

Cape York Living NRM Plan

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This document provides an overview of Cape York's NRM plan and Atlas. The entire site can be found at www.capeyorknrm.com.au. This plan document will be updated periodically. Please check the website for the current version.

Acknowledgements

A planning process is the sum of many discussions, lots of time and a flood of information. The process started when the idea of a Cape York regional body started; many years ago. The recent process has been the result of a few years of engagement with the Cape York community, the work of the Cape York NRM Board in its various forms and work by Cape York NRM staff. Cape York NRM would like to thank everyone who has supported the project in all capacities. Cape York NRM particularly acknowledges the recent funding from the Australian Government's **Stream 1 of the Regional Natural Resource Management (NRM) Planning for Climate Change Fund** and the support from the Stream 2 Wet Tropics cluster.

Glossary

Adaptation (specifically to climate change)

The adjustment, in natural or human systems, in response to actual or expected climatic changes or their effects, which moderates harm or exploits beneficial opportunities.

Adaptive management

According to Foundations of Success (<http://www.fosonline.org/>), 'adaptive management' is the integration of design, management, and monitoring to systematically test assumptions to adapt and learn.

Carbon abatement

The reduction in the amount, degree, or intensity of total greenhouse gas emissions, usually measured in carbon dioxide equivalents (CO₂-e).

Climate change

The shift in these natural climate conditions over decades. Climate change is caused by the Earth's atmosphere holding extra carbon dioxide and other greenhouse gases. As the sun heats the Earth, these gases heat up - changing the Earth's climate patterns. The largest source of these gases is pollution from people burning fuels for energy. Other sources include wildfire. While these greenhouse gases have been released into the atmosphere for millions of years through natural events, human-induced atmospheric pollution has resulted in the highest levels of these gases in the atmosphere over the last 800,000 years.

Climate variability

Climate is generally thought of as the average of the weather conditions of a particular place. In Cape York, there are two main seasons – the Wet and the Dry – though some Indigenous groups recognize many other seasons based on flowering seasons, rainfall and wind. Climate is measured by local weather gauges and the Bureau of Meteorology weather stations across Cape York. These gauges and stations give people an understanding of the average conditions at these sites and the variability across seasons and years. On Cape York, one of the influences on climate over seasons is the Monsoon, while an influence over years is the El Niño and La Niña cycles.

Collective learning

A dynamic and cumulative process that results in the production of knowledge. Such knowledge is established in the form of rules, routines, norms and strategies that guide future action. Learning emerges from interaction where individual knowledge is shared and further developed with others. Collective learning is therefore an evolutionary process of perfecting collective knowledge.

Planning by doing

In an attempt to build resilience, Cape York NRM is moving away from a traditional ‘plan, then do’ approach to a continually adaptive process that involves collective learning. While there are times where one could only do ‘planning’, the larger process is built on concurrently planning and doing - step by step, and cyclic. Activities are adapting while working on projects that inform future management decisions to reach the NRM plan targets.

Resilience

The capacity of a system to absorb disturbance, undergo change and still retain essentially the same function, structure, identity, and feedbacks.

Social-cultural-ecological systems

Cape York NRM focuses on a systems approach, rather than a specified assets-based approach. A regional planning system consists of a set of linked activities, interactions and relationships among participants and objects. In recent years, economists, ecologists, sociologists and planners have shifted to a more systemic and multidisciplinary view of the regional planning system. All parts of the planning system affect other parts. Collectively, these activities influence the ecological, social, cultural and economic health of a region.

Vulnerability (specifically to climate change)

According to the Intergovernmental Panel on Climate Change, vulnerability is “the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.”

1. Introduction

1.1. About The Company

Cape York Natural Resource Management (NRM) Ltd is a not-for-profit organisation and registered charity, with a mission to help people work to care for the natural environment while promoting the sustainable use of natural resources in Cape York Peninsula.

Cape York NRM is staffed by a dedicated team who work with individuals, groups and communities across Cape York to care for Country, through activities that promote and support the organisation's mission.

The priorities that guide the work of the group have grown through extensive community engagement. The organisation is involved with partnerships across Cape York, and through these relationships, implement activities based on principles of sustainable development, capacity building, project support and development, and regional coordination and planning. Currently Cape York NRM's staff work with land and sea managers, traditional custodians, growers, graziers and ranger groups on a wide variety of programs that enhance Cape York's wetlands and soils, and offer protection to the Great Barrier Reef environment. Cape York NRM supports work that addresses the issue of climate change, as well as threats to the environment, culture and communities, including threatened species like sea turtles and the rare Jardine River turtle, and invasive species, such as feral pigs and weeds.

1.2. The Region

The Cape York NRM region (137,000 km²) extends north from the Mitchell River catchment to 'The Tip' of Cape York Peninsula. It encompasses diverse landscapes including 16 complete river basins with their systems virtually unmodified (the Annan River being the exception). The region contains 30 broad vegetation groups including 72 different types of rainforest comprising 20% of Australia's remaining rainforest.

An area of the Mitchell River catchment north of the Cape York Peninsula Land Use Strategy (CYPLUS) line is known as the Joint Management Area (JMA) as drawn in Figure 1. Both Cape York NRM and Northern Gulf Resource Management Group (NGRMG) have community, industry and government engagement responsibilities within the JMA. Both organisations apply for funding and manage projects within the JMA in accordance with a Memorandum of Understanding (dated 7th June 2011).

Although much of the biodiversity has yet to be systematically surveyed, Cape York is known to have 3338 terrestrial plant species (379 of which are listed as rare and threatened and 264 of which are only found in Cape York). Cape York's diverse fauna includes 60% of Australia's butterflies, 25% of the frog species, 25% of the reptile species, 50% of the bird species, 33% of the mammals and the richest freshwater fauna in Australia (88 species, 41 of which are only found in Cape York).

Cape York has a rich historical and living cultural landscape. There are about 45 distinct Aboriginal languages with several hundred dialects. The diversity of its ecological zones – drier central highland, wetter northern region and wetter and more continuous rainfall in the east – has allowed for the development of contrasting kinds of cultural landscapes. The way water moves across the landscape is the basis underpinning Cape York's clan estates, language groups and regional alliance groups.

The population of Cape York in 2011 was 15,400 56% of whom are Indigenous (Australian Bureau of Statistics 2012). Most people live in towns and there is a high level of unemployment (16%) (Chester & Driml 2012). There are 10 local governments (8 of which are Indigenous). The major primary industry based on both land use and income is cattle grazing. The other main industries include mining, horticulture, tourism and commercial fishing.

Land use includes 14.3% national park, 23.3% Aboriginal Shire lease, DOGIT or Land Trust, 52.9% is leasehold (with 33.9% pastoral lease). Less than 1% of Cape York is freehold land (Chester & Driml 2012).



FIGURE 1 CAPE YORK NRM REGION.

1.3. What is a natural resource management plan?

A natural resource management plan guides the efficient placement of land use activities. It provides information and access to tools to effectively and sustainably manage desired land uses.

The Cape York NRM plan showcases the planning and management activities of the region, its people and its ecosystems. Building a robust planning process requires long-term, coordinated and collaborative effort with people involved in managing the land and those people supporting land managers inside and outside the region. The Cape York NRM Plan is continually updated through a Planning By Doing method. This prioritises on-ground activity and builds in continuous monitoring as a way to ensure adaptive and effective long-term management strategies.

Importantly, this approach and NRM plan is driven by Cape York community voices and on-ground projects happening in Cape York. The process is always adapting to better suit the real-world needs of the people and ecosystems of this country.

1.4. Why is Cape York Natural Resource Management involved?

A key part of Cape York NRM's role is the bridging of knowledge, coordination and partnerships to care for the natural environment and sustainably manage resources. It is also responsible for developing, facilitating and monitoring the implementation of a regional natural resource management plan.

Natural resource management planning in the Cape York region enhances and exchanges skills and knowledge of and with the people on Cape York to assist them to plan for change. With so many changes happening on Cape York, particularly changes in climate, people need to find ways to cope with and adapt to these changes. The plan and planning process fulfills part of Cape York NRM's role to build trust with the Cape York community and to agree on and monitor a set of coordinated actions.

1.5. Key planning principles and policy alignment

Cape York NRM's governance, operations and planning processes are guided by several sets of principles. These can be found in Appendix 1.

The Cape York NRM plan is aligned with several national policies and international agreements. For more information on how the plan is aligned, see Appendix 2.

1.6. How can it help you?

People plan for many reasons. This NRM plan has the purpose of supporting people to change and improve land uses for the benefit of people and the environment. It can assist with monitoring the success of actions as people journey on the pathways to achieve the NRM targets.

2. The Atlas

The Cape York NRM Plan is situated within a broader Atlas which provides opportunities for accessing, communicating, collecting, enhancing and sharing knowledge useful to planning and doing on-ground actions.

The Atlas consists of nine independent websites, which work together to collect and share information about land management on Cape York and provide tools to land managers to plan across scales, improve and target on-ground management and inform management actions.

For investors and the Cape York community, the Atlas also showcases the projects they have invested in and how these are meeting the priorities of the regional investment strategy and

the NRM plan targets. The NRM plan also identifies future priorities for action and investment, as described in each of the pages of target and adaptation pathways.

2.1. The sites

Cape York NRM Home

Cape York NRM Home <https://capeyorknrm.com.au/> is the main corporate site for information about the organisation, what it does, its projects and partners. Information about government investment can be found here, along with information on the social, cultural and environmental values of Cape York.

Natural Resource Management Plan

The NRM Plan <https://capeyorknrm.com.au/nrm-plan> pulls the Atlas together into a plan and provides a framework for natural resource management planning on Cape York. The site documents Cape York's planning history, and shows the process and principles Cape York NRM used to plan. It lays out options for future land management, especially in the face of climate change impacts, and is informed by local monitoring and land management practices, the best and most current regional and national science, and Traditional Knowledge. Eight adaptation pathways are shown within this site that identify ways to work towards achieving eight NRM targets. The pathways and targets were identified through extensive engagement with land and sea managers from across Cape York. The site also identifies Cape York NRM's current Regional Investment Strategy. Importantly the site identifies projects that Cape York NRM and the Cape York community are working on already that assist in reaching the NRM plan targets.

Carbon, Ecosystems and Biodiversity

Carbon, Ecosystems and Biodiversity <https://capeyorknrm.com.au/ecb> is a sub-site of Maps & Data. It is a mapping tool for carbon abatement, savannah burning, threatened species distribution and hotspots, and ecosystem service values. Individual property maps can be downloaded from the site, and the site provides access to the SAVBAT tool. These are useful for landholders to determine the opportunities for engaging in the Savannah Burning economy.

Who Plans Here

Who.Plans.Here. <https://capeyorknrm.com.au/who-plans-here> is a tool to locate plans that are in place for Cape York localities. Cape York NRM has over 50 plans available on the site (with many more to come). Plans can be located by searching a selected area on a Cape York map. Plans that Cape York NRM have permission to share will be displayed, with options to download, or contact the Plan owner. This site gives voice to all the planning being done on Cape York across multiple scales.

Maps and Data

Maps & Data <https://capeyorknrm.com.au/maps-data> powers most of the repository and spatial data management for the Cape York NRM ATLAS websites. Items such as maps, documents and data are referenced as resources on this site. NRM groups, agencies, and community members who have an interest in leveraging these data holdings for further public good and for planning their on-ground NRM projects will find this site useful.

Land manager

Land Manager <https://capeyorknrm.com.au/landmanager> is a collection of case-studies, stories and tools, providing information about managing Cape York's land and sea country. It is designed for graziers, horticulturalists, rangers, Land Trusts, researchers and anyone who works on the land and sea. Cape York people are encouraged to tell their stories on this site,

and share their knowledge about land management practices that work (or don't work) on the Cape. It also provides a place where service providers who regularly work on the Cape can promote their services.

Adapt: Climate Stories

ADAPT: Climate Stories <https://capeyorknrm.com.au/climate> is a collection of films, stories and resources about Climate Change on Cape York, in Australia and from across the World. Cape York NRM is proud to have produced a series of films from across Cape York, that shares the climate change concerns of Traditional Owners. The site is also home to resources from CSIRO, James Cook University and the Bureau of Meteorology and the products from Wet Tropics Cluster Planning for Climate Change Stream 2 Research project. Stream 2 is a National Science Initiative that developed information and tools to support NRM planning for Climate Change.

Fire

Fire on the Cape <https://capeyorknrm.com.au/fire> is a collection of knowledge, tools and resources for best practice fire management for Cape York. It incorporates principles from Traditional Knowledge holders and western fire management practice. The site links with Carbon, Ecosystems and Biodiversity, to Northern Fire Manager that hosts Northern Australia Fire Mapping (NAFI), and to Cape York Fire that contains films from Cape York Indigenous fire workshops. Some of the resources include: the past 15 years of fire history on Cape York; news, stories and presentations on fire management; and a map showing current fire management plans and savannah burning projects.

Water

Water Quality <https://capeyorknrm.com.au/water-quality> is a site all about water on Cape York. It incorporates the East Coast Water Quality Improvement Plan, and other information about looking after Cape York's precious water resources.

Living Knowledge Place

The Living Knowledge Place <http://www.livingknowledgeplace.com.au/> is home to a collection of films and educational resources sharing Traditional Knowledge from across Australia. The Living Knowledge Place has its own entry point on the Atlas and has been developed by Mulong Productions with Indigenous communities from across Australia.

Partner Programs

Partner programs <https://capeyorknrm.com.au/partner-initiatives> is a sub-site of the main corporate site, and is a place that showcases initiatives of partnerships that Cape York NRM has contributed to developing.

3. Adaptation Pathways to NRM Targets

3.1. What are the adaptation pathways?

In an attempt address climate change impacts and implement adaptive practices, Cape York NRM developed 'adaptation pathways' and relevant actions outlined in the look, listen, learn and link framework that integrate the planning by doing process to achieve NRM targets. These pathways propose concurrent and coordinated actions to reduce the effects of climate change and improve community and ecosystem resilience. Each overall adaptation pathway can be independent, or work together with other pathways. Each adaptation pathway has multiple steps and directions to work towards the overall target. Each target also has identified assumptions, opportunities, implications, limits, barriers and challenges, risks and perverse outcomes, example monitoring indicators and the scale of the change.

3.2. How are they identified?

These adaptation pathways were developed during the NRM planning project, over the past three years. Each pathway has a section identifying how it was identified and developed. The pathways are also constructed to pay respect to everyone involved, whether through on-ground works, partnerships, workshops, reporting, technical studies, research or other plans.

The information and tools presented in each Cape York Atlas site relate to the adaptation pathways that can be taken to reach the NRM plan targets.

3.3. Target: Appropriate fire management

Adaptation pathway	Every year large areas of Cape York Peninsula burn at the wrong time, affecting the health and function of the landscape. Many vegetation types burn too hot, and some of these places should instead be protected from fire. The impacts of ongoing poor fire management in Cape York are not well understood. This adaptation pathway identifies actions that work toward improving governance of fire management on Cape York. The pathway brings together organisations and land managers of geographical clusters to work together across landscapes. The actions will connect people to exchange knowledge, collate information and data, develop technical resources, provide on-ground resources and provide training in implementing and monitoring of fire. This will occur by supporting both western and Indigenous fire knowledge holders and practitioners to improve implementation of contemporary fire practice.
How was it identified?	Poor fire management practices are a well-known issue on Cape York. Cape York NRM identified this as a key pathway through listening to the community's big concerns via long-term engagement, development of the regional investment strategy, experience in implementing landscape scale fire projects and years of delivering the Indigenous Fire Workshop. Cape York NRM analysed the past 15 years of fire history on Cape York in addition to previous and current fire projects and research papers. This analysis has been further informed by partnerships with Traditional owners, scientists and technical experts as well as discussions with research bodies and Government organisations implementing and developing the savannah burning methodology. Cape York NRM have been developing monitoring tools with Cape York NRM's regional delivery partners, developing and sharing resources with land managers, undertaking case studies, meeting with Carbon businesses and working with land managers implementing fire projects. Fire is a critical factor in the context of climate change impacts on Cape York, as discussed by the regional climate reports.
Scale	Regional
Change	Transformational
Listen	<ul style="list-style-type: none">• Conduct workshops and engagement to identify values, aspirations, knowledge and methods across the landscape.• Collate surveys and quotes from interviews at events such as the Indigenous Fire Workshop.

	<ul style="list-style-type: none"> • Support the North Australia Fire Information service to monitor fire by satellite. • Map and categorise vegetation into fire types. • Improve understanding of impacts of fire management on land condition and water quality • Increase on-ground monitoring
Learn	<ul style="list-style-type: none"> • Facilitate Indigenous-led on-country fire workshops to collectively learn and build on people's techniques and knowledge for appropriate fire management. • Trial cluster-based fire management with advice from fire experts, to collectively learn about the effects and impacts of appropriate burning, including savannah burning methodologies through the Carbon Farming Initiative. • Conduct training and skills development for appropriate burning and monitoring techniques and tools. • Support land managers to plan for and build skills in implementing and monitoring fire management. • Support development of skilled fire managers.
Look	<ul style="list-style-type: none"> • Develop priorities for management across clusters of properties. • Analyse the results of burn trials. • Identify key field resources and people to support fire management. • Seek information and knowledge on the effects of different fire regimes on ecosystems, including water quality.
Link	<ul style="list-style-type: none"> • Support the development of governance structures that improve co-ordination and delivery of fire management on Cape York. • Develop and promote resources, information and case studies with community partners to build awareness about appropriate methods for fire management. • Bring together key experts and knowledge holders, with resources and funds, to implement burns across the clusters. • Ensure the right people are speaking for fire on country, through supporting appropriate governance structures. • Support groups to implement and improve implementation of Carbon Farming Initiative savannah burning methodology projects and future savannah sequestration projects. • Support groups and land managers to share knowledge with each other through mentorship, knowledge exchanges and through the ATLAS.
Example monitoring indicator	<ul style="list-style-type: none"> • Monitoring and analysis of fire scar information through NAFI. • Increase in on-ground monitoring of ignition and photo-points. • Improvements in number of groups communicating fire management programs. • Establishment of water quality monitoring sites related to fire management. • Increase in resources and tools to support improving fire management. • Improved ground cover throughout the year improving land condition and water quality.
Assumptions	<ul style="list-style-type: none"> • Using fire to adapt to a changing climate will improve ecosystem resilience and reduce the threats to threatened species. • Changing fire patterns is one of the key impacts of climate change. • Implementing this pathway fits with people's aspirations and values for Cape York, thus facilitating improved coordination. • Selecting the most appropriate burning practice for each landscape depends on the value of the people involved and the land being managed. • Working together will help to develop ecologically and culturally appropriate burning practices for the target clusters. • Fire is one of the key threats to biodiversity and ecosystem health and key barriers to higher grazing productivity.
Opportunities	<ul style="list-style-type: none"> • Carbon sequestration and mitigation through the Carbon Farming Initiative. • Integration of fire management with other landscape uses and management activities, such as weed control, can lead to multiple outcomes. • Positive social outcomes from working together to protect similar values across clusters of properties. • Social and cultural benefits and improved knowledge. • Benefits of improved land condition and water quality through increased ground cover late in the season.
Implications	<ul style="list-style-type: none"> • Reduction in late season hot fires.

	<ul style="list-style-type: none"> • Improved biodiversity and ecosystem health. • Reduction in risks to properties. • Improved grazing land productivity. • Improved resilience to climate change. • Improved skills and knowledge. • Improved collaborations.
Limits, barriers and challenges	<ul style="list-style-type: none"> • People's held values and aspirations for the management of each landscape might conflict. • Unwillingness to work together. • Limited skills, capacity and resources to do the work across large areas. • Limited on-ground monitoring to determine effects of fire on ecosystems and water quality.
Risks and perverse outcomes	<ul style="list-style-type: none"> • Potential for specific land management focus to have negative impacts on biodiversity. • Burning according to the Carbon Farming Initiatives might be contrary to the ecological needs of the landscape. • Burning incorrectly might risk property and people.

3.4. Target: Services provided by healthy ecosystems

Adaptation pathway	Conserving and maintaining healthy ecosystems is critical for building resilience against the multiple impacts of climate change. Multiple ecosystem services provide a numerous benefits to people. The services provided by the large, complex and intact ecosystems of Cape York include climate regulation, habitat for thousands of species (many of which are useful), genetic resources (such as for wild rice), fresh water, waste treatment and erosion prevention. Acknowledging these values can provide economic and lifestyle benefits to people living on Cape York.
How was it identified?	Extensive surveys and community engagement has identified multiple values people hold for their environment. There is a large volume of technical and scientific evidence for ecosystem services and their valuation. Ecosystem services are also core to the Stream 2 reports on climate impacts and adaptation.
Scale	Regional
Change	Transformational
Listen	<ul style="list-style-type: none"> • Conduct surveys and engagement to understand people's values for the environment and benefits that ecosystems provide. • Measure tangible products from the environment, eg. carbon, erosion, ground cover and water. • Conduct systematic and rigorous monitoring of carbon in different systems for developing new Carbon Farming Initiative methodologies. • Evaluate ecosystem services in monetary units to open up a conversation with the community about benefits ecosystems provide and options for alternative land uses.
Learn	<ul style="list-style-type: none"> • Engage with the community to understand the current opportunities for carbon farming. • Investigate possible options for carbon abatement and sequestration. • Conduct scenario modelling for ecosystem assets, land uses and using potential ecosystem services. • Work with properties and Indigenous groups to evaluate local ecosystem service benefits. • Seek and develop tools to support a market for ecosystem services and stewardship arrangements. • Work with the community to identify possible alternative economies for land management. • Support innovation for alternative economies for soil carbon sequestration.
Look	<ul style="list-style-type: none"> • Identify areas where carbon sequestration might be an option, eg. mangrove migration areas, soil carbon in wetlands (modelling and mapping carbon potential at a finer scale). • Use results of social and technical work to develop a framework for encouraging alternative land uses based on ecosystem services. • Develop and collect communication products to promote understanding of ecosystems and their services. • Investigate, negotiate and develop offsets programs or appropriate environmental stewardship arrangements for infrastructure developments.
Link	<ul style="list-style-type: none"> • Connect experts with landholders to identify viable carbon sequestration opportunities and resourcing trials for monitoring and developing new sequestration techniques.

	<ul style="list-style-type: none"> • Hold workshops and field visits to discuss alternative livelihoods, such as through harvest of native species, tourism and Indigenous traditional ecological knowledge intellectual property arrangements. • Contribute to revision of policies to facilitate acknowledgement of ecosystem service benefits and develop economic markets. These may include changing duty of care arrangements to allow for payments for ecosystem services, biodiversity offsets policies and regulations for infrastructure developments. • Work with businesses, organisations and Indigenous groups to create viable income streams through healthy ecosystems, such as enhancing Indigenous land and sea funding.
Example monitoring indicator	<ul style="list-style-type: none"> • Measuring the condition of ecosystems through satellite and field-based sites.
Assumptions	<ul style="list-style-type: none"> • Changing land uses to optimise ecosystem services will improve resilience of ecosystems to climate change impacts. • Reducing carbon emissions or sequestering carbon can be a viable option for climate change adaptation and mitigation. • The optimum pathway will require enabling conversations about ecosystem services in policy decisions, including possible changes to current State and Federal policy. • Valuation techniques and accounting for ecosystem services can be a useful tool to influence land managers' land use decisions. • Acknowledging that all possible ecosystem services can provide a diversity of economic and lifestyle options for landholders.
Opportunities	<ul style="list-style-type: none"> • Maintenance of healthy lifestyles on Cape York. • Seeking investments for land managers, such as stewardship payments and carbon income. • Developing new opportunities for jobs and a shift in the land management options. • Improvements to ecosystem health. • Improved knowledge and new information. • Protection of Indigenous ecological knowledge. • Contribution to policies that maintain healthy ecosystems.
Implications	<ul style="list-style-type: none"> • Ecosystem services continue to provide numerous economic and lifestyle benefits. • Changes in land use policy and options. • Carbon abatement will provide new land use options through grazing, fire management, protecting seagrass beds, mangroves and tree planting. • Indigenous ecological knowledge will be better protected. • More investment to care for ecosystems. • Greater potential for tourism, particularly ecotourism.
Limits, barriers and challenges	<ul style="list-style-type: none"> • Complex valuation techniques that take investment, resources and time to complete. • Limited empirical information on ecosystem service flows on Cape York. • Low concern for ecosystem services amongst vested interests, such as in the mining sector. • Use information on ecosystem functions and services to change policies. • Developing methods not currently approved under the Carbon Farming Initiative. • Cost of collecting data to account for carbon.
Risks and perverse outcomes	<ul style="list-style-type: none"> • Challenges vested interests in Cape York, such as for mining and infrastructure development. • Misinterpretation of the value and monetisation of ecosystem services leads to conflicting interests.

3.5. Target: Protected and repaired freshwater and marine systems

Adaptation pathway	<p>Cape York has vast, connected and highly valuable aquatic and marine systems that need protection from multiple climate change impacts. This pathway will include improving knowledge of water systems through engagement with community, monitoring and improving models, supporting Indigenous groups access to country, coordinating across catchments and promoting agricultural planning for the sustainable management of water resources.</p> <p>The pathway aligns with the east and west Cape York water quality improvement plans.</p>
How was it identified?	<p>Cape York is characterised by water - from the marine and coastal systems, fresh water systems and wet season deluges. The activities in this theme were identified during engagement with community</p>

	for the Regional Investment Strategy, Your Climate engagement and development of the Water Quality Improvement Plan. Aquatic and marine systems also feature heavily in the Stream 2 reports.
Scale	Regional
Change	Incremental
Listen	<ul style="list-style-type: none"> • Document the values of water systems with Indigenous and non-Indigenous landholders. • Synthesise monitoring and research results to understand the systems, including water quality, soil quality, erosion and flood plumes.
Learn	<ul style="list-style-type: none"> • Conduct workshops and 'walking the landscape' project. • Synthesise science and systems conceptual models to inform the management of these systems. • Conduct catchment-level and subregional planning for water quality, water use and biodiversity conservation.
Look	<ul style="list-style-type: none"> • Use the Water Quality Improvement Plan and targets as a guide to engage people and seek funding and resources. • Support a Cape York Catchments to Coral Partnership with a structured approach with five working groups for urban, roads, grazing, agriculture and nature and cultural conservation.
Link	<ul style="list-style-type: none"> • Run condition assessments of pastures, wetlands, rivers, coastal and marine systems. • Document species diversity, condition and knowledge of the northern section of the east coast catchments. • Collectively implement catchment-level actions to maintain the health of waterways and catchments, including managing pasture condition, gully erosion, fire management, feral animals, weeds, soil health, chemical application and waste treatment. • Establish a small grants program that supports land managers and groups to implement activities for improved management practices. • Use a staged approach to implementation by focusing on high priority actions that make best use of local capacity and resources in the north, central and southern sections of the east coast catchments.
Example monitoring indicator	<ul style="list-style-type: none"> • Catchment runoff and flood plume monitoring; • Road disturbance index; • Water quality indicators, such as turbidity and nutrient loads.
Assumptions	<ul style="list-style-type: none"> • Management of aquatic and marine systems will improve system health, build knowledge, raise awareness of their cultural and conservation values, and maintain the provision of ecosystem services.
Opportunities	<ul style="list-style-type: none"> • Catchment-level management through coordination across interest . • Innovations in grazing and horticulture land management. • Knowledge and awareness of biodiversity and catchment values. • Better monitoring of aquatic and marine systems.
Implications	<ul style="list-style-type: none"> • Protection of high cultural values. • Protection of high species diversity in aquatic and marine systems, including the Great Barrier Reef. • Protection of high ecosystem services. • Improvements in sustainability of infrastructure development. • Improved planning of grazing and agriculture properties. • New knowledge on aquatic and marine systems.
Limits, barriers and challenges	<ul style="list-style-type: none"> • Limited capacity to evaluate the services that these systems provide. • Large gaps in data and information on the water assets of the region. • High costs to restoring these vast and remote systems. • Climate change information related to precipitation is uncertain, which is more of a challenge for land management decisions.
Risks and perverse outcomes	<ul style="list-style-type: none"> • Conflicts of interest in land management approaches to protect values. • Limits to infrastructure development because of the impacts to aquatic and marine systems.

3.6. Target: Adaptive and implemented Regional NRM, community, country and agricultural plans

Adaptation pathway	<p>Community-based plans for sustainable livelihoods and conservation have a big influence on changes in land management and identifying innovative new land use options. Planning can assist people and country to respond to local climate change impacts that are highly variable and require local actions to adapt.</p> <p>Cape York NRM is promoting a planning by doing approach, which is about helping people to develop and implement their own plans. The approach identifies regional NRM targets, adaptation pathways and investment priorities that the community agree with as they are pivotal in implementing the plan.</p> <p>This pathway provides access to information, planning and implementation across scales, supporting groups to plan on country and carry out their actions.</p> <p>Examples include the regional NRM plan and Atlas planning tools, regional collation and analysis of data, with Cape York NRM as custodians for local data and building on-ground monitoring capacity.</p> <p>Plans include property plans, pest management plans, catchment management plans, Healthy Country Plans and threatened species recovery plans. This pathway is about supporting the development of these plans, implementing them and learning from actions locally and regionally.</p>
How was it identified?	<p>Cape York has a long history of failed planning processes. This pathway was developed from the collation of on-country and community plans on Cape York through multiple organisations, particularly for the Who Plans Here site.</p> <p>Cape York Indigenous groups have also participated in the Healthy Country Planning process that follows the Conservation Action Standards. Support for enhancing this process was suggested at the 2014 RIS workshop.</p> <p>Working with land managers and Cape York organisations, Cape York NRM have also been involved in property management planning, including soils, water quality, land condition, fire and pest management plans for Graziers and Lakeland properties. Engagement with the Grazing and Horticultural community has also occurred through Industry Roundtables and delivery of Sustainable Agriculture projects, Reef Grants and the development of the Water Quality Improvement Plan implementation strategies.</p>
Scale	Subregional
Change	Incremental
Listen	<ul style="list-style-type: none"> • Provide mapping services to support landholders and Traditional Owners to map Indigenous ecological knowledge, habitats, ecosystems and threats. • Conduct community-led planning and monitoring on country and collaborative research. • Review and synthesise currently collected community, property and country plans on Cape York through the Who Plans Here portal.
Learn	<ul style="list-style-type: none"> • Assist landholders, Indigenous groups, organisations and industry to develop threat assessments and plan on-ground sustainable livelihood and conservation strategies, including protection of climate refugia. • Support the Healthy Country Planning process that Indigenous groups are implementing to agree on visions and aspirations for country plans. • Support grazing and horticulture properties to plan on their lands through mapping and identifying options to improve productivity, soil health and water use.
Look	<ul style="list-style-type: none"> • Support property, catchment and Indigenous groups who have approved plans to secure funding opportunities. • Use tools such as scenario planning, biophysical and social mapping to identify local climate change adaptation pathways. • Identify facilitators to support Healthy Country Planning, property planning, pest management planning and catchment planning.
Link	<ul style="list-style-type: none"> • Support community and Indigenous groups to be on country to improve planning, land management and personal wellbeing. • Support landholders to improve capacity to respond to natural events. • Support planning on country through property visits, soils testing, pest mapping and Healthy Country Planning processes. • Implement plans through prospectuses and sub-regional plans for the east and west Cape York water quality improvement plans. • Implement trials of innovative grazing and horticulture practices to improve productivity while being environmentally sustainable.

Example monitoring indicator	<ul style="list-style-type: none"> Number of plans developed and uploaded to Who Plans Here.
Assumptions	<ul style="list-style-type: none"> Planning tools and support will suit the needs of each landholder or group. New plans will include new options for land use that target ecosystems, livelihoods and climate change impacts. Plans are achievable and able to be implemented. The implemented actions will improve productivity, ecosystem health and resilience to climate change.
Opportunities	<ul style="list-style-type: none"> Improved capacity of land managers, Indigenous and community groups to plan and implement projects. Improved monitoring indicators and data for long-term management of country. Improved sustainability of land uses through better understanding of country and biodiversity. Developing new opportunities and innovative practices for land management and economic productivity.
Implications	<ul style="list-style-type: none"> New and useable community, property and on-country plans. More efficient management of land. Higher productivity and better incomes. Improved resilience of ecosystems to climate change. Protection of climate refugia. Improved effectiveness of threat abatement. Improved information about climate projections and impacts.
Limits, barriers and challenges	<ul style="list-style-type: none"> Limited climate change information and adaptation options Limited biodiversity information Plans are under-resourced
Risks and perverse outcomes	<ul style="list-style-type: none"> Conflicting plans and institutions on the same patch of country. Documented aspirations and strategies are not developed with appropriate participation and engagement procedures, leading to conflicts within the community and unsupported plans. Too many plans on Cape York to be effective and efficient, leading to thin funding on-ground.

3.7. Target: Preparedness for climate change and weather extremes

Adaptation pathway	Integrated adaptation and recovery planning at multiple levels, from property to council to regional. Planning will target recovery from long-term and short-term climate impacts, such as flooding, cyclones, drought, heat-waves, changes to invasive species and water availability. This includes short and long-term preparation.
How was it identified?	This issue has been reported by landholders post cyclones and informed through the RIS workshops and Your Climate interviews. Stream 2 messages discuss options for recovery.
Scale	Regional
Change	Incremental
Listen	<ul style="list-style-type: none"> Work with community and local governments to develop recovery plans that incorporate weed surveillance and management. Identify with landholders the critical issues related to climate change, such as crop failure, drought, heat waves. Identify issues related to post-event recovery, such as fire and cyclones.
Learn	<ul style="list-style-type: none"> Use historic and current datasets to identify key areas to manage weeds. Develop robust surveillance and monitoring techniques for weed infestations. Engage and provide information about local climate impacts. Discuss how these will affect land management in the long term. Discuss the critical issues that affect land managers after severe events, such as fire and cyclones.
Look	<ul style="list-style-type: none"> Use the results of previous weed infestation data to target areas where the risk of weed spread is greatest. Identify new ways of implementing land management to better adapt to climate impacts.

	<ul style="list-style-type: none"> • Potentially include changes to infrastructure, energy sources (solar), water management or new crops. • Prepare post recovery plans and ensure support is available to respond to events.
Link	<ul style="list-style-type: none"> • Develop flexible funding mechanisms to respond to events in a timely manner. • Implement the plans across the local government areas. • Trial the new approaches in specific areas as models. • Invest and monitor the new approaches to adapt land management.
Example monitoring indicator	<ul style="list-style-type: none"> • Number of people who have implemented or reviewed plans at post natural event debriefing
Assumptions	<ul style="list-style-type: none"> • Natural events such as cyclones and floods not only impact on communities, but also spread invasive weeds to new areas and change conditions for wildlife. • Planning for natural events include long-term strategies to change land management practices as well as short-term recovery plans for natural events. • Plans are implemented and reviewed.
Opportunities	<ul style="list-style-type: none"> • Planning allows land managers to improve surveillance and monitoring of weeds and efficiently respond to outbreaks of weed infestations. • Planning supports natural area recovery. • Improved social cohesion within the community prior and during natural events.
Implications	<ul style="list-style-type: none"> • Reduce the impact of new weed infestations. • Allow for quick recovery of natural areas. • Reduced impact from natural events on properties, land uses and ecosystems. • Improved energy and water efficiency, leading to better overall ecosystem health. • Natural events generally affect people and businesses, but there is an influx of support and funding to support recovery efforts. Planning will allow more efficient use of these resources. • Less unauthorised clearing of natural habitats post-event.
Limits, barriers and challenges	<ul style="list-style-type: none"> • Restrictive funding allocation and timing. • Limited surveillance and monitoring capacity. • Low priority until an impact is felt. • People will need to be more resilient as harsher climate impacts are felt and events become more frequent.
Risks and perverse outcomes	<ul style="list-style-type: none"> • Post-event clearing of vegetation can impact corridors. • Clearing of debris in waterways can impact on biodiversity and water quality.

3.8. Target: Impacts to Threatened Species reduced

Adaptation pathway	This pathway presents actions for gathering information, prioritising threatened species and targeting hotspots in conservation efforts. This will require a coordinated and cross-sector approach for landscape scale conservation of species and habitats, including sea turtles and mammals. The work will include long-term monitoring and systematic surveys of species and ecosystems.
How was it identified?	Cape York has several hundred threatened species listed on state, national and international lists. This issue is voiced through the engagement work over several years on Cape York, including engagement with western Cape York communities through the delivery of the Western Cape Turtle Threat Abatement Alliance. Cape York NRM staff also have expertise in conservation issues, understanding impacts to threatened species and have analysed threatened species records over several years.
Scale	Regional
Change	Incremental
Listen	<ul style="list-style-type: none"> • Collate and analyse databases and information on species distribution and ecology. • Develop and present climate models for species refugia. • Work together to discuss the status, distribution and threats to species to inform targetted conservation actions. • Conduct surveys to discover or understand distributions of species (eg. Jardine River Turtle). • Monitor species populations.

Learn	<ul style="list-style-type: none"> • Conduct workshops and projects to prioritise areas and species, involving people across sectors and specialties. • Learn about the key areas and species to target, including cultural and social connections. • Refine monitoring tools and techniques through shared learning. • Exchange knowledge and identify values (eg. totems) of the species and ecosystems. • Provide mapping services for documenting ecological knowledge, species locations and threats. • Trial recovery actions to learn what works for recovering populations.
Look	<ul style="list-style-type: none"> • Develop partnerships with research institutions and other sectors to implement threat abatement strategies. • Conduct systematic reviews of specific ecological and conservation topics to inform management. • Collaborate on grant writing among organisations and landholders to seek large investments for the protection of species and ecosystems.
Link	<ul style="list-style-type: none"> • Implement targeted and integrated threatened species actions by: <ul style="list-style-type: none"> - Bringing together experts and landholders - Investing in long-term and clear projects - Providing education, training and awareness raising, including citizen science
Example monitoring indicator	<ul style="list-style-type: none"> • Long-term systematic surveys.
Assumptions	<ul style="list-style-type: none"> • There is funding available to work on threatened species. • Threatened species are able to be recovered before declining further. • Conservation actions will reverse the declining population trends. • Collaborating across landscapes, with multiple interest groups and specialties, is the most effective approach to conserve species. • There are hotspots where landscape scale actions will work best. • Land managers of threatened species habitats are supportive of the conservation actions. • Reducing the impacts of fire, pests and infrastructure development are critical to conserve species. • People are able to implement long-term monitoring of species populations and habitats.
Opportunities	<ul style="list-style-type: none"> • Comprehensive and useable databases on threatened species populations, distributions and habitats. • Generation of public interest in conserving species. • Building relationships with existing experienced regional ecologists and conservation groups. • Building clear climate models to understanding future distributions and refugial areas. • Emulating the WCTTAA model for other species and ecosystems. • Working across sectors, specialties and interest groups will build social cohesion.
Implications	<ul style="list-style-type: none"> • Species protected. • Improved ecological resilience. • Keeping the species for future generations. • Maintaining ecosystem services. • Building skills, capacity and social outcomes. • Protecting Indigenous ecological knowledge. • Improved long-term understanding of ecosystem and species health.
Limits, barriers and challenges	<ul style="list-style-type: none"> • Information and data sharing. • Coordinated action across connected properties. • Costs of threat reduction over large landscapes. • Longevity of actions and monitoring. • Limited ecological knowledge of landholders. • Challenging knowledge and ideals of land managers about their impacts to ecosystems. • Targeting charismatic species is not always the most ecologically effective approach.
Risks and perverse outcomes	<ul style="list-style-type: none"> • Too much investment in species that are not able to recover. • Other common species becoming threatened. • Investing in threatened species is more costly than conserving common species. • Species conservation interests conflict with other land management interests.

3.9. Target: Practiced and shared Living knowledge

Adaptation pathway	<p>This pathway will promote the use of the whole of the Cape York NRM Atlas to share knowledge and exchange capacity across groups. The focus is on region-wide planning processes for climate change adaptation using the information gathered from several sources, both technical and community-generated, without creating a new plan.</p> <p>The Atlas is intended to support the Cape York community, particularly landholders, to use and develop tools to integrate land management techniques such as water management, infrastructure assessments, agricultural planning for soil health and monitoring of climate impacts on threatened species.</p>
How was it identified?	<p>Cape York has a long history of failed planning processes which led to a new phase of planning by doing. This was informed by the development of Cape York NRM, community discussions and projects to improve resilience of NRM. This pathway was particularly developed through the Regional NRM Planning for Climate Change project. Using a systems approach to planning for climate change was identified at the 2014 RIS workshop.</p>
Scale	Regional
Change	Transformational
Listen	<ul style="list-style-type: none"> Engage appropriately with Elders and knowledge holders to seek permissions and record knowledge through multiple media platforms. Work with partners, the Board and members of Cape York NRM to understand the aspirations of people Cape York. Receive monitoring data and understand the lessons in delivery of on-ground projects. Receive and develop communications articles for presentation on the Atlas.
Learn	<ul style="list-style-type: none"> Use networks and Indigenous Reference Groups to share, inspire and strengthen responsibilities to Australia's future. Learn about what works and what doesn't to achieve cultural and environmental outcomes, with community partners. Conduct sector workshops to discuss management techniques, 'think tanks' and roundtables, business advice, accredited training and monitoring of activities. Use the project information, identified challenges and lessons learned, monitoring data and research results to improve actions. Assess the risks of various infrastructure development options related to climate variability. Support research and engage with the community to develop new ideas and projects. Work with schools to build skills and knowledge in culture, ecosystems and land management.
Look	<ul style="list-style-type: none"> Connect through the Living Knowledge Place to show people case studies on historical knowledge, environmental projects and wellbeing. As a collective community, continually look for investments and funds, new initiatives and opportunities, connect with networks and test tools for implementing effective actions. Investigate alternative agricultural systems that support sustainable use of water in a changing climate, particularly promoting integrated management of living soils. Collaborate for funding to research and monitor soil health, water fluctuations and climate variability impacts on species and ecosystems.
Link	<ul style="list-style-type: none"> Through the Atlas, provide information, tools and service providers to implement informed, effective and efficient actions. Network across Indigenous and western knowledge systems to improve informed management of country. Assist Traditional Owners to access country, pass on knowledge and document IEK, including promotion to a wider audience. Support local leaders to deliver local on-ground actions efficiently, while exchanging capacity and knowledge with other groups. Implement trials, develop case studies and demonstration sites to communicate NRM issues across sectors.
Example monitoring indicator	<ul style="list-style-type: none"> Surveys on the effectiveness of the Atlas
Assumptions	<ul style="list-style-type: none"> Indigenous people hold knowledge built over thousands of years. Sharing and learning from Indigenous knowledge to promote health of country can support resilience to climate change. The NRM planning process plays a central role in identifying and actively promoting adaptation pathways to climate change.

	<ul style="list-style-type: none"> • The NRM planning process will improve people's understanding of climate change and streamline planning processes across different scales, but developing this process will take time. • Integrating multiple management systems based around maintaining water in the landscape will support climate change adaptation. • Supporting land managers will enable them to integrate multiple land uses. • The Atlas is an effective tool for promoting information and sharing knowledge to the Cape York community.
Opportunities	<ul style="list-style-type: none"> • Sharing of knowledge among interest groups and across sectors. • Protection of Indigenous knowledge that is being lost. • Synthesis of information, not creating new plan. • Strong communications to and among the Cape York community. • Working together to share information, knowledge, skills and experiences. • Strengthening local delivery of projects and supporting local business.
Implications	<ul style="list-style-type: none"> • Clan groups sharing Indigenous ecological knowledge with younger and future generations. • Improved cross-sector collaborations. • Adoption of innovative new ideas. • Improved water and soil health. • Sustainable use of land. • Atlas as an effective new model for sharing information. • Improved community cohesion. • Improved local capacity and skills to manage the land. • Improved respect among Indigenous and non-Indigenous groups.
Limits, barriers and challenges	<ul style="list-style-type: none"> • Intellectual property, permissions to use information. • Cultural barriers to knowledge sharing, distance, time, loss of knowledge. • Out of date plans, top-down government plans. • Maintenance of the Atlas. • Capacity of landholders to adopt new ideas and break through traditional silo approaches to management.
Risks and perverse outcomes	<ul style="list-style-type: none"> • Intellectual property rights and legal issues of others using documented knowledge. • Weakening of relationships from publishing cultural knowledge without permission. • Loss of documented information from shutting down of the Atlas.

3.10. Target: Embedded Monitoring and evaluation systems that inform NRM actions

Adaptation pathway	Regional monitoring that utilises local data in respectful ways and the development of region-wide indicators. These enable landholders and support organisations to learn skills and monitor data to measure long-term land-use change outcomes, which inform the implementation of future practices. Opportunities for custodianship and data sharing agreements are key to accessing this pathway.
How was it identified?	Over 20 years, there have been calls from the community for better systems and standardisation of monitoring and evaluation. Some large systems have been established, such as the ERIN database of the CYPLUS and the recent Pest Central standard and database for the Queensland Government. Cape York NRM developed this pathway through its work on implementing tools and setting up systems to track social and environmental outcomes. Some of these include Cybertracker, Fulcrum, environmental accounting, the North Australia Fire Information Service and internal lessons database.
Scale	Regional
Change	Transformational
Listen	<ul style="list-style-type: none"> • Identify the monitoring indicators and tools that groups currently use on Cape York, such as for coral bleaching, vegetation condition, pasture and soil condition and species populations. • Analyse the current accessible information to see what works and identify the gaps.
Learn	<ul style="list-style-type: none"> • Develop indicators for monitoring the environment and people - through surveys, remote sensing technologies and through long-term site monitoring.

	<ul style="list-style-type: none"> • Evaluate tools that are used by people on Cape York. • Identify barriers to developing new tools like Fulcrum and permissions for data sharing. • Identify the need for monitoring outcomes of projects and activities.
Look	<ul style="list-style-type: none"> • Look for sources of available data. • Collate and interpret collected data. • Identify locations to implement long-term monitoring sites. • Identify gaps to fill, such as plant and animal surveys.
Link	<ul style="list-style-type: none"> • Work with land managers and other organisations to collect and interpret data. • Conduct field work. • Seek permissions for storing and sharing data. • Provide results back to the landholders or stakeholders working with them on adaptations to monitoring techniques.
Example monitoring indicator	<ul style="list-style-type: none"> • Aerial and marine surveillance of coral bleaching and recovery • Photo monitoring points of vegetation health • Systematic surveys of mammals • Number and effectiveness of indicators
Assumptions	<ul style="list-style-type: none"> • Monitoring helps with evaluating actions. • Long-term monitoring is necessary to improve efficiency and impact of actions. • The Cape York community sees the importance of long-term monitoring to provide information on the impacts of their actions. • Results of monitoring can influence changes in land management practices. • Cape York NRM has general community support to be the custodian of their information, under licence from each data owner. • Evaluation tools are readily available and provide clear measurement of outcomes.
Opportunities	<ul style="list-style-type: none"> • Improved performance of projects and actions. • Better detection of major signals over the mid to long term. • Allows identification of new actions and pathways.
Implications	<ul style="list-style-type: none"> • Sharing of data and information. • Building trust amongst land managers. • Legacy of community actions. • Building stories of the current and past activities for future practice change.
Limits, barriers and challenges	<ul style="list-style-type: none"> • Capacity to monitor. • Compiling all indicators. • Sharing of data. • Long-term storage and protection of data.
Risks and perverse outcomes	<ul style="list-style-type: none"> • Data could be used by others to implement projects without permission. • Intellectual property and legal issues might arise from the collection and publication of data.

4. Planning By Doing

In an attempt to build resilience, Cape York NRM is moving away from a traditional ‘plan, then do’ approach to a continually adaptive process that involves collective learning. While there are times where one could only do ‘planning’, the larger process is built on concurrently planning and doing - step by step, and cyclic. Activities are adapting while working on projects that inform future management decisions to reach the NRM plan targets. Cape York NRM's staff and Board and the people of Cape York are together learning skills and sharing knowledge. New knowledge and skills can then improve the effectiveness of on-ground actions combined with live monitoring systems. New information is taken into the new cycle and is able to inform and update plans, priorities and actions to better equip people to deal with unexpected shocks. The planning by doing method is framed by the actions of listening, learning, looking and linking.

4.1. Reflections on previous attempts

Past efforts at planning

Cape York has outstanding cultural and environmental significance. However, in 2013 several community partners from Cape York and technical experts identified several major issues, including poor coordination, huge land and sea mass to deliver across, varied levels of capacity and Indigenous disadvantage (see Section 5, Regional Investment Strategy). While there have been dozens of planning processes and millions of dollars spent on attempting to create a plan that everyone can agree on, few have so far been successful.

From Cape York Peninsula Land Use Strategy to now: 20 years on

The Cape York Peninsula Land Use Strategy (CYPLUS) was the largest funded planning program on Cape York. The first stage started in 1992 and finished in 1995, involving data collection, identification of issues and analysis of opportunities and constraints. Stage 2 commenced in 1995 and completed in 1997, which involved the coordinated development of a strategy for sustainable land use, economic and social development. This was followed by the roll-out of National Heritage Trust funding in early 2000's.

One of the sentiments expressed by the people of Cape York is that not much happened in the decades since CYPLUS Phase 1 and 2. With the support of Sustainable Solutions Global, Cape York NRM set out to identify recommendations from CYPLUS that were related to NRM and explore what has been achieved in the years since CYPLUS Stage 2 finished. While some achievements have been made, several more have not. A timeline of the actions against the plan is presented on a timeline at <https://capeyorknrm.com.au/nrm-plan/about/planning-process>.

A 20-year history of planning on Cape York

CYPLUS was also one of the biggest planning processes seen on Cape York. Since then, though, dozens of other plans and planning processes were started, drafted or completed. These processes are showcased on a timeline <https://capeyorknrm.com.au/nrm-plan/about/planning-process>, showing what they were, when they were done and how they relate to planning on Cape York.

Learning from past planning: growing a living plan

Over the past 20 years, several large plans on Cape York failed to gain traction and consensus because they were not strategic, were dependent on funding that was not available, were ignored or were not endorsed by the community. While the plan needs a process that delivers great social, cultural, environmental and economic outcomes, the planning process should avoid another top-down, rigid structure.

The plan should also be owned by everyone who is managing land on Cape York whereas previous plans only had partial agreement. Everyone should be able to find a place where they fit in this plan so Cape York NRM has developed the idea of a living plan that includes planning by doing centered around adaptation pathways to achieve natural resource management targets.

To make sure that the community stays central to the process, Cape York NRM's Atlas showcases community and other plans that are relevant to Cape York, from local to regional. These are shown on Who Plans Here. The Atlas also showcase projects and outcomes that Cape York NRM and the community are already undertaking or have completed that contribute to steps along the adaptation pathways, working together to reach the NRM plan targets.

4.2. New Understandings

For the first two years of operations Cape York NRM was in transition from government directed investment to community investment through development of a regional investment strategy (RIS) in late 2012. This strategy was developed through analysis of existing planning documents and by brainstorming with members and stakeholders of Cape York NRM sectors. It included a comprehensive evaluation of previously funded projects.

This RIS was reviewed in 2014 with consideration to potential climate change impacts and lessons learnt through a two-day workshop with members, community delivery partners and stakeholders. The community reviewed and re-worked the six regionally critical themes for land management, which the organisation still uses to categorise projects and activities and align investment.

Cape York NRM has now spent three and a half years implementing a strategy based on the six RIS themes. During this time, the organisation has weathered changes in investment focus from funding bodies, shifts in government priorities, policies and legislation and have learned from project lessons and from engagement. All of this has led to an understanding that investment and effort tends to be spread thin because each theme represents competing priorities. The development of a new approach was required to change the way planning happens, to incorporate new information and focus scarce funds to places where multiple outcomes are possible.

Cape York NRM works continuously with the community to plan and build capacity to change management actions, using the best available information. These local and regional actions are continuously monitored and evaluated. Incorporating this information into actions can enable land management practices to adapt to new situations. The integration of all these continuous cycles has led to a re-think of the concept of planning by doing.

Planning by doing

While the concept of planning by doing had already been discussed in other parts of Australia, Cape York NRM has redeveloped this concept. Planning by doing in the Cape York context is harnessing and improving people's existing capacity to understand and manage natural resources.

Planning and doing together builds on people's capacity through experience and collective learning. The aim is to increase resilience of people and the environment to detrimental changes. This process adds value to on-ground actions by using tools and principles to listen to people's aspirations and understand environmental signals, learn together, then look for people, resources and funding, and ultimately link people together for on-ground actions. Through this process Cape York NRM has identified eight adaptation pathways to assist people to reach eight natural resource management targets.

A new approach

Cape York NRM initially designed a community-driven planning process with two concepts:

1. Focus on systems (such as all water flows), rather than assets (such as a lagoon).

Recognition of connectivity expressed in Indigenous cultures of Cape York - talking about systems makes sense on Cape York, as all things are connected. The organisation hence took a cultural ecological systems approach.

2. A focus on action, where to plan as people go about doing things and providing tools useful to planning across scales. This also recognises current efforts to tackle NRM issues across Cape York communities that assist in mitigating effects of a changing climate and improve the resilience of country and people.

Core to this was a cluster-based approach, bringing like-minded people together to tackle big issues important to them. Big issues on Cape York include appropriate fire management or sustainable cattle production and supporting Cape York sectors to identify their priorities and develop indicators to monitor achievement into the future, share stories and learn with their communities. Cape York NRM has worked with these clusters for the past three years: funding activities, holding workshops, sharing knowledge between people, monitoring on-ground works and reflecting on the process. A large part of this process has been the Your Climate project but also through projects undertaken through the community regional investment strategy.

Your Climate Project

In 2013, Cape York NRM was successful in gaining funding through Stream 1 of the NRM Planning for Climate Change fund of the Commonwealth Government that was available to regional NRM bodies to update their existing NRM plans with consideration to climate change. The 'Your Climate' project was a key engagement tool in the process of developing the Regional NRM plan. Cape York NRM did the Your Climate engagement informed Cape York NRM's understanding of peoples' knowledge of how their place functioned, their values, the changes they had seen already and their priorities for now and the future.

Material collected over the past two and a half years include:

1. Questionnaires about people's place, values, change and capacity to adapt (>100 documented interviews);
2. Video footage of Indigenous and community stories of people talking about values, place and change (>90 captures from Mulong and South Cape York Catchments);
3. Individual or group responses from events and workshops about various aspects of values, place and change (>15 events).

Four organisations and two Traditional Owners from Lockhart River used the questionnaire to engage with the community across Cape York, including South Cape York Catchments, Mitchell River Watershed Management Group, Mulong and the project team at Cape York NRM.

One key result is videos of stories told by Traditional Owners and Elders across Cape York, and Cape York NRM has now collated 90 video clips through this project. Cape York NRM estimates that their engagement at events has reached another 200+ individuals about what's important to them, climate change, general changes, their aspirations and future activities or projects.

Cape York NRM are now going back to groups as the plan is implemented to discuss updated climate science impacts now available from Stream 2. The results of this project will to help people to keep on managing their land, look for new options and respond to changes.

Cape York NRM has worked in collaboration with James Cook University, CSIRO and three other Wet Tropics Cluster NRM groups to investigate and build new knowledge around

climate change projections, impacts and adaptation for the region. Three key sets of outputs are a set of trans-disciplinary science synthesis report, a set of brochures summarising the findings of this work and a film on climate change impacts and adaptation. These can be found on the [Adapt: Climate Stories site](#).

4.3. Focus on Action

The planning by doing approach is a framework for engagement that supports the implementation of actions identified in the adaptation pathways. The engagement framework involves listening, learning, looking and linking in order to come to know what it is, what it does and how to do it, and implementing management practice changes that benefit the environment and people.

Listen: Understand people and the environment

What: Listening to people's aspirations and listening to environmental signals helps to know the situation. NRM organisations and land managers also actively create ways to seek new information through on-ground observations, monitoring data, survey results, plans and research reports.

Why: Understanding all of these signals together is the first step in a reflective process, allowing a pause to listen to what's important, even as work is under way.

How: Within each pathway, the tools to do this include working on-ground, collecting field data, running surveys and workshops, receiving information and media.

Atlas sites: Several Atlas sites showcase how Cape York NRM has listened:

- Stories catalogued on the [Land Manager](#) site;
- Results of the RIS workshops in 2013 and 2014 on the [NRM Plan site](#);
- Results of the Your Climate project on the [Climate site](#);
- Mapping and monitoring data on [map previewer](#) of the Maps & Data site.

Learn: Learning together

What: The listening process is closely linked with collective learning. Together, the Cape York community and Cape York NRM use all of collective information and knowledge to learn about what it all means. People already have a vast amount of knowledge, and never stop learning about the environment, the cultural values of Cape York and how to work together for the greatest possible benefits. This collective learning step allows people to share skills and communicate knowledge, then use other information grow this knowledge to make the best decisions. The primary objective of the Atlas Toolbar is to foster this collective learning and add value to what people already know by communicating it to others.

Why: To facilitate collective learning, Cape York NRM connects with different sectors and sub-regions through several avenues. By far the best is meaningful one-on-one engagement and workshops, especially out in the field. Because of its importance, all operations staff work with multiple interest groups and landholders of Cape York. The organisation often uses a cluster approach, supporting multiple landholders and interest groups to come together in the field to discuss and implement specific land management issues, such as fire, water quality, biodiversity and weeds.

How: The tools to support learning include summarising and communicating the results of research, surveys, plans and field data. Cape York NRM supports groups to build skills, knowledge and confidence through funding on-ground projects combined with mentoring and training. Cape York NRM also actively reflect on the processes by taking on-board the lessons, evaluation and feedback from workshops, activities and project reports.

Atlas sites: One of the main results of this collective learning process is the development of adaptation pathways to reduce the impact of climate change. This process is presented on the [Adapt: climate stories site](#).

Each year, Cape York NRM and Mulong Productions work with local Indigenous groups to host and deliver the Cape York Indigenous Fire Workshop. This promotes and demonstrates two-way collective learning between Indigenous ecological knowledge and Western science. The workshops draw over 100 people from across the globe.

Cape York NRM also supports collaborative weed management between sectors such as Wunthulpu Aboriginal Corporation and Yarraden station for the control of rubbervine, and among groups such as through supporting and hosting the Western Cape Turtle Threat Abatement Alliance.

Look: Looking for people, resources and funding

What: Before starting any work, the right people, resources and finances are required to get the job done well. These people might include an experienced and supportive neighbour and his tractor, project partners doing on-ground management, or experts for technical support and knowledge. Some of the big challenges on Cape York require inputs from people within and outside the region, bringing extra knowledge, tools, equipment, scientific information and data that can improve decisions and outcomes of the work.

Why: Looking for alternatives to current ways of doing things can substantially improve the results of on-ground work and lead to new practices and opportunities. By getting appropriate resources and skilled people who share and build knowledge with the community, people can add to existing capacity and build resilience to the coming changes. This is critical, particularly in regards to the impacts that from climate change.

How: In this step, frameworks or tools might be connected with monitoring results and scientific recommendations to identify the best action to take. To do this, maps can locate where to act or plans can be used to see where the actions can benefit multiple outcomes. Projects might identify the key people to help or tap into established networks to support actions. Project planners would also look for the resources, equipment and extra investment or funding.

Atlas sites: The Atlas Toolbar is great for identifying what to use and where. Cape York NRM have set up a list of local Cape York service providers on the Land Manager site. The [Who Plans Here site](#) provides a spatial representation of the current and historic plans on Cape York to see who is planning to do what, and where.

The Cape York Map Previewer provides maps to see the land and identifies available spatial information.

Cape York NRM sieves through a river of research to pull up the references that are most useful for the Cape. The references and links are provided through the online Reference Library.

Cape York NRM strives to provide useful information on the most important natural resource management issues on Cape York, for people to see what works and share and use ideas to

develop their activities. Case studies of Cape York NRM and partner initiatives are showcased on the [Land Manager site](#).

Link: Working together to take action

What: Timing and circumstance can make the difference between a mediocre effort and a spectacular success. Part of Cape York NRM's role is to provide assistance where and when required, as much as time and resources allow. The steps in this process are acting on the most relevant plans and working together to reach the next step in the adaptation pathway. Cape York NRM actively resources projects with equipment, people and funds to get the job done and supports on-ground efforts to monitor, evaluate and plan for the next stage.

Why: Cape York NRM works to deliver the best long-term outcomes as efficiently as possible. Unfortunately, funds are limited for managing natural and cultural resources, so the most efficient way to get the outcomes is to connect with people. By working together, the outcomes of actions can be more effective and longer lasting, and build great relationships at the same time.

How: Most NRM activities are about coordinating actions across scales, with multiple skill sets and technical expertise. This includes bringing people together, working on the ground and actively planning in the field.

Atlas Sites: Cape York NRM communicates activities through the Atlas Toolbar sites, newsletters and social media. Please check out the news and events section to see what is currently happening.

A large compendium of project information, partner information and case studies are on the [Land Manager](#) and [home](#) pages.

4.4. Adapting to Change

Triggering a rethink

As Cape York NRM continues 'doing', by coordinating actions with partners, an action is to update the planning site and the Atlas sites by summarising results from listening to community and collective learning. The intention is to continue to prioritise and re-prioritise on-ground activity as actions take place, enable the right capacity to support the implementation of projects and use continuous monitoring for more intelligent and effective long-term management practices.

Planning for change

Change is a constant. Some changes are known, desired and planned for, but others come unexpectedly from elsewhere. The plan also needs to evolve to keep up with the changes, to keep it living. Between this current first iteration of the planning process, Cape York NRM will go through a series of steps to the next iteration. This includes more results from the Your Climate project, through the analysis of interviews, listening to the stories from people across Cape York and reading community plans. Results will also flow from monitoring data, new information from surveys and lessons from projects that Cape York NRM staff and partners are currently doing. Cape York NRM is also continuing to workshop climate change projections information with partners and regional experts to improve opportunities to build resilience and adapt.

Planning with change

Inevitably there will be some unforeseeable changes along the path, such as changes in government policy, sudden changes within the organisation, rapid changes in investment or natural disasters like floods, droughts or cyclones, increases in temperature or sea-level rise. Or more positively, organisations might be successful in attracting funding, continue to build great partnerships, substantially improve skills and practices and achieve community and environmental outcomes that build resilience to shocks. As these changes impact the system, the planning by doing approach will use this new information and adjust accordingly to ensure that investment and effort is focused on the adaptation pathways to assist in working towards achieving the NRM targets.

4.5. How Cape York NRM does this

The Plan

The Cape York Regional NRM plan is a high level living document that:

- Identifies eight NRM targets and adaptation pathways to assist in reaching the targets.
- Communicates community-identified regional investment priorities.
- Is informed by plan and strategy documents across Cape York.
- Explores key areas of vulnerability and resilience to climate change.
- Identifies key systems to target investment and opportunities for carbon abatement and sequestration.
- Provides access to information and tools to assist in the delivery of actions.
- Updates each year as projects are delivered and lessons are learned.

The Atlas

Directly connected to the plan is a series of 11 Atlas sites that provide tools useful in planning across scales, communicating stories, sharing information and knowledge, engaging the community and evaluating the effectiveness of actions.

Tools to facilitate planning by doing

To help adapt to these changes, Cape York NRM uses a set of tools to facilitate responses through planning and re-prioritising. The ATLAS consists of nine independent websites, which work together to collect and share information about land management on Cape York and provide tools to land managers to plan across scales, improve and target on-ground management and inform management actions. The tools allow users to understand and learn about their place of interest, its people, current actions and the environment.

These tools include:

Engagement and communications with the Cape York community and interest groups: [get involved on the Land Manager](#) site, [sign up as a contributor](#), and check out [news](#), [projects](#), [profiles](#) and [partners](#).

Pausing for reflection on what's working and what's not: [Who Plans Here](#), [Timelines](#) and [RIS](#).

Identifying and supporting clusters of like-minded individuals: [Case studies](#), [Projects](#), [Walk the Catchment](#), [Social Sciences](#), [Indigenous ecological knowledge](#) and [stories](#), and the fire [site](#), [characteristics](#) and [projects](#).

Developing monitoring indicators and collection of data: [monitoring and evaluation](#) and [projects](#).

Building trust with organisations, groups and individuals: [Land Manager](#), [partners](#), [projects](#) and [service providers](#).

Looking out for big changes, such as in policy or climate: [regional climate science](#), [Who Plans Here](#) and [Cape York Climate Futures](#).

Documenting processes and reports: [reference list](#), [newsletter](#), [annual reports](#) and [maps and data](#).

Mapping and analysis: [map viewer](#) and [ecosystems, carbon and biodiversity maps](#).

Evaluations of programs and projects: [project information](#), [maps and data](#) and [RIS](#).

Technical studies: [Maps and Data](#), [reference library](#) and [climate science](#).

Subregional planning: [Who Plans Here](#), [planning timeline](#) and [water](#).

Testing the process

Cape York NRM is not just supporting people to plan, do, reflect and change practices. Cape York NRM is also operating within and across scales of planning. The current NRM plan is living, and while the targets might be stable, the approach might change. So what is next for this NRM Plan?

Cape York NRM will continue to develop people's understanding and implementation of fire management, improve people's understanding of plant and animal distributions, continue the prioritisation of weeds and pests, and monitor and evaluate achievements and share and communicate results with the Cape York NRM community.

Cape York NRM started to develop a set of adaptation pathways, but these are not set. The organisation is in the process of doing the Your Climate analysis, so this will be a next big step in informing pathways and tools along with ongoing workshops with the community in using and interacting with the NRM targets and ATLAS sites.

Cape York NRM is beginning to understand climate change and potential adaptation options. The next step for Cape York NRM is to understand the 200+ climate messages for Cape York, extract the messages relevant to the region and each sector, communicate them to community groups and provide the opportunity to redevelop or add to the key messages and climate science from local expertise and experience.

5. Regional Investment Strategy 2014-18

5.1. Developing a community regional investment strategy

In 2013 Cape York NRM worked with the community and technical experts to develop a Regional Investment Strategy. Since then, the organisation has spent three years implementing this strategy. The Cape York NRM community have seen changes in investment, learned from project lessons and shared experiences. All of this has led to implementing the current community investment strategy of six key natural resource management theme priorities, development and implementation of the planning by doing methodology that has resulted in the identification of the eight Cape York Regional NRM plan targets and adaptation pathways.

5.2. Why and how did this happen?

Cape York NRM operations started in July 2011, with funding committed to projects for the first two years. Cape York NRM's board had limited say in how this funding was invested. The organisation then had a new opportunity to develop projects for investment from July 2013, but needed a process to develop a Regional Investment Strategy that required minimal resources. Hence the process involved a review of previous planning and consultation documents, two regional community regional investment strategy workshops, numerous project engagements through workshops and events, delivery of and support to delivery of projects, improving collection and reporting of data and monitoring and evaluation of projects.

5.3. Where did this lead us?

The resulting Regional Investment strategy in 2013-2018 and its implementation in 2013-14, 2014-15, 2015-16 was focused on achieving identified activities related to six natural resource management themes developed from the original Program Logic model of planning. Cape York NRM listened to the community's way of describing natural resources, who provided these priorities and activities as a way to invest in improved management of Cape York's complex landscape. In 2014 Cape York NRM re-visited the regional investment strategy with partners and introduced evaluation of progress thus far from lessons learnt from the delivery of projects underway and available climate messages to consider if the priorities and activities required updating.

5.4. Big Concerns

The review and analysis of regional and community NRM related planning documents in 2013 led to the identification of 23 Big Concerns. These were subsequently workshopped with Cape York NRM sector members and technical experts to re-prioritise. Analysis of workshop outcomes identified the six major investment themes and activities that formed the basis of the Community Regional Investment Strategy (RIS). The 23 Big concerns that were identified from the document review using a social ecological systems approach to analysis are outlined below.

In no particular order, these concerns and management issues include:

1. Complex, imposed legislation and outside-in policy
2. Division: competition for resources, lack of coordination and duplication of effort
3. Inappropriate governance structures, leadership fragmentation, lack of trust and accountability
4. Economic, social and environment balance
5. Capacity and resources imbalance
6. Lack of action: over-consulting and planning, reinventing the wheel, confusion
7. Non-inclusive and culturally inappropriate consultation processes

8. Land tenure security and slow resolution processes
9. Traditional Owner access to and management of country
10. Loss of cultural values, food and medicines
11. Conservation approach lacks economic component and people on the ground
12. Mining and coal seam gas impacts and management
13. Decline of particular iconic species or ecosystems
14. Threats to biodiversity and pastoral viability (Fire, weeds and feral animals)
15. Erosion, water quality and Great Barrier Reef impacts
16. Unmanaged visitation, illegal activity
17. Roads and road management impacts
18. Carbon farming opportunities and conflicts
19. Logistics complexity (remoteness, travel distances/options)
20. Climate change
21. Knowledge gaps and consistency
22. Ineffective and conflicting communication
23. Others –e.g. quarantine, shipping pollution, community health

In addition to the identification and agreement on the six key NRM priorities. The participants identified several issues of most concern. These were:

- Threats
- Land Tenure
- Erosion (affecting the Great Barrier Reef particularly)
- Imposed legislation

Several other high priority concerns included including division amongst interest groups, poor governance, mining and knowledge gaps. The regional investment strategy and NRM plan aim to address these concerns through the six RIS priorities and the eight NRM targets. The current Regional Investment Strategy will be workshopped again with community again in 2017 with achievements evaluated. This will contribute to development of the next Cape York community regional investment strategy.

5.5. Regional Investment Strategy Themes

The result of two workshops in 2013 and 2014 led to six identified themes for investing in Cape York land management. Cape York NRM's current projects are being delivered against these themes, and as the adaptation pathways are implemented, new projects and actions might emerge. The themes are:

- Soils and sustainable systems
- Livelihoods and community
- Integrated pest management
- Biodiversity and country
- Fire
- Water: coastal, aquatic and marine

These themes are described in more detail below and the associated actions and monitoring indicators are presented in Appendix 2.

Soils and Sustainable Systems

Characteristics

Living soils provide the basis for growth of life, which in turn provides air, water, food, clothes and shelter. Healthy soils provide ecosystem services through supporting plant growth, regulating hydrologic cycle and cycling nutrients. All soils underlie different types of vegetation - from rainforest to tall Tetrodona woodlands.

Cape York soils include 113 soil types identified by the Cape York Peninsula Land Use Strategy, but only a handful of these (19) are potentially useful types for agriculture. The agriculturally productive soils are relatively small in area and generally around Cooktown, the Lakeland area and further north around Weipa and the Wenlock catchment. Much of the other soil types are suitable for grazing, generally in central Cape York.

Values

The value of soils is mainly mentioned by those who rely on agriculture for their livelihood. There is little mention of soil quality by those who do not directly rely on the quality of the land for a living. However, healthy soils provide the basis for habitats and protect the valuable aquatic and marine areas. Keeping soils clean from chemicals and in place are goals of programs protecting waterholes, rivers and the Great Barrier Reef.

What's changing?

There has been a 130+ year history of grazing, mining and agriculture activity on Cape York, in relatively small areas. Much of the remaining soils are marginally suitable for grazing and agriculture. Nevertheless, new roads are being developed and an active minerals industry is still exploring, developing and constructing mines across the Peninsula. These industries are causing more and more erosion, sedimentation and compaction. In response to this, there is a current push to shift toward more economically and environmentally sustainable practices in agriculture and infrastructure development.

What are the key issues?

Cape York has many fragile soils. While the area of agriculture is small and the grazing rates across Cape York are low, the combination of grazing, agriculture, mining, fires and road development has a substantial impact. These activities threaten the health of living soils through erosion, weakening the soil structure, increased salinity, acidity and contamination. The combined effects damage the long-term productivity of the grazing and agricultural land and the ecosystems, particularly the rivers, waterholes, wetlands and Great Barrier Reef. Managing this requires giving the best knowledge and skills to the industries and supporting the local workforce and managers to improve their practices.

Aspirational Program Goals

- Improved soil quality and reduced erosion leading to healthier ecosystems, increased biodiversity and more productive lands.
- Better coordination across programs for collaborative responses to programs targeting healthy Cape York soils.
- Far-reaching understanding of the fragility of Cape York soils and how to implement best practices that protect natural systems, while maintaining livelihoods.
- Living soils that retain water, erode less and support biodiversity.

Livelihoods and community

Characteristics

As David Claudie, previous chair of Cape York, stated in the recent annual report “The land can exist without people, but people cannot exist without the land.”

The people of Cape York are dependent on the land being healthy and productive. In 2014, the Cape York population is estimated at around 17,000, 57 per cent of whom are Indigenous. Most people (around 70%), live in towns of 1,000 people or greater. Conservation and natural resource management programs amount to approximately 200 jobs and less than \$20 million.

Strong and resilient livelihoods require good planning, awareness for sustainability, ability to adapt to changes, strong governance, explorations to diversify economic land uses and well-managed businesses. Core to sustainable land management is an awareness that people are the stewards of these valuable places, and their livelihoods are dependent on it.

Values

People recognise the importance of the natural environment in ensuring their continued livelihoods and lifestyle. The small and close-knit communities value the limited jobs and incomes that come from managing the land. But people often talk about other parts of their lifestyle when mentioning Cape York: the weather and tropical climate, open spaces, recreation, food and materials from the land.

What's changing?

While some suggest that population growth is currently around two per cent, the population in 2014 was much the same as it was 20 years ago. In 1995 CYPLUS reported a Cape York population of 18,000. Nevertheless, there has been a major shift in the livelihoods and management of natural resources.

There have been shifts in land tenure from leasehold to Aboriginal freehold, improved access to country through Native Title and an increase in the national reserve system of parks and nature reserves. This has led to more Indigenous people going back to country, resulting in challenges and incremental improvements in capacity and governance. Currently, people are moving towards more integrated systems of health, education and arts within the NRM sector. There was a recent change in landholders' alternative income streams through the uptake of the Carbon Farming Initiative.

What are the key issues?

Political division of people and poor coordination across the landscape are often on top of the list of people's concerns about resource management on Cape York. Healing these divisions is made harder by land tenure insecurity and top-down legislation and planning that do not hear local voices. People are concerned about the economic and environmental sustainability of the land.

Improving sustainability can be achieved by looking for ways to enable new ideas to emerge, such as through ecosystem services markets, while helping with traditional industries. This can be achieved by improving education, promoting communications, building trust, empowering Indigenous groups and developing business skills.

Aspirational Program Goals

- Diverse, strong, resilient, sustainable and economically viable livelihoods.
- Integration of Indigenous and conservation values to promote ecologically sustainable development on Cape York.
- People working together to care for Cape York's ecosystems and to promote the sustainable use of Cape York's natural resources.

Integrated Pest Management

Characteristics

Cape York is a bridge between introduced species coming from further south to those coming down from Papua New Guinea and the Torres Strait.

Several weeds are declared on the Land Protection (Pest and Stock Route Management) Act 2002 because they damage agriculture and grazing areas, wetlands and rainforest habitats. These include several forms of plants, such as sicklepod, pond apple, hymenachne,

rubbervine and gamba grass. Feral animals include feral pigs, cats and wild dogs, which have a major impact on native animals, such as turtles, birds, mammals and aquatic species. Understanding and managing invasive species on Cape York is best done through integrated pest management using multiple techniques, such as shooting, trapping, herbicide control, biocontrol, fire and stock management. This should be integrated with the easiest and best monitoring tools and mapping, also supporting coordination among local landholders and managers.

Values

Cape York people mention the importance of having land free of weeds and feral animals. However, the continuing debates over some of the species shows the value of pest species for different purposes. For example, several grass weeds are used as fodder for cattle, pigs provide meat, wild dogs have an ecological function and several plants are used as garden ornaments.

This complexity of values needs integrated management to balance these uses while containing the impact on surrounding landscapes.

What's changing?

Patterns of weed distributions changes as the plants invade new areas and as people eradicate and contain these infestations. At the same time, there are some notable shifts in feral animal populations. Unfortunately, until the last decade poor surveillance and monitoring has clouded people's understanding of the populations and distribution of these invasive species. Recently, local groups are getting more of a chance to manage their own land through access to funding, information and training.

What are the key issues?

Weeds and feral animals on Cape York are one of the major concerns of both environmental groups and farmers. Established invasive species can severely impact agricultural productivity and threaten native animals and habitats. Added to this, new weed infestations, new weed species, more feral animals, the emergence of new diseases and disturbance from cyclones are a constant worry.

Nevertheless, not enough is known about the actual threats and people often disagree about the objectives of pest management. For example, pigs damage wetlands but are a possible source of meat. Dogs threaten cattle but might be an important predator in the natural food chain. Also, some weeds are useful fodder (such as gamba grass) or planted in gardens (such as lantana) but then start taking over native habitats.

One of the possible ways to resolve these issues is to work together to discuss people's objectives, understand the impact of these species, learn the best ways to control them, then share and develop skills to reduce their impact. Doing this in hard-to-reach remote areas makes integrated pest management a very challenging and long-term issue.

Aspirational Program Goals

- Healthier country, waterways and ecosystems.
- Invasive species are controlled locally by skilled Indigenous rangers, Traditional Owners, community groups and landholders..
- Invasive species impacts are minimised due to integrated and coordinated pest management across Cape York.

Biodiversity and Country

Characteristics

Formed across the expanse of time beginning 1650 million years ago, the features of Cape York Peninsula - the river-etched great escarpment, extensive alluvial fans of the west coast, and long white parabolic dunes of the east coast - are set in an equally expansive, mostly undeveloped landscape providing an aesthetic rarely experienced elsewhere. The integrity of natural systems - rainforests, woodlands, reefs, grasslands and wetlands - across entire catchments give Cape York Peninsula a landscape that is second to none.

Cape York has Australia's highest concentration of rare and threatened species and restricted endemics. There are an estimated 350+ state, federal and internationally listed threatened species.

Intertwined with these landscapes are deep spiritual, historical and cultural connections of the people of Cape York, particularly the Indigenous people who have been managing this landscape for tens of thousands of years. These connections have honed profound cultural stories and ecological knowledge of country.

Values

Listening to people's values of Cape York, most talk about country and biodiversity, frequently making reference to the pristine nature of the environment and the importance of conserving it. These values are complex and deep. Both Indigenous and non-Indigenous people have a spiritual connection to country and species, and appreciate the beauty of nature. The threat of losing species is a major motivation for conservation actions. People on Cape York and beyond use many resources and services that come from healthy country and high biodiversity. Keeping the connection to country and the land is central to why people live on Cape York.

What's changing?

The interaction of multiple continuous threats to the landscape are causing a degradation in ecosystems and species, particularly noticed through mammal decline. At the same time, recent land handbacks and increased access to country by Indigenous people have changed opportunities for management. There is a significant push to recognise and protect Indigenous ecological knowledge and develop skills to manage the land.

What are the key issues?

The multiple threats to biodiversity and ecosystems are often the top concern of people in Cape York. These threats include changed fire regimes, increased road development, spread of weeds, increase in feral animals, erosion and water pollution, the potential for new diseases to impact fauna, grazing pressures and changes in climate. The ability to manage these biodiversity threats and improve the health of country is hindered by poor coordination across the landscapes, poor systematic data of the ecosystems and populations of species and inappropriate governance. There are also land tenure issues, loss of Indigenous cultural values and knowledge and poor access to country.

Aspirational Program Goals

- Improved health and protection of threatened species and ecosystems
- Improved Western and Indigenous knowledge for the management of country and biodiversity
- Healthy country that supports threatened species and communities

Fire

Characteristics

Large uncontrolled fires are a threat to the landscape, ecology and productivity of Cape York. Aside from lightning strikes that arrive prior to the onset of the wet season, people start most fires in Cape York, deliberately or by accident. Over the years, people have worked hard trying to solve the problem of hot late season uncontrolled wildfires that burn most of Cape York each year, mostly on the western side.

Fire as a tool for management can have multiple benefits to ecosystems. Safely using cooler burns in appropriate vegetation at the right time can give a boost to soils, plants, animals and landscapes and remove unwanted weeds. One way to do this is to combine Traditional ecological knowledge and Western science, coordinated across the landscape, to improve the health of country. This involved managing fire differently according to vegetation types and conditions and by anticipating fire behaviour. Fire management requires constant attention and the involvement of people. As seasons change, being responsive to fire management requires knowledge and skill.

Values

Fire is a valued process for the reinvigoration of sick country. Appropriate fire management is ecologically important for many native species, to protect soil, plants and animals by controlling weeds and promoting new growth of native species. Indigenous people have strong cultural and spiritual connections through the use of fire, its function in the landscape and through traditional stories.

What's changing?

Fire is a continuous problem across Cape York, and many projects, landholders and organisations have worked to improve the problem. While knowledge is improving, how well this translates to improved fire management is unknown. Some key changes influencing fire include changes in technology for burning and monitoring, increased spread of weeds, cyclone impacts and easier access to country.

What are the key issues?

Inappropriate fire regimes have often been identified on threatened species advices and recovery plans. The Cape York community has identified fire as a high priority, both because of its threat to biodiversity and as a tool for managing the landscape and weeds. Coordination of burning is a main hurdle to good fire management.

Aspirational Program Goals

- Maintenance of ecosystem services, including ecological and cultural values now and in the future.
- Enhanced capacity of Indigenous communities and land managers to conserve and protect natural resources.
- Protection and conservation of biodiversity through strategic landscape conservation and restoration via improved fire management.

Water: Coastal, Aquatic and Marine

Characteristics

Cape York is characterised by wetlands, lakes, springs, rivers, floodplains, estuaries, aquifers, coastline and healthy reefs. It's aquatic ecosystems have high cultural and biological value, with several waterways regarded as being some of the most biodiverse, pristine, and intact in Australia.

During a big Wet Season, the rivers, floodplains and wetlands flood and connect into one flowing water body. Water is captured in specific areas to support the towns, agricultural industry, grazing industry and mines. These dams, reservoirs and bores are in relatively restricted areas but still have a significant impact on the local and regional environment. Rivers also define the boundaries of Indigenous clans and tribes and many of the cultural stories are based around saltwater and freshwater sites and areas.

Values

Water is fundamental to all living things. It transforms landscapes, defines the seasons, changes ecosystems and is a resource for animals and plants. People use water for almost every part of their lives - agriculture, drinking, industry, transport, energy and recreation. Water is also a significant part of the culture of Cape York. People tell stories of cyclones and floods, identify with recreation spots, value the marine and aquatic systems and respect its ability to flood and restrict access during the wet season. Indigenous people are deeply connected to water, through their spiritual connections, knowledge and identity with rivers, springs, wetlands and sea country.

What's changing?

Changes in hydrology from developments such as mining and roads has significantly changed the use of water. There is a loss in structure and organic matter in soils, reducing the ability to hold water. Sedimentation is also filling up waterholes, changing flows in rivers and wetlands and impacting the Great Barrier Reef. Cape York is experiencing a loss of springs, increases in sea level rise, recurring droughts and floods and salt water intrusion into freshwater. People are now learning a lot more about the aquatic and marine systems of Cape York, through improved monitoring and capturing local knowledge of these valuable systems.

What are the key issues?

Cape York has yet to experience large scale dams and intensive uses of its water like areas further south. However, the community is concerned about water quality, sedimentation, changes to groundwater and river flows and the impact that this has on the wetlands, rivers and the Great Barrier Reef.

Management of water on farmland is also a concern. Living soils should have a high content of organic matter and good structure to hold water, but this is declining. The water system is also vulnerable to the effects of a changing climate. People are already noticing less springs, higher sea level rise, bigger droughts and floods and salt water intrusion into freshwater. A better holistic management of water is hindered by gaps in recorded knowledge, data and information.

Aspirational Program Goals

- Improved health and protection of significant aquatic ecosystems and viable species populations.
- People working together to care for the aquatic environment and to promote the sustainable use of aquatic resources.
- Improved Western and Indigenous knowledge and management of aquatic ecosystems.

6. Appendix 1: Plan Principles

6.1. Cape York NRM's plan principles

To learn from past experiences, Cape York NRM wanted a new approach to NRM planning. In an attempt to do this, the organisation developed a set of principles for planning:

1. **Coordination:** adaptation pathways were developed through a coordinated approach, bringing people together who have similar interests to discuss and tackle specific issues;
2. **Access for all interested:** plans have not been accessible and easily used by people in the past. The Atlas and NRM Plan gives the Cape York community access and especially connects to them through on-ground projects and engagement.
3. **Influencing managers and supporters:** the Atlas is especially designed to influence the people who manage land and the people who can assist those who manage the land.
4. **Pulling together community information and sharing this information from property to property:** the Atlas is a repository for giving access to multiple types of information and planning tools to make land use decisions and share innovations that others might be trialing;
5. **Making it useful:** Cape York NRM is working with partners and seeking feedback to ensure the information on the Atlas is useful to developing and implementing change in land management practices;
6. **Making it used:** Cape York NRM is utilising the Atlas as a key component of communications, engagement and capacity building strategies;
7. **Monitoring:** Just as people need to see the score at a rugby match, people need to keep track of the land and people. Monitoring of on-country activities and long-term changes is crucial to know if actions are having a positive effect. Cape York NRM is developing monitoring and evaluation tools to help everyone to manage the land better. This is done by working with partners to improve monitoring across scales and negotiating data sharing and custodian arrangements. This enables people to contribute to regional data sets and improve decision making and targeting of on-ground action;
8. **Making it living:** This version of the Atlas and NRM Plan is not static – Cape York NRM will continue to improve and add to this as work continues;
9. **Taking a breather:** Everyone needs to take make time to pause through the on-going planning and reflect on the process and its outcomes. Cape York NRM does this by talking with community and delivery partners, land managers and investors and working with them on the learnings from actions.

6.2. Operational principles for seeking investment

Cape York NRM operates on the basis that natural resource management is really all about people. People and their values are an integral part of the landscape. Cape York NRM's principles for seeking investment to the strategy are detailed below.

Principle	Application of the principle in new funding proposals & delivery
Do No Harm	Not to erode resilience and capacity of current system
Proactive action	Away from 'problem solving' and politics to being more proactive and anticipating and preventing issues before they arise (weeds, quarantine, capacity, foresight, planning for the Wet and cyclone management) Key focuses might include tourism, lobbying for better weed management during road construction, biodiversity offsets policy implemented with landholders. This also involves a bottom-up approach, such as using local management plans to integrate with the aspirations from people on country.

Enduring, whole system benefit	<p>Healthy country is the overarching goal for many people on Cape York. The term implies a whole system approach including people, livelihoods, culture and landscape. Some progress with a transition from a piecemeal to a more holistic approach is being made – however much more can be done.</p> <p>New funding proposals should:</p> <ul style="list-style-type: none"> · Demonstrate multiple, enduring outcomes from planned activity which contribute to healthy country · Demonstrate whole system knowledge including indigenous and scientific knowledge has been used in design · Show how the risks of unintended consequences and not fully understanding how whole systems and landscape processes work are taken into account through adapting projects, perhaps by allowing flexibility (includes the risks associated with climate change)
Adaptive management	<p>A comprehensive planning process for NRM on Cape York is not necessarily the most appropriate option, given that an overwhelming amount of work is already underway or was recently completed <link to planning history timeline CYP>. The favoured approach is getting on with it, learning and planning as actions happen, leading to a community owned and driven adaptive planning system.</p> <p>To support this approach new funding proposals should:</p> <ul style="list-style-type: none"> · Set out clearly how lessons from previous projects and results of previous consultations and evaluation have been incorporated into the proposal · Clearly articulate the assumptions on which the expected outcomes are based and demonstrate how monitoring arrangements will test these assumptions · Show how and when proponents will stop, reflect, evaluate and share lessons with local communities and landholders · Demonstrate how lessons from these reflections will be used to improve actions and outcomes as the project proceeds · Include engagement mechanisms that contribute to understanding future planning and action
Working together	<p>There is a recent history of division, competition for scarce NRM funds, duplication of effort and lack of knowledge sharing. While ever this governance situation continues, desired investment outcomes will be difficult to achieve.</p> <p>New funding proposals should:</p> <ul style="list-style-type: none"> · Demonstrate meaningful collaboration or partnership and information sharing arrangements that actively engage communities on Cape York in NRM; · Include provisions for informing other key stakeholders such as local councils and community support organisations where these bodies are not directly involved in the proposal.
Building trust and capacity as projects are delivered	<p>Mistrust at all levels in the NRM system on Cape York is a threat to effective natural resource management. At the same time community capacity to engage with NRM programs is not evenly distributed across Cape York or between non-Indigenous and Indigenous entities. New funding proposals should demonstrate high levels of transparency, accountability and information sharing which build trust between professional service providers and between service providers and local communities on Cape York.</p>
Coordinated devolution of responsibility & authority for land & sea stewardship	<p>Legal responsibility for key NRM activities such as fire management, feral animal and weed control, and soil erosion is with landholders (grazing leases, indigenous lands, national parks etc). While holdings on Cape York are landscape scale, these key landscape processes extend beyond property boundaries – therefore considerable coordination of effort is required to meet desired outcomes.</p> <p>New funding proposals should:</p> <ul style="list-style-type: none"> · recognise the fundamental role of landholders and local communities in land and sea stewardship and where necessary rebuild this capacity – through seeking expertise, advice & partnerships. · acknowledge existing management plans over landholdings and provide mechanisms to strengthen and implement those plans as a result of investment (provide input where no plans exist) · set out effective coordination arrangements at local, sub-regional and regional scales.
The right people speak for country	<p>There are complex Indigenous and European inspired tenure arrangements applying to Cape York including numerous co-management arrangements. These legal and cultural considerations need to be respected.</p> <p>New funding proposals should demonstrate that the right people to speak for country. Traditional Owners, property owners and managers must be meaningfully engaged in project design and support the proposed actions as they roll out.</p>
Feasibility and value for money	<p>People are concerned about the impact that investment in NRM has on Cape York's natural and cultural assets.</p>

	New funding proposals should demonstrate that the outcomes and outputs are feasible and that the proposal returns value for the level of investment requested. This should be by demonstrating the leverage of other resources and the legacy of the outputs or outcomes.
New ways of doing things - Innovation	There is growing awareness at community and political levels that 'business as usual' will not deliver the outcomes sought by Cape York communities. Communities need to be empowered to think of and trail new approaches to old persistent and problematic issues. Innovation needs to be fostered and supported while continuing to support well designed and implemented new iterations of past efforts relating to key programs. New funding proposals should address opportunities for innovation in the light of success with previous outcomes. Support for trialling of new innovative ways of tackling priority program areas will be considered.

6.3. Stream 1 NRM Planning for Climate Change Fund Principles

The NRM Plan development is mostly funded through the Australian Government's Department of Environment "Stream 1 of the Regional Natural Resource Management Planning for Climate Change Fund" from 2013 to 2016. The guidelines for this project required Cape York NRM to adhere to a set of principles. These principles were developed through a Australian Government expert working group to ensure that regional NRM plans guide decisions and engage stakeholders in relation to carbon abatement and climate change. The below table lists each principle and describes how Cape York NRM adhered to these principles.

Code	Principle/attribute	What Cape York NRM did	Evidence: Site location and explanation
Principle 1	Plans identify priority landscapes for carbon plantings and strategies to build landscape integrity and guide adaptation and mitigation actions to address climate change impacts on natural ecosystems	<p>Cape York NRM developed a Carbon Spatial Prioritisation Framework to identify where opportunities might exist for Cape York. This work was done with Biome5, a consultancy with expertise in Australia-wide carbon abatement policies. The results of this work led to several maps and explanation of policy options available to Cape York landholders. Two conclusions were drawn:</p> <ol style="list-style-type: none"> 1. The only current viable option for carbon abatement on Cape York is fire through savannah burning methodologies for greenhouse gas abatement (two methodologies complete) and carbon sequestration (developing). A considered potential future option might be mangrove migration; 2. The carbon sequestration and ecosystem resilience is cached within a suite of ecosystem services, which have now been valued across Cape York to inform sub-regional decisions. <p>Cape York NRM has also supported land managers to be involved in the Savannah Burning Methodology for their lands, through fire management plans and implementation of appropriate fire management. The work also engaged with the Australian Government Emissions Reduction Fund and Firescape Science to improve the savannah burning methodology Late Dry Season cut off dates for Cape York. Cape York NRM worked with State Government and the Rangelands Alliance Spatial Hub project to improve knowledge of the limitations of satellite mapping and improve allocation of resources to improving on-ground management monitoring tools.</p> <p>The Cape York Fire site provides a set of tools for land managers to improve landscape connectivity and resilience. The fire characteristics tool uses images with short descriptions to assist viewers to recognise these characteristics and what they can tell you about country before, during and after a burn. The fire management tool for the Emissions Reduction Fund provides guidance on developing a fire plan based on vegetation burn characteristics, identifies fuel classes from fuel base maps and estimates the abatement value from SavBAT tool.</p> <p>Cape York NRM documented the values and aspirations of people on Cape York through the 'Your Climate' project with over 100 interviews, over 90 captures of Indigenous climate stories with traditional owners across Cape York, over a dozen events and a collection of community plans for publication on the Who Plans Here site. This information is consistent with the regional investment themes</p>	<p>The carbon information is presented on the 'ecosystems, carbon and biodiversity' site (https://capeyorknrm.com.au/ecb). The portal provides information on:</p> <ul style="list-style-type: none"> • the carbon abatement options for land managers, through the Carbon Spatial Prioritisation Framework; • an understanding of burn frequency, fire history and savannah burning methodologies including NAFI; • information on ecosystems and ecosystem services, and • layers showing regional and subregional corridors. <p>The Who Plans Here site (https://capeyorknrm.com.au/who-plans-here) presents strategic, regional, policy and community plans across Cape York. The Maps and Data site provides access to general Cape York NRM mapping and houses information for specific Atlas sites for fire management, carbon, ecosystem services and biodiversity, along with a mapping tool of available interactive layers.</p> <p>The climate site, Adapt, also includes information about the regional impacts of climate change and a set of tools to explore projections.</p>

		<p>that were developed at the beginning of the project. The result of this project has been incorporated to the adaptation pathways.</p> <p>Cape York NRM constructed a spatial database that include water, fire, vegetation, soils, species, threats (weeds and feral animals) and other monitored information. Cape York NRM worked with landholders to build their skills in monitoring the landscape and provided maps to properties to plan on country. Two tools were developed for community needs: Fulcrum - for general field monitoring, and Cybertracker - specifically for west coast turtle monitoring.</p> <p>Cape York NRM participated in cross-regional workshops for the Stream 2 Climate Change project. Cape York NRM actively contributed to the Impacts and Issues report, an Adaptation Pathways and Opportunities report, an Uptake of Adaptation report and five sector fact sheets relating to climate change impacts and adaptation. Cape York NRM also participated in the Queensland NRM Planners meetings, and maintained close collaborations with Terrain NRM for addressing cross-regional issues and sharing data.</p>	
Attribute A	<p>Planning processes identify opportunities and management strategies to maximise environmental benefits and landscape resilience, including bio-diverse plantings, wildlife corridors, landscape connectivity and protection of remnant vegetation</p>	<p>Revegetation is only a minor option for Cape York, restricted to areas that were cleared (<2% of the region) and generally along corridors. Fire management is the best available tool for carbon abatement and building landscape resilience across Cape York. Cape York NRM have provided guidance through the annual Indigenous fire workshop, fire management planning and information and tools for burning practices and analysis of fire histories for the past fifteen years and presentation of data. Ecosystem functions are discussed through the developing ecosystem services framework and presentation. Cape York NRM also worked with the Australian Government to identify ways to improve the current savannah burning methodology based on IBRA regions. This work has now been sent to relevant scientists to quote on the completion of this work. This is so the methodology does not have perverse effects on burning country. Cape York NRM have also documented vulnerability to threats and analysed distribution of threatened species for targeting species rich areas. Information on environmental projects, the opportunities available to landholders and building landscape resilience is displayed on the Atlas through a suite of case studies of projects over the past four years of operations.</p>	<p>Adaptation pathways include targets of Appropriate Fire management, Healthy services provided by Ecosystems , Protected and repaired freshwater and marine systems and Impacts to Threatened Species reduced.</p> <p>The Ecosystems, carbon and biodiversity site (https://capeyorknrm.com.au/ecb) displays information and mapping tools for identifying opportunities and management strategies for the environment and landscape resilience. Tools include:</p> <ul style="list-style-type: none"> - Ecosystems and ecosystem services - biodiversity planning assessments, corridors of southern Cape York revegetation sites and options for alternative land uses - An understanding of burn frequency, fire history and savannah burning methodologies including NAFI; - Biodiversity and threatened species to show distribution of plants and animals on Cape York and to identify hotspots and strategies for recovery of populations; <p>Case studies showing resilience through on-ground works displayed on Land Manager working stories (https://capeyorknrm.com.au/landmanager).</p>
Attribute B	<p>Planning processes recognise, provide guidance to avoid and mitigate potential risks and adverse impacts associated with carbon</p>	<p>Discussion of fire management refers to appropriateness of burning practices for specific ecosystems. The fire Atlas site provides access to information and tools that support improved fire management on Cape York as well as access to tools and spatial layers that will enable improved understanding of how to participate in a Savannah Burning project.</p>	<p>Cape York NRM has provided a suite of tools and information for land managers to make appropriate decisions, this includes:</p> <ul style="list-style-type: none"> • an understanding of burn frequency recommendations (based on vegetation), fire history and savannah burning methodologies including NAFI;

	sequestration in the landscape, including impacts to biodiversity, water resources and production systems	Cape York NRM has worked with the key carbon brokers in Cape York, land managers and Indigenous communities engaging in carbon abatement projects and the Australian Government and State Governments to highlight issues and raise awareness of investment needs. Cape York NRM also ensure people are aware of and comply with duty of care arrangements, including weed management and biosecurity strategies and erosion mitigation. Ecosystem services framework to show the cost of traditional vs. alternative incomes from land management.	<ul style="list-style-type: none"> a set of soils fact sheets and weed identification on the Land Manager site (https://capeyorknrm.com.au/maps-data and https://capeyorknrm.com.au/landmanager/biodiversity/weeds) the development of an ecosystem services framework, including policy options, opening up the conversation about ecosystem services and the trade-offs made in land-use decisions (https://capeyorknrm.com.au/ecb, ecosystems tab) the carbon spatial prioritisation framework, which includes information on where and, most importantly, where it's not possible to do carbon abatement under the current conditions (https://capeyorknrm.com.au/ecb, carbon tab). Future options might include avoided deforestation, grazing, soil carbon and mangrove migration but these methods do not currently exist.
Attribute C	Planning processes identify priority landscapes for potential carbon sequestration opportunities, mitigation and adaptation in the context of improving landscape connectivity, resilience and wildlife corridors	<p>Cape York NRM has engaged the community with partners, including South Cape York Catchments and Mitchell River Watershed Management Group. The process of engaging through the Your Climate project led to the development of a series of projects about environmental resilience that are now funded under the National Landcare Program.</p> <p>Cape York is a whole landscape, with very few fragmented areas - most notably in southern Cape York near Cooktown. This means that identifying corridors is mainly useful for protecting the landscapes from future clearing. More important is ecological resilience. Cape York NRM have mapped areas related to improving resilience:</p> <ul style="list-style-type: none"> Threatened species hotspots through an analysis of old mapping and recent threatened species data; Ecological communities (coastal maps) through engagement with the Department of Environment, community and Indigenous groups in southern Cape York; Areas for mangrove migration and plantings through identifying where salt flats are likely to flood as sea level rises; Species distributions in the face of climate change through Stream 2 engagement to identify key species where data is adequate for modelling; Wetlands of national importance and biodiversity planning assessment corridors - both Queensland Government-led processes. <p>Cape York NRM discusses in detail fire management and challenging the date for carbon abatement through savannah burning</p>	<p>See the current projects on https://capeyorknrm.com.au/, 'projects' menu</p> <p>Several map viewers are available on the sites for general information, fire, carbon, ecosystems and water. The most relevant is https://capeyorknrm.com.au/ecb. On this site is also a threatened species tab that discusses the current status of those species on Cape York.</p> <p>The Your Climate project was core to engaging people about landscape resilience. The engagement and climate stories are described on https://capeyorknrm.com.au/climate/films. The same site also discusses projected species distributions from climate models (see the Cape York Futures tab).</p> <p>The fire site is important as a key tool for managing the land. The Fire site (https://capeyorknrm.com.au/fire) discusses fire characteristics and the local stories and projects from around Cape York.</p>

		methodologies. Cape York NRM also discusses wetland assessments to reduce pig damage, related to soil carbon.	
Principle 2	The planning process is logical, comprehensive, and transparent	<p>The project plan stipulated that Cape York NRM would identify tools and construct an online Atlas for the hosting of the NRM plan, in multiple media formats. This is now complete, with the Atlas showcasing knowledge, tools and information across 11 portals. Cape York NRM also said that it would run a ‘Your Climate’ engagement project to discuss climate change impacts and adaptation options with the community members. This was conducted and the results are presented on Adapt: Climate Stories and other sites relevant to the adaptation pathways to achieve the NRM plan targets. The sites are rich with information and tools and further analysis of existing datasets will provide greater insights in the years to come as the NRM plan is implemented.</p>	<p>The Atlas consists of nine independent websites, which work together to collect and share information about land management on Cape York and provide tools to land managers to plan across scales, improve and target on-ground management and inform management actions.</p> <p>Cape York NRM Home https://capeyorknrm.com.au/ is the main corporate site for information about the organisation, what it does, its projects and partners. Partner programs https://capeyorknrm.com.au/about/partners is a sub-site of the main corporate site, and is a place that showcases initiatives of partnerships that Cape York NRM have contributed to developing.</p> <p>The Living Knowledge Place http://www.livingknowledgeplace.com.au/ is home to a collection of films and educational resources sharing Traditional Knowledge from across Australia.</p> <p>Land Manager https://capeyorknrm.com.au/landmanager is a collection of case-studies, stories and tools, providing information about managing Cape York's land and sea Country.</p> <p>Maps & Data https://capeyorknrm.com.au/maps-data powers most of the repository and spatial data management for the Cape York NRM ATLAS websites.</p> <p>Carbon, Ecosystems and Biodiversity https://capeyorknrm.com.au/ecb is a sub-site of Maps & Data. It is a mapping tool for carbon abatement, savannah burning, threatened species distribution and hotspots, and ecosystem service values.</p> <p>Fire on the Cape https://capeyorknrm.com.au/fire/ is a collection of knowledge, tools and resources for best practice fire management for Cape York.</p> <p>Water Quality https://capeyorknrm.com.au/water-quality is a site all about water on Cape York. It incorporates the East Coast Water Quality Improvement Plan, and other information about looking after Cape York's precious water resources.</p> <p>Adapt: Climate Stories https://capeyorknrm.com.au/climate is a collection of films, stories and resources about Climate Change on Cape York, in Australia and from across the World. This site also describes the Your Climate project to engage people on Cape York.</p> <p>The NRM Plan https://capeyorknrm.com.au/nrm-plan/ pulls the Atlas together into a plan and provides a framework for natural resource management planning on Cape York. Two timelines are also presented, one describing the achievements against the Cape York Peninsula Land Use Strategy over the past 20 years, and another describing the planning processes over the past 20 years. The planning process timeline also includes Cape York NRM's Stream 1 planning project.</p> <p>Who Plans Here https://capeyorknrm.com.au/who-plans-here is a tool to locate plans that are in place for Cape York localities.</p>

Attribute A	Planning processes consider previous planning and are consistent with relevant jurisdiction specific planning requirements	<p>Cape York did not have a regional plan at the start of this project, so has documented planning processes through a timeline and developed the Who Plans Here site.</p> <p>The planning process involved the collation and cataloguing of plans across Cape York, to build the 'Who Plans Here' site for public access and to complete a synthesis of existing plans for developing a robust NRM plan and investment strategy.</p> <p>Cape York NRM has now identified over 260 plans related to Cape York, at least 100 of these are community-based and 160 are legal, threatened species and government-led plans.</p> <p>There are currently 50 plans are on the WPH site, which is an achievement because the process of obtaining permissions from the community requires trust and an understanding of our planning process. Cape York NRM is adding new plans to the site daily and will continue doing so as new plans are developed and permissions obtained for their publication.</p>	Who Plans Here describes the current and previous plans on Cape York, including statutory, strategic, government and community plans. The site provides a searchable map for the plans and describes each of them. The NRM Plan site contains a timeline describing the planning processes over the past 20 years, divided into community, government and Cape York NRM planning processes (https://capeyorknrm.com.au/nrm-plan/about/planning-process).
Attribute B	Planning processes are informed by a clear understanding of the regional stakeholder and community aspirations and objectives	<p>Cape York NRM has consistently engaged with the Cape York community regarding the planning process. The adaptation pathways clearly identify who would be involved in the implementation of the plan. The entire planning methodology is centred on continual engagement with the community and responding to their aspirations identified through engagement activities.</p> <p>The engagement includes meetings, workshops, field days, farm walks, industry roundtables (for grazing and horticulture) and demonstration sites. Communications strategies include newsletters, fact sheets, interviews, case studies, development of NRM tools and field guides. The process of seeking community plans for the Who Plans Here site was done through a community engagement process to explain the purpose of the site, planning and climate impacts to plan holders, seek permissions and then put the plans up on the website with spatial extents. The targets, adaptation pathways, case studies and plans contained on the Atlas will inform future investment strategies on Cape York.</p>	<p>Cape York's NRM Plan site describes the history of planning on Cape York, the process of developing the current living plan and planning by doing process, and eight identified adaptation pathways. Each of these pathways include information on how each pathway and target were identified, which is largely through engagement with the Cape York community.</p> <p>To maintain commitment to ensuring the planning process is consistent with Cape York people's aspirations, plans and activities, the Atlas showcases all relevant and publicly accessible plans on the Who Plans Here site.</p> <p>The climate page, Adapt: Climate Stories, describes and showcases the results of years of engagement by South Cape York Catchments, Lockhart Traditional Owners, Mitchell River Catchment Management Group, Mulong and Cape York NRM.</p>
Attribute C	Planning processes demonstrate a clear understanding of the regional NRM organisation's business, roles and responsibilities	The Corporate site, NRM Plan site and Atlas sites clearly describes the role in the community of Cape York along with documenting Cape York NRM's role and the services delivered to community partners along with their actions in implementing on-ground projects.	<p>The corporate site provides information about Cape York NRM as an organisation: https://capeyorknrm.com.au/about/organisation and the investments from state and federal governments https://capeyorknrm.com.au/investment. The NRM Plan site has a clear description of the role of Cape York NRM in the Regional Investment Strategy: https://capeyorknrm.com.au/nrm-plan/plan-priorities</p> <p>Cape York NRM has included profiles of land managers and partners on the Home page (https://capeyorknrm.com.au/about/partners) and services providers on the Land Manager site (https://capeyorknrm.com.au/landmanager)</p>

Attribute D	Planning processes show evidence of cooperation for cross-regional climate change impacts and land use planning	Cape York NRM has continued to collaborate cross-regionally with multiple groups, including the Stream 2 Wet Tropics hub (James Cook University and CSIRO), Terrain NRM, Northern Gulf, Torres Strait Regional Authority, Rangelands Spatial Hub, State wide Planners network and the Northern Environmental Research Program and more recently, the Northern Environmental Science Program. The results of the work from these collaborations are documented through climate information and outputs on the Adapt: Climate Stories site.	The climate site, Adapt: Climate stories (https://capeyorknrm.com.au/climate), showcases the information developed through the Stream 2 (https://capeyorknrm.com.au/climate/regional-impacts) and several other key sources of climate information ('Climate Science' menu item). The NRM plan timeline also shows the regional collaborations.
Attribute E	Adaptive planning responds to new information and guides improvements as knowledge improves	The approach is through planning by doing, with listening to understand people and the environment, learning together, looking for people, resources and funding, and linking to bring people together to act on decisions. Adaptive management is inherent in the methodology through small to large cycles of listening, learning, looking and linking. Cape York NRM is constantly improving monitoring and evaluation frameworks and are now incorporating Stream 2 Climate change science information into the Adaptation Pathways to assist in achieving the Natural Resource Management Targets.	The process for planning by doing through listen, learn, look and link is described in detail on the NRM plan page . The Fire site is a good tool to showcase how the 'listening' and 'learning' part of the NRM plan works - through workshops, projects and describing the characteristics of fire across the landscape. The Water Quality site also showcases the East Coast Water Quality Improvement plan that involved similar processes, using 'walk the catchment' and local knowledge to develop the plan. Adapt: Climate stories provides in-depth information on regional climate stories and climate science for people to make decisions when looking for options to adapt to climate change.
Attribute F	Planning processes use information at an appropriate scale to spatially identify priority areas in the landscape for carbon sequestration projects and environmental co-benefits	Cape York NRM worked with South Cape York Catchments, rangelands landholders and Biome5 in the process of identifying where it was possible to conduct carbon sequestration projects. The main sequestration option is through the savannah burning methodologies. While several groups have tried to look into other options for carbon abatement, it is not possible in the current political context. The work on the Carbon Spatial Prioritisation Framework investigated all possible options, including revegetation, grazing, wetland carbon, fire, avoided deforestation and mangrove migration. Apart from fire, only mangrove migration might be a possibility in the mid-term. An interactive mapping system is available on the ecosystems, biodiversity and carbon site that presents information across scales to spatially identify priority areas in the landscape for carbon sequestration.	A key tool for fire management is provided on the Ecosystems, Carbon and Biodiversity site https://capeyorknrm.com.au/ecb , including options for working on ERF projects. The Carbon Spatial Prioritisation Framework project used the best available science, historical information, spatial information and policy analysis to provide the recommendations to Cape York landholders. This information is described on https://capeyorknrm.com.au/ecb .
Attribute G	Planning processes demonstrate adaptive planning that responds to current and anticipated climate change research and additional information	The NRM Plan is based around a planning by doing approach that harnesses and improves people's existing capacity to understand and manage natural resources. Planning and doing together build on people's capacity through experience and collective learning, with the aim to increase resilience of people and the environment to detrimental changes. This process adds value to on-ground actions by using tools and principles to understand people's aspirations and environmental signals, learning	The NRM Plan site describes the planning by doing approach and each of the adaptation pathways. The Adapt: Climate Stories site provides information on the Your Climate project, Cape York climate futures, regional climate impacts and a suite of national climate science tools for users to explore. Cape York NRM has also tagged the messages from the Stream 2 adaptation report to each of the adaptation pathways of the NRM plan.

		<p>together, then bringing together the people, resources and funding for effective natural resource management.</p> <p>Each of the adaptation pathways responds to climate change impacts through these aspects of planning, and documents the challenges, opportunities and assumptions behind each target.</p> <p>The Atlas itself is a repository for new research and information, including future climate projections information. Several of the sites provide information for users to explore their area with multiple lenses. For example, the fire site shows the characteristics of fire, when to burn, where and how. The Water Quality site describes the vast and varied water systems on Cape York, their biodiversity and uses. The Adapt: Climate Stories site presents regional and national climate science for Cape York land managers and coordinators to develop their plans and activities with knowledge of climate impacts and adaptation. Cape York NRM also has a Maps and Data site as a repository for all reports, data and other information - including a detailed reference list.</p>	<p>Maps and Data is a repository spatial information, documents and datasets, including publications of climate science and land management information relevant to Cape York.</p>
Principle 3	Plans use best available information to develop actions and are based on collaboration with government, community and other stakeholders	<p>The Atlas is a repository for the best known available information and is designed to provide access for government, community and other stakeholders to continue make contributions. It is also designed to showcase existing collaborative actions that are contributing to mitigating impacts of climate change.</p> <p>Developing the Atlas was a collaborative effort involving consultants, government, several organisations and, importantly, the Cape York community. The process is documented in the planning timeline and the Your Climate project.</p>	<p>Map viewers across multiple sites provide spatial information with which land managers can interrogate the data for their planning and on-ground actions.</p> <p>Adapt: Climate stories describes the Your Climate project including events, interviews and films engaging Cape York people and others. The site also includes regional and national scientific information.</p> <p>The NRM Plan site includes two timelines talking through the history of planning on Cape York and the achievements made by previous projects and programs.</p> <p>The Land Manager and Home pages provide case studies and profiles of the projects and people that Cape York NRM has worked with over the past three years.</p>
Attribute A	Plans demonstrate strategic alignment with relevant state and Commonwealth NRM policies (such as urban and regional planning, matters of National Environmental Significance, National Water Initiative and the National Wildlife Corridors Plan)	<p>This is a feature of the adaptation pathways and highlights plans that are relevant to each. Cape York NRM is documenting the relevant plans through the NRM Plan section of the Atlas.</p>	<p>The NRM Plan includes a table showing the strategic alignment of the planning process with key national and international policies. Several of these policies and more are also provided on the Who Plans Here site for people to identify when they are doing planning and work on Cape York.</p>
Attribute B	Plans meaningfully engage community and stakeholders	<p>The NRM planning approach emerged from a history of failed planning attempts across Cape York. Cape York NRM has responded to the concerns of the Cape York community through a process</p>	<p>Adapt: Climate Stories showcases the films produced by Mulong and South Cape York Catchments, the events done throughout the project and preliminary results of the in-depth interviews.</p>

		<p>conducted early on, an analysis of 'big concerns' for the Regional Investment Strategy and workshops with regional stakeholders and technical experts in 2013.</p> <p>Since then, Cape York NRM has continued with strong engagement throughout the project. Due to the nature of the approach (planning by doing), the project involved collaborations, engagement, participation and implementing the regional investment strategy through other state and federal programs (Caring for Our Country, National Landcare Programme, Water Quality Improvement Plan and the QLD Regional Investment programs).</p> <p>The Your Climate project developed fact sheets, a regional engagement process for capturing interviews on film, over a dozen events and a questionnaire to ask participants about their values, place and change seen in their area. The results of this process is a series of videos, results from the events, dozens of communications products, results from over 120 interviews and a collection of over 200 plans.</p> <p>Four organisations and two Traditional Owners from Lockhart used this questionnaire to engage with the community across Cape York, including South Cape York Catchments, Mitchell River Watershed Management Group, Mulong and the project team at Cape York NRM. One key result is videos of stories told by Traditional Owners and Elders across Cape York, and Cape York NRM has now collated 90 video clips through this project. Cape York NRM estimate that engagement at events has reached another 200+ individuals about what's important to them, climate change, general changes, their aspirations and future activities or projects. Cape York NRM is now going back to groups to discuss updated climate science impacts now available from Stream 2.</p> <p>Engagement is core to Atlas and the communication strategy. Cape York NRM has an engagement strategy and communications strategy that are both centred on engaging with the Cape York community. The Atlas is a platform that encourages land managers and supporters of land managers on Cape York to engage in conversations, provide information and learn about environmental, social and cultural aspects of Cape York.</p>	<p>Land Manager and Corporate sites show all case studies that Cape York NRM has produced over the past four years, the projects and produced communications materials (fact sheets, annual reports, newsletters). The NRM Plan provides insights to the planning process through the plan timelines and the RIS page.</p>
Attribute C	Where relevant, plans identify roles and responsibilities for partners in the region	<p>Projects and partners, including their roles, are identified through the Home page. There are links to projects that are already contributing to achieving the targets of the adaptation pathways as well as details about who is involved in future actions.</p> <p>The home page includes profiles, stories, projects, maps and newsletters describing the role of land managers of Cape York. Cape York NRM identifies synergies with partners through the adaptation</p>	<p>The Home page provides information on the partners and their role in Cape York and the projects that Cape York NRM are involved in. It also provide information about Cape York NRM, its role, vision, mission and staff.</p> <p>The Land Manager site provides users with information about service providers and contributors to the site through profiles. The NRM Plan page provides information on the role of Cape York NRM in the regional investment strategy and NRM planning.</p>

		pathways action section, such as for the cluster approach to working together for fire management and weed management.	
Attribute D	Plans integrate biophysical, socio-economic and climate change information to fine tune strategies for improving landscape connectivity, function and resilience	<p>The NRM Plan explicitly states climate impacts and climate adaptation options.</p> <p>Cape York NRM has honed climate impacts to species distributions and localised climate scenarios on the Ecosystems Carbon and Biodiversity site. Cape York NRM is keeping up-to-date relevant information on all portals of the Atlas, through spatial layers, data and documents in repositories.</p>	<p>Several mappers and maps are provided across the Atlas - a general one on Maps and Data, three on Ecosystems, Carbon and Biodiversity site related to each, one on Water and a regional interactive map on the Home page (About – the region). Maps and Data is a repository for spatial information, data and documents. It also includes a library of literature related to NRM topics on Cape York.</p> <p>The Adapt: Climate Stories provides regional and national information on climate change, impacts and adaptation pathways. Cape York NRM has also showcased a 'Cape York Climate Futures' site for information on species distributions, localised climate scenarios, sea level rise and carbon abatement options (duplicated from the Carbon site).</p> <p>The Water quality site provides information related to two water quality improvement plans and Walking the Catchment interactives, references, projects, stories and news.</p> <p>The Fire site provides information on fire characteristics, history, carbon abatement opportunities, fire projects, stories, news.</p>

7. Appendix 2: Policy alignment to Cape York NRM plan

Policy	Source	Relevant Section	Plan alignment	Pathways	Atlas sites
EPBC Act 1999	http://www.environment.gov.au/epbc/protected-matters-search-tool	Set of documents on the SPRAT and MNES databases, relating to Cape York, including: - Key threatening processes - Conservation advices - National Recovery Plans - Register National Estate	Threats and actions are discussed in documents relating to the 115 threatened species and 4 threatened ecological communities present on Cape York, including: - 69 SPRAT profiles - 34 Conservation advices - 19 National Recovery Plans - 79 places on the Register of National Estate - 4 Key threatening processes Activities in the plan include technical studies for targetting species and ecosystems, recovery actions for threatened species, improving the health of ecosystems through fire and on-country management.	fire threatened species ecosystem services	Fire Ecosystem services, Carbon Adapt
Closing the Gap in Indigenous Disadvantage	http://www.coag.gov.au/closing_the_gap_in_indigenous_disadvantage	Two relevant targets: 1. close the gap in life expectancy within a generation (by 2031); 2. halve the gap in employment outcomes between Indigenous and other Australians by 2018.	Cape York is over 50% Indigenous. Implementing the plan crucially involves Indigenous groups in the activities across Cape York. The activities in the plan contribute to skills, physical and mental health, education, employment, reconnection to country and empowerment through providing funds, resources and opportunities for Indigenous participation in land management.	Fire Living Knowledge Country planning	Fire Living knowledge place Who Plans Here
The National Food Plan and National Drought Policy	DAFF (2012) National Food Plan green paper	One relevant objective: Maintain and improve the natural resource base underpinning food production in Australia.	The plan contributes to maintaining the resource base by coordinating information and natural resource management to improve landscape resilience and improve health of systems for use as horticultural production and cattle grazing lands.	Preparedness for climate change Property planning	Climate Who plans here Land Manager
The National Wildlife Corridors Plan	DSWEPAC (2012), National Wildlife Corridors Plan: A framework for	The plan will support all of the objectives of the National Wildlife Corridors Plan: Protect, maintain and restore native habitats and ecosystems and their critical processes and functions	This plan targets connectivity at a landscape scale for habitats and wildlife species across Cape York. The plan engages the community to improve fire management knowledge and skills across the landscape through continued support and communication of mapping for NAFI (North Australia	Fire Ecosystem services	Fire Ecosystem services, Carbon Adapt

	landscape-scale conservation	<p>Protect natural stores of carbon in native ecosystems to minimise greenhouse gas emissions</p> <p>Enhance the resilience of Australia's landscapes and their adaptability to climate change</p> <p>Support the global and national movement of animals</p> <p>Assist in managing and protecting Australia's iconic landscapes and Indigenous and non-Indigenous cultures and heritage</p> <p>Increase community participation in wildlife corridors and connectivity conservation.</p>	<p>Fire Information site), fire planning, coordination, workshops and implementing burns. The plan also includes activities for carbon abatement and rehabilitation of riparian ecosystems.</p>		
Biodiversity Conservation Strategy	Natural Resource Management Ministerial Council (2010), Australia's Biodiversity Conservation Strategy 2010-2030, Australian Government, Department of Sustainability, Environment, Water, Population and Communities, Canberra	<p>The plan will contribute to all three priorities for action:</p> <ol style="list-style-type: none"> 1. Engaging all Australians in biodiversity conservation through mainstreaming biodiversity, increasing Indigenous engagement, enhancing strategic investments and partnerships. 2. Building ecosystem resilience in a changing climate by protecting diversity, maintaining and re-establishing ecosystem functions and reducing threats to biodiversity. 3. Getting measurable results through improving and sharing knowledge, delivering conservation initiatives efficiently and implementing robust national monitoring, reporting and evaluation. 	<p>The structure, activities and outcomes of the plan work with a system of collecting, synthesising and prioritising evidence for biodiversity conservation. The pathways target threatened species and ecosystems through recovery action and threat abatement methods, particularly for fire, wetland and pest management with Indigenous and NRM community groups. Achievement of activities will contribute to landscape-scale ecosystem health through connecting ecological, evolutionary and cultural aspects of Cape York.</p>	Monitoring Threatened Species Living Knowledge Water	Partners Home Land Manager Maps & Data Ecosystems, Carbon Living Knowledge Place
Cape York Regional Plan	Plan doc (WPH)	Chapter 5. Regional Policies	Cape York NRM works with agricultural, conservation and Indigenous groups to sustainably manage the land and support economic land uses. As such, this plan aligns with the regional plan on balancing strategic	Plan Living Knowledge	Who Plans Here Land Manager

			environmental areas, priority agricultural areas and economic interests to implement sustainable practices.		
Aichi Biodiversity Targets (Convention on Biological Diversity)	https://www.cbd.int/sp/targets/	Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building	A: aware of the values of biodiversity and the steps to conserve and use it sustainably - threatened species management plans, sustainable agriculture programs; community awareness and capacity building. plans for sustainable production and low impacts of use of resources kept within safe ecological limits; B: ecosystem based approaches for managing aquatic species; pollution reduction; weed management; reduce impacts on the reefs C: extinction of threatneed species has been prevented and conservation status improved and sustained - fire, feral animals; D: Ecosystem services approach to understanding Cape York peninsula, particularly through cultural services to the community and Indigenous groups E: Traditional knowledge sharing and practices of Indigenous communities for the use and conservation of biodiversity is integrated through participation in activities; Knowledge and science base improved through collection and synthesis of data and information at the local and regional scales	All	All
White paper on developing Northern Australia	http://northernaustralia.gov.au/	Good Governance for Northern Australia	The plan maintains good governance systems within the Cape York community, through providing better information services, supporting Indigenous corporations and business processes and networks for land management (such as Indigenous fire management).	Fire Living Knowledge Planning	Home Who Plans Here
United Nations Declaration on the Rights of Indigenous Peoples	https://www.humanrights.gov.au/publications/un-declaration-rights-indigenous-peoples-1	The declaration	The organisation has adopted a Governance Policy based on the United Nations Declaration on the Rights of Indigenous Peoples as a guide to the way in which it relates to, engages and works in partnership with the Indigenous people of Cape York	Plans Living Knowledge	Partners Living Knowledge Who Plans Here

Queensland Biosecurity Strategy 2009-2014	http://rti.cabinet.qld.gov.au/documents/2008/dec/biosecurity%20strategy/Attachments/Qld-BiosecurityStrategy-2009-14.pdf	The goals of the strategy	Cape York NRM works with agricultural and environmental organisations to protect key assets and manage pests and weeds across Cape York. Central to this is the work on surveillance and monitoring with groups on Cape York, as part of the monitoring and evaluation pathway. Where key infestations are clear, Cape York NRM coordinates resources and people to control those infestations and channel funding to specific project, such as weeds of national significance and pig control.	Plans Monitoring and evaluation Water	Maps & Data Home (projects)
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8. Appendix 3: RIS paths, actions and monitoring

Theme	Path to Aspiration	Actions that Cape York NRM can support	What could be monitored for each action?
Fire	Maintenance of country through fire	Support the frameworks for monitoring fire on Cape York, especially the Northern Australia Fire Information service Support land managers to implement fire management on their landholdings, working across Indigenous and pastoral properties	Monitoring of fire scar information through NAFI interpretation and on-ground ignition points Planning and mapping burning activity on properties
Fire	Scale-specific coordination over Cape York Peninsula to implement fire strategies	Develop enabling structures and partnerships with the community to form a regional fire management network Coordinate information exchange and planning with land managers delivering fire management Identify and build case studies of learnings and benefits of fire management for promotion	Formalised cluster groups and partnerships established and active Use of Fire.capecyorknrm and surveys for practice change for fire management Distribution and uptake of fire case studies
Fire	Improved opportunities for communities to participate in the carbon economy	Work with landholders for fire plans and identify carbon opportunities Adapt savannah burning methodology with climate and specific purposes Support landholders to apply Savanna Burning Methodologies	Fire plans developed and implemented Documentation of efforts to adapt methodologies Uptake of savannah burning methods and payments received
Fire	Communities with improved pluralistic knowledge of the benefits of appropriate fire management	Ensure right people are speaking for fire on country, through appropriate governance structures and permissions Support promotion and training of Indigenous fire knowledge with Western science Indigenous-led on-country fire workshops	Improved governance for Indigenous clan estates, including clear access pathways to country Formal training for fire management and uptake of fire information Reach and effectiveness of fire workshop

Water	Increased resilience to natural events and climate change	Planning and preparing for natural events (floods, fires, cyclones) through recovery plans and climate change adaptation pathways Build capacity of landholders to respond to natural events and seek funding opportunities Efficiently react to natural events to enable recovery of natural assets	Plan development and uptake by subregional groups Landholders secure funding and deliver on activities Reduction in recovery time and impact from natural events
Water	Systems landscape approach to adapt to climate change	Agriculture extension and planning to improve soil water holding capacity and assess the risks of various construction options related to climate variability Investigating alternative agricultural systems that support sustainable use of water in a changing climate Collaborate with others for funding to research and monitor climate change and impacts on species and ecosystems	Property planning include soils monitoring and climate variability assessments Water usage of agricultural systems Research results and monitoring frameworks developed to measure climate impacts
Water	Improving knowledge and data on water systems	Development of system knowledge models for key landscapes across Cape York that describe how water resources interact Support Indigenous groups to access Country, pass on knowledge and to document IEK and water-related stories Support research and monitoring that responds to issues of significance, knowledge gaps and opportunities, including aquatic species and ecosystems Resource library for water systems knowledge	Knowledge models developed Indigenous knowledge recording process and outcomes Research results and monitoring frameworks developed Resource library development and use
Water	Coordination to improve skills and knowledge to manage water systems	Identify needs and opportunities for workshops and skills development for rangers and agencies, particularly for fresh and salt water turtles and wetlands Ongoing information gathering and visualisation process with local people to develop a shared common understanding of catchment-level and local values and issues Support land managers who have ready access to country to implement NRM activities that enhance water quality and protect aquatic ecosystems	Workshop and training delivery for aquatic systems Documentation of values related to water and catchments Recording on-ground actions for water quality and aquatic ecosystems and develop monitoring systems
Water	Planning for use of water resources	Water resource allocation, capacity building and education to implement and enforce water management plans Community and landholder input to identify water management priorities Collaborative engagement at the catchment level to develop, implement and review long-term plans related to water	Adoption of water management plans Engagement activities for identifying water management priorities Development and uptake of catchment-level plans related to water
Soils	Coordination for accessing and managing productive systems	Promote integrated management of living soils to improve ground cover through appropriate burning practices, sustained pest management and revegetation with the right species Small Grants Program for environmental management that supports Indigenous groups and pastoralists Coordinated leadership to drive local on-ground delivery and efficient use of resources for grazing land management Support landholders, Indigenous rangers, Industry and TO's who have ready access to Country to implement NRM activities that enhance soil quality, reduce erosion and improve ecosystem connectivity	Communications products for integrated soils management Delivery of small grants by Indigenous groups and pastoralists Documented collaborations for land management Tracking on-ground activities for soil maintenance and landscape connectivity

Soils	Innovation for improving viability and sustainability of agricultural systems	Support innovation and development of alternative economies such as soil carbon, minimum tillage and composting Support research into viable alternative livelihoods from carbon sequestration in soils, mangroves and wetlands Develop monitoring systems, including real-time, remote sensing and photo points to monitor ecosystem and soil health, including soil organic carbon	Documentation of conversations to develop alternative economies Research results that support new carbon opportunities Implemented monitoring systems for ecosystems and soils
Soils	Property planning to improve economic viability and promote living soils	Provide tools, mapping and property planning support to landholders and Traditional Owners identify the best land management options Help graziers and farmers to implement appropriate property management plans and incorporate multiple integrated activities and farm diversification Support farmers to build resilience into grazing systems, including resting areas and turning cattle off early	Documentation of property planning processes Implementation of property plans by graziers and farmers Long-term farm productivity
Soils	Industry practice change to conserve soils	Connect with policy makers to improve practices of expanding industries New roads evaluated prior to construction for location, soil type and method Targeted case-studies on best practice soil and hydrology management with mines and roads companies	Documentation of engagements to change policies and practices Soil evaluations used in construction of roads Case studies developed and distributed
Soils	Awareness raising for soil quality and impacts	Provide opportunities for sharing knowledge on the cumulative impacts on soils Work with media, tourism operators, business and industry to promote messaging that reduces impacts of erosion to waterways subject to high traffic Support research and projects that improve overall knowledge of soil quality, erosion and flood plumes	Communications products and distribution for impacts on soils Communications and media discussing the impacts of erosion from traffic Research results for water quality promoted to the Cape York community
Livelihoods	Ecosystem services valued and promoted	Valuing and mapping ecosystem services of Cape York Promoting ecosystem service information to the Cape York community, including cultural and economic benefits	Scale and type of ecosystem service valuation across Cape York
Livelihoods	Alternative livelihoods and economic diversification	Support research and development of viable alternative livelihoods such as carbon Support groups and property owners to chase carbon farming opportunities Sector roundtables on livelihoods Development of diversified agricultural and ecosystem products, including self-sufficiency and alternative energy Bring new ideas & innovations through alternative economies 'Think Tank' and case studies from other regions (including PNG)	New research results promoted for new alternative livelihood opportunities Uptake of carbon farming opportunities Success of roundtables on livelihoods Documentation of new sustainable agricultural and ecosystem products Documentation of case studies and conversations on alternative economies
Livelihoods	Stewardship for Indigenous country management	Continuation of Indigenous Reference Groups (IRGs) and Clan Estate mapping Provide information about patenting intellectual property (IP) of Indigenous Ecological Knowledge (IEK) Develop environmental offsets from industrial development based around Indigenous stewardship	Implementation of IRGs and clan estate mapping Information distribution for IP and IEK Development and establishment of an environmental offsets program
Livelihoods	Education aligned with place and cultural values	Invest time and resources to build local skills and knowledge, including identifying champions, providing mentorships and coaching local practitioners	Surveys for capacity, skills and knowledge Change in the education curriculum for Cape York

		Working with educators to incorporate NRM and IEK in Cape York curriculum Developing 'The Knowledge Place' hubs for tertiary education and skills training Two way communication and information sharing activities to provide new opportunities and relevant support	Development of hubs for tertiary education Events to share information and opportunities for improving local knowledge
Livelihoods	Communities plan for sustainable livelihoods	Community and Indigenous groups supported to be on country to improve planning, land management and personal wellbeing Work with TOs, landholders and primary industries to develop, implement and review community-led plans for sustainable livelihoods, including scenario planning for climate change adaptation	Activity of community and Indigenous groups on-country Developed plans for sustainable livelihoods
Livelihoods	Business to support careers and sustainable livelihoods	Identify existing support and assist in providing business advice, skills and resources to Cape York groups Sector based workshops delivered in partnership with other organisations to support business development and innovation	Leverage and partnerships for supporting businesses Delivery of workshops for business development
IPM	Cross-scale collaborations to coordinate pest management actions	Representation on behalf of CY people around strategic issues that impact integrated pest management Small Grants Program for pest and weed management on landholders properties Taskforce approach in a resource poor community - assist in coordinating TOs, landholders and community groups to access country and implement targetted pest management Centrally based storage of pest management equipment to allow IPM to happen at the right time, in the right way, at the right place	Effective strategic projects to delivery integrated pest management Delivery of small grants for locally-delivered pest management Documented collaborations and task forces for local integrated pest management Delivery of local pest management projects and hubs
IPM	Supporting evidence-based and long-term strategic planning for integrated pest management	Contribute to development of long-term Cape York integrated pest management plan that specifies pathways to achieve an appropriate level of pest management Assist with the development of integrated catchment management plans that incorporate pest management through a 'top-of-catchment' approach and specify landscape and seasonal approaches Landholders (including industry) implement management plans that incorporate collaborative and integrated pest management approaches	Document process of developing the IPM plan Development of integrated catchment managemnet plans Uptake of management plans for integrated pest management
IPM	Effective on-country monitoring and mapping of pest species	Develop community monitoring tools such as apps for tablets and smart phone to record and report while on country to detect weed spread and monitor activities over the long-term Annual landscape surveys, monitoring and mapping to assess impacts and provide early detection system for pests and land use change	Data collected and analysed through field data collection tools Data collected and analysed for landscape surveys
IPM	Improving knowledge to strategically manage pests	Provide toolkit and communicate control methods for feral animal control A 'Weed deck' for identifying weed species on Cape York is produced and distributed to land managers Capacity building for landholders to identify and control weeds Increase knowledge and awareness of invasive species, through communications that include case-studies on innovative pest management practices and education within schools	Toolkit development Weed deck production and distribution Capacity building activities for weed management Communications products, distribution and uptake

IPM	Skills training to safely manage pests	Sector based workshops in pest management techniques, ecology and safety, including for cats, feral pigs and wild dogs Training and monitoring opportunities for biosecurity are supported through Quarantine efforts Provide accredited training opportunities to Indigenous groups and property owners for shooting, baiting and chemical handling	Workshop delivery for pest management Support through Quarantine and Biosecurity for training and monitoring Training delivery for landholders
IPM	Developing innovative ideas for integrating pest management	Flexible funding allocation for innovative and responsive landholders to quickly respond to emerging issues Cape York community has support to respond to major natural events (such as cyclones and floods) to reduce the spread of weeds Support research innovation in integrated pest management including new control methods Encourage fire equipment and appropriate fire management as part of IPM tool kit	Negotiation of a flexible funding mechanism Negotiation of a program to respond to natural events for land management Research results promoted for integrated pest management Document use of fire as a weed elimination tool
B&C	Strategic on-country planning with Indigenous and non-Indigenous managers to support conservation	Community-led planning and monitoring conducted on country, with external science input Provide mapping services to support landholders and Traditional Owners to map Indigenous ecological knowledge, habitats, ecosystems and threats Assist landholders, Indigenous groups and organisations to develop threat assessments and plan on-ground conservation strategies, including protection of climate refugia	Documented planning and monitoring processes Maps produced and distributed Plans developed to include threat assessments
B&C	Fostering systematic monitoring of country and biodiversity	Fostering long-term community monitoring of biodiversity through innovative systems and citizen science training Vegetation assessments and biodiversity monitoring integrated with land management practices incorporated into a regional database Expert systematic surveys of fauna and flora to enhance knowledge of biodiversity	Useful data collected by the community for biodiversity monitoring Development of regional database for vegetation assessments and biodiversity monitoring Mapping and documentation of systematic surveys
B&C	Supporting landscape scale threatened species conservation actions	Collaborative grant writing and data sharing to support community and NRM groups Small Grants Program for the protection of cultural knowledge and reduction of pressures to threatened species Engagement across the region and inter-region with NRM groups, Landcare and natural history groups to implement conservation strategies Support groups who have ready access to country to implement on-ground management of threatened species habitats, riparian corridors and threatened communities	Grant submissions with community support Delivery of small grants for threatened species and cultural knowledge Engagement for collaborative conservation actions Threatened species monitoring and activities
B&C	Increasing technical capacity to manage country	Identify needs and opportunities for workshops and skills development for rangers and agencies implementing NRM on Country to take the lead Education and training for social and biophysical sciences, Indigenous knowledge and on-ground land management	Workshop and training delivery for on-country management Delivery of education and training activities
B&C	Information and knowledge sharing to improve understanding of Cape	Communication strategies for all stakeholders to encourage care for and increase knowledge of biodiversity and country Identify key information gaps and conduct systematic reviews of pertinent topics for	Communications products and uptake for biodiversity information

	York's invaluable biodiversity	improved understanding of country and biodiversity Promote information from the Your Climate project about climate projections, impacts and adaptation options for biodiversity and country	Delivery of systematic reviews Results of the Your Climate project
B&C	Building a biodiversity offsets service to aim for net positive impact from developments	Identify areas of future industrial development and areas where offsets could be provided Conduct biodiversity and economic feasibility assessments for potential offset provision areas Build capacity of Indigenous groups to implement offsets services for developers Initiate a regional-level program for offsets and ecosystem services, including mining	Areas identified for offsets Assessments completed for offset areas Capacity at a level to deliver offsets Negotiation of a program for environmental offsets
B&C	Protecting and passing on Indigenous Ecological Knowledge	Integrating scientific and Indigenous ecological knowledge to enhance the information base for natural resource management Repackage information to promote awareness of Indigenous culture, biodiversity values and threats to the Cape York community Develop and promote Indigenous seasonal calendars with Traditional Owner groups Work with Indigenous groups and assist to access Country, pass on knowledge, and to document IEK	Information and resources produced combining science and IEK Communications production and uptake for culture, biodiversity and threats Seasonal calendars developed Indigenous groups using tools to document and pass on IEK