



14th March 2014

Committee Secretary
Joint Select Committee on Northern Australia
PO Box 6021
Parliament House
CANBERRA ACT 2600
Email: jscna@aph.gov.au

Dear Sir/Madam

The regional natural resource management (NRM) groups work in partnership with industries and communities to achieve long term sustainability, particularly in the agricultural, indigenous and environment sectors. These organisations manage significant Federal and State funds and have extensive networks built up over the last 15 years of practical in-field relationships. The two NRM Groups in Far North and North West Queensland have combined their response to the Australian Parliament's Northern Australia Committee's call for submissions to its inquiry into the development of Northern Australia.

Whilst our response may be indicative across all of Northern Australia, we qualify that we are primarily commenting on our regional footprint in Far North and Western Queensland.

Our submission shares with the Joint Select Committee on Northern Australia a vision and principles we feel are consistent with our regions, and an overarching summary of key recommendations under the inquiry's term of reference stated in the Committee's 16th December 2013 media statement. The addendum contains specific barriers, enablers, innovations and recommendations collected in more detail from key members of the regions

Thank you for your consideration of the attached submission. We would be pleased to provide further clarification, data or evidence on any matters in our submission should the committee seek detail.

Yours Sincerely

A black rectangular box redacting the signature of John Bethel.

John Bethel
Chair NGRMG

A black rectangular box redacting the signature of Brian Atherinos.

Brian Atherinos
Chair SGC

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Part 1

We have prepared this vision and principles in the context of the “2030 Vision for Developing Northern Australia” where it is proposed that “No longer will Northern Australia be seen as the last frontier: it is in fact, the next frontier” and the identified key macro-economic trends and potential opportunities in Northern Australia, table 1 below.

Trend	Description	Example areas of opportunity
Ageing population	<ul style="list-style-type: none"> Global life expectancy to rise from 68 to 76 by 2050 Currently 500 million people over the age of 60; expected to rise to 1.3 billion in 2040 	<ul style="list-style-type: none"> Healthcare: Develop capabilities in advanced healthcare treatment and research Tourism: Invest in tourism infrastructure in key destinations
Rising middle class – the 'Next Billion'	<ul style="list-style-type: none"> Explosion in the middle class (1.2 billion people by 2030) Purchasing power of middle class to reach \$16,500 per capita by 2040 (from \$2,149 in 1999) Desire for quality amongst aspirational class 	<ul style="list-style-type: none"> Education: Develop as a vocational and higher education hub Agriculture: Cater to increased preference for higher quality foods Healthcare: Meet demand for international healthcare in the region
Urbanisation	<ul style="list-style-type: none"> Rise of megacities (18 in 2005 to 27 in 2015) 70% of the world's population to be in cities by 2050 Significant demand for construction materials, especially steel Strain on education, healthcare, food and fresh water supplies 	<ul style="list-style-type: none"> Resources: Consolidate advantage in iron ore supply Education: Serve excess demand for higher education in the region Agriculture: Boost production output to meet increased food volume demands
Security & Sustainability	<ul style="list-style-type: none"> Broad increased awareness of sustainability 43% more energy consumption by 2030, with growth in demand for clean energy Future security of borders and natural assets 	<ul style="list-style-type: none"> Energy: Serve as a clean energy provider to meet domestic and international needs Defence: Locate more of Australia's defence capabilities in the North Agriculture and Water: Leverage our clean, reliable abundant water and soil resources

Table 1: Macro-trends and potential opportunities for Australia¹

Our Vision

That growth in Northern Australia is strategic, well planned and well managed so that the legacy for future generations and the environment is truly sustainable.

Our Principles

- 1. Governance for North Australia reflects its unique geography, communities and opportunities.** Northern Australia is under-represented in current mainstream decision making arrangements, thus any decisions made regarding Northern Australia needs to strongly integrate with the huge wealth of knowledge in local communities and landowners to reduce risks and maximise practical achievable opportunities. Governance practice, public investment, policy and innovation that embrace local communities in decisions with government are essential for practical and sustainable development investment. Building the northern Australian and tropical industries life experience within government will help develop a 'fit for purpose' approach rather than blanket nation or state wide approaches – the north is different.
- 2. Traditional Owners have rights and responsibilities for management of land and resources across northern Australia.** Traditional Owners have knowledge and capacity essential for effective management of natural resources and yet much existing tenure and development in Queensland does not reflect the skills or the rights of the first peoples. This could be cemented by adopting the United Nations Declaration of Rights of Indigenous People.
- 3. Invest in ongoing in-field science knowledge of northern Australia's natural and cultural resources to inform decision making.** Northern Australia is different climatically and has new emerging markets. In the remote regions of Northern Queensland, especially the Gulf of Carpentaria regions, very little in-field baseline data exists. The regions natural and cultural resources are likely to underpin development proposals. New technology and long term science frameworks need development and application to support sound investment, monitor risks to avoid failure, and measure key indicators that demonstrate return on investment within the natural resource sphere.
- 4. New wealth opportunities are purposely designed and supported so that they are sustainable and long lasting and a true legacy for the region.** Decisions are made within the context of systems rather than isolated single point developments so that cumulative impacts are well understood and managed. Long term implications, costs and benefits of projected changes and significant risks such as climate changes must be fully considered in decision-making.
- 5. Use current resources and opportunities, especially agricultural lands, to their full potential before developing new areas.**
- 6. The economic valuation of ecosystem services must be a strong underpinning decision making tool.** This allows a quantitative comparison of the benefits and costs of development, especially as the natural resource capital of northern Australia will play a large role in new developments.

Our Values

1. Respect for the people before us, the people here today and especially the people of the future.
2. Healthy well managed natural resources, as a valuable existing capital, as they underpin our cultures, our economies and our lifestyles.
3. Democracy and full active participation in decisions that affect our lives and the lives of our children.

Part 2

“Examine the potential for development of the region’s mineral, energy, agricultural, tourism, defence and other industries”

2.1 Preamble:

The future success of new development and growth in Northern and Northwest Queensland will be determined by laying world’s best science foundations that benchmark and monitor trends in resource health and ecosystem services, excellence in decision making and trade off analysis, and the maintenance of existing undeveloped and developed natural resources.

The northern regions of Queensland offer excellent lifestyle opportunities and as communication technology improves new industries based on education, technology, and services (technical, tropical expertise exported to Asia-Pacific, aged care etc) may emerge. However the economy in Northern and Northwest Queensland today is driven primarily by the extraction, harvest and utilisation of the area’s natural resources. It is anticipated that increased utilisation of existing resources or new developments would also be underpinned by the region’s natural resources for agriculture, aquaculture, fisheries, mining, tourism, or the ‘conservation economy’.

The NRM Groups have technical expertise and decades of experience of working with communities and industries in Northern and Northwest Queensland in managing and in some cases developing new natural resource based industries. An increase in agricultural production is anticipated over the next 30-50 years, with the real value of world agrifood demand in 2050 for Australia projected to be 48 per cent higher than in 2007². Increased resource assessment in the more remote areas of Northern and Northwest Queensland is likely to find that much of that region has the physical attributes to allow increased production and new agrifood developments. Recent studies by CSIRO for instance have expanded the in-field resource assessment of the Flinders and Gilbert Rivers alone and identified some 10million hectares of soil suitable for new agriculture development, only limited by potential for water storage³.

There is strong agreement that the Northern and Northwest regions of Queensland have good capacity to increase production or physically sustain new developments, especially tropical crops targeting the culinary preferences of the Asia Pacific. Nevertheless we also have obligations to ensure that the outstanding natural and cultural assets of our region including the World Heritage listed Wet Tropics, and other ‘jewels’ within the Gulf of Carpentaria, Cape York, the Mitchell Grass Downs and our savannah landscape spanning from East to West, are appropriately managed. The ‘natural capital’ of these exceptional ecosystems is likely to increase in value for future generations as refuges for genetic material and for renaissance for people.

(Further detailed comment regarding the potential for development in the Northern and Northwest regions of Queensland is provided in the addendum.)

2.2 Primary Recommendations:

2.2.1 Applied Science Investments (Relates to Principle 3)

The Australian Government has extensive science investment in natural resource assessment and management in Northern Australia already through the National Environment Research Program, Terrestrial Ecosystem Research Network, and the Cooperative Research Centres. Additionally investments are made through industry bodies in research and development (R&D) programs such as Meat and Livestock Australia, Sugar R&D corporation, Cotton R&D, Grain R&D, Dairy R&D, Rural Industries Research and Development Corporation, etc. There are also tax incentives for enterprises to engage in R&D projects. The requisite and uptake of this huge array of science investment by end users (the resource managers themselves) is highly variable between programs and geographical areas.

2.2.1.1 We recommend that all science, research and development funds be audited by end users (land and sea managers) in Northern Australia to ascertain the uptake, science needs, gaps and delivery mechanisms in terms of effectiveness for applied implementation for existing and emerging natural resource management and developments. If necessary the regional NRM groups could facilitate such an audit.

Although the total science investments using public, community and industry money is actually extensive there are still major gaps with the largest of those gaps being a long term dedicated monitoring and evaluation program. Without a long term commitment to this critical component of natural resource science the ability to identify and mitigate risks early, or to determine the public benefit of investments remains unreachable. The greatest risk are the costs of remediation to future generations for mistakes made today. The most cost effective manner in which to establish an effective long term program is to commit long term investment into key indicators of natural resource health and trend and integrate the Wentworth Groups Environmental Accounts system collect and analyse all other industry, community, ad hoc and short term program data. The Environmental Accounts are currently being trialled successfully by NRM groups as a tool that can accommodate data collected by individual primary producers, Indigenous Rangers to high end science organisations. “The unique feature of the Accounting for Nature model is that it uses science to create a common (non-monetary) currency which can be used to create local, regional, state and national asset condition accounts”⁴.

2.2.1.2 We recommend that a portion of existing science investment be dedicated to a long term monitoring and evaluation program of key indicators of baseline resource health and trend and furthermore that the Environmental Accounts system for integrating and comparison of all other science and R&D information be utilised as a total local to national representation of investment priorities and outcome realisation.

Science, research and development is only effective when the results are implemented to create positive change or avoid risk. The extension of information needs to be focussed, effective and delivered in a manner consistent with the culture and ‘language’ of the end user. In order to ensure the public investment in science is effective extension needs to be agreed and ‘owned’ by end users through multiple fit for purpose services from industry bodies, NRM bodies or qualified consultancies.

2.2.1.3 We recommend that investment commensurate with the original science investment be allocated to extension and education activities to ensure application of the science investment.

Traditional owner knowledge is rapidly being lost as our elders age and pass. This knowledge is an asset both for natural resource management learning's but also as an integral and important part of Australia itself. Many Traditional Owner groups have successfully implemented grant funds to capture and safe guard this information, yet many others are incomplete or still to begin. Knowledge of sites and story places are also a key component of compliance under the Queensland Cultural Heritage Act especially relevant for new developments. For Indigenous groups who wish to engage in cultural tourism the capture, storage and presentation of this knowledge also offers the opportunity to generate wealth within country. The capture and storage of Traditional Owner sites, stories, knowledge and language is a science and needs to be seen and invested in as such. Additionally the application of this knowledge is also necessary when negotiating ILUA's as an integral part of land tenure and development proposals.

2.2.1.4 We recommend the continued support through funding to Traditional Owner groups to capture, store and present cultural information as appropriate to the custom and decisions of that same Traditional Owner group.

2.2.2 Effective and appropriate scale regulation and land use planning (Relates to Principle 5)

The Atheron Tablelands have developed intensive agricultural, tourism, and conservation land uses. One of the biggest issues raised by agriculturalists is the rising cost of production and the inability to control farm gate prices. Many existing land uses are struggling economically even though the natural resources are rich and able to produce more agri-product. Thus, as the demand for agricultural product increases the existing developed lands are capable of increasing production so long as profit margins improve. There are a variety of market, infrastructure and regulatory imposts that increase the cost of production. In order to remain viable and retain capacity for future agri-food demand market and regulatory imposts could be reviewed and streamlined by governments and recommendations for this are addressed in Part 3 of this submission. The risk of the current 'price squeeze' on primary production is that high value agricultural resources are converted to a periurban or hobby use which often degrades the resource, has less regulation to maintain resource health, and reduces the overall local and or regional productivity.

Some land use planning has been undertaken in Cape York and Wet Tropics however no land use planning has been undertaken in the gulf regions. A critical component to all planning is the proper and effective participation of the people who live in the landscapes within the plan area. The coastal and marine areas of much of Northwest Queensland also lacks planning in terms of assets and sustainable use, although a comprehensive Multiple Use Strategic Plan for the Southern Gulf of Carpentaria was written but never fully implemented, and the Gulf Regional Development Plan has never had review or statutory recognition. A comprehensive program to identify current and best future land use potential for northern Australia incorporating the social and economic elements would enable more efficient decision making and development directions as well as reduce conflicts. Marxan land use planning is showing to be an effective tool especially if potential for new developments/land uses are incorporated into the planning to effectively determine the most cost effective conservation verses development decisions. NRM planning processes are changing from an

asset mentality to a systems thinking approach which recognises the importance of linkages, causes and catalytic relationships.

2.2.2.1 We recommend urgent land use planning at appropriate scale and with full participation of residents of the Gulf of Carpentaria to identify current and best future land uses, including protection of high value natural assets, and furthermore we recommend the customisation of the Marxan tool be considered as a process to integrate the economic and social parameters.

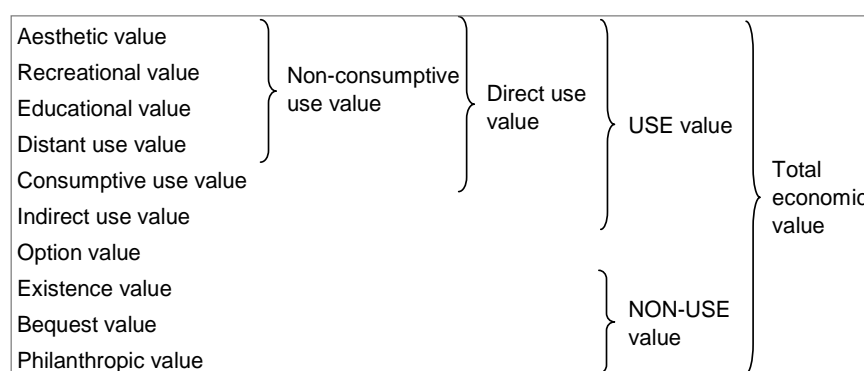
2.2.3 Effective Trade Off Analysis

Northern Australia is facing intense development interests yet we lack essential knowledge for decision making and understanding the costs, benefits, and risks of trade-offs if new developments are approved. The economic valuation of ecosystem services provides critical input into strategic assessment at the landscape/bioregional scale, enables public debate about the net benefits, and informs policy and management design—thus providing an essential foundation for ecologically sustainable development. Additionally, it standardises the net benefits of a changed land use or new development into a single measure being money and allows comparison between land uses based on a quantitative measure.

As stated by the North Australia Land and Water Taskforce (2009)⁵: “...northern Australia is relatively undeveloped. We still have the opportunity to ensure that development ... takes place in a strategic framework that is ecologically, socially and economically sustainable.by drawing on good science and the knowledge and experience of local communities and stakeholders”.

The economic value of ecosystem services is based on the total economic value approach, which includes the assessment of use and non-use values - see figure below. Direct use value involves commercial, subsistence, leisure, or other activities associated with a resource. (e.g., agriculture and recreation). Indirect use values and option values are measured similarly. Stated preference techniques such as contingent valuation or choice modeling can be employed to estimate non-use values. Culturally appropriate techniques can be employed to elicit indigenous use and non-use values.

Figure 1: Components of total economic value



Source: Greiner et al. (2009); adopted from Hodge and Dunn (2001)

The proper economic valuation of ecosystem services would enable determination and transparency of values associated with resource use and ecosystem function in Northern Australia; Integrate social, economic and ecological parameters; and quantifies trade-offs and distributionary effects of

potential developments, between different constituencies (local, regional, nation, international), and between generations.

2.2.3.1 We recommend that an economic valuation of ecosystem services should be developed to support effective decision making. This tool will allow the decision maker to compare the 'whole' cost benefit of land use changes such as the impact of terrestrial developments to fisheries and/or tourism. In every change there are winners and losers and this tool allows more honest and quantitative assessments.

Part 3

“Provide recommendations to: enhance trade and other investment links with the Asia-Pacific; establish a conducive regulatory, taxation and economic environment; address impediments to growth; and set conditions for private investment and innovation”

3.1 Preamble:

Northern Australia is well positioned to service food, technical and educational demands from the Asia –Pacific. Northern Australia being tropical is able to diversify existing crops to better suit the culinary preferences of the growing middle class within the Asian Pacific. Due to existing wage and environmental standards the Australian product is more expensive to produce however this can be counter balanced with the quality and the lack of contamination of the Australian product. For example a product with potential emerging demand is Beche de Mur, with species harvested for existing markets being native to northern Australia. The development of aquaculture of this species may have merit in the tropical waters of Northern Australia.

To date the tyranny of distance to southern domestic markets and export distribution centres has hindered profitability and overall sustainability of many existing natural resource based industries in the Northern and Northwest regions of Queensland. If future trade opportunities to the Asia-Pacific region arise the establishment of markets and export distribution centres within Northern Australia is paramount for efficiency.

The potential for trade and new partnerships is well recognised as are the risks. With growth comes change and if change is rushed and un-strategic, or undertaken for short term benefits only, than risk and expense to future generations is amplified. Largely the opportunity to improve or sustain wellbeing and livelihoods in the Northern and Northwest regions of Queensland is supported but not at the expense of future generations. The corporatisation of industries and subsequent ‘foreign ownership’ of production systems, especially large vertically integrated systems, raise enormous concern and need very careful and urgent policy discussion for Northern Australia and emerging developments.

The regulatory environment is a significant issue for Northern and Northwest Queensland largely due to the lack of life experience within government and a lack of genuine participation in legislative processes that capture the landscape, industry, social and cultural nuances of the northern and remote regions. Thus much regulation has reasonable intent, but often Nation or State wide regulations are nonsensical outside of the urban and southern environs and on many occasions result in unreasonable costs and obstacle to innovation, management, or development.

3.2 Primary Recommendations

3.2.1 New wealth opportunities consider long term implications (Relates to Principle 4)

There is potential for existing and new crops suited to climates in the Far North to increase in export demand and trade value. Crops which are major consumptive crops in China, SE Asia and Pacific islands that may become in greater demand include sweet potato, yam bean, yam, taro, cassava, papaya, mangos, avocados, lychee, rambutan, longans, tamarind (Asian drinks), pataya (dragon fruit), Bananas, Coffee, Tea, and Australian dry land rice.

To ensure that decisions on the implementation of new crops is strategic and risks are minimised a new industry development program could be established in Northern Australia specific for the emerging tropical product opportunities assisting with demand recognition, product feasibility and trade connections. This should not be just agriculture based but inclusive of education (boarding schools etc), tourism, and service industries. Regular trade shows in northern Australia inviting the small to large Asian-Pacific investors may also help build niche markets to substantial market opportunities and improve viability of existing if not new developments. A northern Australia development bond could be a financial instrument for consideration.

There are risks in changing land uses or crop types particularly if an agricultural area moves from a 'rain fed' crop such as sugar cane on the northern coast to an irrigated crop. Coastal water reserves are already in conflict between agricultural land uses and urban water needs. Northern and Northwest Queensland must also design and manage any new crops or developments in the context of cyclones and floods. This is particularly problematic when the main asset of primary production, being the herd or the crop, is largely uninsurable. Natural disasters are a fact in the northern Australian landscape just as they are in southern Australia. The Natural Disaster Response and Recovery Arrangements does not have adequate steps in place for full and proper agricultural and environmental recovery. Thus under current arrangements the risk exposure of agricultural developments and the insurance costs of all other developments are unreasonably excessive.

3.2.1.1 We recommend that a new industry development program be established to support identify and manage risks associated with new products and access to new markets.

For Australian product to remain competitive for export, given the high production standards and costs in Australia, it must maintain its recognised high quality and safety assurances. Biosecurity and quarantine laws play a significant role in this both by limiting imports that carry undesirable or threatening biological material and by eradicating diseases in Australia that prevent trade eg. Blue tongue disease limiting live export of cattle to China.

3.2.1.2 We recommend that biosecurity and quarantine investments maintained or increased if new developments, new crops, and markets emerge in Northern Australia.

An efficient supply chain of marketing and export of product from Northern Australia to potentially new markets in the Asia Pacific region also needs priority and preferably establishment of export centres from transport nodes within Northern Australia (Ports and Airports).

3.2.1.3 We recommend that export centres need to be established in Northern Australia to ensure efficiency in transport of product from Northern Australia to the Asian Pacific region. Transporting product south to existing centres before sending product north again adds costs and may reduce competitiveness.

Much discussion and support has been provided for an adjustment of the zone tax rebate to better account for the living disadvantages in remote areas, especially in the establishment stages of new product, in comparison to provincial and city living could re-establish the original balance intended

by this rebate and encourage employment and general growth in northern and north west Queensland. This will encourage private investment and help reduce the current limitations that exist in northern Australia in sourcing and maintaining skilled and unskilled labour.

3.2.1.4 We recommend that the zone tax rebate be adjusted to better account for the living disadvantages in remote areas and assist with the short supply of skills and human resources in these areas.

Regulatory and tax tools can better reflect primary industries needs following a disaster event. The Farm Management Deposit Scheme could be adjusted to lift the cap from \$400,000 to \$2million and allow tax free withdrawal during a declared NDRRA event. This would be an incentive for agribusiness to self-build cash assets that are available for immediate recovery from natural disaster events – given that no reasonable insurance exists for the herd and crop assets of primary industries. Fisheries need better access to this scheme but also better regulatory recognition of the need to modify catch areas and quotas following natural disasters. As an example following cyclone Yasi the coral bommies off the coast of Cardwell were significantly damaged which in turn stressed the crab population and affected the shell and growth of the commercially harvested crabs. For both the environmental and commercial fishery recovery it would have been useful to be able to shift effort to an area not impacted and allow the damaged areas to properly recover.

3.2.1.5 We recommend a review of the Farm Management deposit Scheme and other regulatory enablers that can assist primary industries recover from natural disasters.

Weather radar in the Northern Australian regions are needed urgently to provide credible and accurate rainfall data for improved water allocation decisions and to provide early warning and advice of impending floods and cyclones. The longer these stations are in place the more valuable the data becomes as it builds trends and calibrates other water information systems.

3.2.1.6 Improve the weather radar coverage of northern Australia to reduce natural disaster risks to existing and future developments.

Part 4

“Identify the critical economic and social infrastructure needed to support the long term growth of the region, and ways to support planning and investment in that infrastructure”

4.1 Preamble:

Much of the Northern and Northwest region of Queensland is regional and remote laced by dispersed populations and small town centres. These demographics pose many challenges in the provision of economic and social infrastructure especially if systems are ‘population’ driven rather than outcome driven. For example the ratio of funding for many aged care service programs is on a sliding scale based the total ‘population’ of the town or city regardless of median age. This means a town such as Ingham, which has Queensland’s highest median age demographic in Australia, is highly disadvantaged with less funding available per aged person than all other areas of Queensland. Another example is the licence fees that pubs must pay in order to operate. Queensland’s smallest pubs are located in the northwest region of Queensland, some with standing room for only one or two patrons, and yet they are liable for the same licence fees as a Brisbane city pub. These fees are not reflective of population serviced or quantity of alcohol consumed which would be a more equitable solution. It is scenarios such as these that encourage the call for a full and comprehensive review of existing legislation, regulations and programs administered by government to remove the inequity and perversities for regional and remote communities.

The communities of the Northern and Northwest regions of Queensland have a high proportion of Indigenous peoples and the Cape York region has Queensland’s highest proportion of Aboriginal and Torres Strait Islander residents making up approximately 51.3% of the population. Some 60% of land in Cape York is inalienable freehold which is essentially still limits opportunities for the use of those lands by Indigenous people for economic activity either directly or indirectly by the arduous bureaucracy to gain approvals. Most of the Indigenous communities in Cape York are described as being within the most disadvantaged quintile. A very concerning statistic, which gives indication of the desperate need to change the economic and social status of some communities in Cape York, is the rate for avoidable deaths in Cape York (426 per 100,000 persons) being significantly higher than the rate for Queensland (177 per 100,000 persons). Creating resilient and sustainable communities in remote locations means that they need to access development to pay for their infrastructure. This can only occur if there is suitable land for development. While increased economic opportunity is desired by most Indigenous communities, the right for self determination of what development, and where, is one of the most important principles.

Communication via internet has substantially reduced much of the ‘tyranny of distance’ for regional and remote centres, however these communities also have some of the greatest needs for access to new technologies in order to maintain a level of competitiveness. The regional and remote communities of the Northern and Northwest regions of Queensland have higher demand per capita for improved internet and mobile phone infrastructure in order to conduct basic commerce and access basic social services. Improvement in communications is catalytic in that it will substantially shift the attractiveness of living and working and building the future of Northern Australia.

Planning to support investments in economic and social infrastructure must analyse firstly the potential areas of growth. Given that growth appears to be strongly linked to the natural resource

capacity of Northern and Northwest Queensland it is paramount that this be the foundation of all planning, coupled with existing social and cultural characteristics such as ‘communities of interest’, centres of trade, centres of service etc.

Population growth will create both improved access to economic and social infrastructure for existing residents and new problems. The public must be effectively engaged in planning for future growth so that the necessary transitions can be made with minimal negative impacts. Effective public participation does not mean ‘getting the public on side’; rather, it means full, co-operative involvement in the actual process of making decisions – and it must be seen to be such.’

4.2 Primary Recommendations

4.2.1 More practical and cost effective decision making in regulation, programs and approvals (Relates to Principle 1)

Northern Australia is under-represented in current mainstream decision making arrangements, thus any decisions made regarding Northern Australia needs to strongly integrate with the huge wealth of knowledge in local communities and landowners to reduce risks and maximise practical achievable opportunities. Governance practice, public investment, policy and innovation that embrace local communities in decisions with government are essential for practical and sustainable development investment. Building the northern Australian and tropical industries life experience within government will help develop a ‘fit for purpose’ approach rather than blanket nation or state wide approaches – the north is different.

The NRM groups have established effective engagement strategies over the decades of working in partnership with the local public and industries. Identifying where demand exists for services, regulation, assistance and then ensuring practical delivery against demand for the greatest ownership, uptake and outcome results has proven highly successful. Effective participation can occur at many levels(see figure below)⁶, however the full active participation is most supported especially where land use changes may occur as a result of potentially new developments.


The community and local industry is best placed to drive decisions which will ultimately deliver the regional outcomes identified and desired by the wider Australian community. This is largely due to the community, and more specifically land and sea managers, being ultimately responsible for managing existing practices and or implementing new developments. Additionally the more resource managers who are engaged in decisions the greater the total investment generated to deliver what land managers and the rest of the community desire for their regions as well as having less costly conflicts.

4.2.1.1 Ensure full active participation of local people in decisions that affect the livelihoods of those same local people. Do not ‘rubber stamp’ through engagement after the decision has been made.

4.2.1.2 Create a Department of Northern Australia with an interdepartmental coordination role under the Office of the Prime Minister with staff primarily based in Northern Australia. Build regional resilience, including support for bank/farmer models (as per Gulf) and extension support.

4.2.1.3 Consider the customisation of the ‘citizens jury’ tool for complex or contentious decisions so that wide and informative debate can be held to avoid mis-information and unnecessary conflicts.

IAP2 PUBLIC PARTICIPATION SPECTRUM

INCREASING LEVEL OF PUBLIC IMPACT 				
INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
Public Participation Goal:	Public Participation Goal:	Public Participation Goal:	Public Participation Goal:	Public Participation Goal:
To provide the public with balanced and objective information to assist them in understanding the problems, alternatives and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision, including the development of alternatives and the identification of the preferred solution.	To place final decision-making in the hands of the public.
Promise to the Public:	Promise to the Public:	Promise to the Public:	Promise to the Public:	Promise to the Public:
We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for direct advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.
Example Tools:	Example Tools:	Example Tools:	Example Tools:	Example Tools:
<ul style="list-style-type: none"> • fact sheets • web sites • open houses. 	<ul style="list-style-type: none"> • public comment • focus groups • surveys • public meetings. 	<ul style="list-style-type: none"> • workshops • deliberate polling. 	<ul style="list-style-type: none"> • citizen advisory committees • consensus-building • participatory decision-making. 	<ul style="list-style-type: none"> • citizen juries • ballots • delegated decisions.

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4.2.2 Adopt the United Nations Declaration of Rights of Indigenous People (Relates to Principle 2).

Traditional Owners in particular have a long association with their ancestral lands and options to relocate to other areas to participate in a real world economy are not feasible. Many Traditional Owners base decisions and actions on a mixture of traditional culture and modern culture and this varies between regions. Thus any land use changes, service implementation must consider the rights and appropriate decision making principles for our first Australians and self-determination by the Traditional Owners themselves is paramount.

Land tenure particularly in the Cape York region is a complex and limiting factor for many Traditional Owners to achieve desired livelihood goals. In most cases although the Traditional Owners are recognised under the Native Title Act and provided ‘Indigenous Freehold’ under the Queensland State Land Act, the Traditional Owners have no real authority over these lands. In many cases people wish to be able to engage in appropriate enterprise in order to have the same wealth equity as other Australians but are limited by current complex regulations.

4.2.2.1 We recommend that the United Nations Declaration of Rights of Indigenous People be adopted.

Part 5

Conclusion

The Northern and Northwest regional natural resource management groups confirm that there is enormous physical potential for ‘hard’ and ‘green’ development of these regions. However, in supporting growth we strongly advise that the governance and decision making process used by government be fit for purpose at appropriate scale, that foundational science investments be made to benchmark and monitor the health of natural resources, and that cumulative impact and long term legacy consequences be implicit in all policy and program initiatives. The quadruple bottom line being economic, environmental, social and cultural dynamics need careful consideration. These key principles will achieve the desired outcome in the most efficient and effective manner with the least amount of conflict and risk.

Our conclusions, and this submission as a whole, are based on the assumption that our food production needs to meet our own domestic needs, but also to help meet the growing demands of our neighbours in Asia. *“By 2050, world food demand is expected to rise by 77 per cent in monetary terms. Much of this growth will occur in Asia where demand will double. Through close productive relationships with our Asian trading partners, Australia will be able to make the most of these opportunities.”*⁷ We also suggest that a healthy natural and cultural environment will also be valuable to future communities and that options to improve the ‘conservation economy’ from stop-start public grant funds to stable lucrative income streams needs continued support.

Northern Queensland is at the doorway to the Asian markets and able to diversify land uses to produce tropical crops suited to the preferred diets of the Asia-Pacific population. A major component of the Northern Australian White Paper initiative is to raise the awareness of Northern Queensland as a major resource region, not only for coal and minerals, but also for agriculture, fisheries, aquaculture, forestry, tourism, education and skills. In order to make the most of our position to these emerging markets we need to reduce existing barriers and implement enabling strategies and innovations.

We call on the Australian Government to act now and initiate policy, programs and governance that deliver participatory practical decision making tools, worlds best science and technology, and support to build the long term sustainability of northern Australia, so that this region is well positioned to provide a balance of natural and manmade wealth for all of Australia’s next generation.

Part 6

Summary of recommendations

2.2.1.1 We recommend that all science, research and development funds be audited by end users (land and sea managers) in Northern Australia to ascertain the uptake, science needs, gaps and delivery mechanisms in terms of effectiveness for applied implementation for existing and emerging natural resource management and developments. If necessary the regional NRM groups could facilitate such an audit.

2.2.1.2 We recommend that a portion of existing science investment be dedicated to a long term monitoring and evaluation program of key indicators of baseline resource health and trend and furthermore that the Environmental Accounts system for integrating and comparison of all other science and R&D information be utilised as a total local to national representation of investment priorities and outcome realisation.

2.2.1.3 We recommend that investment commensurate with the original science investment be allocated to extension and education activities to ensure application of the science investment.

2.2.1.4 We recommend the continued support through funding to Traditional Owner groups to capture, store and present cultural information as appropriate to the custom and decisions of that same Traditional Owner group.

2.2.2.1 We recommend urgent land use planning at appropriate scale and with full participation of residents of the Gulf of Carpentaria to identify current and best future land uses, including protection of high value natural assets, and furthermore we recommend the customisation of the Marxan tool be considered as a process to integrate the economic and social parameters.

2.2.3.1 We recommend that an economic valuation of ecosystem services should be developed to support effective decision making. This tool will allow the decision maker to compare the 'whole' cost benefit of land use changes such as the impact of terrestrial developments to fisheries and/or tourism. In every change there are winners and losers and this tool allows more honest and quantitative assessments.

3.2.1.1 We recommend that a new industry development program be established to support identify and manage risks associated with new products and access to new markets.

3.2.1.2 We recommend that biosecurity and quarantine investments maintained or increased if new developments, new crops, and markets emerge in Northern Australia.

3.2.1.3 We recommend that export centres need to be established in Northern Australia to ensure efficiency in transport of product from Northern Australia to the Asian Pacific region. Transporting product south to existing centres before sending product north again adds costs and may reduce competitiveness.

3.2.1.4 We recommend that the zone tax rebate be adjusted to better account for the living disadvantages in remote areas and assist with the short supply of skills and human resources in these areas.

3.2.1.5 We recommend a review of the Farm Management deposit Scheme and other regulatory enablers that can assist primary industries recover from natural disasters.

3.2.1.6 Improve the weather radar coverage of northern Australia to reduce natural disaster risks to existing and future developments.

4.2.1.1 Ensure full active participation of local people in decisions that affect the livelihoods of those same local people. Do not 'rubber stamp' through engagement after the decision has been made.

4.2.1.2 Create a Department of Northern Australia with an interdepartmental coordination role under the Office of the Prime Minister with staff primarily based in Northern Australia. Build regional resilience, including support for bank/farmer models (as per Gulf) and extension support.

4.2.1.3 Consider the customisation of the 'citizens jury' tool for complex or contentious decisions so that wide and informative debate can be held to avoid mis-information and unnecessary conflicts.

4.2.2.1 We recommend that the United Nations Declaration of Rights of Indigenous People be adopted.

Part 7

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Part 8

Addendum

In order to prepare the summary of recommendations above the NRM groups engaged a wide range of people who provided some important and detailed ideas and context for their area. This addendum is a list of most of those ideas and more local issues and we hope they are considered in the Northern Australian White Paper.

Terms of Reference 1: “Examine the potential for development of the region’s mineral, energy, agricultural, tourism, defence and other industries”

It was agreed that much Agricultural development would occur with private money as a natural and ordinary consequence if Governments reviewed and amended perversities with regulations, offered tax incentives for major capital investments (especially hard infrastructure), and statutorily identified future land use, through good science and community participation, providing security for long term investment.

Some known areas with potential for Agricultural Development are:

1. Gilbert River and Flinders Precincts.
2. Currently unused land within and possible further expansion of Mareeba-Dimbulah Irrigation Area (MDIA).

Whilst the capacity exists in the region for increased mineral and agricultural development, the existing natural environments also support significant economic activity and contain some of Australia’s richest biodiversity values. As example there is just over \$7billion dollars directly generated by the ‘use’ of the resources of the Great Barrier Reef with a further \$5.7 billion value added economic contribution to the rest of Australia. There is agreement that there is scope to increase revenue from the natural assets of this region through appropriate conservation economies including the ‘export’ of offsets for developments or a ‘payment for ecosystem services’ arrangement. Better coordination and marketing to these overseas economies is worth consideration.

The mineral wealth, particularly of the north west, contains an estimated 75% of Queensland's total metalliferous resources (eg copper, silver, lead and zinc). Additionally this region also holds significant energy resource potential including renewable (geothermal) and non-traditional (eg tight shale) resources and recent discussions of localised natural gas energy production are underway.

“Whilst the north-west is often regarded as a mature exploration destination, vast tracts of prospective ground remain under-explored because of surficial cover.

(<http://mines.industry.qld.gov.au/geoscience/nw-qld-mineral-energy-province-study.htm>).

Maintaining healthy ecosystems underpins the economic activity of mineral, energy, agricultural, tourism and natural resource management (NRM). Effectively managing our natural and cultural assets supports maintenance of all peoples’ cultural connections, and active management of biodiversity, fire, feral animals and weeds (biosecurity) delivers ecosystem services of value in their own right as well as decreasing the economic impact of other industries like mining and agriculture.

1.1 Barriers

- Lack of appropriate scale and detail of the physical and biological characteristics of the north and western Queensland natural resources. Of late there has been an abundance of studies presented that are essentially desktop orientated and there is paramount need for in-field science to benchmark the physical and biological characteristics that allow confident decision making and investments for land use potential and developments. The lack of

integrity and obvious error in much of the existing science, particularly in the remote areas, leads to conflict and mistrust.

- Aging population especially in agricultural industries leading to a shortage in skills as baby boomers retire.
- Availability and employment costs for necessary skilled and unskilled labour in establishing developments.
- The services and resources provided by key agricultural agencies such as the Department of Primary Industries and the Department of Natural Resources have been substantially assassinated over the last 20 years, in particular, the soil conservation services. These services assist the design, development and sustainability of current and future agricultural practice and will be in high demand should northern Australia play a significant role servicing world food demands. This is an example of “market failure” where there is little or no incentive for private business to invest in providing a service. Government investment is the only feasible alternative, whether directly or often more cost effectively delivered through NRM groups.
- Price fluctuations in mineral commodity prices have significant impact on existing and emerging mine developments. Due to increased operational costs (environmental and employment) coupled by commodity price falls much of the current copper mining by Xstrata Mount Isa Mines will cease as from 2019 putting thousands of jobs in jeopardy and having flow on impacts to service industries and the viability of other nearby mining including phosphate. Additionally the uranium resources within the Gulf of Carpentaria are well recognised with at least three sites with sufficient developed resources to service quantity and quality demands from global power stations. However the fall in uranium commodity prices has resulted in delays to the construction and operation of these mines.
- There are a variety of tenures in northern and north west Queensland however much of the tenure is State owned – including pastoral leases, conservation reserves, forestry reserves and Indigenous freehold. Regulations often hinder sensible economic opportunity within these tenures including the ability to leverage finance for suitable developments.
- There are recent Native Title Determinations across northern and northwest Queensland where Indigenous Land Use Agreements must be facilitated. The assistance provided for Traditional Owners and landholders to engage in these agreements was decreased and withdrawn respectively in 2012 and needs urgent re-instatement.
- Development assessment and approval processes including the environmental approval process – duplication, complexity, multiple timeframes and unclear decision-making frameworks contribute to creating barriers for major projects and associated investment. Whilst we acknowledge the existing efforts particularly by the Queensland Government to simplify and stream line assessment and planning processes, there is much legislation that needs to be addressed and reviewed to enable Economic Development and facilitate conservation and restoration works i.e. the Water Act 2000.
- Insufficient Water allocations for Indigenous usage (refer Draft Strategy for Delivering Water Resource Management in Cape York). The draft Strategy claims to be in line with pathways and opportunities for indigenous growth and the State’s Agricultural Strategy, yet removes the 20 000 ML/a indigenous reserve water within Wild Rivers Catchments.
- Need to know environmental flows for Far North Queensland. What is really available for development? This should be done through independent science. Surface water - resource reliability is not established outside of major streams on an ongoing basis. Many lesser watercourses have had gauging programmes removed or have never been subscribed to a programme. Either economical hand gauging and modelling is required.
- Groundwater
 - Sub-artesian groundwater aquifer recharge behaviour and therefore reliability is largely unknown.

- Sub-artesian groundwater aquifer locations and extent are largely unknown.
 - Groundwater to Surface water / bed-sands water / mound springs interactions/Relationships are largely unknown.
- Gulf water use may impact on the Great Artesian Basin.
- Water is an essential element of the existing land and sea resource uses (including mining) and highly important for future development and ecosystem function to support all life into the long term. Basic surface water data is required to establish localised reliability and environmental flow parameters for all users. This includes establishing the refugia values of vegetation management act lagoons, and also seasonal resilience of in-stream lagoons, establishing localised and accumulative overland flow rates and volumes, bed-sands and in-stream/of stream storage reliability curves. Similarly to mineral resource water issues, agriculture also requires a period of intense stream gauging over extensive networks to allow modelling of plausible long term watercourse and overland flow characteristics. Modelling may then establish the values associated with artificial infrastructure in the modified dry savannah landscapes.
- Accurately measured and modelled flows are available for many watercourses at specific 'nodes' in the catchment via Rustic or IQQM modelling. This modelling is insufficient to establishing dry season proof irrigation dams on lesser watercourses as overland flow works. Already SILO data is useful for insinuation of landscape water flows via modelling software, but the required data is a commercial item at some expense – a hindrance to the modelling of location and larger size of irrigation dams in the Gulf.
- Watercourse reliability is currently not easily established by non-specialised and skilled persons, and is a criterion to be assessed by investigation officers of DNRM regarding surface and groundwater applications. Water Resource plans are a government tool to manage water resource use by employing rules of limitations. The Water Resource Plans allow for proof of additional flow and volume availability to be accepted by the department in granting more water than the plans initially recognise. It places the onus of proof onto the applicant and demonstrates that the Plan restrictions are nominal and largely unfounded and non-transparent. If all information on water resource regulations /limitations were made publically available, it would be very much simpler to establish real world water availability and seek amendments commensurate with those observations to the respective plans. Additionally, it should not be necessary for an applicant to prove up water availability under a water resource plan as the plan should be comprehensive and identify all aspects of real water availability to the seasonal level. The onus of proof should fall back to the departments as demonstrated experts (they have a regulatory plan developed and in place based upon 'facts') and so they should presume the position of resource assessment under the Water Act 2000. Reverse onus of proof should be removed from the process.
- A person may wish to establish water resource availability in the seasonally dry Gulf landscape. This requires knowledge of not just stream flows, but also localised rainfall and evaporation figures. Such facts are never going to be actual at the farm and paddock scale from government, however a very accurate prediction model has been derived from long term data across Queensland.
- Cape York Strategic Plan (Draft). The indigenous communities of Aurukun and Pormpuraaw, Kowanyama and Lockhart River are especially extensively enveloped by SEA's. Potentially good agricultural land within proximity of those communities is restricted to an approval process for any development activity other than grazing. Extensive dry land and irrigated cropping is prohibited outright. 1.136M Ha of potential arable land is to be 'locked away' within proposed SEA's according to DAFF Queensland Agriculture and Land Audit and CYPLUS mapping.
- Contestability of funding for NRM has eroded collaborative efforts. The Natural Heritage Trust program allowed good integration of regional community, industry and science with

government policy obligations and thus developed the most efficient and publically supported projects and outcomes. Top down funding processes by the Caring for Our Country program has largely eliminated community and industry participation and disempowered the effective collaboration that had been established creating 'free-riding' behaviour and less publically supported and or practical outcomes.

- High rainfall and extensive flooding events in recent years resulted in extensive damage to farming land, local authority infrastructure, and public land. This has resulted in serious loss of productive potential on farms, huge repair cost burdens on Local Authorities, and extensive impacts on amenity and environmental value of public lands and waterways. Effective management of storm water and the associated erosion potential requires a landscape approach i.e. coordinated action across the whole catchment. Piecemeal attempts to manage these elements are doomed to failure because they are vulnerable to being overwhelmed by uncontrolled storm water flows from neighbouring uncontrolled areas.
- The level of farm debt has in many cases become un-serviceable due to a variety of factors including price increases, rapid land value/equity declines, natural disasters and poor financial serviceability tools. Innovation and best practice suffers when large percentages of farms are in financial hardship.

1.1.1 Recommendations

- Invest in tropical agricultural extension services including greater emphasis on soil conservation services. The NRM groups have a successful model in operation and have a proven capability of delivery and performance. The Caring for Our Country program needs to better integrate the knowledge and strategic recommendations of the regional community and industries for the most efficient and practical extension and service support.
- Re-instate economic support for landholders and Traditional Owners to negotiate ILUA's.
- Fast track or prioritise existing grant funds for Traditional Owner cultural recording in northern Australia for more effective ILUA and development negotiations.
- Northern Australia land tenure issues have been usefully analysed in "*Land tenure in northern Australia: opportunities and challenges for investment*" and recommendations regarding future reform opportunities are identified. We recommend consideration of this paper by the Parliamentary Committee.
- Coordination, consistency and clarity need to be delivered through all reform processes in efforts to streamline assessment and planning processes, whilst ensuring checks and balances including rigorous processes applied where appropriate.
- Invest early in targeted applied science to set environmental benchmarks, including fresh and saltwater systems, and lay solid foundations for resource monitoring so that trends can inform new development applications and more efficiently manage existing development providing industry and public certainty.
- Maximise the existing assets of the agricultural industry through better targeting of farm support programs / supporting producers to build their operations – this includes business support in the form of expanding rural financial councillors or business improvement packages.
- Land Management extension, Soil Conservation services, Natural Resource Management Extension to be resourced through NRM groups and engagement of qualified Land Management Consultancies by private Landholders or NRM groups.
- Resource technical specialists in soil conservation and storm water management to assist private landholders, local authorities, and State Agency Land managers to effectively address soil erosion and drainage problems which have been highlighted during the recent disastrous flood and cyclone events.

- More effective partnerships between R&D, through targeted Extension, and the Ag sector, particularly support for farmers to understand and implement new technologies & practices. This can be achieved through resourcing NRM groups.
- Repeatedly, in land assessments, consultants are producing better information, at finer scales for development applications i.e. High-value Agriculture at scales less than 1:100,000. This is better than published Government datasets that has implications for land management and Use and landscape planning. Such information should be incorporated into Government datasets and could be done in exchange for Government data and/or use of field equipment.
- Maximising Indigenous social, economic and cultural development - Nearly 20 per cent of the land-mass of Northern Australia is Indigenous land – whether leasehold or freehold and Aboriginal and Torres Strait Islander people need to be more than a ‘part’ of the NAWP work, they need to be front and centre. Economic, social, cultural development and well-being, including cultural vitality needs to be a focus of the NAWP work. A strong focus on Indigenous economic and social development needs and opportunities links with other considerations regarding tenure resolution, Native Title, ILUAs etc.
- Resource programs which support Indigenous agricultural development, including recognition of Indigenous water allocations.
- Groundwater data is insufficient even in Wet Tropics. Northern Australia groundwater is unknown and some people assume it’s unlimited. Knowledge of relationship between groundwater and surface water is needed to inform decisions about types of development.
- Either hand stream gauging or modelling (generally both) is required to establish generalised flow trends in streams. This may (or may not) represent long term trends.
- A policy of equitable shared gain should be sought for water resource developments under legislation and policy. The adversarial nature of current legislation should be revised.

1.2 Enablers

- Catalytic infrastructure such as communication infrastructure, road and rail infrastructures to reduce freight imposts. Better access to communication infrastructure is vital for e-commerce, industrial internet systems for large mining and agricultural developments, science support, and liveability in terms of maintaining contact with families whilst working in remote areas.
- Road train access improvements for Cape York to Mareeba (Mount Carbine to Mareeba road needs overtaking lanes) and then Mareeba to the Hann Highway (potential to develop short section along Nimbool Road), and improvements to the Hann Highway would facilitate huge cost savings and efficiencies for the movement of produce between the northern centres and from the north to southern markets.
- A targeted science program for Northern Australia that incorporates the benchmarking and establishment of key monitoring of natural resource and environmental trends to ensure best practice in decision making by government and developments. This would lead to the protection of natural and manufactured wealth and reduce risk, unintended consequences and costs. Such a science program also needs to incorporate improvements in technology including hard infrastructure, machinery innovations, crop diversification, innovations in tropical water capture and management. Tropical aquaculture is mooted as having high potential in northern and western Queensland as a rapid and efficient source of food (namely protein) and support for feasibilities for emerging industries are needed.
- Existing federal science programs such as the National Environment Research Program, Terrestrial Ecosystem Network and Cooperative Research Centres could be reviewed and better integrated with end user (industry and community) needs in light of the potential for the development of northern Australia.

- A comprehensive program to identify current and future land use potential for northern Australia incorporating the social and economic elements would enable more efficient decision making and development directions as well as reduce conflicts. Marxan land use planning is showing to be an effective tool especially if potential for new developments/land uses are incorporated into the planning to effectively determine the most cost effective conservation versus development decisions. Current NRM planning processes is changing from an asset mentality to a systems thinking approach. The importance of recognising the linkages and causes behind trends and relationships. It seems like many decision makers are not considering the whole system – Quadruple bottom line. Need to consider the economic, environmental, cultural and social values as well as the characteristics of the north and how they contribute to the system and how change will influence all components.
- A targeted review of existing legislation and government program investments at the ‘in-field’ scale with community and business participation is needed to improve efficiencies in administration. Many layers of legislation have accumulated over time that are now mal-aligned and mal-administered resulting in perverse outcomes and costs without contributing to the original intent of the legislation. This is especially apparent in the northern and remote areas of Queensland and attributed to the lack of life experience and understanding within government for these land and water systems or the social and cultural frameworks within these areas. Cost savings are likely for both government and community.
- Far North Queensland requires focused investment to meet the research needs of community, industry and government, within a development context. Boosted research capacity could ensure industry specific focus (agriculture, pastoralism, tourism, resources, ecosystem services, microbusiness, digital and innovative) as well as regulatory, planning and institutional arrangements (including tenure, governance and social) are addressed in a holistic way, leveraging our existing tropical knowledge. An integrated approach to a research agenda for Northern Australia development, driven by government, industry and community partnerships, with a commitment to the practical application and uptake of research, would maximise outcomes delivering social, economic, cultural and environmental outcomes. Improved access to data and information has also been identified as a need to support investment decisions of industry, evidence based decision making by government and community participation in relevant processes (planning etc.).
- The Mount Isa Geophysics initiative (Qld Government) including major seismic and magnetotelluric surveys (2014-2016) will help reduce exploration risk and potentially stimulate further greenfield exploration. Coordinated data investments between government and private enterprise can streamline costs and improve knowledge for development opportunities and risks. An e-library for data logging and information sharing with respect to northern Australia may reduce duplication of effort and cost.
- The investigation and feasibility of natural gas deposits in the Gulf of Carpentaria for local use by mineral processing facilities could significantly reduce input costs, secure energy needs and reduce current enterprise risks and mine job losses.
- Freehold land available for rural township and rural residential developments is needed to ensure a variety of lifestyle options are offered to attract workers to commit and ‘live-in’ regional centres and secure stable populations in human resource poor areas. FIFO is an alternative option, however studies show that mines have had most success with staff retention when employees have a variety of options available to suit their personal and family circumstances.
- Cape York offers the largest regional potential for Forestry. It is currently a minor forestry production and timber processing region generating less than 5 per cent of Queensland’s native hardwood forestry production and less than 5 per cent of plantation forestry production. Forestry production predominantly comes from timber resource areas (native and plantation) on state-owned lands administered under the *Forestry Act 1959*. Most of

this land is also grazed and generally managed as silvopastoral systems—production systems that combine forestry and grazing in a mutually beneficial way. Native forestry in Cape York, predominantly hardwood, produces a number of forest products suitable for a number of uses including sawn construction and appearance timber, poles, bridging girders, fencing timbers and craftwood. In addition, native Queensland sandalwood is harvested for its aromatic timber properties. The key commercial native forestry hardwood tree species in Cape York include Darwin stringybark, various bloodwoods, Cooktown ironwood, Moreton Bay ash, forest red gum, Molloy red box and Queensland sandalwood, plus a broad range of other suitable tree species. In the Cape York region, there are a number of small facilities that process native hardwood timber. These are at Napranum, Lockhart, Mapoon and Aurukun. They process some of the region’s current forestry production and the rest is processed outside the region. There are, however, a number of portable sawmills and fencing timber processors servicing the region’s forestry production. Commercial haul distances can be 400 km or more, and increase with product value. The potential high, medium and low production areas identified for native forestry expansion in Cape York are substantial—2.4 million hectares, 3.9 million hectares and 3.2 million hectares. There are opportunities to increase native forestry production on a long-term basis while having minimal impacts on the other pastoral land uses, creating silvopastoral systems. It is estimated that without restrictions on volumes of harvest, the existing native forestry resource on state-owned lands in Cape York can annually yield at least 16 000 m³ of log timber, which is sufficient to support a viable timber industry and facilitate a long-term timber-related industry.

- There is significant potential for increased forestry production, in particular native hardwood, but also softwood and hardwood plantation resources. However, there is a high risk of severe cyclone damage, no medium to large processors and limited infrastructure in the region. These factors, plus the limited species trialling to date, need to be considered before development. Increased forestry production would provide further resources for existing timber processing facilities inside and near the region once increased supply comes onstream.
- The region is considered reasonable for further plantation forestry development. It has with good rainfall (in the areas mapped as potential), productive growth rates for plantation species (in the areas mapped as potential) and relatively affordable land prices. However, there is a high risk of severe cyclone damage, no medium to large processor and limited infrastructure in the region. These factors, plus the limited species trialling to date, need to be considered before development. Most of the existing timber processors have only limited capacity to expand production. Investment in new or upgrading of existing processing facilities is required and would likely occur if industry were assured of a long-term supply of a large quantity of suitable timber. Demand for native hardwood forest products is high and demand for exotic and native softwood forest products is medium to high.
- Traditional Owners have a strong affinity with the natural environment. Traditional Owners see country as their place of origin and belonging. The country and sea is central to their personal and community identity. Land and sea is talked about like family, like an integral part of yesterday, today and tomorrow. The health and management of traditional lands influences the entire well-being of Traditional Owners, it not just about the environment, for Traditional Owners their ‘country’ is their whole life. There are significant ‘government’ owned conservation reserves in the northern and northwest regions of Queensland where Traditional Owners could be provided robust authority for the care and management of these natural and cultural places. Opportunity for appropriate economic development within these reserves in order to raise revenue to enhance the lifestyle of the first peoples but also for management of the natural and cultural values of these areas.

1.2.1 Recommendations

- Government to be an enabler of Economic opportunity through Research into new crop varieties, land use management, marketing etc. (DAFF) and a regulator and administrative assessor of Development applications (DNRM).
- DNRM specialised soils equipment, currently underutilised, be made available to NRM groups and Consultants in exchange for Site Data. This becomes a win-win partnership approach that provides best possible outcomes for a Landscape Planning Approach.
- Support for innovation and best practice.
- Tropical crop experts should be engaged by the Qld Government to establish farm scale Asian crop suitability exercises. An extension team should be deployed to Asia to investigate Asian crop demands, economics and market potentials with respect to North Australian cropping implementation. Establish a whole of market research and development team funded by government on capitalising on the food product market in Asia.
- A mineral exploration partnership policy is developed between those seeking to extract minerals in the long term, and DNRM water monitoring groups. This provides a clear way forward to bridging the information gaps in water resource reliability in smaller catchments where prolonged dry spells so prolonged dry spells can be properly accounted for in mine water demand budgets.
- Feasibility for enhanced road train network in north and north west Queensland.
- Prioritise base communication infrastructure (4G, fibre optic to house or node as appropriate) to support population growth and industrial network systems.
- Invest early in targeted applied science to set environmental benchmarks, including fresh and saltwater systems, and lay solid foundations for resource monitoring so that trends can inform new development applications and more efficiently manage existing development providing industry and public certainty.
- Further develop and apply Marxan land use planning incorporating resource development potential, conservation, cultural and social values.
- Investigate natural gas potential to support Mount Isa and Cloncurry mine and processing plant energy demands.
- Targeted review with proper community and industry participation of existing legislation to remove mal-aligned, mal-administered and unnecessary law and regulations.
- Invest in a CRC for Northern Australia.
- Develop a northern Australian e-library as a data and information hub using proper protocols.
- Freehold land for town and general population growth in regional and remote areas.
- Transfer existing resources for the management of conservation reserves to traditional owner trusts (based on native title determinations and local community agreements) that allow full authority to manage and earn income such as natural and cultural tourism, native foods harvesting, wildlife management within and external to reserves.

1.3 Innovations

- An economic valuation of ecosystem services should be developed to support effective decision making. Ecosystem services are inclusive of food production systems and other resource uses as well as the value of the natural environment. This tool will allow the decision maker to compare the 'whole' cost benefit of land use changes such as the impact of terrestrial developments to fisheries and/or tourism. In every change there are winners and losers and this tool allows more honest and quantitative assessments.
- The technologies associated with Geographical Information Systems and Industrial Internet Systems are conducive to enabling effective and sustainable development. Innovations specific to the northern Australian landscapes should be encouraged.

- A web-based Citizens Jury tool was trailed in Perth Western Australia for a contentious development decision and allowed proper debate and full disclosure of all relevant information for local people to 'help' decide the development approval. Such a tool with improved technology could be customised to allow better local involvement, reduce false perceptions and empower final decisions.
- The northern and north west regions of Queensland hold a massive diversity of minerals, geology and land forms and are likely to qualify as a global geopark (
- The northern and north west regions of Queensland hold a massive diversity of minerals, geology and land forms and are likely to qualify as a global geopark (<http://www.unesco.org/new/en/natural-sciences/environment/earth-sciences/global-geoparks/some-questions-about-geoparks/what-is-a-global-geopark/>). If designated this could potentially create a new tourism precinct and purpose.
- It is known that most off-stream lagoons within the flood plains and depression areas of the Gulf are not dry season resilient, and a succession of low rainfall years coupled to global warming lessens the refugia robustness of those essential landscapes attributes. It is the case that larger man made ponded areas such as overland flow dams, crows nests and in-stream storages within seasonal watercourses act as water and therefore refugia buffers. These structures could therefore offset deepening concerns of climate change effects on refugia and additionally act as water nodes that prolong the viability of corridors for animal movement across larger landscape scale distances. Large storages in effect stretch both temporal and spatial reliability to native animal corridors in the Gulf and Cape York. The design stage of dams, especially regarding impoundment wall engineering, establishing recharge reliability and field surveys is very expensive. Such tasks were once provided by the Queensland Government as part of the farm Advisory Service which no longer exists. It is known that dam engineering should finally fall to suitable qualified REIQ engineers, however the initial costs of project scoping and viability assessment can be substantially offset, especially if design is to cater for multiple environmental and social benefits, by the assistance of farm Advisory Officers trained in aspects of Farm Dam construction. Such skills availability would substantially encourage sound water infrastructure development that has environmental and social value added benefits where set up costs may otherwise tip into being uneconomical.
- Infrastructure, technologies and management for sustainable irrigation practice, adapted to northern Australia (e.g. groundwater injection and re-use, first flush basins).
- Whole enterprise economic models integrated with APSIM for the north that can be applied at the pre-feasibility stage of new agricultural development.
- Digital homestead options for beef cattle, aquaculture and plant based enterprises and the decision-support interface to improve business performance.
- Production systems for finishing cattle in the north for prime cut markets, involving irrigated and fodder cropping; tropical feedlot systems; genetics and management tools; logistics and business planning for vertical integration and diversification options.
- Aquaculture value chain development into Asian markets; integrated algae systems for a range of end uses, including protein powder for high value niche food markets; incorporating aquaculture as a diversified option within an integrated/mosaic agriculture scheme; polyculture systems for barramundi and redclaw; indigenous aquaculture - community-based.
- Biomaterials (e.g. biodegradable plastics) and biofuel feedstock for energy, including new cane varieties, production systems, supply chain logistics and processing infrastructure; tree or grass varieties and production systems for biofuels.
- Rice varieties for new regions (e.g. The Gulf, Burdekin and Mareeba Tablelands) and monitoring risk of impact on native rice populations.

- Horticulture intensification adapted to the north (e.g. cyclone proof, reduced labour); high value niche horticulture; new tropical fruit varieties.
- New legumes as part of other field crop systems (as a break crop, nitrogen source) such as soybean and pigeon pea.
- Cotton production systems/supply chains for new locations.
- Forestry industry development in teak, acacia, sandalwood.
- 'Micro industries' such products like coffee, chia, bush foods, soap products, pharmaceutical products, essential oils and materials for Indigenous art

1.3.1 Recommendations

- Develop a comprehensive tool that assesses the economic value of ecosystem services for application in trade off analysis of new developments.
- Customise and better enable citizens jury tools for web based application and local participation in decisions in northern Australia.
- Consider the feasibility of developing a global geopark status for the northern and north west mineral and geomorphic diversity to create a new tourism precinct for northern Australia celebrating and interpreting the rich geological resources of the area.

Terms of Reference 2: "Provide recommendations to: enhance trade and other investment links with the Asia-Pacific; establish a conducive regulatory, taxation and economic environment; address impediments to growth; and set conditions for private investment and innovation"

Northern Australia is well positioned to service food, technical and educational demands from the Asia –Pacific. The potential for trade and new partnerships is well recognised as are the risks. With growth comes change and if change is rushed and un-strategic , or undertaken for short term benefits only, than risk and expense to future generations is amplified. Largely the opportunity to improve or sustain wellbeing and livelihoods in the northern and north western regions of Queensland is supported but not at the expense of future generations. The corporatisation of industries and subsequent 'foreign ownership' of production systems, especially large vertically integrated systems, raise enormous concern and need very careful and urgent policy discussion for northern Australia and emerging developments.

The region, with its ready access to an international airport, affordable cost of living, rural lifestyle with good educational, sporting, recreational services and other community services and facilities, bountiful natural assets, great climate and clean green environment, is a "Region of Choice". These lifestyle attributes can be used to attract 'knowledge workers', which will in turn contribute to the development of the Region as a centre for excellence and innovation in tropical science, knowledge and research.

There is a push for Cairns to become a supply and service gateway to the South Pacific and Asia in mining and resources sector workforce, agricultural products and tropical expertise. This will have flow-on effects to the immediate sub-regions, like the Tablelands, a food-production area and for those who may base themselves there seeking a 'hinterland' lifestyle or those wanting a 'sea-change' there is the Cassowary Coast, Port Douglas or Cooktown.

2.1 Barriers

- Trade barriers exist between Australia and trade partners. Negotiations on trade agreements are always thorny. Nevertheless Australia's biosecurity is highly relevant in all final negotiations with priority given to avoid pest or disease incursions to Australia and to provide certainty of the quality of product being exported from Australia. Ongoing support

for trade agreements and quality assurance programs are important and need to be maintained to minimise trade barriers for Australian export products.

- Anti-competitive behaviour such as ‘dumping’ must be eliminated or minimised to protect export orientated industries.
- Lack of cultural understanding and language familiarity of Australians with the Asia Pacific region.
- The main asset of primary production, being the herd or the crop, is largely uninsurable. Natural disasters are a fact in the northern Australian landscape just as they are in southern Australia. The NDRRA does not have adequate steps in place for full and proper agricultural and environmental recovery. Thus under current arrangements the risk exposure of agricultural developments and the insurance costs of all other developments are unreasonably excessive.
- The regulatory environment is a significant issue for northern Australia largely due to the lack of life experience within government and a lack of genuine participation in legislative processes that capture the landscape, industry, social and cultural nuances of the northern and remote regions. Thus much regulation has reasonable intent, but often State wide regulations are nonsensical outside of the urban and southern Queensland or southern Australian environs and on many occasions result in unreasonable costs and obstacle to innovation or development.
- Profit is the major impediment to growth. The natural resources of northern Australia have significant opportunity for growth including within existing industry footprints - most industries can produce more without needing extra ‘resource’ but are limited by the level of profit. Profits are particularly hindered by infrastructure, trade and regulatory barriers. With good planning and regulatory review, the northern regions will be able to significantly grow as world demand for product also grows.
- Many parts of the Far North Region, have a notable ‘leakage’ of resident workers - who travel to their places of employment outside the Region. As the region’s population continues to grow, an increasingly critical issue facing the sub-regions will be their capacity to provide sufficient jobs across industry sectors to support a sustainable economic future. There is also an issue of some Industry sectors and community having difficulty in attracting Professional, white collar workers i.e. Solicitors, Medical and health practitioners, Engineers, Agronomists/Horticulturalists, accountants and other professional services (Tablelands Industry Workforce Group, 2012).
- The “Brain Drain” (Exodus of young people from Region who leave the area in search of educational and employment opportunities in larger regional centres, capital cities or industries offering better wages and conditions) has been cited as a key constraint to the development of the Region’s economy (Tablelands Industry Workforce Group, 2012).
- Lack of self-promotion - Tourism marketing is critical, Marketing the region, Lack of branding. The Far North needs to become a “Region of Choice” to attract younger and middle aged families... adventure, lifestyle. “An Adventure-seekers paradise”. We have the natural assets and climate.

2.1.1 Recommendations

- Maintain and plan to enhance quality assurance and biosecurity for tropical product development and export.
- Create a Department of Northern Australia with an interdepartmental coordination role under the Office of the Prime Minister with staff primarily based in Northern Australia. Build regional resilience, including support for bank/farmer models (as per Gulf) and extension support.
- Enhance supply chain efficiency and demand creation for local produce.

- Value adding to agricultural industry supply chain to increase productivity and efficiency, with a focus on the beef industry. Facilitate and support private investment Regional Food processing / value adding opportunities. Whether this be in Horticulture (i.e. a Cannery); and FNQ abattoir.
- Build a further understanding of the FNQ “point of differentiation along the value chain” and position accordingly, particularly via Grass Fed Tropical Beef.
- Identify other supply chain needs and gaps to be addressed and appropriate distribution hubs.
- Provide support for the development of partnerships between large corporatized producers and local operations i.e. Hopevale banana farm partnership with DOLE.
- Work with industry to identify and scope new high-value local family, corporate, national and foreign investment opportunities that sustainably grow FNQ communities.
- Further develop the concept of place-based food tourism and promotion based on local produce.
- Further analyse key export chain limitations/opportunities (e.g. aviation, shipping, etc.) and infrastructure needs.
- Development of strategic partnerships with Asian partners – tourism industry needs to be sitting at the table
- Material Change of Use on Pastoral leases to allow new tourism opportunities i.e. Eco, Farm and Nature-based, Food Tourism etc.
- Decentralised Government Departments – both State and Commonwealth.
- Support the development of existing or ‘in progress’ agricultural precincts, such as the Gilbert and Flinders Rivers’ Irrigation Areas by up-front sub-regional planning with respect to utilities, tree clearing and production systems.
- Review the potential to further expand development and/or new crops within existing major agricultural areas such as the Atherton Tablelands, Weipa and South-East Cape York, including Lakeland, with focus on establishing new markets, sustainable production systems and infrastructure to secure critical mass for long-term viable enterprises.
- Facilitate clear connections between developers and Indigenous development groups to foster participation.
- Reinvigorate regional opportunities for the re-emergence and enhancement of a profitable and sustainable forestry and fishing industries.
- Progress scoping works and strategic investment for implementation of the stalled Far North Queensland Forest Products Development Strategy and industry body.
- NRM sector to work with industry to develop best practice and sustainable strategy for the trapping, shooting and baiting of feral pest animals. Should be linked to future Federal NRM/environment research funding.
- To become a “region of choice”, we need to promote and actively sell our:
 - Ready access to international airport
 - Rural (i.e. Hinterland and Peri-urban) and urban lifestyle with good educational, sporting, recreational services and other community services and facilities
 - Bountiful natural assets, great climate and clean green environment
 - Affordable cost of living.
 - Promote and create more awareness of the opportunities available in existing industries and professional services.

2.2 Enablers

- An adjustment of the zone tax rebate to better account for the living disadvantages in remote areas in comparison to provincial and city living could re-establish the original balance intended by this rebate and encourage employment and general growth in northern

and north west Queensland. This will encourage private investment and help reduce the current limitations that exist in northern Australia in sourcing and maintaining skilled and unskilled labour.

- New industry development program specific for the emerging tropical product opportunities assisting with demand recognition, product feasibility and trade connections. This should not be just agriculture based but inclusive of education (boarding schools etc), tourism, and service industries. A northern Australia development bond could be a financial instrument for consideration. Regular trade shows in northern Australia inviting the small to large Asian-Pacific investors may also help build niche markets to substantial market opportunities.
- Potential new crops suited to climates in the Far North (which are major consumptive crops in China, SE Asia and Pacific islands include: Sweet potato, Yam bean, Yam, Taro, Cassava, Papaya, Mangos, avocados, lychee, rambutan, longans, Tamarind (Asian drinks), Pataya (dragon fruit), Bananas, Coffee, Tea, Australian dry land rice.
- Goatmeat is the most widely consumed meat in the world. China, India and Nigeria are the largest producers and consumers of goatmeat. There is potential to grow the North Queensland Goat meat meeting the substantial demand from Middle East and South-East Asia. Australia is a relatively small producer of goatmeat but is the world leader in goatmeat exports. Australia's two largest export markets for goatmeat are the US and Taiwan. Australian goatmeat exports were worth A\$145.8 million FOB in 2012-13. Malaysia, Singapore and Brunei are the largest live export markets for Australia. Currently, we cannot satisfy the demand for goatmeat and indicators are that the need will continue to grow. The industry has room for growth as it currently remains constrained by several aspects including inconsistent supply and quality. Supply chains need to be developed to better meet the needs of potential markets and add value to the industry. Western Australia, which has an established industry, cannot keep up to demand. Goats, as browsers, can co-exist with cattle and don't compete for food. This would provide an extra Income stream for Beef producers. The climate and landscape of parts of Gulf Plains, Einasleigh Uplands and parts of Cape York lend itself to Goats. Potential to grow export from Karumba.
- Northern and northwest Queensland grow an enormous diversity of tropical and native foods that are essential new to the taste for many visitors or Australian's in general. With minimal funding support there is potential for the expansion of the 'Taste Paradise' blueprint to better market 'food tourism' and niche market processing opportunities.
- Regulatory and tax tools can better reflect primary industries needs following a disaster event. The Farm Management Deposit Scheme could be adjusted to lift the cap from \$400,000 to \$2million and allow tax free withdrawal during a declared NDRRA event. This would be an incentive for agribusiness to self-build cash assets that are available for immediate recovery from natural disaster events – given that no reasonable insurance exists for the herd and crop assets of primary industries. Fisheries need better access to this scheme but also better regulatory recognition of the need to modify catch areas and quotas following natural disasters. As an example following cyclone Yasi the coral bommies off the coast of Cardwell were significantly damaged which in turn stressed the crab population and affected the shell and growth of the commercially harvested crabs. For both the environmental and commercial fishery recovery it would have been useful to be able to shift effort to an area not impacted and allow the damaged areas to properly recover.
- Agricultural development would occur with private money as a Natural and Ordinary consequence if State Government relaxed Red and Green tape around Vegetation, Water and Land.
- Industry development programs (support for business mentoring and incubation, and entrepreneurial activity) & new money for product development, e.g. volunteerism.

- Business migration/Business attraction/incubation – campaign into larger centres – suburban Sydney, Brisbane, Melbourne etc. - that can do business here. Cheaper land, housing, water, good services, better environment, safe etc.

2.2.1 Recommendations

- Adjust the zone tax rebate to better offset the cost of living disadvantages in remote areas.
- Establish a new industry development program.
- Review Farm Management deposit Scheme and other regulatory enablers that can assist primary industries recover from natural disasters.
- Expand Taste Paradise

Terms of Reference 3: “Identify the critical economic and social infrastructure needed to support the long term growth of the region, and ways to support planning and investment in that infrastructure”

Planning to support investments in economic and social infrastructure must analyse firstly the potential areas of growth. Given that growth appears to be strongly linked to the natural resource capacity of northern and northwest Queensland it is paramount that this be the foundation of all planning, coupled with existing social and cultural characteristics such as ‘communities of interest’, centres of trade, centres of service etc. Regional areas tend to have naturally developed town networks as a ‘hub’ based layout with different towns or ‘hubs’ providing different services and/or goods for the region as a whole. The role of each hub is influenced by the services provided by the underlying natural environment (farming, mining, tourism, fishing etc), distance to major transport nodes such as airports, and cultural history.

Population growth will create both improved access to economic and social infrastructure for existing residents and new problems. The public must be effectively engaged in planning for future growth so that the necessary transitions can be made with minimal negative impacts. Effective public participation does not mean ‘getting the public on side’; rather, it means full, co-operative involvement in the actual process of making decisions – and it must be seen to be such.’

3.1 Barriers

- Distance between regional centres and markets are a current barrier for both economic and social growth. Improved transport and communications infrastructure is catalytic for these regions.
- Many plans exist but few are widely supported by the main contributors to the economic and social success of the region being the local people. Time and robust process should be allocated for a land use plan that captures the local knowledge, integrates the global demands, incorporates good science and has sign off and long term commitment by all three levels of government. This would minimise failures caused by the current ad-hoc approaches to development.
- A higher skills level, especially skills targeting tropical expertise in their field, is needed for the future and a well-educated and skilled workforce is essential to the region’s economic growth and social wellbeing. Educated and skilled workforces assist in building social capital and facilitate productive engagement with government and community organisations.
- Non-sensical regulation based on ‘bureaucracy’ rather than the outcome. For example by removing tick clearing restrictions with respect to cattle transport across the top end could have saved the beef industry almost \$80 million over five years especially when cattle are going from ‘ticky’ country to other ‘ticky’ country such as transport from North Queensland, through Barkly Tableland, to Darwin.

- The flooding events of 2010, 2011 and 2013 in Queensland and the destruction of infrastructure caused by Cyclone Yasi and Oswald, have shown how vulnerable the supply chains can be. Flooding, in particular on the Bruce Highway and the east-west highways connecting to it and roads in the Gulf region, always has a significant negative economic impact on the flow of food products in both northerly and southerly directions. Additionally much of the infrastructure was replaced to the same design and standard as was in place before the disaster. If climate extremes are more likely into the future design and replacement should be based on 'betterment' or building better so as to better withstand the same event. Betterment is more cost effective over the long term.
- Nominal digital connectivity, including access to high speed broadband and mobile communications. Access to reliable and consistent high speed internet and mobile phone services has been identified as a constraint to business, attracting knowledge workers, global economy workers and tele-working from home. We need to ensure that FNQ has the internet and telecommunications infrastructure available to support business needs and investigate creative ways to connect FNQ communities through Information and Communication Technologies (ICT).
- Ad hoc or 'ad-on' town planning. There needs to be a sensible approach to urban development with new houses not covering productive good quality agricultural land (GQAL), particularly the Atherton basalts, which is amongst the highest value and sought-after in the country. Protection of GQAL and food security will become paramount in future years, especially if Agricultural expansion is curtailed.

3.1.1 Recommendations

- NDRRA infrastructure replacement is based on betterment principles.
- Improve tropical skills in existing training and education programs to build a workforce better placed to implement the region's economic development.
- Planning that clearly articulates the potential areas of future development and high value natural resource areas as a foundation for strategic and well designed town and population growth centres.
- Urgently improve communications infrastructure as this is considered catalytic to population, skill and commerce growth now as well as supporting future developments. Priority rollout of high-speed broadband across Northern Australia, and significant improvement in mobile telecommunications (adopt recommendations in regional submission to Mobile Black spots program)
- As a region we need to develop a distinct regional identity and regional brand to promote the region not only to attract tourists and economic activity, but also to attract "knowledge workers" who would come to the Region for our unique lifestyles, climate and friendly communities while being able to work. The region continues to develop and promote itself as a tropical lifestyle destination of choice to attract knowledge workers, global economy workers, Fly In-Fly Out (FIFO) workers and home- based businesses in the professional services industries.
- Secure strategic regional meat processing and shipping capability linked to key beef industry infrastructure. A new abattoir in FNQ could reduce transport costs across northern producers and reduce food kilometres.

3.2 Enablers

- Weather radar in the northern Australian regions are needed urgently to provide credible and accurate rainfall data for improved water allocation decisions and to provide early warning and advice of impending floods and cyclones. The longer these stations are in place

the more valuable the data becomes as it builds trends and calibrates other water information systems.

- Urgent capture of Indigenous cultural sites and story places before this knowledge base is lost. The culture of our first peoples is a valuable social infrastructure and a critical element in planning.
- Ongoing improvements to the Peninsula Developmental Road; flood-proofing the Bruce Highway; sealing the remaining section of the Hann Highway; upgrading Kuranda Range Road to reduce bottlenecks (research shows heavy vehicle traffic has doubled in last ten years); continuous road train access route from Cape York through Mareeba to gulf Hann Highway and southern markets.
- Better consideration of the Cairns Shipping Development Project and consideration of regional ports including Karumba, Weipa and Mourilyan as playing a key role in the future growth of the region more broadly whether resulting from tourism, mining activity, pastoralism, energy generation etc.
- Mareeba Airport - funding would see the Airport become Queensland's second major aviation service centre after Cairns. An upgrade would position Mareeba Airport as a training hub for the Asia-Pacific region, providing world-class facilities and attracting a larger share of the \$322 million local aviation sector. This would involve strengthening the existing runway, main taxiway and apron to accept aircraft up to 45,000kg in weight which will allow for the landing of heavy aircraft such as the Dash 8-100, the C130 Hercules and some jet aircraft. This would create opportunities such as Heavy maintenance of up to Code 3C aircraft, predominately Dash 8-100 aircraft, Helicopter maintenance and flying training and General Aviation maintenance, workshops and storage hangers.
- The provision of good quality, reliable and secure water supply is a critical enabler to regional economic development and growth of communities, whether regional, rural or remote. We recognise the need for securing long term water supplies not only for the Cairns region but also for Gulf and Cape York communities and industry. We note regional stakeholder interest in linking electricity generation with a water storage facility in the Cairns region and support triple bottom-line assessment of water infrastructure needs. Strategic Indigenous reserves in water also need to be considered as providing an opportunity to safeguard water to meet the economic and social needs of Indigenous communities into the future.
- Like water, energy is a critical enabler for regional growth and has been the subject of significant regional discussion and policy activity. There is universal agreement that current and anticipated electricity prices cannot be sustained and present a restriction on future industry growth in the region and a cost-of-living expense that is beyond the capacity of many to meet. Far North Queensland has access to a range of alternative energy sources, such as Wind, Hydro and Solar, that could drive self-sufficiency, alternative business models to address supply, reliability and cost issues. Our region has an active alternative energy industry and this knowledge and expertise could be leveraged into other parts of Northern Australia and internationally. Energy efficiency measures and strategies to improve innovation are also important now and into the long term. We promote the importance of reliable telecommunications infrastructure not only to support economic activity and keep communities connected but in times of natural disaster these services are critical and potentially lifesaving.

3.2.1 Recommendations

- Improve the weather radar coverage of northern Australia to reduce natural disaster risks to existing and future developments.

- Urgent investment in Indigenous culture recording where Traditional Owners are resourced at the on-ground level to use GIS and high grade media to capture and store valuable knowledge base for future planning and economic development.
- Revisit Tully-Millstream proposal (now called “Kareeya B” to re-brand and dispose of any previous negative connotations - as there is already an existing small PowerStation “Kareeya”). This would be a 600MW PowerStation (as opposed to Barron Gorge’s 60MW). It is clean green energy and more efficient than Wind or Solar. See attached proposal. Overall the whole scheme involved the clearing/flooding of less than 150 Ha. This would partly address the growing massive deficit of power generation in the north and the need to unnecessarily import large amounts of electricity from the south. Its avoidance of major Greenhouse gas emissions. The negligible impact on the environment.
- The moderation/upgrading of the current irrigation system for the Mareeba-Dimbulah Irrigation Area (MDIA) to reduce water losses.
- The water Act 2000 should be amended to allow for smaller domestic or small scale commercial hydroelectric works to be exempt from a licence to take requirement under the Act. Associated infrastructure for smaller works technically needs a development permit if a water licence is required. This impost for necessary small scale infrastructure should be waived under the Sustainable Planning Act and be deemed self-assessable works.
- A solid works such as a weir or dam should retain a requirement for a development permit if it is made of manufactured materials; however natural large rock weirs should be exempt from SPA and a licence to interfere by impoundment and be self-assessable development provided they don’t entrap more water than is the requirement for the hydro scheme rated demand to assure power supply reliability.

3.3 Innovations

- A ‘potential hydro-electric scheme’ map should be developed and made publically available for considerations as the initiator of hydroelectric development.
- Solar thermal power generation is proving to be effective and the physical characteristics of northern Australia would be conducive to these technologies.

3.3.1 Recommendations

- Maintain incentives for the development of efficient hydro-electric, wind and solar thermal energy projects.