



SUBMISSION

Independent review into the
Northern Australia
Infrastructure Facility Act 2016

October 2024

Submission to Review of the North Australian Infrastructure Facility (NAIF) Review

Cooperative Research Centre for Developing Northern Australia (CRCNA)

The CRCNA is grateful for the opportunity to provide input to the NAIF Committee. This paper provides additional information following the CRCNA's engagement with the Committee in Cairns on 27 September 2024, with Chair Sheriden Morris and Strategic Adviser John Tanzer.

This submission should be read in conjunction with the submission prepared by Professor Allan Dale in his capacity as Chief Scientist for the CRCNA. Professor Dale's submission provides more detailed information and rationale on the need for a dedicated entity that could evolve from the existing CRCNA into a place-based backbone institution needed to facilitate the development and implementation of a pipeline of economically viable investment proposals, including to the NAIF.

The submission is structured in two sections:

1. The first section addresses how the current CRCNA's work has helped de-risk and secure the longer-term industry and community benefits of the NAIF's investments to date. It includes examples of where and how this is occurring.
2. The second section suggests how an evolved CRCNA-like entity built on strong collaborations, knowledge, and networks could further increase the social and economic dividends stemming from the NAIF.

1 The CRCNA's approach to securing sustainable development in northern Australia

The CRCNA has been working across northern Australia to support sustainable development since its establishment in July 2017. The work of the CRCNA has been carried out in close cooperation with the NAIF, the Indigenous Reference Group and the Office of Northern Australia. Other relationships to note include First Nations organisations (such as the land councils), industry, research institutions, local governments, and regional development authorities.

In support of the Australian Government's commitment to resilient and sustainable economic growth to secure northern Australia's future and aligned policy priorities, the CRCNA invested and leveraged its resources to ensure tangible development pathways, leading to greater sustained investment in the north.

The CRCNA invested in research and development for industries, supporting innovative solutions that address northern Australia's particular challenges and opportunities.

With an initial Australian Government allocation of \$75 million over ten years, CRCNA's co-investment model leveraged:

- ➡ \$155 million to support 106 projects
- ➡ Involved 272 partners with 657 project-related jobs
- ➡ Targeted research and development across the Northern Territory, northern Queensland and Western Australia.

The CRCNA has evolved and refined its approach to research and development investment as it has built knowledge and developed extensive networks, memberships and relationships.

Today, the CRCNA's core approach reflects the following high-level themes, which align with government priorities for northern Australia and provide significant support for the NAIF's contributions to securing sustainable development outcomes:

- ➡ Sustainable and resilient economic development and the alleviation of economic and social disadvantage in northern Australia.
- ➡ Agri/aquaculture, Health service delivery and Indigenous-led business
- ➡ Increasing focus on climate change
- ➡ Addressing Indigenous disadvantage through economic empowerment.

The CRCNA's industry focus and targeted research and development portfolio give investors (including the NAIF, private investors and WA, NT, Qld and other Australian government programs) confidence to engage in opportunities that connect research with the potential commercial outcomes for broader industry uptake.

Given its finite budget for the overall investment required for across-the-board development in northern Australia, the CRCNA's essential contribution lies in its efforts and ability to reinforce enabling conditions and derisk projects. The CRCNA has been doing this across a range of projects^[1] aligned with the following research areas:



Agriculture, Food,
Aquaculture



Traditional Owner-led
business development



Northern health
service delivery

[1] A description of investment by project can be found here [CRCNA Projects](#)

CRCNA research has supported the development of key 'mining-alternate' industries such as:



Tropical agriculture:
cropping, grazing,
horticulture, forestry



First Nations:
cultural markets,
bushfoods, seafood,
ag enterprises



Tropical aquaculture:
oysters, crayfish,
fish species



Remote health:
service delivery and
tropical medicine
advances



Nature positive:
climate adaption,
water resources,
biodiversity,
sustainable practices



Environmental:
monitoring, services,
biosecurity
surveillance, feral pest
controls

The CRCNA board employs a systematic approach to project selection and fund investment to enhance the likelihood of a more comprehensive and sustainable impact and ensure the benefits are not restricted to the boundaries of individual projects.

This involves an assessment of how the project can:

- Contribute to the de-risking of business operating conditions, especially supply chains
- Supporting other enterprises, especially new and emerging industries
- Build industry and community capacity with First Nations enterprises
- Develop strategic partnerships for industry and supply chain development
- Build northern health service delivery and models of care
- Build education, training and research capacity[1]
- Inform strategic policy development for the north
- Foster greater multi-interest and institutional collaboration
- Provide integrated and place-based solutions to complex development investments.

The themes, projects, and strategic approach of the CRCNA have complemented and value added to many NAIF investments and assisted in widening the success of several significant investments. See the following examples:

Case studies of CRCNA projects aligned with NAIF investments

Humpty Doo Barramundi

NAIF investments into Humpty Doo Barramundi (HDB) supported the expansion of pond and nursery facilities, packing sheds, roads, solar and electrics which increased supply volume of Australian-grown Barramundi and takes advantage of the demand for high-quality Australian seafood.

This additional infrastructure bolstered the capacity for HDB to participate as an industry leader in the CRCNA's research with

the Darwin Aquaculture Centre into Black Jewfish as an alternative aquaculture product in northern commercial aquaculture farming systems, as well as protecting wild stocks through sustainable aquaculture production.

HDB is also supporting the CRCNA Tropical Rock Oyster research trials which is developing a new boutique industry and employment opportunities for remote coastal regions of northern Australia.



[1] The CRCNA has a major partnership with the [North Australian Universities Alliance](#)

Cotton, Grains, Cattle (CGC) program

The CGC program comprises 6 coordinated research projects across Northern Australia to support sustainable, adaptable cropping systems for cattle production improvements.

CRCNA analysis shows that the greatest research, development, and extension investment value is achieved when cropping is coordinated with other farming systems such as beef production.

CGC is supporting the continued growth of the northern beef industry, valued at over \$5 billion annually, as well as tropical cotton, with an estimated value of \$925 million, and other grain industries.

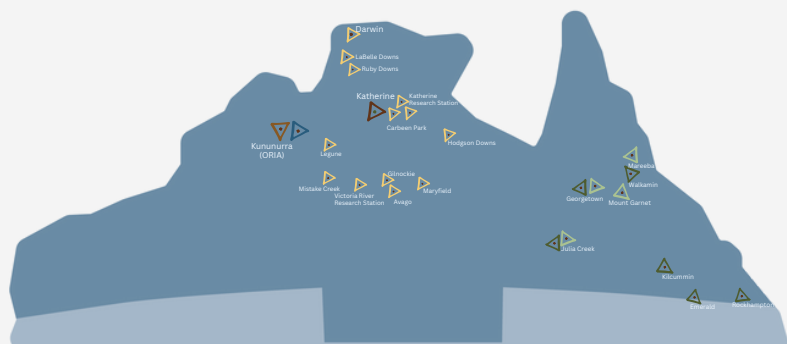
The CGC projects are implemented across the Northern Territory, the Ord River Irrigation Area in Kununurra and north Queensland with partnerships from peak research and development entities for greater industry uptake.

→ The NAIF's loan for the Kimberly Cotton Gin is essential infrastructure required for cotton processing to realise the economic viability of broadacre cropping in the Ord region.

→ It will greatly reduce freight and supply chain costs for local producers, de-risking development through fit-for-purpose infrastructure.

The CGC integrated research program is ensuring the best practice for cotton production specific to the Ord River Irrigation Area as well as the viability of intensive feedlots in northern Western Australia which includes high-protein cotton seed as feed options.

The program is also supporting the creation of circular economies, local agronomic skills for technical and industry workforce growth, climate resilient management of cover crops to protect soils from intensified wet seasons and increasing the capacity for northern producers through integrated farming systems.



Supply chain support for northern horticulture

The north is the epicentre of mango production in Australia, with more than \$62 million worth of production and over four million trays produced each year in the Northern Territory alone for international and domestic markets.

The CRCNA led research and development through the *Smart Supply Chains* and the *Transforming Mango Futures* projects that had direct correlation with NAIF investments into the NT Airports Infrastructure and Upgrade loan.

This NAIF investment supported increased operational capacity, with a focus on:

- ➡ driving new export opportunities into Asian markets
- ➡ providing freight, cold storage and an export/import hub at the Darwin International Airport.

This responded to key supply chain barriers identified through CRCNA horticultural research.

The research focus was on mango supply chains, but also has applications across other key sectors. Strategic growing regions utilised data on associated supply chains to value-add to production and capture new markets.

High-density mango orchard technologies were also developed for commercial-scale trials to facilitate next-generation, high-productivity orchard systems to meet international market demands and offer climate-resilient options for slower-growing horticulture.

Additional NAIF investments into north Queensland airport upgrades are providing further opportunities for northern producers to support export capacity.



CRCNA projects discussed during the hearing with the NAIF Review Committee

Tiwi Forestry

Traditional Owners, Tiwi Plantation Corporation, Tiwi Land Council and commercial tropical forestry experts are researching the best plantation species for the forestry industry on the Tiwi Islands, 85km north of Darwin

The CRCNA project combines cutting-edge genomics, molecular marker and plant breeding technologies across selected eucalyptus species.

The 30,000ha estate is transferring to the higher-value *Eucalyptus pellita* trees. Early evidence shows these could be up to 100% more productive than the current *Acacia* varieties.

Research includes assessment of hardwood products that could be developed using *Eucalyptus pellita*, to meet increased demand for hardwood chip in north Asia.

Tiwi Plantation Corporation also have a vision to build Tiwi houses with Tiwi wood grown and processed on the Tiwi Islands.

Community-based enterprise development approaches are central to the project aimed at improving productivity and providing new options for economic development on Aboriginal-owned lands.

Positive health and social outcomes are resulting from an engaged, locally driven workforce with education and employment pathways interwoven throughout the project.



Modern mapping - Integrating Indigenous priorities in spatially enabled planning of the Indigenous Estate

The CRCNA has partnered with the Anindilyakwa Land Council (ALC), Geoscience Australia, the Australian National University and Aerometrex Ltd. to transform how digital maps are designed and used on Country.

The ALC are undertaking an ambitious plan to map the entire Groote Eylandt archipelago as a key enabler for long-term economic development for Northern Australia's First Nations' communities and for informed decision making as they approach the end of current mine operations within the decade.

Led by First Nations data officers, the project ensures traditional knowledge and information is integrated into the Geographic Information System (GIS) in culturally appropriate and inclusive ways.



The project is also modelling sea level rise scenarios across the Groote archipelago using data from the LiDAR survey. This will provide predictive models to assist with planning climate change impacts which is critical to emerging industries on the island, like aquaculture.

Groote Eylandt aquaculture

Blacklip rock oysters *Saccostrea echinata* are a native species of tropical oyster found across the northern coastline.

The Darwin Aquaculture Centre has led breakthroughs in oyster hatchery production and industry development with remote First Nations communities across the NT.

CRCNA research is across 4 grow-out sites, led by Traditional Owners on Groote Eylandt, Tiwi Islands, Goulburn Island and Wadeye.

The project is investigating hatchery techniques to ensure commercial spat supplies, optimised grow-out methods, and equipment technologies suitable to tropical growing conditions.

This is increasing key technical and regulatory issues to establish pathways to food safety approval.

This research and development supports establishing an industry capable of creating commercial production and supplying markets with a premium, native oyster that's sustainably grown by First Nations people in the pristine waters of northern Australia.



In doing this work, the CRCNA is mindful of the importance of such arrangements supporting and complementing the other key institutions working to achieve sustainable development across the northern Australian economy and its communities.

2 The future of investment in R&D and infrastructure in northern Australia

The CRCNA's CRC grant formally ends 30 June 2027. All available funds are now allocated to projects that have commenced or completed. The CRCNA has made valuable progress with its initial investment across targeted programs.

To consolidate the progress and solid foundations built, it is timely to go to the next level by incorporating the CRCNA into a more integrated entity that holistically addresses the challenges through critical research and innovation and with increased emphasis on building capacity, extension and knowledge transfer.

The CRCNA Chairperson, Chief Scientist and Executive are examining how a post-CRCNA entity could most effectively facilitate the next research and development investment phase to secure sustainable northern Australian development.

Key issues under consideration:

- ➡ Evaluating the most significant impact areas of the funds allocated/ invested
- ➡ Establishing the pathway to most effectively build on the assets (knowledge, data, collaborations, relationships) created by the work of the CRCNA
- ➡ Determining the most appropriate institutional and governance arrangements
- ➡ Ensuring the entity's role closely aligns with ongoing work of the *Northern Australia Action Plan*, which seeks to reaffirm the Government's commitment to the north and set the strategic direction for investment and growth in the region
- ➡ Strengthening collaborations with the NAIF to support and de-risk the impact of its investing.

What is very clear, given the market failures that can so often hinder development in the north, is that the following ingredients are essential to the success of projects, especially at small and middle enterprise scales:

- ➡ First Nations empowerment
- ➡ Institutional collaboration
- ➡ Innovation that mitigates supply and marketing costs
- ➡ Open and practical knowledge sharing, and
- ➡ Capacity building.

The recently released *Northern Australian Action Plan 2024 – 2029* provides guidance on evolved government priorities to address challenges and opportunities. It directed the NAIF to align its investments with five priorities:

- ➡ Sustainable and resilient economic development and the alleviation of economic or social disadvantage in northern Australia
- ➡ Cooperation with jurisdictions in northern Australia to deliver key infrastructure projects, including electricity, water and transport infrastructure
- ➡ Supporting sustainability, climate change and circular economy principles and solutions in northern Australia
- ➡ Realising the Critical Minerals Strategy 2023–2030
- ➡ Materially improving the lives of First Nations people and communities.

As proposed, an evolved CRCNA entity would be well-positioned to provide place-based, science-informed support for the NAIF investments in these areas and thereby secure and multiply the social and economic benefits.

As the Review Committee undertakes its work, we suggest there are several key issues to address where an evolved CRCNA entity (place-based, enabling institution) could complement and further contribute to the effectiveness of the NAIF's investing:

- ➡ Feasibility assessment for major infrastructure projects
- ➡ Increased focus on small to medium business investments
- ➡ Science and community-based resolution of environmental conflict and land tenure
- ➡ Early and extensive engagement of First Nations, regional, rural and remote communities
- ➡ Climate change mitigation and adaptation, not least the implications for liveability in the face of temperature change and increasing natural hazards
- ➡ Place-based planning to ensure comprehensive and early incorporation of the above aspects in large infrastructure delivery
- ➡ Manage grants /loans focused on small and medium start-ups and emerging enterprises (seed funding)
- ➡ Investing in lifting human and institutional capacity in the north.

Building on the progress and learnings to date, we believe that by addressing these issues with the continued delivery of aligned research and innovation solutions and with a strengthened capacity and increased emphasis on First Nations empowerment, place-based feasibility assessment and planning, capacity-building, extension and knowledge transfer, an evolved CRCNA like entity could contribute more effectively to ensure the economic and social impact of NAIFs investments.



Acknowledgements

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Disclaimer

This CRCNA submission to the Independent review into the *Northern Australia Infrastructure Facility Act 2016* includes information on CRCNA research activities. It is possible figures and project participants may change from the time this document was written and published in October 2024. This publication has been provided to intended recipients only. Permission from the CRCNA is required to share this publication with a wider audience. Information about the CRCNA and our projects is available at www.crcna.com.au.



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