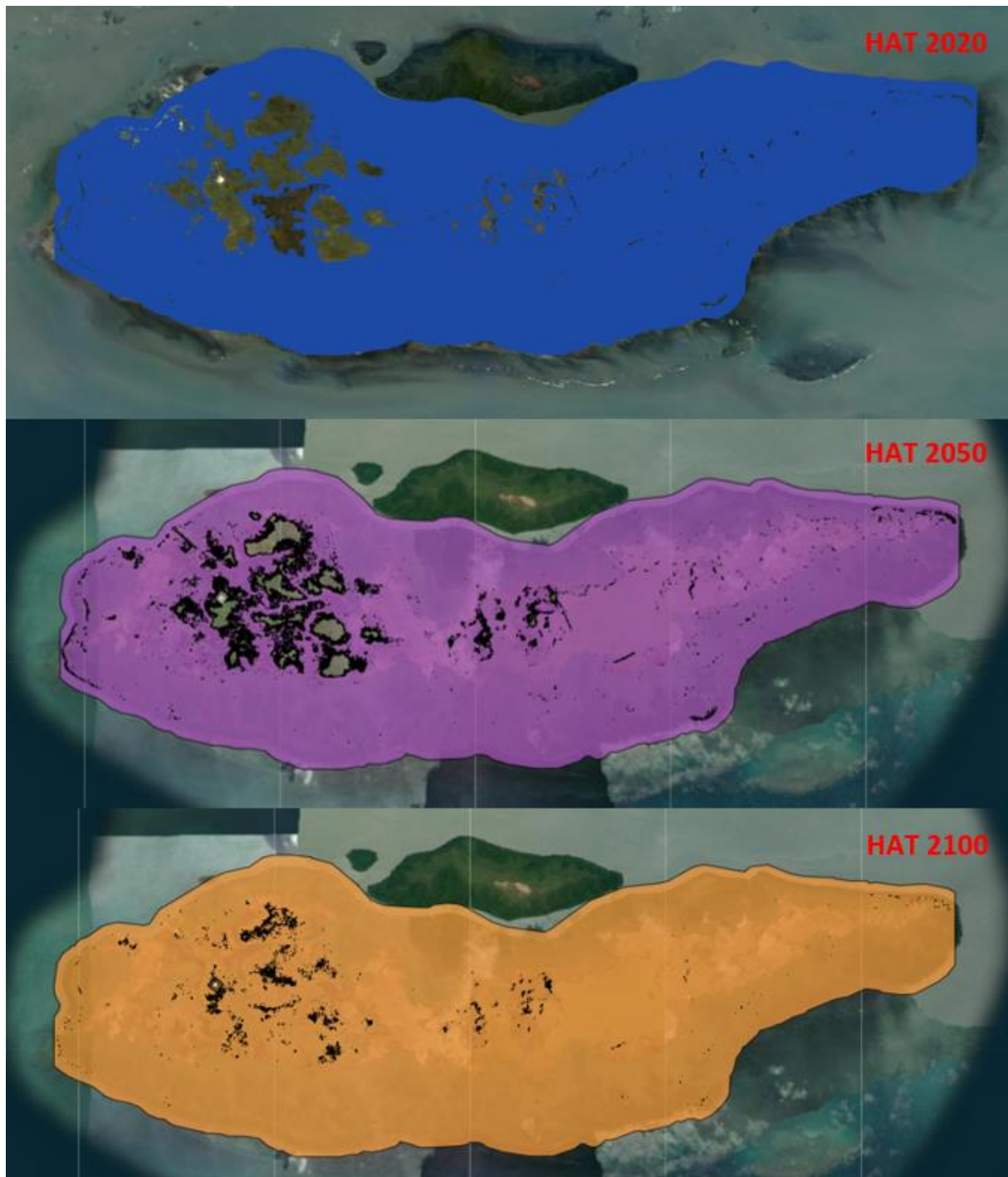


Figure 1. Permanent Inundation at HAT over three planning horizon (2020, 2050 and 2100), Saibai Island.

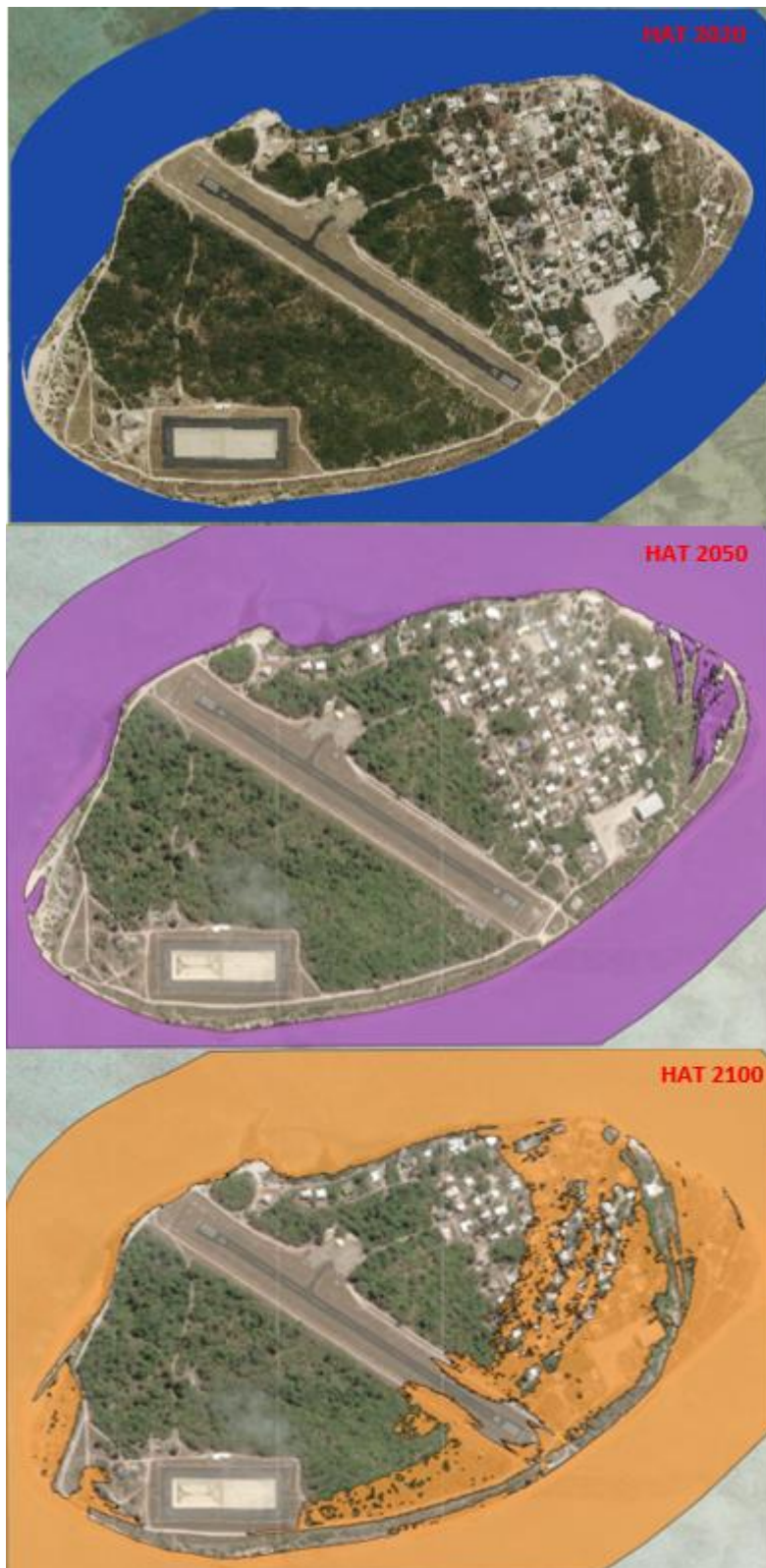


Figure 2. Permanent Inundation at HAT over three planning horizon (2020, 2050 and 2100), Warraber Island.

Storm tide assessment

The storm tide assessment was undertaken to evaluate the hazard that is imposed by an extreme water level event impacting islands within the region. A storm tide is the combined effect of normal tidal movement increased by the effect of weather systems, creating low pressure environments with wind and wave forcing. The storm tide can be devastating to coastal communities as it can affect properties metres above HAT in some instances. Figure 3 is used to visualise this phenomenon.

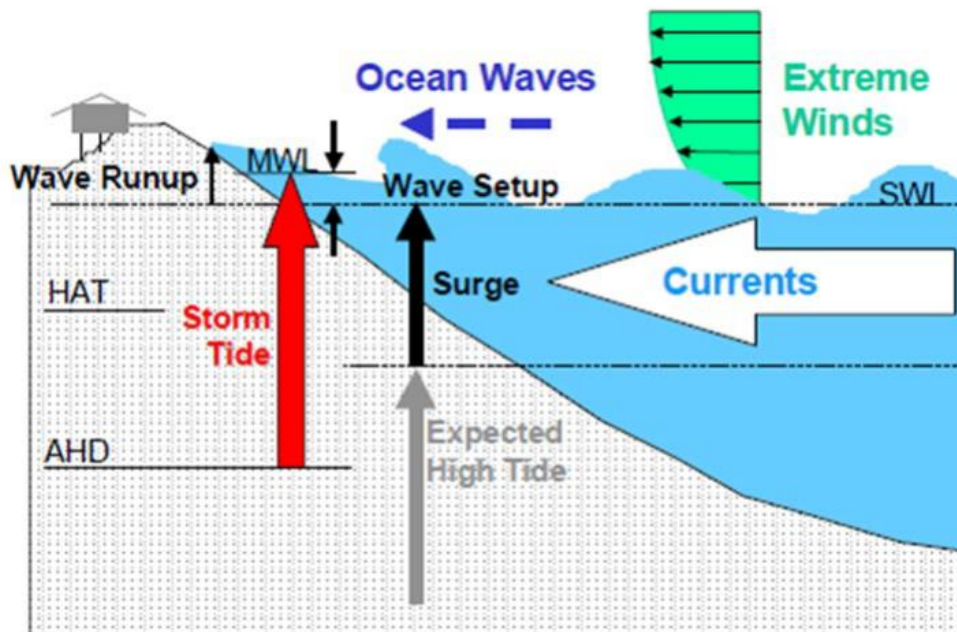


Figure 3. Water level components of an extreme storm tide.

Since the Torres Strait is a remote region having significant complexity and diversity of geophysical parameters, there are low levels of reliable information and with a widespread community vulnerable to the impacts of the sea. The report outlines specific considerations made for the probabilistic assessment, which included:

- Regional meteorology
- Astronomical tides
- Sea level variability
- Tropical cyclone climatology
- Numerical tropical cyclone storm surge modelling
- Numerical wave modelling
- Land elevation datums
- Deterministic hindcast modelling

Figure 4, below, is an example of the modelled storm tide extent for Masig Island.

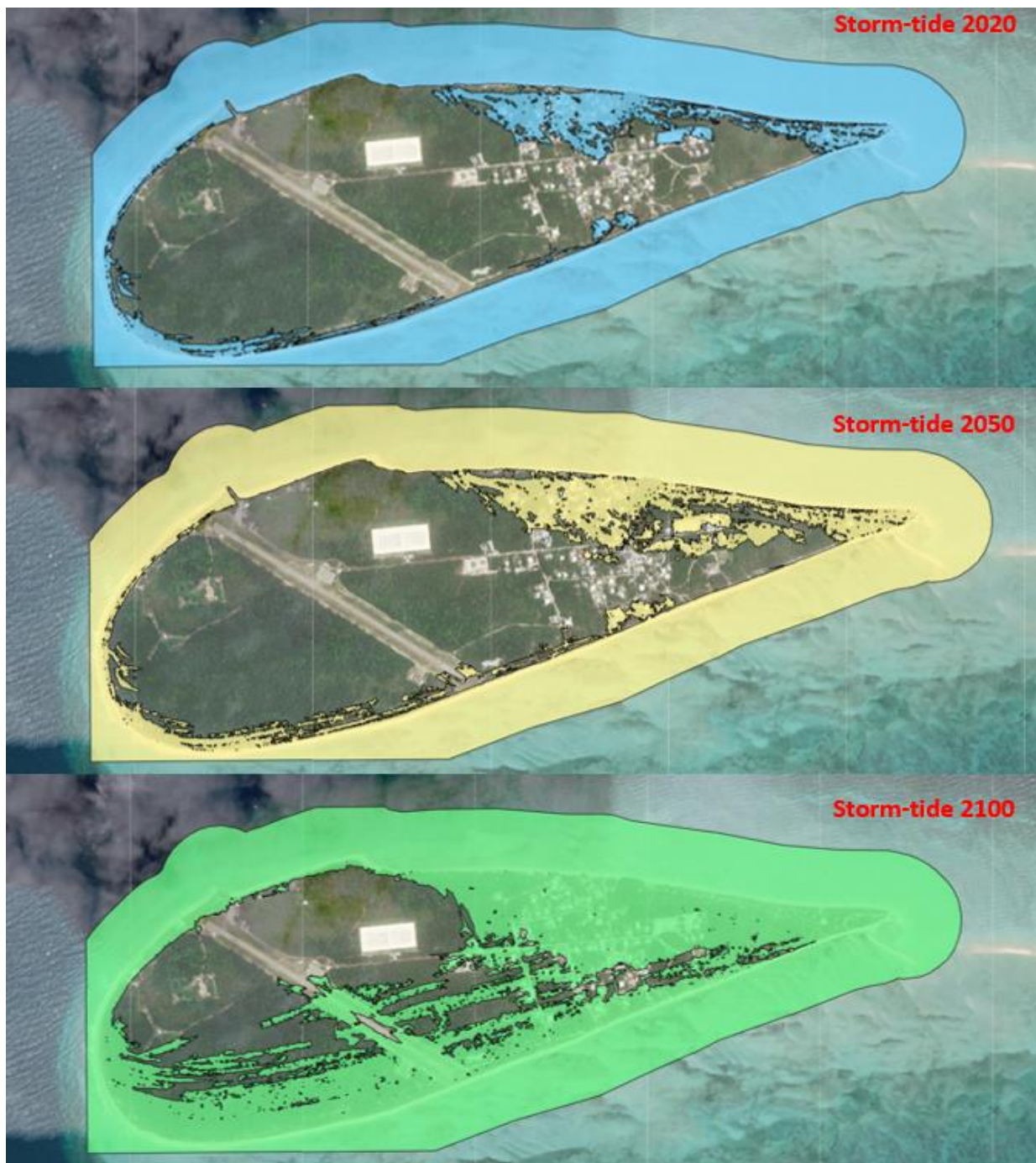


Figure 4. Storm tide mapping extent over three planning horizons (2020, 2050 and 2100)

Council assets that are predicted to be impacted have been considered and a complete cost analysis has been provided.

Erosion prone area (EPA) assessment

The extent of the Erosion Prone Area (EPA) is defined as areas subject to inundation by the highest astronomical tides (HAT) by the year 2100, or at risk from sea erosion. On land, adjacent to tidal water, the landward boundary of the erosion prone area shall be defined by a number of different methods, but whichever gives the greater erosion prone area width. The mapping considers all structures as of the year 2020. Figure 5, below, is an example of the modelled erosion prone area on Poruma Island over three planning horizons. Note, the seawall structure in place as of 2020 has significantly reduced erosion impacts on the southwest foreshore.

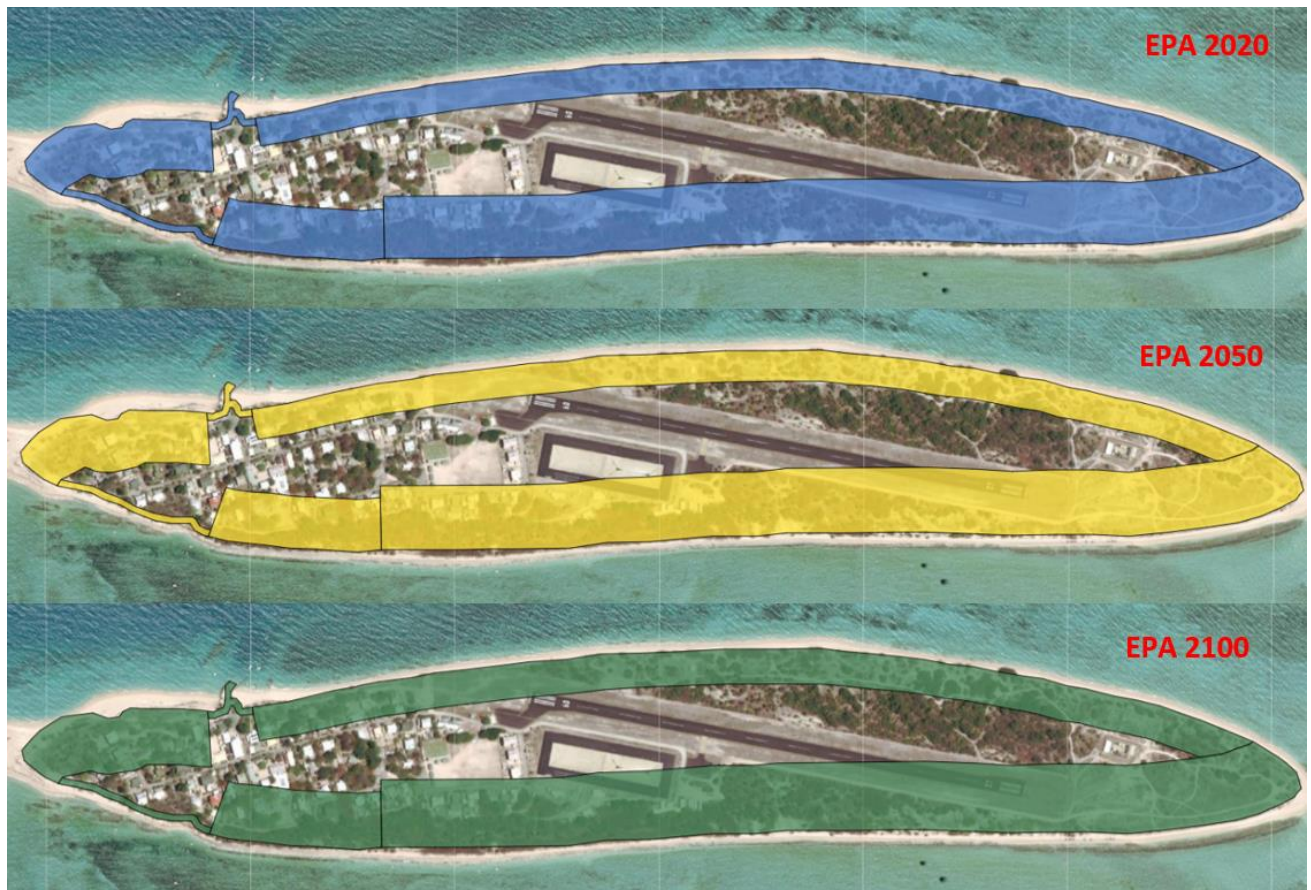


Figure 5. Erosion Prone Area (EPA) extent mapping over three planning horizons (2020, 2050 and 2100) for Pouma Island.

Assets potentially impacted

Phase 4 of the CHAS identifies the assets potentially impacted by the above-mentioned coastal hazards. The key elements of Phase 4 report include:

- Collation of extensive asset database for the CHAS exposure and risk assessments.
- Spatial analysis of potential asset exposure to coastal hazard scenarios
- Development of an economic base case for potential coastal hazard impacts across the TSIRC coastal zone.

Exposure assessment

TSIRC has a range of asset data, which has been collated into a database for the CHAS process. The asset data compiled includes a range of themes as outlined in Figure 6, below. The technical approach to the exposure analysis has included a significant GIS analysis process to intersect all coastal hazard layer scenarios as mentioned above (erosion, tidal inundation and storm tide) with all asset data layers. By intersecting coastal hazards with the range of asset data an exposure of each asset can be estimated.



Figure 6 Asset types/themes.

The mapped hazard areas that were used for the exposure assessment are associated with a likelihood classification (annual exceedance probability) which will be used in conjunction with consequence classifications that are developed in the Phase 5 risk assessment.

Coastal hazard vulnerability

To provide context for the risk assessment in Phase 5 of the CHAS process, an overview of the vulnerability of the TSIRC communities to coastal hazards is considered. Vulnerability assessment draws on current understanding of:

- Asset likely to be impacted by coastal hazards over the three planning horizons
- Relative vulnerability across coastal settlements
- The exposure, sensitivity, and adaptive capacity of the region in relation to coastal hazards and implications of a changing climate.
- Discussions with Council and stakeholders during the CHAS process and for previous studies.

The vulnerability assessment also draws TSRA Land and Sea Profiles for each island provide an indication of vulnerability to 1.0 m sea level rise and availability of response options (adaptive capacity). This information has been collated into Table 1.

Table 1 Vulnerability to sea level rise (SLR) and indicative adaptive capacity for each of the TSIRC island communities (adapted from TSRA Land & Sea Profiles)

| Island community | Island type | Vulnerability to SLR* | Adaptive capacity* |
|------------------|-------------|-----------------------|--------------------|
| Arkai | Continental | Medium | High |
| Badu | Continental | Very low | Very high |
| Boigu | Mud flat | Very high | Very low |
| Dauan | Continental | Very low | Very high |
| Erub | Volcanic | Low | High |
| Iama | Continental | High | Medium |
| Kiriri | Continental | Very low | Very high |
| Mabuiag | Continental | Medium | High |
| Masig | Coral cay | High | Low |
| Mer | Volcanic | High | High |
| Poruma | Coral cay | High | Medium |
| Saibai | Mud flat | Very high | Very low |
| Ugar | Volcanic | Low | Very high |
| Warraber | Coral cay | High | Low |
| Wug | Continental | Medium | High |

Economic base case

The economic base case is the potential economic costs (damages/losses) associated with coastal hazards (and no adaptation – i.e. ‘do nothing different’). The economic base case assesses damages across five asset categories:

- Land, environment and cultural
- Buildings and facilities
- Transport infrastructure
- Infrastructure and utilities
- Beach and foreshore assets

The economic base case provides the following estimated costs associated with Highest Astronomical Tide (HAT) Ocean Coastal Erosion (OCE) and Storm Tide Inundation (STI) over three planning horizons:

| Present average annual damage (\$ millions) | | | | |
|--|------------|------------|------------|----------------|
| | <i>HAT</i> | <i>OCE</i> | <i>STI</i> | Sub total |
| Buildings and facilities | 0.3 | 0.6 | 0.2 | 1.1 |
| Infrastructure and utilities | 0.7 | 0.2 | | 0.9 |
| Transport Infrastructure | 0.76 | 0.1 | | 0.86 |
| Land, environment and cultural assets | 0.0012 | 0.00061 | | 0.00181 |
| Beach and foreshore | 0.214 | 0.0042 | | 0.2182 |
| Total | | | | 3.08001 |

| 2050 average annual damage (\$ millions) | | | | |
|--|------------|------------|------------|-----------|
| | <i>HAT</i> | <i>OCE</i> | <i>STI</i> | Sub total |
| Buildings and facilities | 0.7 | 0.7 | 0.48 | 1.88 |
| Infrastructure and utilities | 1.3 | 0.26 | | 1.56 |
| Transport infrastructure | 1.3 | 0.132 | | 1.432 |
| Land, environment and cultural | 0.4 | 0.00069 | | 0.40069 |
| Beach and foreshore | 0.22 | 0.0054 | | 0.2254 |

| | |
|--------------|----------------|
| Total | 5.49809 |
|--------------|----------------|

| 2100 average annual damage (\$ millions) | | | | |
|---|----------------|------------|------------|-----------|
| | <i>HAT</i> | <i>OCE</i> | <i>STI</i> | Sub total |
| Buildings and facilities | 4.7 | 1 | 1.17 | 6.87 |
| Infrastructure and utilities | 5.3 | 0.33 | | 5.63 |
| Transport infrastructure | 2.53 | 0.16 | | 2.69 |
| Land, environment and cultural | 0.06 | 0.0008 | | 0.0608 |
| Beach and foreshore | 0.24 | 0.0054 | | 0.2454 |
| Total | 15.4962 | | | |

Risk assessment

In Phase 5, a consequence matrix was developed for different asset types, informed by stakeholder input that has been gathered during Phases 3 and 4. Once the consequence of impact from inundation and erosion has been assigned, the data sets are updated to produce a risk classification (likelihood x consequence) for all assets (parcels, points, lines and natural assets). The combined outputs from Phase 3 (coastal hazard areas), Phase 4 (coastal hazard exposure) and Phase 5 (coastal hazard risk) will then inform the consideration of adaptation options in CHAS Phases 6-8.

An overall qualitative interpretation of the coastal hazard risk profile by locality is provided in Table 2. Based on the analysis completed in Phase 5, this risk profile provides an appreciation of the relative risk of open coast erosion, tidal inundation, and storm tide inundation across the TSIRC island communities, and how it is likely to change from now to 2100.

Table 2 Overview of changing risk profile by locality

| Locality | Open coast erosion | | | Tidal inundation | | | Storm tide inundation | | |
|--------------------|--------------------|-----------|-----------|------------------|-----------|-----------|-----------------------|-----------|-----------|
| | Present day | 2050 | 2100 | Present day | 2050 | 2100 | Present day | 2050 | 2100 |
| Arkai (Moa Kubin) | Low | Low | Low | Low | Low | Medium | Low | Low | Medium |
| Badu | Low | Low | Low | Low | Low | Medium | Low | Low | Medium |
| Boigu | Low | Medium | High | High | Very high | Very high | Very high | Very high | Very High |
| Dauan | Medium | Medium | High | Low | Low | Medium | Low | Low | Low |
| Erub | High | High | High | Low | Medium | High | Medium | High | High |
| Iama | Medium | High | High | Medium | High | Very high | High | Very high | Very high |
| Kiriri | Medium | Medium | High | Low | Low | Medium | Low | Low | Medium |
| Mabuiag | Low | Medium | Medium | Low | Low | Medium | Low | High | High |
| Masig | Low | Low | Medium | Low | High | Very high | Medium | High | Very high |
| Mer | High | High | High | Low | Low | Medium | Low | Medium | Medium |
| Poruma | Very high | Very high | Very high | Low | Medium | Medium | High | High | Very high |
| Saibai | Low | Medium | High | Very high | Very high | Very high | Very high | Very high | Very high |
| Ugar | Medium | Medium | High | Low | Low | Medium | Low | Medium | Medium |
| Warraber | Low | Medium | Medium | Low | Medium | Very high | High | Very high | Very high |
| Wug (Moa St Pauls) | Medium | Medium | Medium | Low | Low | Low | Low | Medium | Medium |

Next steps

Phase 6: Identify potential adaptation options

The next Phase of the CHAS process (Phase 6) will utilise the outcomes of the risk assessment to explore the strategic adaptation response, and adaptation options, across the different island communities across the Torres Strait Island Regional Council coastal zone. It is noted that significant work has been previously completed working with at risk communities to identify appropriate actions. Phase 6 will build on this work and integrate this thinking into the QCoast2100 framework.

Phase 6 will also involve initial engagement and Vox Pop videos. As a bridging exercise between the Phases, an initial engagement exercise is planned where Council committees and community leaders will be invited to a briefing workshop. This will provide an opportunity for Alluvium to provide background information on the CHAS project and initiate conversations regarding its future direction.

Phase 7: Socio-economic appraisal of adaptation option

The approach to Phase 7 includes an multi-criteria analysis (MCA) and cost-benefit analysis (CBA) that meets the QCoast2100 standards for leading practice, providing the best value for money approach for Council. The MCA will allow Council to eliminate poor options and prioritise the remaining options. CBA is a comprehensive approach that identifies and values as many relevant benefit streams (e.g. flood protection, recreation) and costs (e.g. construction costs, land foregone) as possible. Both market and non-market values (e.g. public amenity) are considered.

Phase 8: Strategy development, implementation, and review

The purpose of this phase is to collate and summarise all the findings of previous phases and to develop a final CHAS document. The CHAS provides the overarching strategic direction and framework for a coordinated and integrated ‘whole of council’ response to coastal hazard adaptation. The CHAS is an important means of guiding change, informing decision making and prioritising actions across the organisation to respond to current and future coastal hazard risks.

The intention is that the CHAS will be underpinned by sound research and evidence (provided for in phases 1 to 7) as well as feedback provided by Council, stakeholders and communities. The process for drafting and finalising the Strategy document is described below.

General benefits of a TSIRC CHAS

A CHAS completed as part of the QCoast2100 program is a systematic and State Government approved method of:

- Assessing coastal hazard risk
- Creating an adaptation plan
- Increasing the adaptation capacity of council and communities, and
- Developing evidence-based prioritisation of action informed by socioeconomic analysis.

Each phase is assessed by the DES Coastal Science Team, therefore giving Council a license to operate in confidence according to the CHAS. Importantly, it unlocks funding for Council. This funding can come from various sources including those described in the table below (adapted from another Council’s CHAS Phase 8 Summary Report). This list of funding sources is constantly changing, especially as climate change adaptation becomes more prominent on the global and national agenda. An example is the recently announced Coastal and Estuarine Resilience Package from the Australian Government.

While past experience shows that government funding has been inadequate in the past, a TSIRC CHAS can help Council be better placed to request and receive funding in the future. It will also help Council prioritise how to use this funding to address the most pressing issues using best available science and evidence.

It is understood that the Torres Strait is at the forefront of climate change impacts. It is also understood the historical failures of government to adequately address the causes and impacts. Therefore the TSIRC CHAS provides an opportunity to take meaningful action that will help Council and communities understand and adapt to an uncertain future.

Conclusion

It is recommended that the that the Climate Change Adaptation and Environmental Committee notes the report and support the content to be referred to full Council at the March 2022 Council Ordinary Meeting.



Author:

Jarrah Doran-Smith

Waste & Sustainability Engineer



Reviewed:

Adeah Kabai

Manager Capital Works



Approved:

David Baldwin

Executive Director – Engineering Services



TORRES STRAIT ISLAND REGIONAL COUNCIL

AGENDA REPORT

| | |
|----------------------------|--|
| STANDING COMMITTEE: | Climate Change Adaptation and Environment Committee |
| DATE: | Friday 11 th March 2022 |
| ITEM: | Agenda Item for noting by Committee |
| SUBJECT: | Waste Management and Climate Change Adaptation Brief |
| AUTHOR: | Jarrah Doran-Smith – Waste & Sustainability Engineer |

Recommendation:

That the Climate Change Adaptation and Environment Committee notes this report.

Background

The purpose of this report is to provide an overview to the Climate Change Adaptation and Environmental Committee in relation to current waste management initiatives and action being undertaken at different scales, including at United Nations, Australian Government, Queensland Government, Torres Strait region and Council related projects. This report will also provide a brief on the latest International Panel on Climate Change (IPCC) report and climate change adaptation activities relevant to the Torres Strait region.

Waste Management and Resource Recovery

This section will provide an overview of waste management initiatives and activities occurring at different scales of government. The intention is to inform of the waste management action and where Council fits into these activities.

The key waste projects that are in line with the portfolio scope for the Climate Change Adaptation and Environmental Committee are outlined below but are not limited to;

- Metal Waste legacy Clean-up Project
- Waste and Biosecurity Management
- Commercial and Construction Waste Restrictions
- Warraber Island Resources Recovery Program

United Nations Environment Assembly

On the 2nd of March 2022 Heads of State, environment ministers and other representatives from 175 nations, endorsed a historic resolution at the UN Environment Assembly in Nairobi to end plastic pollution, and forge an international legally binding agreement, by the end of 2024. Some of the key points around global plastic pollution include:

- Plastic production soared from 2 million tonnes in 1950, to 348 million tonnes in 2017, becoming a global industry valued at \$522.6 billion. It is expected to double in capacity, by 2040.
- Exposure to plastics can harm human health, potentially affecting fertility, hormonal, metabolic and neurological activity, and open burning of plastics contributes to air pollution.
- More than 800 marine and coastal species are affected by this pollution through ingestion, entanglement, and other dangers.
- Broad mandate aims to target plastic pollution in all its forms, including microplastics.
- A committee is now tasked with negotiating a deal that will affect businesses and economies globally.

Australian Government Action

In 2018 the Australian Government released the National Waste Policy which sets the agenda for waste reduction by 2030 and the 2019 National Waste Policy Action Plan. The Action Plan aims to improve waste management across the country through seven ambitious targets:

1. Regulate waste exports
2. Reduce total waste generated by 10% per person by 2030
3. Recover 80% of all waste by 2030
4. Significantly increase the use of recycled content by governments and industry
5. Phase out problematic and unnecessary plastics by 2025
6. Halve the amount of organic waste sent to landfill by 2030
7. Provide data to support better decisions

Some key government actions include:

- The Australian Government Recycling Modernisation Fund which aims to invest \$800 million into new infrastructure to improve recycling and reduce waste going to landfill.
- In 2021 the government developed the 'ReMade in Australia' campaign which aims to work with industry to recycle more waste and convert waste into resources. The Government aims to help industry to transform recycled rubbish into products like old plastic bottles into playgrounds, used tyres into new roads and mobile phones back into cutting-edge electronics.
- Sustainable Procurement to support the use of raw materials.
- Product Stewardship to support business to take responsibility for products throughout their life.

Queensland Government Action

In 2019 the Queensland Government released the Waste Management and Resource Recovery Strategy which provides a framework for Queensland to become a zero-waste society. To support the transition to a less wasteful future for Queensland, they are undertaking the following key actions:

- Providing support to the development of the Regional Waste Management Plan under the **Respecting Country – A sustainable waste strategy for First Nation communities**. The strategy is implemented through a series of Regional Waste Management Plans. This includes the Straits and Northern Peninsula Regional Waste Management Plan, discussed below.
- Queensland's Waste Levy was implemented in July 2019 to underpin the Waste Management and Resource Recovery Strategy. The Levy is a cost for businesses disposing waste into landfill. The revenue from the Levy is then put back into

funding waste/resource recovery projects, such as the Regional and Remote Recycling Modernisation Fund, discussed below.

- To support these strategies and the reduce waste going to landfill, the Queensland Gov. developed a number of waste reduction initiatives including:
 - Plastic bag ban
 - Single use plastic ban
 - Containers for Change

Straits and Northern Peninsula Regional Waste Management Plan

This plan is for the Torres Straits and Northern Cape York Peninsula communities and covers the local government areas of Torres Shire Council (TSC), Torres Strait Islands Regional Council (TSIRC) and Northern Peninsula Area Regional Council (NPARC). This RWMP explains the current waste and resource-recovery situation in each of the three councils and establishes a clear roadmap from current practices to future improvement in waste and resource-recovery operations and outcomes with 'fit for purpose' solutions. This plan is transformative for the region — in particular for TSIRC, which faces the greatest challenges of all councils across the state in respect to landfill operations and resource recovery given its geographic isolation, dispersed nature of the population, location of communities across the Torres Straits, and financial and administrative constraints.

This plan looks to address waste management through the following actions:

- Close and rehabilitate landfills across all islands.
- Develop transfer stations on each island.
- Provide household/kerbside recycling and food waste collection services.
- Food waste, garden waste and paper to be composted for soil conditioner.
- Sort and separate recyclables, regulated waste, e-wastes and bulky wastes.

- Anything that cannot be recycled or composted will undergo deep burial at a landfill on the mainland.



Council Specific Projects

Metal Waste Legacy Stockpile Clean-Up

In June 2018 Council was provided funding through the Indigenous Councils Critical Infrastructure Program (ICCIP) to undertake a clean-up of metal waste legacy stockpiles from communities within the Torres Strait region. The metal waste streams include:

- Wreck vehicles
- Scrap metal and white goods
- Heavy plant, trucks and equipment

ARO industries are facilitating Council with the contract and project management. McMahon Services have been awarded the contract to undertake the works. Works are expected to commence in April 2022.

Waste and Biosecurity

Council was successful in its application for a Biosecurity Business Grant (BBG) through the Department of Agriculture Water and Environment. The intended projects outcomes in the application were for the appointment of a Waste and Biosecurity Engagement Coordinator,

development of a Waste and Material Biosecurity Management Plan (WMBMP) and development of Information Sheet and Communication Plan. Project outcomes are detailed below:

Waste and Biosecurity Engagement Coordinator

The newly appointed position is a fixed term position for 24 months and is located on Masig Island. The position sits under the Engineering Services department and will work alongside Environmental Health Workers. The position will be working on ways to reduce inputs to island landfills, including Council and community groups working together to enhance recycling, supporting commercial sectors to increase recycling rates, and working with construction sector to improve their process for removing waste. This role will also collect waste data and oversee the implementation of the Waste and Material Biosecurity Management Plan across the region and provide ongoing training and support to the local communities and stakeholders.

Waste and Material Biosecurity Management Plan

Commissioning a literature review of all biosecurity documents and developing a Waste and Material Biosecurity Management Plan. Develop Waste and Material Biosecurity Management Plan which explains the objectives, goals and planned procedures related to waste and materials movements and the biosecurity requirements throughout the Torres Strait region.

Warraber Island Resource Recovery Program

A grant application was submitted to the Department of State Development, Infrastructure, Local Government and Planning to develop a resource recovery program for Warraber Island. Total funding requested is \$935,321.00 and was submitted on the 27th of January. The grant was only applicable for recovering plastic, tyres, glass, paper and cardboard. Warraber Island was chosen for the grant application because there is existing staff, shed and equipment to facilitate the recycling project.

To divert waste from the Warraber Island landfill and recover valuable recyclables, Council proposes to separate hard plastics (PET, HDPE and PP), soft plastics (LDPE), cardboard and paper items from the general waste stream. After separation and sorting, the materials will be subject to biosecurity inspection/treatment by Department of Agriculture Water and Environment Biosecurity Officer before transporting to Cairns via Sea Swift, collected by JJ Richards, and processed at the Cairns Material Recovery Facility (MRF).

This project will require: renovating existing transfer station, installing sorting tables, rollout of household recycling bins, purchasing freight bags, bin lifters and a trailer to move bins, and transportation of recyclables back to mainland for further processing.

Climate Change and Adaptation

The Sixth International Panel on Climate Change (IPCC) report

The Sixth IPCC report on climate change impacts, adaptation, and vulnerability, summarizes the last eight years of scientific progress on understanding climate change. It considers the wide range of impacts attributable to climate change and the likelihood they will occur.

Some key finding/points from the report include:

- Reaching 1.5°C in the next few decades would create unavoidable increases in climate extremes. This would mean humans and ecosystems will experience loss and damage.
- Staying below 1.5°C will substantially reduce those risks, but not eliminate them.
- Adaptation remains critical even if warming is kept to 1.5°C.

- Many plants and animals are reaching the limit of their ability to adapt to climate change. Those that cannot adjust or move fast enough are at risk of extinction.

The report outlines the 9 key risks of climate change to Australia:

1. Loss & degradation of coral reefs due to marine heatwaves
2. Loss of alpine species due to lack of snow
3. Loss of native forests due to heat and fire
4. Loss of kelp forest due to warming oceans, marine heatwaves, and ecosystem degradation
5. Loss of coastal human settlements and natural habitats due to sea level rise
6. Decline in agricultural production and stress on rural communities
7. Increase in mortality for humans and wildlife due to heatwaves
8. Widespread impacts from disasters such as fires, floods and drought
9. Mismanagement of climate risk by business and government

The report also outlines what adaptation looks like – “It is important that we create the best enabling environment for adaptation. This might include political commitments, policy, access to finance, improved knowledge of impacts and solutions, monitoring and evaluating adaptation actions and outcomes, and ensuring inclusive governance - which might include working collaboratively across sectors. Ensuring development is undertaken in a climate-resilient way will have an important role in adaptation. In Australia, we have an opportunity to invest in urban and rural development to integrate consideration of climate vulnerability and exposure, and adaptation opportunities to avoid creating or perpetuating climate risks.”

Some examples of natural adaptation options are given by the report:

- Introducing trees and other vegetation to cities and communities provides cooling
- Natural river systems, wetlands and upstream forest ecosystems reduce flood risk by storing water and slowing water flow, in most circumstances
- Coastal wetlands protect against coastal erosion and flooding associated with storms and sea-level rise where sufficient space and adequate habitats are available.

TSRA Renewable Energy Initiatives in the Torres Strait

Renewable Energy Transition Plan

TSRA has engaged Ener-G Management Group (Ener-G) to develop a Renewable Energy Transition Plan (RETP) for the Torres Strait that will assist the region to clarify the most viable pathways to transform the regional energy supply in a manner that addresses energy reliability and security as well as meeting regional aspirations related to autonomy, sustainability, employment and reducing cost of living pressures.

The RETP considers key factors such as:

- Emissions produced and electricity production required
- Community awareness and readiness
- Factors influencing the future energy requirements in the Torres Straits, such as demographics, population, culture, employment, family composition, education and housing

- Environmental factors including climate change
- Technology (current and emerging)
- Barriers to the uptake of renewable energy
- E-Mobility transport change

RETP provides an overview of factors that must be considered when addressing primary energy transitioning. It provides a framework for feasibility studies into different renewable energy options which would consider pricing, logistics operations and maintenance.

Solar powered drinking water system

In March 2022, Council has begun initial conversations with TSRA to collaborate on a solar powered drinking water system project. These systems are an innovative technology that uses only the power of the sun to extract clean, high quality drinking water from the air. The result is the first off-grid, climate-resilient, and decentralized drinking water solution that can be scaled to meet consumer, customer and community demand.

Source is the company that produces the systems and they have funding from the Reed Cross to install a trial system in the Torres Strait. Iama has been proposed as a pilot project site as there is no catchment for clean water supply. It is proposed the best place is roof mounted over the community meeting area behind the council office. This system will be a 30 panel array and should be able to produce about 900 liters of water a week – that will replace an estimated 900 l worth of bottled water sales a week, which is equal to around 20c p/L over the life of the technology.

At this stage it is in the preliminary planning stages, however further investigation is needed before the system is offered to community.



Conclusion

It is recommended that the that the Climate Change Adaptation and Environment Committee notes this report.



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