



Australia's National  
Science Agency

Communities in Transition

# Cook Shire: A Living Transitions Roadmap



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# Cook Shire transition roadmap summary

This report is a living roadmap designed to support the Cook Shire in securing a prosperous and sustainable future. The roadmap is developed as part of the *Clean Growth Choices: Communities in Transition* (CiT) project through active participation of the Cook Shire Council, community members and a local coordinator. This project is supported by a consortium from the University of Southern Queensland, James Cook University, CSIRO and The Ecoefficiency Group. The Clean Growth Choices project has been funded by the Queensland Government as part of its CiT pilot program.

A three-stage process was implemented in this project:

1. Assessing the current state, risks, challenges and opportunities for the region and identifying broad pathways for the future.
2. Generation and rapid evaluation of innovative ideas and options that enable the development of broad pathways.
3. Putting options and pathways into a transition roadmap and for developing business cases.

The process was carried out through a series of meetings, workshops, webinars and other activities with Regional Council leaders and community members (Figure 1). During the first stage, 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 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:

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 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 report is an initial step in developing a dynamic and living roadmap for regional communities in transition. It will require further work to test and refine the details of the proposed pathways. It will also require ongoing monitoring and reviewing 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.

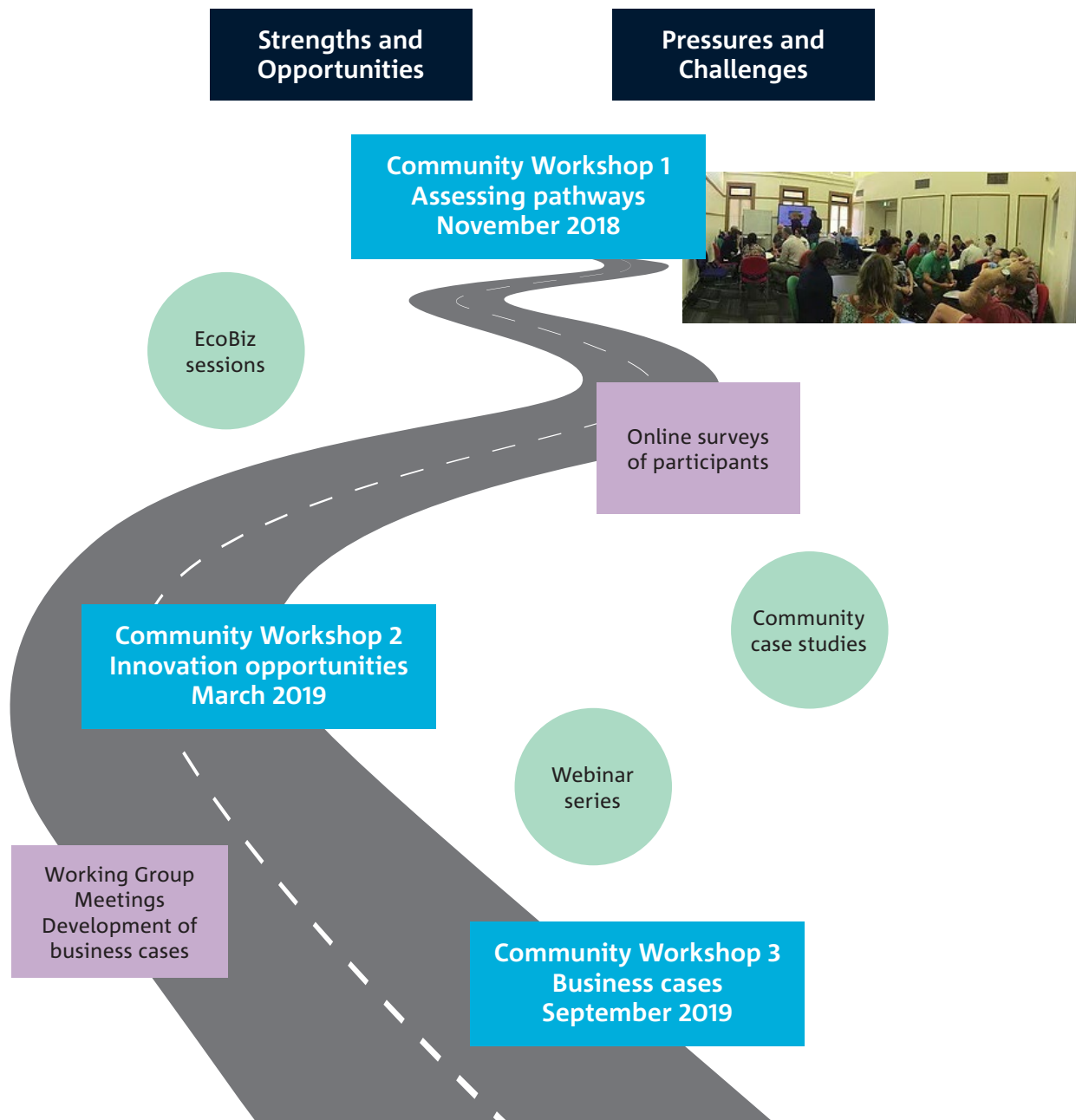


Figure 1. The stages of the program leading to development of the roadmap and business cases.

# 1 Background

A team from James Cook University (JCU), University of Southern Queensland (USQ), Commonwealth Scientific and Industrial Research Organisation (CSIRO), and The Ecoefficiency Group (TEG) designed a program of work in response to a Queensland Government tender for the delivery of a pathways approach to its Queensland Climate Transition Strategy, *'Pathways to a clean growth economy,'* a strategy that focuses on the risks associated with environmental, social and economic changes. 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.

The dynamics of transition is 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.

This report focuses on the development of an initial living transition roadmap for the Cook Shire as part of the *Clean Growth Choices: 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 regional communities to organise and process what is involved in transitioning over the intermediate to long term to achieve a more 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 multiple options for transitioning and achieving the goals.
- Developing dynamic and future-focused roadmaps and identifying an initial set of business cases that set the roadmap in motion.

The project team is drawn from a collaborative consortium comprised of experts who help communities, businesses and governments develop community resilience strategies. The project team includes, The Institute for Resilient Regions at USQ, The Cairns Institute at JCU, CSIRO Sustainability Pathways Program and The Ecoefficiency Group.

With advice from the Cook Shire Council, the project team worked closely with community members to develop an initial transition roadmap and a few business case proposals. With more detailed work, a fully developed roadmap will assist the community with navigating future uncertainties and changes.



## 2 Developing transition roadmaps

The Communities in Transition (CiT) program provides a framework for 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) (O'Connell et al. 2016) and was modified to suit this context (Maru et al. 2018). RAPTA is a design approach to bring best practice in the formulation of programs, projects and other interventions so that they achieve the desired outcomes. The three-stages of the transition planning process is summarised below.

### **Stage 1: (Sep – Dec 2018) Assessing the broad pathways to the future**

The process started with an assessment of each 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 identified possible broad pathways for the future.

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

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

### **Stage 3: (Jun – Oct 2019) Creating transition roadmaps and building business cases**

Results from the focused working groups were brought together into a single regional community 'roadmap' of projects. The consortium assisted the teams to identify pathways of interdependent actions, plan the timing of these actions and identify 'trigger points' – things to monitor over time that should stimulate a review of the roadmap and could potentially change an action. The consortium also supported the community teams to scope short-term priorities and prepare a few initial business cases to set the roadmap in motion.



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

# 3 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 km<sup>2</sup> and occupies 80% of Cape York Peninsula but excludes several Cape York communities that are governed under separate Councils. Cooktown, located 331 km 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 1,531 mm. 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, reefs comprise 42% of all marine park areas and wetlands make up 23% of the adjacent coastline (Thomas and Brodie 2015). Until recent coral bleaching events, the adjacent Great Barrier Reef 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 region depends on its capacity to expand and diversify its existing economic base (QDSDIP 2014).

# 4 Challenges and opportunities

Conversations with workshop participants and Shire Council members identified a number of challenges and opportunities facing the region. These are outlined below in the context of current literature.

## Governance, social and economic challenges

Issues around governance that have been identified relate to land tenure, government and private regulation and investment, regulations imposed from city areas that have local impacts, and political and/or practical barriers to international trading. Several issues relate to energy including inconsistent energy policies, investment uncertainty and the need for a renewable energy policy that ensures affordable energy supply.

Issues of a social nature include a lack of leadership and local champions, and the high level 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

Climate change is likely to exacerbate the frequency and severity of storms, floods, droughts, heatwaves and bushfires across Queensland (QDEHP 2016). In the 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 challenge for Cook Shire's coastal communities (QDEHP 2016).

Climate stresses can affect physical and mental wellbeing and strain social support services and key infrastructure in regional, rural and remote parts of Australia (Hossain et al. 2014). Higher temperatures and longer dry seasons may increase the risk of bushfires, and changes in temperature and rainfall may increase the risk of mosquito-borne diseases in Cook Shire communities. 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; 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 of climate change (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 lower 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 Races and Rodeo 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 \$1.4 billion–\$4.7 billion in land and agricultural offsets and abate 32–104 million 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 provide 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, providing clinical support and improved health outcomes by connecting patients and clinicians who are in different locations (Bradford et al. 2015). However, communication technologies rely on certain levels of infrastructure and equipment such as 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 density 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. Coverage in some remote areas will improve over time through the Federal Government Mobile Blackspot Program. Good coverage is essential 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 per cent 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 and 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 and Blowers 2017). Access to cheap, reliable energy is critical for sustaining many industries, including agriculture and retail (Naughtin et al. 2017). 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 hydropower, but electricity is increasingly being sourced from wind and solar generation (Woods and 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 in some places, such as Portland Roads. Water shortages could become 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 and SCYC 2016). 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 by gaps in recorded knowledge, data and information (CYNRM and SCYC 2016). 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 waste management strategy will not apply to the Cook Shire, waste that is brought into the area 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 ad hoc efforts 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 that bring debris from Southeast Asia. The beach is remote and only accessible during the dry season, while debris accumulates throughout the year (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 has been investigating recycling options including an emissions neutral, renewable energy powered materials recovery facility, container refund scheme depots and aligning transport and other logistical support across the Cape (NAILSMA 2017). A container refund scheme could enable community organisations to raise money and reduce litter, however, there needs to be adequate infrastructure and processes in place to allow this to happen (Boomerang Alliance 2018).

# 5 Values, vision and goals

## Values

Workshop participants expressed what they valued about the region, including a strong sense of place and personal connections with nature and wilderness, strong connections between communities across Cape York, and Indigenous connections with country. Reconciliation between Indigenous and non-Indigenous people are highly valued, 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 damaging the environment.
- Fostering more inclusive Indigenous leadership.
- Improving customer services and developing 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 values placed on ecosystem services.

## Vision

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). 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).

## Goals

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 Tropical North Queensland 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.



# 6 Priorities and pathways

## Priorities

To develop a transition roadmap, it is important to consider the challenges and opportunities that the region could face now and into the future. There is inherent uncertainty around some of these challenges and opportunities, how they interact, and how they may change over time. This uncertainty requires that transition pathways that are developed are robust yet flexible in order to build a prosperous, sustainable and equitable region into the future.

Based on discussions of current strengths and future opportunities and taking into consideration some of the challenges identified earlier, the workshop participants identified priority areas for building broad pathways to a prosperous and resilient region. These are shown in Figure 4.

Participants then voted on which of the priority areas were of highest importance 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.

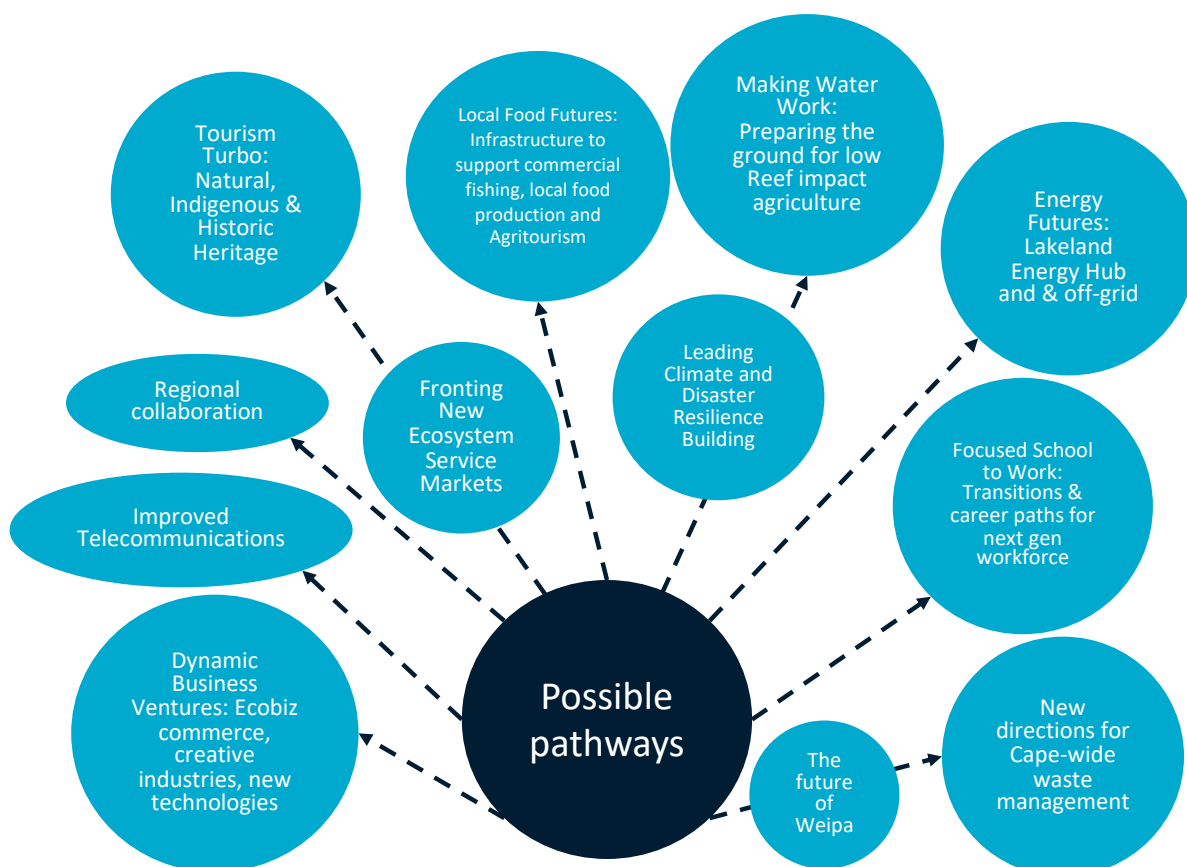


Figure 4. Priority areas for building broad pathways to a prosperous and resilient region.

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.

## Broad pathways

The priority areas were further refined and merged to create three broad pathways for further development, as outlined below:

The **Local Food Futures** pathway is about developing a stronger, integrated, more sustainable and diversified high-value agriculture sector across Cape York. 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 self-reliance through market gardens and agritourism development in several Cape York communities that are sometimes cut-off in the wet season.

The **Making Water Work** pathway is linked to the 'Food Futures' priority area and includes 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 Great Barrier Reef water quality requirements and prepare the ground for agriculture that has low impact on the reef.

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 tourism-based ventures and human services linked to cultural services. This would involve building capacity for existing businesses and developing innovation capacity among the future workforce through school education. Improved coordination across the Cape is also needed.

To transition the region towards the desired future, each pathway will need an ensemble of intervention options (investment, policies, programs, projects and practice change) that are prioritised, sequenced and implemented. The pathways will also require mechanisms by which the challenges and opportunities can be addressed. The pathways need to be broad, alternative and complementary to allow for flexibility in addressing the uncertainty around how the challenges and opportunities may unfold in the future.

# 7 Dynamic transition roadmap for the future

In developing 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 build 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 proposed pathway as having different stages or aspects to maintain, modify and transform the region that will require different types of interventions (Figure 5).

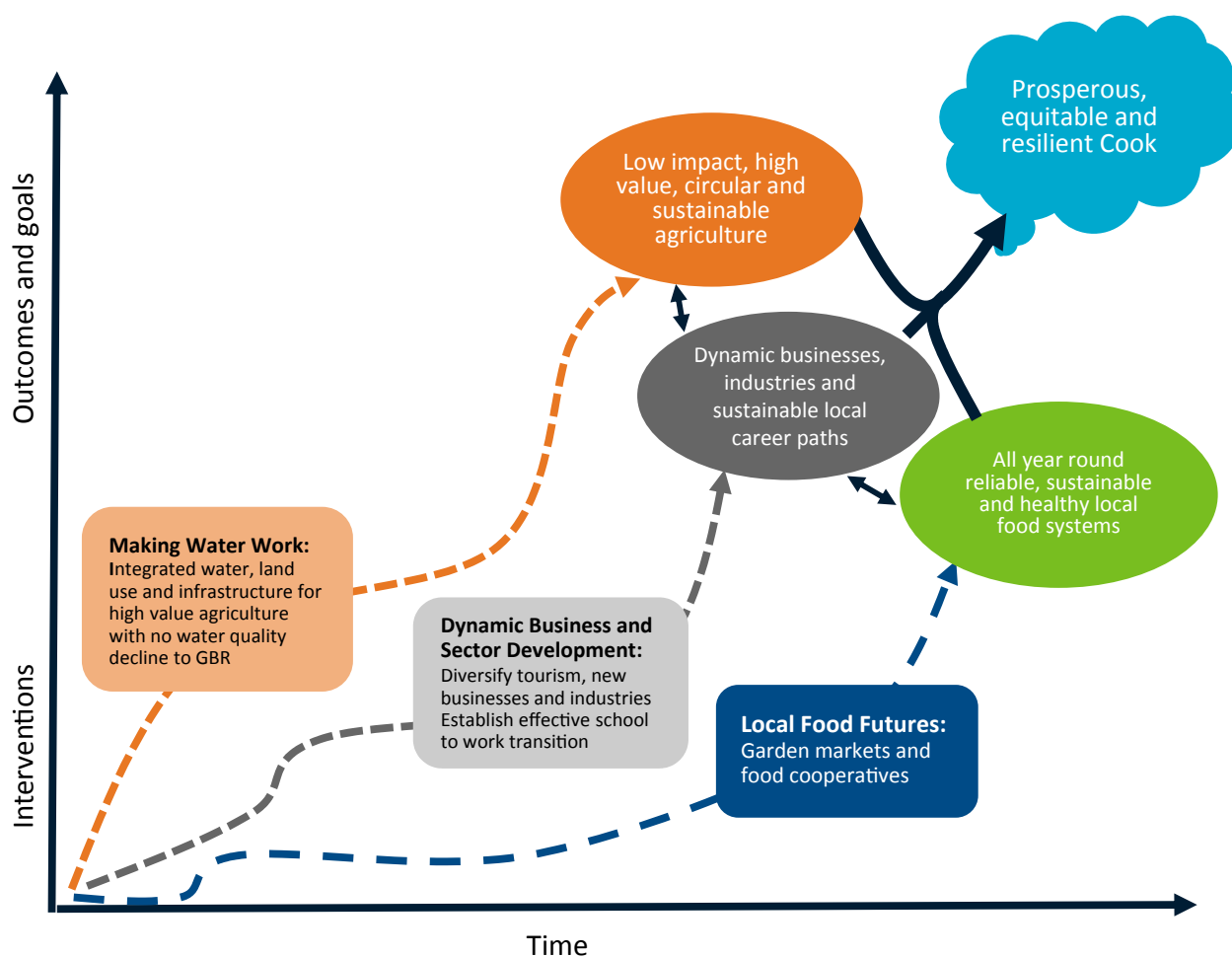


Figure 5. Broad pathways and priority interventions to build a prosperous, equitable and resilient region.

Table 1 shows potential focus areas to ‘maintain’, ‘modify’ and ‘transform’ aspects/phases of each of the three broad pathways without precluding work that could be initiated.

**Table 1. Three proposed pathways and potential intervention options that would maintain, modify and transform aspects of the region to realise the vision and goals.**

Pathways	Maintain	Modify	Transform
<b>Local Food Futures</b>	<p>Improve resource use efficiency to maintain and enhance resilience of current food gardens and agriculture.</p> <p>Maintain 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 chains for the region’s produce.</p>	<p>Create year-round, reliable, sustainable and healthy local food system that underpins agritourism and high-value products and services for export and is guided by principles of regenerative agriculture and circular economy.</p>
<b>Making Water Work</b>	<p>Utilise water to build agricultural resilience while maintaining the 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 renewable energy and waste management as areas become more accessible for agriculture, fisheries and tourists.</p> <p>Establish new digitally savvy techniques in the design and management of agricultural activities, while considering the need for Great Barrier Reef protection.</p>	<p>Enable transformation to agricultural and agribusiness sectors that:</p> <ul style="list-style-type: none"> <li>• are climate proof</li> <li>• have low emissions and are low polluting</li> <li>• are high value</li> <li>• result in no net decline in Great Barrier Reef water quality.</li> </ul> <p>This is driven by market demand and is enabled by smart supply chains and integrated regional water, energy, transport, communications, infrastructure and services.</p>
<b>Making Water Work</b>	<p>Maintain current small nature- and culture-based tourism businesses, ecosystem services and employment opportunities.</p> <p>Sustain strong environmental protection.</p> <p>Support the relaxed lifestyle.</p>	<p>Collectively develop a regional innovation ecosystem for learning, working and living that encompasses education that is linked to career pathways and upskill and coordinate cultural, human and ecosystem services such as expanding carbon farming and strategic cultural burning.</p>	<p>Build and maintain an environment for skilled, digitally enabled, entrepreneurial and connected small businesses and workforce.</p>

To aid visualisation of the broad pathways, Figure 6 shows sets of strategic intervention options to maintain, modify and transform aspects of the region to achieve the vision and goals.

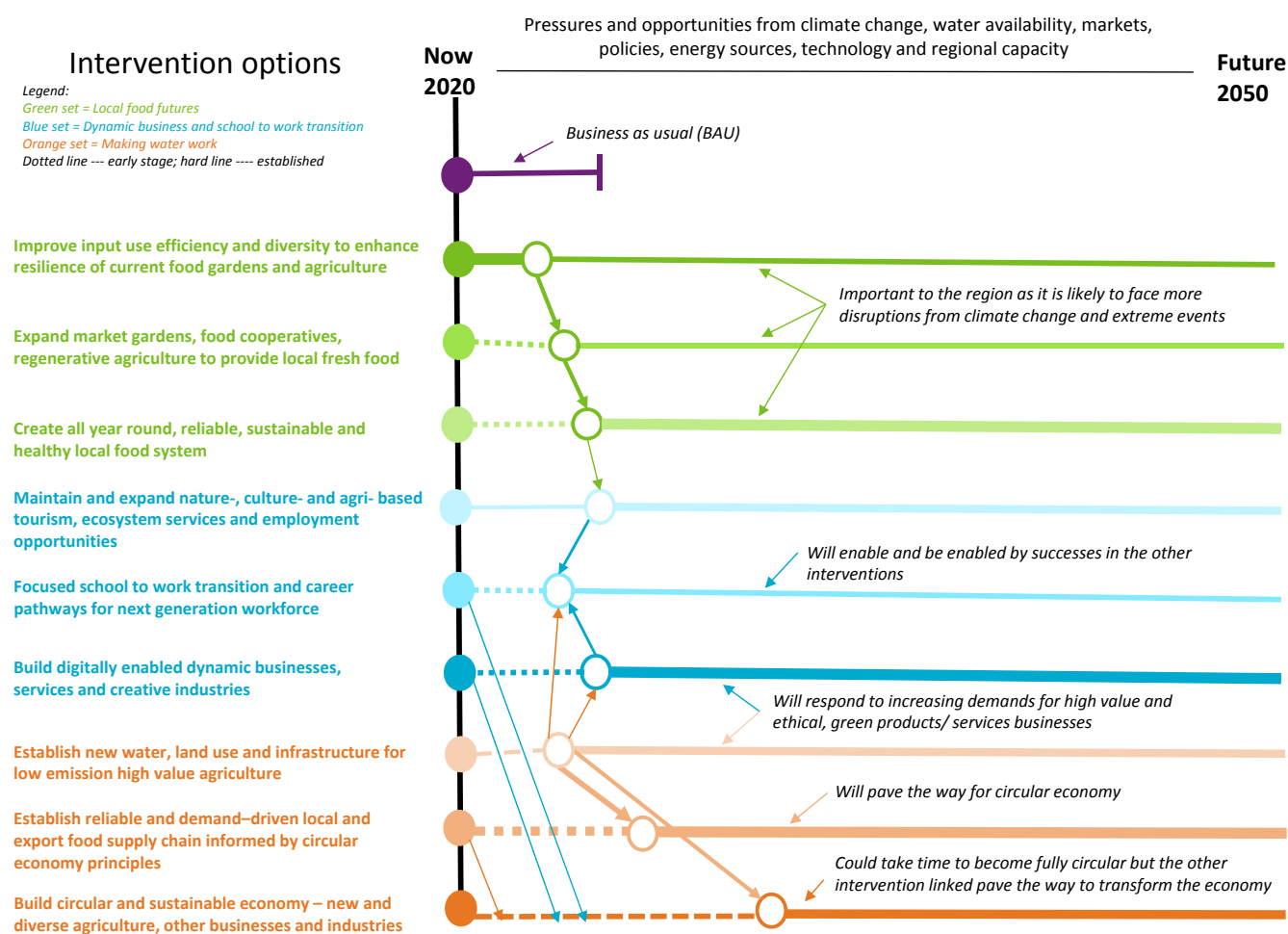


Figure 6. Sets of intervention options and their interdependencies, to 'maintain', 'modify' and 'transform' aspects of the region.

## Interventions across pathways

Four cross-cutting intervention domains were identified in the workshops and working group discussions that could enable the realisation of the three broad 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
<b>Feasibility Studies and Research</b>	Investigate infrastructure and capacity needs to establish a viable and resilient local food system.	Conduct a detailed feasibility study on Making Water Work for demand driven low-impact agricultural transformation and an integrated supply chain.	Research what it takes to create business dynamism and a skilled workforce.
<b>Digital Connectivity</b>	Enable effective local food exchange and distribution.	Support digitally enabled water efficient agriculture and value chains.	Support digitally enabled tourism and other diverse businesses and services.  Create a digital ready workforce and businesses including businesses that provide digital services.
<b>Affordable Renewable Energy</b>	Reduce costs for viable year-round production and supply of local food.	Make hubs energy-efficient and effective; contributing to circularity of hub operations and lowering impacts of agriculture.	Reduce costs and emissions for existing businesses and industries including agriculture and new and diverse sectors. Develop new skills and employment opportunities.
<b>Governance</b>	Maintain and enhance collaboration 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.





Figure 7: Cook Shire (Source: Cook Shire Council).

# 8 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 with full details in the associated business case documents.

## Local Food Futures

The regional vision involves improving food security, developing new models of agricultural innovation and strongly linking diversified agricultural products, including developing the region as a food tourism destination. Particular consideration of regenerative and sustainable agricultural practices underpins the business case, including the 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 associated with, 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 and 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 \$10 million 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, existing and potential barriers and opportunities need to be explored. There are significant obligations for land managers under proposed new rules derived from new reef protection regulations to achieve 'no net decline' in Great Barrier Reef water quality (Queensland Parliament 2019). New thinking and technologies are needed in the design and management of new agricultural lands and 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 sustainable outcomes for the Great Barrier Reef.

## Dynamic Business and Sector Development

This pathway focuses on the need to act on strengthening the capacity, innovation levels and workforce of several emerging and new industry sectors. These sectors are: a) tourism and cultural services, b) agritech and digital opportunity, c) human services, d) advanced manufacturing and renewable energy, and e) emerging ecosystem services. The most significant challenges for building economic resilience in the region involve strengthening these individual sectors, building 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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