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Communities in Transition

Cook Shire: A Living Transitions Roadmap



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Cook Shire transition roadmap summary

This document is a living roadmap designed to help the Cook Shire transition to a prosperous, low emissions, sustainable future. It is developed as part of the *Communities in Transition (CiT)* pilot project through active participation of the regional Council, community members and state government agencies. It is supported by the Clean Growth Choices consortium comprised of members from the University of Southern Queensland (USQ), James Cook University (JCU), Commonwealth Scientific and Industrial Research Organisation (CSIRO) and The Ecoefficiency Group. The project was funded by the Queensland Government as part of its Community in Transition pilot program.

The project comprised three main stages:

1. Assessing the current state, risks, challenges and opportunities for the Region and identifying broad pathways for the future.
2. Generation of innovative ideas and options that enable future pathways.
3. Presenting options and pathways in a roadmap and developing business cases for implementing transition.

During the first stage of this work, key challenges and opportunities were identified for the Region including: a) climate change and extreme weather events, b) water availability and waste management issues, c) rural decline, population numbers and composition of the workforce, d) limited access to communications, e) disruption and benefits from digital technology, f) access to affordable, reliable and sustainable energy, g) geographic isolation for many communities, h) increasing consumer demand for clean and green products, and i) natural and cultural assets and the potential for diverse inclusive and sustainable tourism and economic development. In this stage community members articulated a set of values, visions, aspirations and goals for the future of the Region with the intention of building a resilient and equitable economy and a liveable Region that retains its sense of freedom and relaxed outdoor lifestyle. Central to this is maintaining environmental integrity and high ecological and biodiversity values, the strong connection to land, and the rich Indigenous and non-Indigenous culture and history.

During the second stage, three broad pathways were identified with a set of interventions, mechanisms and outcomes by which the vision and goals would be achieved. These were:

1. Local Food Futures: Creating local food security, regenerative agriculture and cooperative food markets that deliver multiple social, economic and environmental benefits.
2. Making Water Work: Delivering greater benefit from new agricultural water, supply and value chains.
3. Dynamic Business and Sector Development: Building business innovation and skills and five dynamic new economic sectors for the region.

The third and final stage revealed that these pathways are complementary and have phases that can be implemented to maintain, modify and transform parts of the Region to achieve the community's vision and goals. Key interventions that relate to all three pathways are: feasibility studies and research, digital connectivity, renewable energy and good governance. For each pathway, a business case has been developed to set the roadmap in motion.

This roadmap will require further work to test and refine the details of the proposed pathways. It will also require a continuous monitoring and regular reviews at least every two years to ensure that the set of pathways remain appropriate and sufficient to achieve the vision and goals and are robust enough to changes in global and domestic drivers.

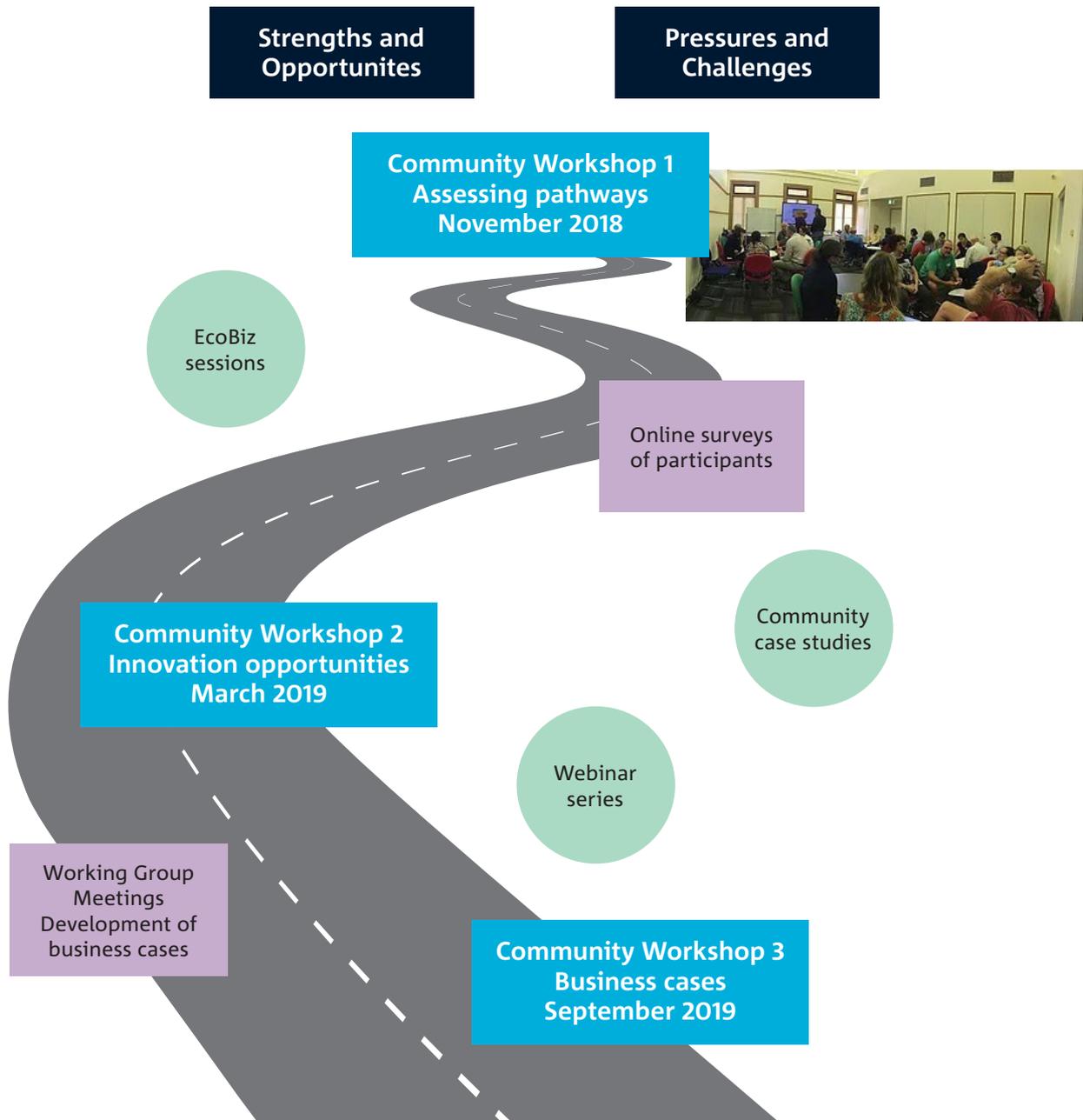


Figure 1. The three stages of the pilot program, leading to the business cases and roadmap.

Background to the project

The Clean Growth Choices consortium – comprised of The Institute for Resilient Regions, University of Southern Queensland; The Cairns Institute at James Cook University; CSIRO Sustainability Pathways Program, and The Ecoefficiency Group - designed a program of work to help selected communities transition to a vibrant sustainable future. This was done in response to a Queensland Government tender for the delivery of a pathways approach to its Climate Transition Strategy ‘*Pathways to a clean growth economy*,’ a strategy that focuses on the risks associated with environmental, social and economic changes (QDEHP 2017).

The dynamics of transition are complex and challenging. Transition needs to be led by the communities themselves in ways that are socially acceptable and build collective agency in shaping the future. The Queensland Government anticipates that the economy will need to keep adjusting to stay in step with the changing global economy. It assumes that Queensland has a competitive advantage that will assist with the transition, and while the transition will likely occur over decades, it should start right away to be most cost-effective. The state government has said that it will assist and guide these processes by:

- creating an environment for investment shift and innovation
- facilitating existing Queensland industries to transition
- working with Queensland’s regional communities to transition.

This report focuses on the development of a living transition roadmap for the Cook Shire as part of the *Communities in Transition* (CiT) pilot program. The program is an active community capacity building process for strengthening regional leadership and resilience in dealing with economic, social and environmental change. It is helping Queensland communities to organise and process what is involved in transitioning over the intermediate to long term to achieve a sustainable economy by:

- referring to values, visions and plans to guide each community
- drawing on existing networks, knowledge, skills and capabilities
- canvassing current pressures, opportunities and future scenarios and visions
- identifying broad pathways and options for achieving resilience/sustainability goals
- developing dynamic and future-focused roadmaps and identifying an initial set of business cases that set the roadmap in motion.

Developing the roadmap

Communities in Transition (CiT) provides a framework to support communities to create roadmaps, set their own directions, navigate their own pathways, and design interventions conceived and implemented by the participants themselves. The roadmap development process was informed by the Resilience Adaptation Pathways and Transformation Approach (RAPTA) (version 1) (O'Connell et al. 2016). This is a design approach to bring best practice in the formulation of programs, projects and other interventions so that they have the desired outcomes. It was modified to suit this context (Maru et al. 2018) and summarised in a three-stage process (Figure 2).

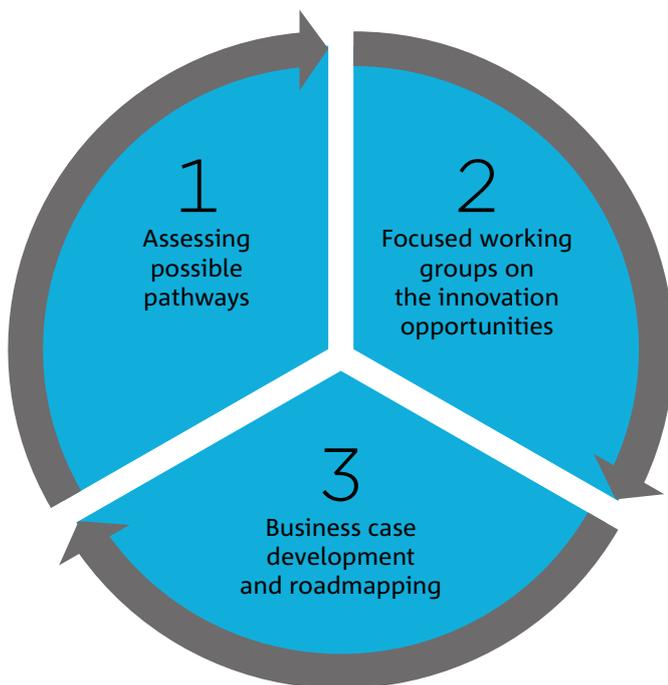


Figure 2. The three stages of the transition planning process.

Stage 1: (September – December 2018) Assessing broad pathways to the future

The process started with an assessment of the Region's current state, reflecting on community values, heritage and aspirations, and tabling future opportunities and risks. This phase ended with the Broad Pathways Workshop which discussed the Region's past, present and future. Participants examined the regional profile as well as key challenges and opportunities prepared by the project team and explored and identified preferred and possible broad pathways forward.

Stage 2: (Jan – June 2019) Focused working groups for innovative ideas and options

Working groups were formed around the domains of focus and broad pathways identified in Stage 1. As part of this stage, the consortium helped the groups to evaluate the real potential of the ideas as well as the enablers needed to overcome barriers and increase chances of success. They then scoped a range of new ideas, settled on the ones that are most likely to be successful, and planned a staged implementation (a 'pathway') including actions to address related enablers and barriers.

Stage 3: (June – November 2019) Road mapping the transition and building business cases

Results from Stage 2 were brought together into a single regional community 'roadmap' of steps/projects. The consortium helped to identify pathways of interdependent actions, plan the timing of these actions, scope short term priorities and prepare initial business cases to set the roadmap in motion. These were reflected upon in a final workshop.

These three broad stages were carried out through a journey of multiple meetings and workshops with regional council leadership and community members.

Regional profile

Current state of the region

The Cook Shire stretches from the Bloomfield River in the south to the Torres Strait and the Northern Peninsula Area Region in the north, and from the Coral Sea in the east to the Gulf of Carpentaria in the west (Figure 3). It covers an area of 106,188 km² and occupies 80% of Cape York Peninsula, but excludes several Cape York communities that are governed under separate Councils. Cooktown, located 331km north of Cairns, is the Shire's major township (QGSO 2019). Smaller population centres are found in Marton, Laura, Lakeland, Coen, Ayton, Rossville and Portland Roads, offshore islands like Lizard Island, and throughout the Bloomfield and Endeavour Valleys (CSC 2016).

Population composition and dynamics

The estimated resident population of Cook Shire was 4,453 in 2019 with an average annual growth rate of 1% over five years (QGSO 2019). The population is projected to increase to 4,893 by 2041, adding 469 people to the regional population (QGSO 2019). In the 2016 census, 16% of the population were older than 65 years of age, which is slightly higher than the Queensland average. As a sparsely populated region, there is regional out-migration of younger people owing to limited education and employment opportunities for local youth. In the 2016 census, 929 people identified as Aboriginal and Torres Strait Islander (22% of the total resident population) and 3,365 (80%) identified as Australian citizens (QGSO 2019).



Figure 3. Cook Shire Council area (Source: CSC 2016).

Landscapes and livelihoods

The landscape, development opportunities and communities of Cook Shire are greatly influenced by its tropical climate, with an average annual temperature of 26 °C. Thunderstorms, tropical lows and cyclones occur between October and March each year, with an average annual rainfall of 1531mm. Evaporation rates often exceed annual average rainfall, resulting in soil moisture loss (QDEHP 2016; QDSDIP 2014). Cook Shire has many remote, undisturbed areas with significant cultural heritage, outstanding biodiversity, and fully functioning savanna ecosystems, dune fields, lakes, rainforests, mangrove forests, sandstone escarpments, wetlands and heathlands (QDEHP 2016; CYNRM and SCYC 2016). Along parts of the coastline, ancient Gondwanan rainforests meet fringing coral reefs. In this section of the Great Barrier Reef (GBR), reefs comprise 42% of all marine park areas; seagrasses 30% of all seagrasses; and wetlands make up 23% of the adjacent coastline (Thomas and Brodie 2015). Until recent coral bleaching events, the adjacent GBR supported healthy corals, high value seagrass meadows, fisheries and large populations of turtles, dugongs and dolphins (CYNRM and SCYC 2016).

Nature and cultural conservation, including National Parks and Traditional Owner lands, is the dominant land use across Cape York (CYNRM and SCYC 2016; QGSO 2019). Cattle grazing covers much of the Shire and is an important part of the economy and lifestyle (CYNRM and SCYC 2016). Cattle are transported out of Cook Shire to access pastures for fattening, saleyards, processing facilities and for live export (QDEHP 2016). Small-scale horticulture including bananas, sorghum, corn, legumes, melons and tropical fruits occurs around Lakeland Downs and Cooktown (QDEHP 2016; QDSDIP 2014). Other key industries include bauxite mining near Weipa, engineering, construction, metals manufacturing, accommodation and a range of ancillary and support services. Tourism is an emerging industry with many small operators responding to the strong domestic adventure-style markets of self-drive and mature-aged people looking to experience the Region's natural and cultural assets/activities (QDEHP 2016; QDSDIP 2014). Long-term economic resilience for the Shire depends on its capacity to expand and diversify its existing economic base (QDSDIP 2014).

Challenges and Opportunities

In conversations held with residents and council members, a number of pressures and opportunities facing the Region were identified including the following:

Governance, social, and economic challenges

Issues around governance relate to land tenure, government and private regulation and investment, perceptions of regulations imposed from metropolitan centres in the south, inconsistent energy policies and investment uncertainty, the need for a renewable energy policy that ensures affordability, and political and/or practical barriers to international trading. Issues of a social nature include a lack of leadership and local champions, and the high levels of welfare dependence in some areas. Health issues associated with year-round access to fresh, affordable food and water, and access to affordable, local health care remain ongoing and challenging. Chronic diseases (e.g. renal failure, diabetes) are prevalent in some areas. The Region's remoteness also presents economic challenges, including a lack of opportunities for local youth, high unemployment, skills shortages, and a lack of career pathways for local enterprises. A lack of facilities and support for local organisations (health, sports, education) hinders community vitality in isolated townships.

Climate and extreme weather events

By 2030 Australia will most likely experience fewer frosts and more summer days above 35°C (Brumby et al. 2014). Drought conditions are expected to worsen across inland Australia bringing water security problems. In recent years, summers have brought an increase in severe storms and floods, droughts, heatwaves and bushfires across Queensland. Climate change is likely to exacerbate the frequency and severity of these events (QDEHP 2016). In future, Cape York can expect higher temperatures, hotter and more frequent hot days, more

intense downpours, less frequent but more intense tropical cyclones, rising sea levels and warmer and more acidic seas. Sea level rise could pose a particular challenge for Cook Shire's coastal communities (QDEHP 2016).

Climate stresses can affect physical and mental wellbeing and strain limited social support services and key infrastructure in regional, rural and remote Australia (Hossain et al. 2014). Higher temperatures and longer dry seasons leading to bushfires may place regional communities at higher risk. Mosquito-borne diseases may spread through Cook Shire communities with changes in temperature and rainfall. The most vulnerable members of these communities – the elderly, the very young and people with poor health will be at greatest risk, placing more stress on health services and infrastructure (Brumby et al. 2014; Carroll and Loughnan 2014; QDEHP 2016).

Drought, floods, cyclones and other extreme events place financial burdens on communities and individuals (Brumby et al. 2014). Biosecurity is an issue for the future viability of Cook Shire's horticultural industry, and the area is likely to experience an increase in plant diseases, weeds and pests with changing weather conditions. As evaporation rates increase with higher temperatures, there will likely be higher rates of soil moisture depletion, reduced ground cover and lower livestock carrying capacity. More intense cyclones, flooding and wildfires will likely affect ecosystem health, industries and settlements reliant on water, sewerage, storm water, transport and communications.

The cost of insurance may increase as a result (Deloitte Access Economics 2016). A changing climate also presents some opportunities for the Cook Shire's agricultural sector. Warmer wet seasons may increase pasture growth and increase soil fertility by increasing plant decomposition and nitrogen availability. Additionally, higher levels of atmospheric carbon dioxide may increase pasture water efficiency and nitrogen uptake, although this could be offset by an overall reduction in pasture quality (lower protein and low digestibility) (Cobon et al. 2017).

Tourism and recreation

Tourism is an emerging industry on Cape York with great potential for Indigenous and nature-based tourism. Cape York tourism captures the drive market – mainly 4WD and fishers – with more than 80% of visitors using their own vehicles and the balance using hire cars or commercial tour operations (Cape York Sustainable Futures 2015). Visitors are drawn to Cape York during the drier winter months to explore the Shire's natural attractions and partake in activities such as wildlife viewing, bird watching, fishing, camping, snorkelling and diving and its rich Indigenous and European history and culture. Tour operators offer a wide variety of experiences including heritage and cultural tours, rock art, museums and art galleries, Weipa's Western Cape Cultural Centre, Red Beach (Prunung), islands, reefs and rainforest, and so on. The Region also hosts the Mount Franklin Cardiac Challenge (3-day bike ride), Weipa Fishing Classic, Cooktown Discovery Festival, Cooktown Races, Laura Rodeo, Races and Horse sports, Wallaby Creek Festival and the Lizard Island Black Marlin Classic event. With the progressive sealing of the Peninsula Development Road, higher visitation levels are expected, and this brings both opportunities for new business ventures (i.e. diversification of attractions and experiences), and challenges in terms of visitor management, including improved waste management, visitor safety, and visitor facilities (e.g. access to toilets and fresh water). The sealed road will attract visitors with conventional vehicles and caravans/motorhomes, and shorter-term travellers who will all be seeking accommodation and new experiences. Opportunities for new tourism-based ventures could provide new jobs and career paths for local residents (Cape York Sustainable Futures 2015).

Carbon farming and ecosystem services

Carbon farming land management activities reduce greenhouse gas emissions or store carbon dioxide in the landscape. The Carbon Market Institute and the Queensland Government developed a National Carbon Farming Industry Roadmap to help carbon farming reach its full economic, environmental and social potential (CMI 2018). Demand for verifiable carbon credits is expected to grow in the future and provide new opportunities for land managers. By 2030, Queensland may generate \$1.4B - \$4.7B in land and agricultural offsets and abate 32 -104M tonnes of carbon through regeneration, managed native forest, avoided land clearing, savanna burning and reforestation.

The Aboriginal Carbon Fund, Caritas Australia and the Centre for Appropriate Technology Ltd have been piloting a Carbon Farming training program with the Mapoon Land and Sea Rangers. Strategic carbon farming allows Indigenous groups and pastoralists to earn carbon credits by reducing emissions (Bowyer 2018). Training involves learning about savanna burning methods, the Indigenous to Indigenous Strategy, how to use online tools NAFI (Northern Australian Fire Information) and SavBAT3 (Savanna Burning Abatement Tool) to calculate how many carbon credits their carbon farming project could potentially generate and how to properly measure, record and store data to verify core benefits. Training enables rangers to travel to Cape York, Northern Territory and Kimberley Region communities to learn about Indigenous carbon farming projects and to share knowledge and practices (Bowyer 2018). There are also other opportunities for ecosystem service development in the Region.

Communications and technology

New telecommunication services are emerging across Australia as a way of providing access to services previously unavailable to rural and remote communities. For example, telehealth can assist in the long-distance diagnosis, treatment and prevention of disease and injuries by providing clinical support and improved health outcomes by connecting patients and clinicians who are not in the same physical location (Bradford et al. 2015). However, communication technologies rely on certain levels of infrastructure and equipment (e.g. the internet, computer and videoconferencing systems), but these can be expensive and poorly maintained in remote locations. Access to reliable mobile phone coverage can be problematic and some areas have no mobile connection at all. For those with a connection, many rely on satellite internet connection, and only a small percentage are connected to the NBN (AgForce, 2018). Cook Shire's low rural population densities present ongoing problems for the implementation of reliable, efficient, and secure telecommunication services. Many communities in the Cook Shire have virtually no mobile reception, intermittent internet service and unreliable landline services, disadvantaging businesses, schools and families and leaving people stranded in emergency situations. Some remote areas will gain coverage in the future through the Federal Government's Mobile Blackspot Program. Coverage is badly needed for emergency services such as the Royal Flying Doctor Service (Hartley 2017).

Consumer preferences

Technology

Connecting consumer preference to farm profitability is seen as increasingly important for maintaining farmer profitability, as demonstrated by the growing demand for organic food (Perry 2017). Digital technologies have the potential to enable consumers to precisely track the provenance of food, from the field to the pantry. At the same time, commodity crop farmers will be able to match consumer demand for products and produce to create a more valuable crop. The essential connection between agricultural practice and consumer preference is expected to dramatically accelerate the adoption of new sustainable technologies in agriculture (Perry 2017).

Beef

Cattle grazing dominates the agricultural industry in Cook Shire (CYNRM and SCYC 2016). Australia is the world's third largest exporter of beef, which is the third most widely consumed meat in the world, after pork and poultry (AgriFutures Australia 2017). Australians tend to prefer lean, pasture grown beef, but many overseas consumers, particularly in northern Asia, prefer marbled, grain-fed beef produced through long periods (up to 120 days) of feed-lotting (Greenwood et al. 2018). Forty percent of Australia's total beef supply and 80% of beef sold in major domestic supermarkets is sourced from the cattle feedlot sector (ALFA 2018). Maintaining Australia's preferred status as a quality assured supplier of high value beef produced under environmentally sustainable systems from 'disease-free' cattle is increasingly competitive and expensive (Greenwood et al. 2018).

Energy

Australia's National Electricity Market (NEM) comprises a range of wholesale electricity markets that facilitate the exchange of electricity between generators and consumers in eastern and southern Australia (Woods & Blowers 2017). The NEM is struggling due to increasing electricity prices coupled with increasing concerns over the reliability and capacity of electricity infrastructure to keep pace with demand (Woods & Blowers 2017). Access to cheap, reliable energy is also critical to sustain many industries, including agriculture and retail (Naughtin et al. 2017) and consumer demand for cheaper electricity is driving demand for residential photovoltaic systems with battery energy storage (Agnew et al. 2018). Until recently, almost all electricity was generated from coal, gas and hydro, but electricity is increasingly being generated from wind and solar generation (Woods & Blowers 2017).

The Cook Shire is home to Australia's first integrated large-scale solar energy and storage system that is connected into a fringe grid location (Conergy's Lakeland solar farm). The solar farm delivers energy into the grid for up to 3,000 homes and businesses. It is a test case for 'islanding,' where a section of the grid continues to provide power while disconnected from the main grid, increasing reliability of the local supply (ARENA 2018).

Water

Many parts of Cape York rely on tank water, but there can be shortages of water tanks in some places, such as Portland Roads. Water shortages could get worse as the Peninsular Development Road is sealed and more visitors, in need of fresh water, reach remote communities. Water is captured and stored in specific areas to support towns, agriculture, grazing and mines (CYNRM, 2017). Cook Shire owns and maintains a large network of underground water and wastewater pipes that deliver water to townships and collect wastewater (CSC 2014).

A holistic management of water is hindered though by gaps in recorded knowledge, data and information (CYNRM, 2017). The Draft Cape York Water Plan includes strategies for maintaining ecological and cultural values, equitable water allocation and improved security and reliability of water supply to communities and industries including grazing, irrigated agriculture, mining, fishing and tourism (QDNRME 2018). Strategies include better assessment of the cumulative impacts from new water resource development in new and existing agricultural areas (QDNRME 2018).

Waste

While the waste disposal levy underpinning Queensland's new waste management strategy will not apply to the Cook Shire, waste that is brought into these areas will incur a levy to prevent dumping in non-levy zones (Queensland Government 2018). At present, there is no capacity for any level of routine recycling other than an ad hoc effort within Cook Shire. A significant challenge is emerging for the Shire with the sealing of the Peninsular Development Road. More visitors reaching remote communities will mean more waste, but there are not enough facilities and waste management services to cater for the influx of visitors. Another challenge is marine debris. Chilli Beach on the north-east side of Cape York is a marine debris hotspot due to strong onshore winds and ocean currents which bring debris from Southeast Asia. The beach is remote and only accessible during the dry season, while debris accumulates all year round (Williams 2017).

Across the Shire, landfill sites are being systematically decommissioned and replaced with locally-sited transfer stations to enable separation and transfer of recyclables for external processing. The Cook Shire Council (CSC) are investigating the potential to initiate an emissions neutral, renewable energy powered Materials Recovery Facility, establish container refund scheme depots and align related transport and other logistical support across the Cape (NAILSMA 2017). The new container refund scheme has the potential to enable community organisations to make money and reduce litter, however, there needs to be adequate infrastructure and processes in place to allow this to happen (Boomerang Alliance 2018).

Vision, values and goals

The vision for the Region outlined in the Cook Shire Council Economic Development Plan 2016-2020 is, “enabling the Region to be highly productive and competitive in Cape York using innovative measures to maximise output and identifying opportunities to engage with investors and families seeking a better lifestyle” (CSC 2016), and the vision in the Tropical North Queensland Regional Economic Plan is, “in 2031 Tropical North Queensland will be the World’s Leading Sustainable Tropical region” (Advance Queensland n.d.). The guiding values expressed in the Cook Shire Council Community Plan 2011-2021 are, “excellence, cooperation, leadership, equity, integrity and public interest” (CSC 2012).

Values

In the first workshop, participants articulated values relating to a strong sense of place and personal connection with nature and wilderness, strong connections between communities across Cape York, and Aboriginal connections with country. Reconciliation between Indigenous and non-Indigenous people was also valued highly, as are values of uniqueness, friendship, acceptance of all people, the laid-back lifestyle, and less emphasis on material things.

Reflecting on regional pressures and opportunities, the community aspirations identified by participants relate to:

- halting rural decline, in particular land management and the need to develop, attract and retain a skilled workforce
- maintaining and developing agriculture and tourism without environmental damage
- fostering more inclusive Indigenous leadership
- improving customer services and developing new business skills for small business owners with new human resources and new investments
- addressing the reliability of energy supply
- improving management of water and waste
- increasing the focus on, and the values placed on ecosystem services.

Goals

The vision outlined in the Cook Shire Council Economic Development Plan 2016-2020 is, “enabling the Region to be highly productive and competitive in Cape York using innovative measures to maximise output and identifying opportunities to engage with investors and families seeking a better lifestyle” (CSC 2016), and the vision in the Tropical North Queensland Regional Economic Plan is, “in 2031 Tropical North Queensland will be the World’s Leading Sustainable Tropical region” (Advance Queensland n.d.). Goals identified in the Cook Shire Council Economic Development Plan 2016-2020 are, “to build a sustainable economy that can compete on a regional, national and international stage, and which is recognised as a strong player against other high-profile local government areas” (CSC 2016). The Tropical North Queensland Regional Economic Plan states that achieving the vision for TNQ is based on three fundamental goals: developing a strong and confident tropical economy, an enriched lifestyle in liveable communities, and a natural and built tropical environment which is enjoyed, protected and enhanced.

Priorities and pathways

Based on discussions of current strengths and future, the workshop participants identified priority areas for building a prosperous and resilient Region. These priority areas are shown in Figure 4.

Participants then voted on which of the priority areas were of highest importance for the Region and could be developed into broad pathways for the Region. The eight highest priority areas were:

1. Dynamic Business ventures – ecoBiz and commerce, creative industries, new technologies.
2. Local Food Futures – Infrastructure to support commercial fishing and local food production and agritourism.

3. Making Water Work – Delivering greater benefit from new agricultural water, supply and value chains.
4. Tourism Turbo – Natural, Indigenous and historic heritage.
5. Fronting New Ecosystem Service Markets.
6. Focused School to Work – Transitions and career paths for next generation residents.
7. Regional collaboration – For planning of infrastructure; the CYPLUS vision is a good start but needs development.
8. Future of Weipa – Including Defence and space port capability.

These priority areas were further refined and merged to create three broad pathways for further development.

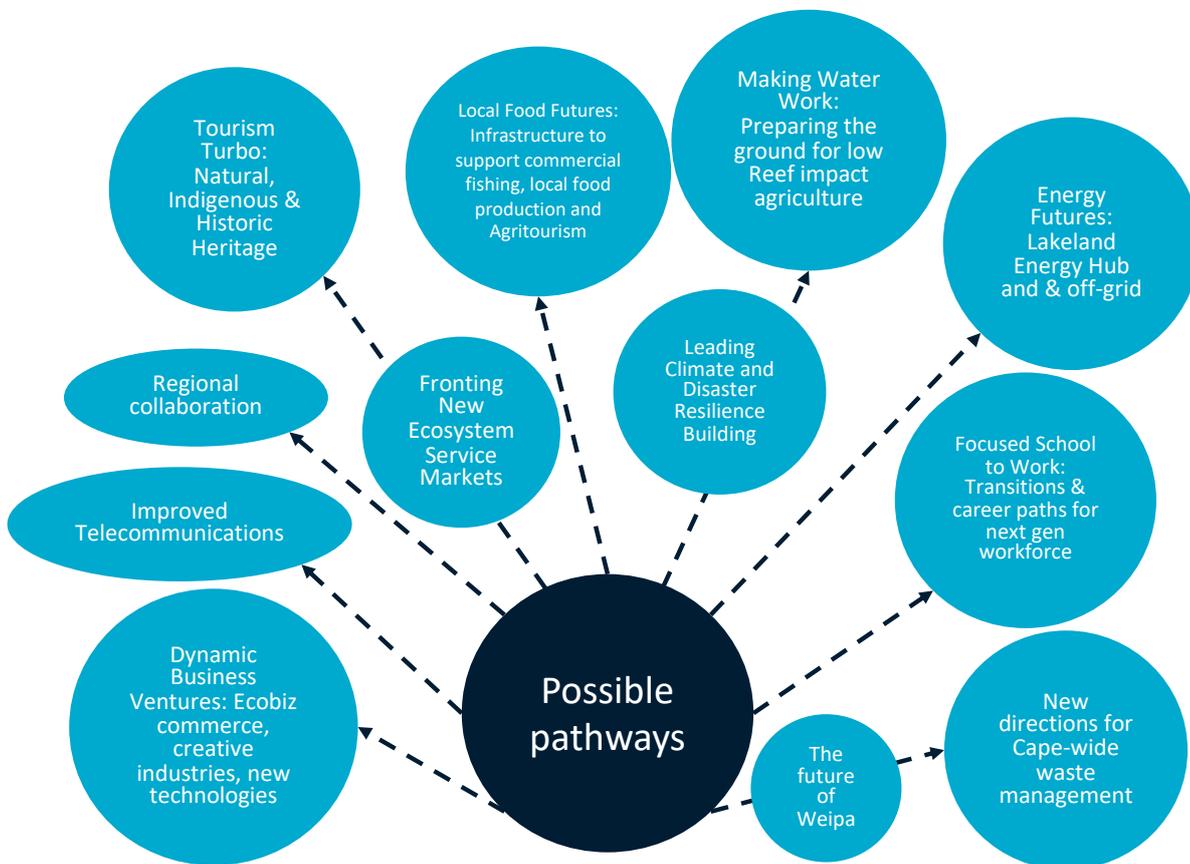


Figure 4. Priority areas for building broad pathways to a prosperous and resilient region.

Broad pathways

Broad pathways given the highest priorities are:

The **Local Food Futures** pathway is about developing a stronger, integrated, more sustainable and more diversified, high value agriculture sector across the Cape. Cooperative-based approaches will be central to its success. If properly resourced, this pathway will facilitate new approaches to niche farming, market gardens, community gardens, school gardens, native foods, local fresh seafood, and fresh meat from grazing properties. It will strengthen existing tropical horticulture production. There is potential for market garden and agri-tourism development in several Cape York communities that are sometimes cut-off in the wet season, so need to be self-reliant.

The **Making Water Work** pathway is linked to the 'Food Futures' priority area and includes particular consideration of increased water availability for agriculture at Lakeland if a dam is constructed on the Palmer River. The Peninsula Development Road creates new access opportunities to markets via Weipa and to the south, and the Cooktown airport presents expanded supply chain opportunities. There are synergies between the Lakeland energy hub and the surrounding agricultural land. A key consideration for this broad pathway is to respond to the new GBR water quality requirements and prepare the ground for agriculture that has low impact on the GBR.

The **Dynamic Business and Sector Development** pathway is about strengthening the business and human services sectors across Cape York, with the business sector focusing primarily on small business ventures based on tourism and human services linked to cultural services. This would involve capacity-building for existing businesses and developing innovation capacity among the future workforce through school education. Improved coordination across the Cape is also needed. Linking with the agricultural development focus in the other pathways provides opportunities for on-farm tourism ventures to complement tourism ventures based around nature and culture.

Each pathway requires an ensemble of feasible and effective intervention options (investment, policies, programs, projects, and practice change) that are prioritised, sequenced and put together and implemented to transition the current state of the Region into the vision. The pathways can be complementary or alternative to allow flexibility in addressing uncertainty in how the Region's challenges and opportunities may unfold in the future. Together, these three pathways drive multiple sets of interventions for a prosperous, equitable and resilient region (see Figure 5)

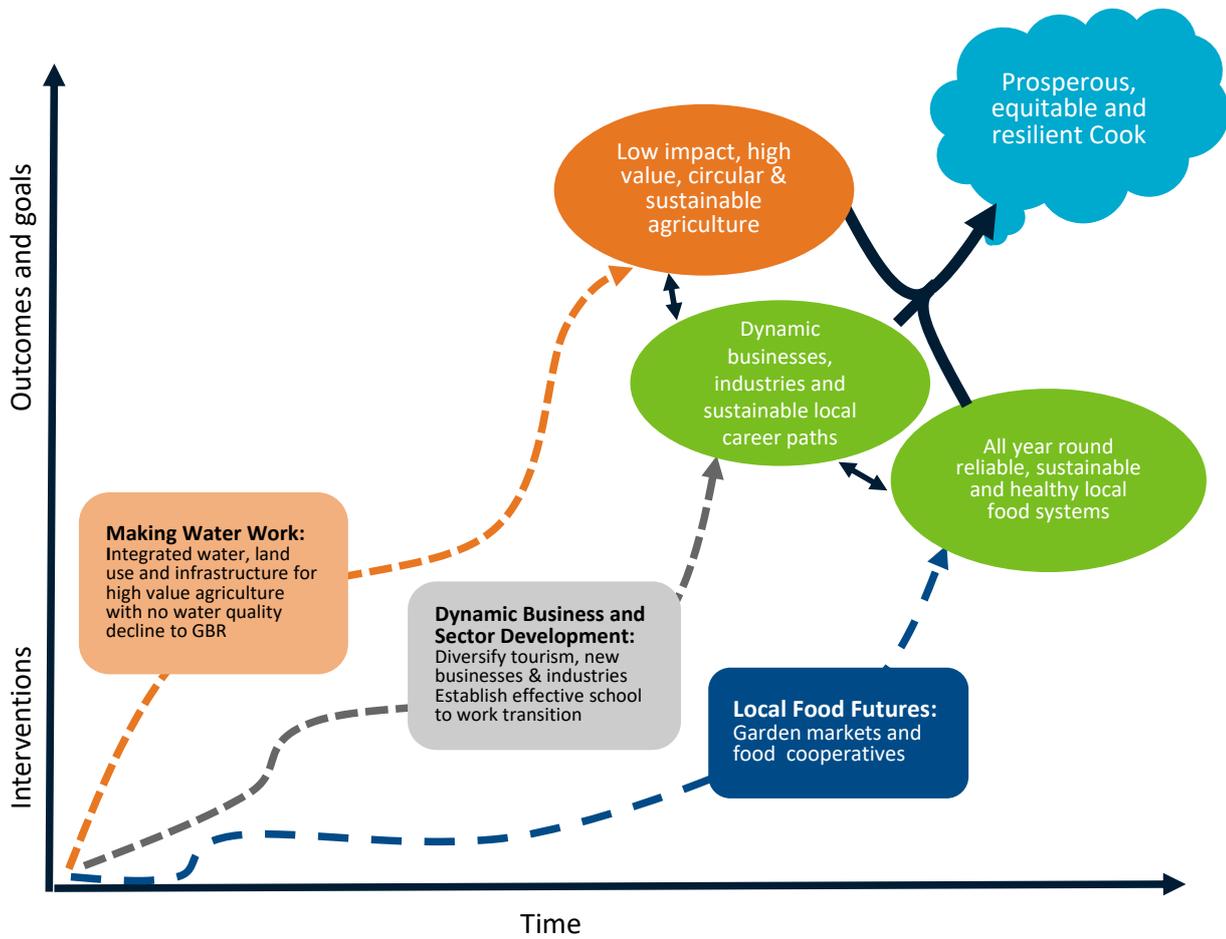


Figure 5. Broad pathways and priority interventions for prosperous, equitable and resilient Cook Shire.

Dynamic transition roadmap for the future

In developing the broad transition pathways, it is important to build upon existing initiatives such as the Council Economic Plan that is enabling initiatives and strategic industry development in tourism, including events, agriculture and aviation as an emerging growth sector.



Types of change pathways

Each pathway will maintain and enhance existing resource use and livelihood systems in the Region in the short term, modify some aspects gradually and even transform other aspects by radically changing and/or adding some significant new components into the regional economy. Therefore, it is possible to envisage each pathway as having different stages or aspects to maintain, modify and

transform the Region that will require different types of interventions. Table 1 is a summary of a suggested focus of each stage, without precluding work that could be initiated for the other stages as part of the broad and dynamic roadmap. To aid visualisation of the broad pathways, Figure 6 shows strategic intervention options that could maintain, modify and transform aspects of the Region.

Table 1. Pathways and potential interventions/stages to ‘maintain,’ ‘modify’ and ‘transform.’

	MAINTAIN	MODIFY	TRANSFORM
Dynamic Business and Sector Development	<p>Maintain current small, nature- and culture-based tourism businesses, ecosystem services and employment opportunities</p> <p>Sustain strong environmental protection and relaxed lifestyle</p>	<p>Collectively develop a regional innovation ecosystem for learning, working and living that encompasses education linked to career pathways and upskilling and coordinating cultural, human and ecosystem services such as expanding strategic carbon farming and cool burning</p>	<p>Build and maintain an environment for skilled, digitally enabled, entrepreneurial and connected small businesses and workforce</p>
Local Food Futures	<p>Improve resource use efficiency to maintain and enhance resilience of current food gardens and agriculture</p> <p>Maintain current infrastructure to current standard</p>	<p>Expand market gardens and food cooperatives across the Region for more localised supply chains that can provide local communities with fresh produce all year round and reduce food miles</p> <p>Extend all weather infrastructure to enable reliable local and export demand driven supply chain for the Region’s produce</p>	<p>Guided by principles of regenerative agriculture and circular economy, create an all-year-round, reliable, sustainable and healthy local food system that also underpins agritourism and high value products and services for export</p>
Making Water Work	<p>Utilise water to build agricultural resilience in a way that maintains scenic beauty and unique biodiversity of the Region</p> <p>Continue with the current renewable energy generation trajectory</p>	<p>Work with governments to partner with and provide incentives for industry sectors to invest in potable and irrigation water supply as well as on renewable energy and waste management as areas become more accessible for agriculture, fisheries and more visited by tourists</p> <p>Establish new digitally-savvy techniques in the design and management of agricultural activities, while considering the need for GBR protection</p>	<p>Driven by market demand enabled by smart supply chains and integrated regional water, energy, transport, communications, infrastructure and services, enable transformation to agricultural and agribusiness sectors that:</p> <ul style="list-style-type: none"> • climate proof • are low emission and low polluting • are high value • have no-net decline in GBR water quality

Intervention options

Legend:

Green set = Local food futures

Blue set = Dynamic business and school to work transition

Orange set = Making water work

Improve input use efficiency & diversity to enhance resilience of current food gardens & agriculture

Expand market gardens, food cooperatives, regenerative agriculture to provide local fresh food

Create all year round, reliable, sustainable and healthy local food system and

Maintain & expand nature-, culture- & agri- based tourism, ecosystem services & employment opportunities

Focused school to work transition & career pathways for next generation workforce

Build digitally enabled dynamic businesses, services and creative industries

Establish new water, land use & infrastructure for low emission high value agriculture

Establish reliable & demand-driven local & export food supply chain informed by circular economy principles

Build circular & sustainable economy – new & diverse agriculture & other businesses & industries

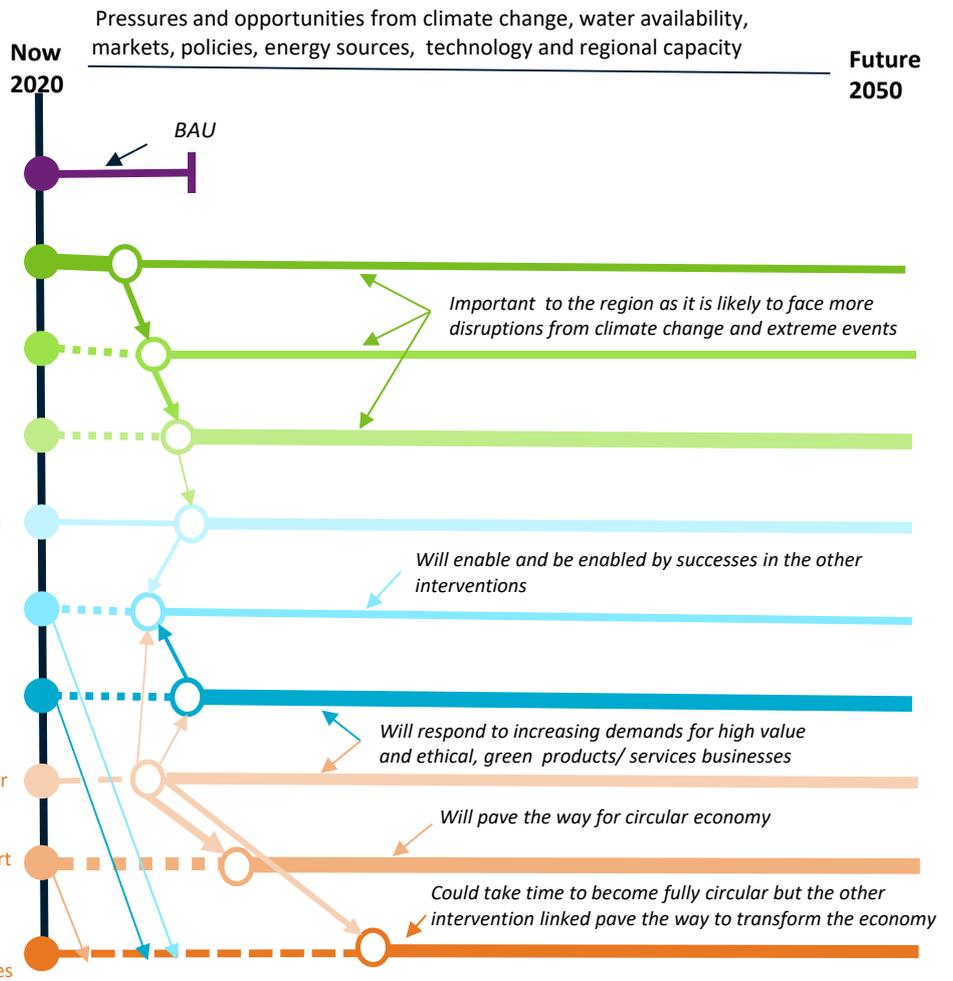


Figure 6. Sets of intervention options in each of the three broad pathways and their projected interdependence.

Interventions useful across pathways

There are four cross-cutting intervention domains identified through workshops and discussions that could enable the pathways. These are feasibility studies and research, digital connectivity, affordable renewable energy, and governance. A summary of the cross-cutting interventions and the three pathways is provided in Table 2.

Table 2. Project ideas and potential benefits from a matrix of broad pathways and cross-cutting interventions.

CROSS-CUTTING INTERVENTION DOMAIN	BROAD PATHWAYS		
	LOCAL FOOD FUTURES	MAKING WATER WORK	DYNAMIC BUSINESS AND SECTOR DEVELOPMENT
Feasibility studies and research	Study on infrastructure and capacity needs to establish a viable and resilient local food system	Detailed feasibility study on making water work for demand driven low impact agricultural transformation and integrated supply chain	Research on what it takes to create business dynamism and a skilled workforce
Digital connectivity	Enable effective local food exchange and distribution	Supporting digitally enabled water efficient agriculture and value chains	Supporting digitally enabled tourism and other diverse businesses, and services Digital ready workforce and businesses including businesses providing digital services
Affordable renewable energy	Reduce cost for viable year-round production and supply of local food	Making hubs energy efficient and effective. Contributing to circularity of hub operations and lowering impacts of agriculture	Cost and emission reduction for existing business and industries including agriculture, new and diverse sectors. New skills and employment opportunities
Governance	Maintain and enhance collaboration through TICA mayors to combat red tape and establish more transparent processes – a central point to get all planning approvals in place Maintain and integrate Indigenous ecological and traditional knowledge for better governance	Work towards a well-coordinated three-tier government partnership and a bipartisan level of planning to develop a robust network of infrastructure to diversify livelihoods and build a well-adapted economy	Establish a multi-tier collaborative governance that enables investment and transforms the regional economy while maintaining a high level of cultural and ecosystem values in the regions

Options selected for business cases

The three broad pathways proposed by the Cook Shire workshop participants and working groups were selected for business case development. These are discussed briefly here, but refer to the business case documents for the full details.

Local Food Futures

The vision for the concept is that the Region critically needs to improve food security; develop new models of agricultural innovation; and strongly link diversified agricultural product including the Region as a food tourism destination. Particular consideration of regenerative and sustainable agricultural practices underpins the business case including uptake of new agricultural practices to incorporate significant environmental efficiencies, highly efficient supply chains, and increasingly integrated and high-worth value chains that deliver social and economic resilience. Key components of this business case are:

- support for the development of an innovative and diverse agriculture/food sector
- exploration of the need for, and opportunities for, community-based food security and value added integration of effort between agriculture and other sectors
- development and testing of a viable food cooperative business model
- progressive building of, and support for, farm innovation, value add & supply reliability
- monitoring of the growth and multiple benefits that emerge within the new system.

Making Water Work

The most significant challenge for the development of agriculture in much of regional Queensland will be effective management of water allocations to enable higher value and much more efficient, low impact agricultural ventures (both large and small scale). On 30 April 2019, the Federal government committed \$10M towards the construction of the Lakeland Dam as part of the Palmer River Supply Water Scheme (The Nationals for Regional Australia 2019). If properly resourced, the *Making Water Work* pathway will support the Shire to strengthen and expand existing tropical horticulture and production in the Lakeland district and broad acre cropping in other key boutique locations. To be successful, however, consideration of existing and potential barriers and opportunities need to be explored. A major and wider range of considerations relates to obligations under proposed new regulations derived from new reef protection regulations are for land managers to achieve “no net decline” in GBR water quality (Queensland Parliament 2019). New thinking and technologies are needed in the design and management of new agricultural lands, and the potential for greater integration of feed production, soil enhancement and nutrient reuse. Consequently, the key components needed to implement this pathway include:

- defining supply chain visions and potential productions system models
- visionary land use planning, footprint development and design
- connected water infrastructure, ownership and water products
- integrated infrastructure, communications, services planning and coordination
- integrated, reliable, affordable and low impact energy
- next generation practices to achieve GBR outcomes.

Dynamic Business and Sector Development

This pathway focuses on the need to take action on strengthening the capacity, innovation levels and workforce of several emerging and new industry sectors. These sectors include: (i) tourism and cultural services; (ii) agri-tech and digital opportunity; (iii) human services; (iv) advanced manufacturing and renewable energy; and (v) emerging ecosystem services. The most significant challenge for building economic resilience in this Region involves the strengthening of these individual sectors, the building of stronger cross-sector linkages and complementarity, and ensuring that the required workforce emerges to ensure effective economic development. The business case focuses on how this initiative will explore, scope and deliver:

- small business innovation and capacity with tourism as a central theme
- Cooktown as a human services centre together with cultural services and community liveability, involving greater coordination and efficiencies of services across Cape York
- linking schools, vocational education, universities and private enterprises to drive workforce development and next generation local skills for a circular economy.

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+61 3 9545 2176

csiroenquiries@csiro.au

csiro.au

For further information

Land and Water

Dr Yiheyis T Maru

Principal Research Scientist

+61 2 6246 4171

yiheyis.maru@csiro.au

research.csiro.au/eap