



Effectiveness of the Australian Government's northern Australia agenda



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Purpose

This document provides an overview of the operation and achievements of the Cooperative Research Centre for Developing Northern Australia (**CRCNA**) and how the organisation is continuing to deliver against the objectives of the *Our North, Our Future: White Paper on Developing Northern Australia White Paper (White Paper, 2015)*.

The CRCNA acknowledges the support of our government partners.



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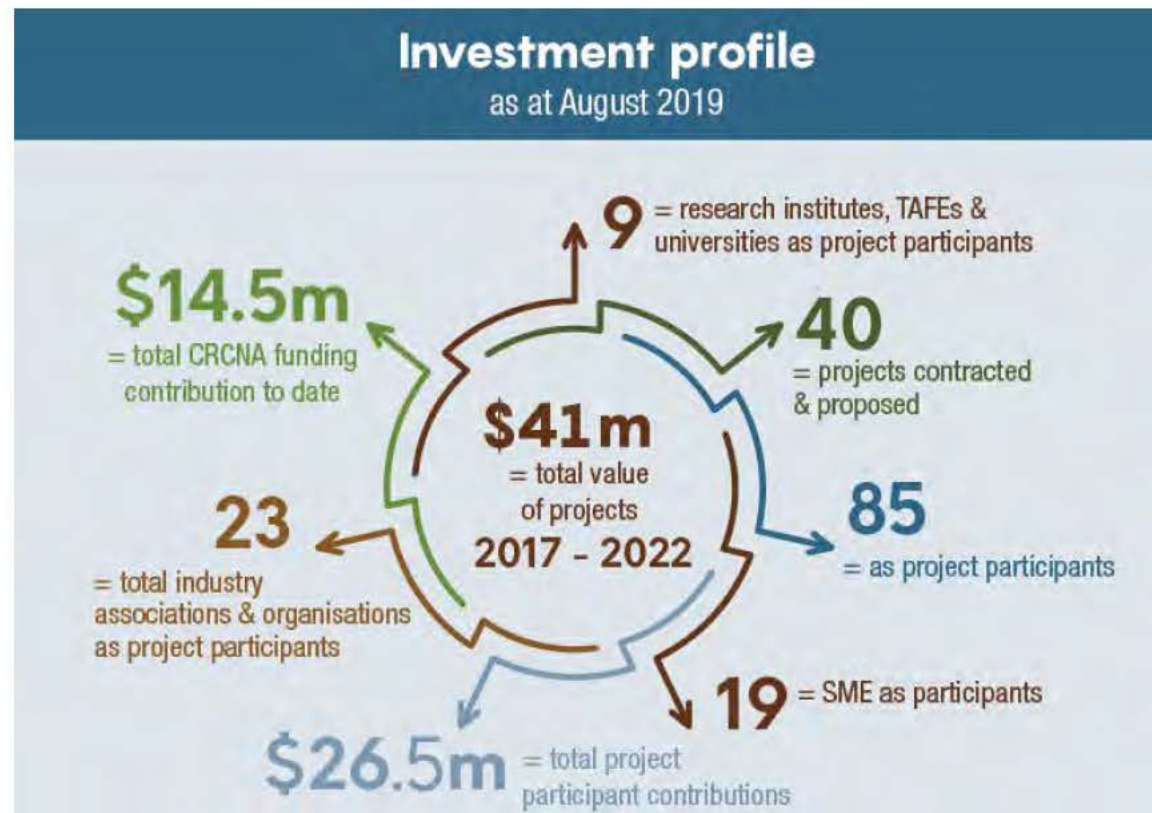
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1. Organisation overview

The CRCNA is a part of the Australian Cooperative Research Centre's program and was one of three institutions established to deliver the Australian Government's agenda for developing the north, as outlined in the White Paper. An initial 10-year, \$75 million Federal Government investment has been further bolstered by cash investment from the Queensland, Northern Territory, and Western Australian Governments – highlighting the value the CRCNA brings to cross-jurisdictional and bi-partisan development of northern Australia.

To date, the CRCNA has invested **\$14.5 million** and leveraged an additional **\$26.5 million** in co-investment (cash or in-kind) from project participants to deliver **\$41 million** total investment across northern Australia (Figure 1). This includes its current contracted projects and those in the project pipeline.



2. Northern Australia – the engine room of Australia's economy



16 million ha

Soil across northern Australia suitable for intensive ag



Land

53% of Australia's land mass



GDP

10.7% or \$187 billion of Australia's GDP 2016-17



Employment

644,100 persons employed



Agricultural production

\$8 billion 13.6% of Australia's total



Population

1.3 million 5.2% of the Australian population
15% of northern Australian population identify as Indigenous



Agribusinesses

8000 agribusinesses in northern Australia – 9.4% of Australia's total



Indigenous estate

78% of northern Australia subject to Indigenous interests

3. Area of operation

The CRCNA's area of operation includes all of the Northern Territory, and those parts of Queensland and Western Australia above and directly below or intersecting the Tropic of Capricorn.

It also includes Gladstone, Carnarvon, and Exmouth, as well as the Local Government Areas of Meekatharra and Wiluna in Western Australia (Figure 2).

Research activities supported by the CRCNA do not need to be entirely within these boundaries; if they produce significant benefits to northern Australia.

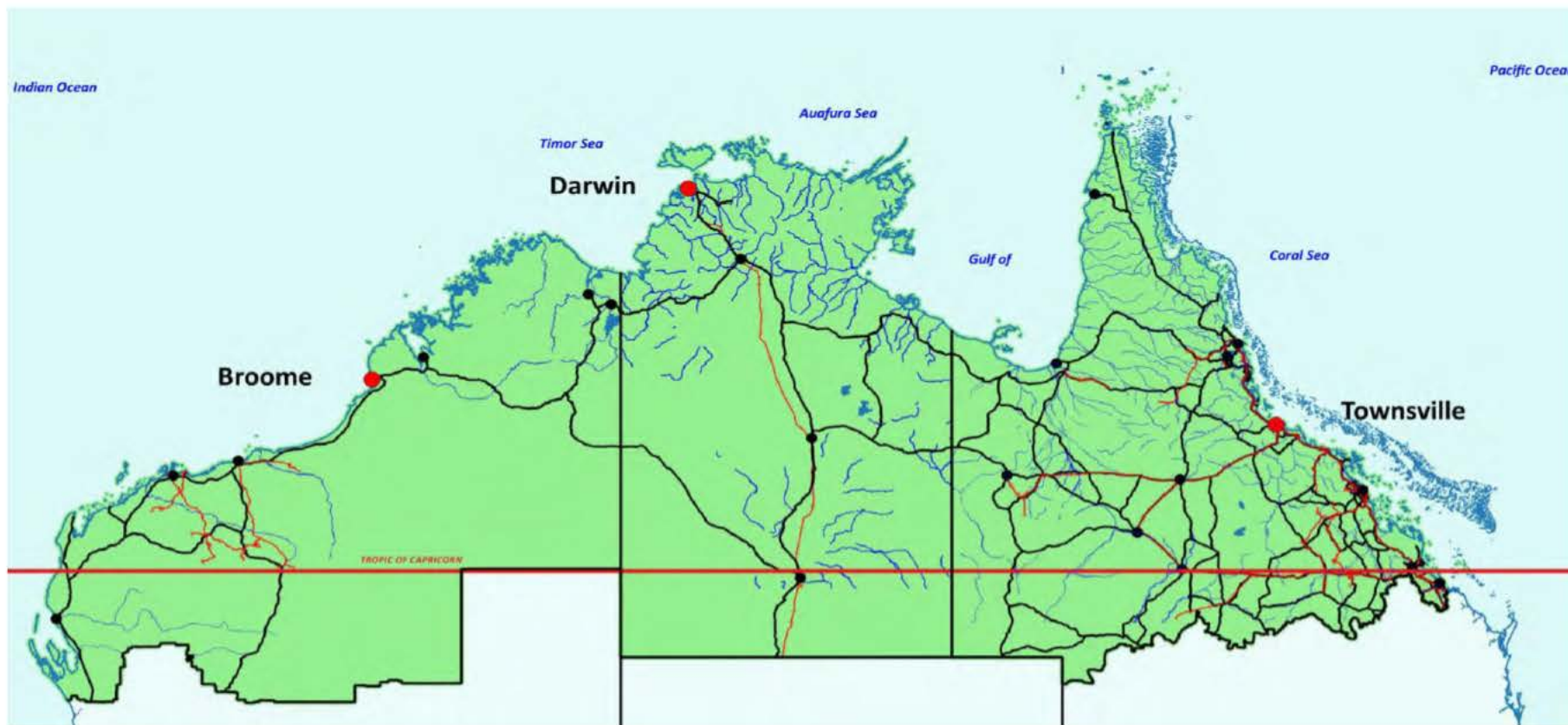
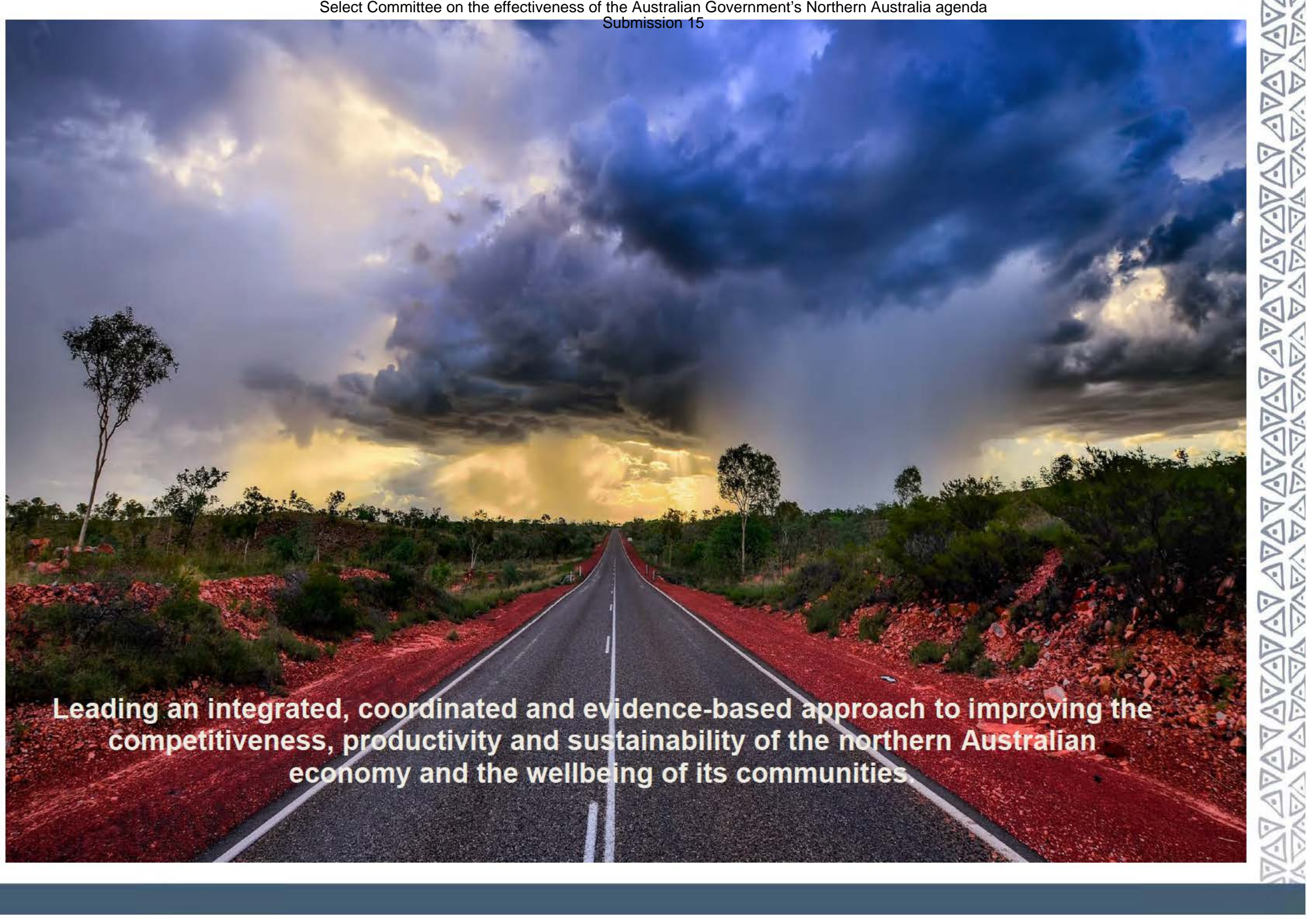


Figure 2 Map of northern Australia as defined in the CRCNA's Commonwealth Funding Agreement



Leading an integrated, coordinated and evidence-based approach to improving the competitiveness, productivity and sustainability of the northern Australian economy and the wellbeing of its communities.



4. Strategic intent

The CRCNA brokers cutting-edge knowledge and delivers industry-led research collaborations to achieve the following objectives:

- 1. De-risk the northern Australian investment landscape** – broker strategic discussions with relevant decision-makers and stakeholders and guide a coordinated approach which informs development planning and investment decision making across jurisdictions.
- 2. Deliver a coordinated approach to industry sector development** – support strategic information and knowledge building which helps frame and enhance understanding of the critical challenges and opportunities facing the north's key agricultural sectors, health service delivery sectors, infrastructure, and regional development.
- 3. Inform appropriate supply chain development and infrastructure planning across northern Australia** – deliver an evidence base which helps prioritise supply chain and infrastructure investment to provide timely access to high-value international and domestic markets.
- 4. Deliver research, development, and extension solutions with impact** – leverage grass-roots level RD&E effort, capacity and knowledge of northern Australia to ensure solutions are implemented in a meaningful way and to the benefit of all Australians.
- 5. Build the strategic research capacity and develop the workforce skills of northern Australians** – in the fields of agriculture, aquaculture, food, northern health service delivery and Traditional Owner-led business development (in agriculture, aquaculture, food and northern health service/ models of delivery).



5. Current research focus areas for northern Australia

Through partnerships with the Australian, Northern Territory, Western Australian, and Queensland Governments, the CRCNA continues to lead a clear, integrated, coordinated, and nuanced research and development approach to delivering critical outcomes against the developing northern Australia agenda by focussing its investment in the following areas:

Agriculture, food, and aquaculture - research which seeks to:

- De-risk investment in new, emerging, and established industries by identifying barriers and providing solutions.
- Support the development and growth of established industries by identifying value-add opportunities, new markets, improving supply chains, enhancing productivity, developing workforce skills, capacity and capabilities, and improving decision-making processes and policy frameworks to enable solutions to be implemented.
- Advance new industries through developing and testing new production and agronomy systems, crop varieties, animal species, new crop, and animal breeding techniques, and building research and workforce capabilities to support and maintain this work.
- Develop new economic and business models which support on-Country Indigenous enterprise.

Northern Australia health service delivery - research which seeks to:

- Improve health-seeking behaviours of northern Australians by improving access to information, health care professionals, diagnostic tools, and treatment options.
- Improve the early detection of diseases through the development of new technologies which assist with the flow of information, support timely decision-making and treatment options, improve access and connectivity to existing technologies, enhance workforce skills, and capability to use new or existing technologies.
- Improve access to mental health treatment, diagnostic tools and technologies, and enhance workforce skills and capabilities in delivering treatment and diagnosis.

Traditional Owner-led business development - research which seeks to:

- De-risk investment in Traditional Owner-led enterprise which is supported by communities by identifying challenges and providing solutions.
- Enhance the skills and capabilities of Indigenous and Torres Strait Islander peoples and provide a pathway to building an industry-ready skilled workforce in the fields of agriculture, food, and health service delivery.



6. Research impact

The CRCNA's pathway to impact will be tracked through the successful delivery of its six research programs and measured by its ability to deliver against its strategic impacts, as shown in Figure 3.

The CRCNA is currently developing an impact-tracking tool and intends to deliver annual impact-tracking assessments at the end of each financial year. Impact, in this case, will not just consider the impact of the usage of the research but also the outcomes which emerge from the research processes undertaken.

6.1 Outcomes in action

Research outcomes will provide the evidence-base for:

- investment-planning and decision-making required to support development across northern Australian.
- capitalise on existing and emerging agricultural export opportunities.
- improve the delivery of health care services to communities across the region.

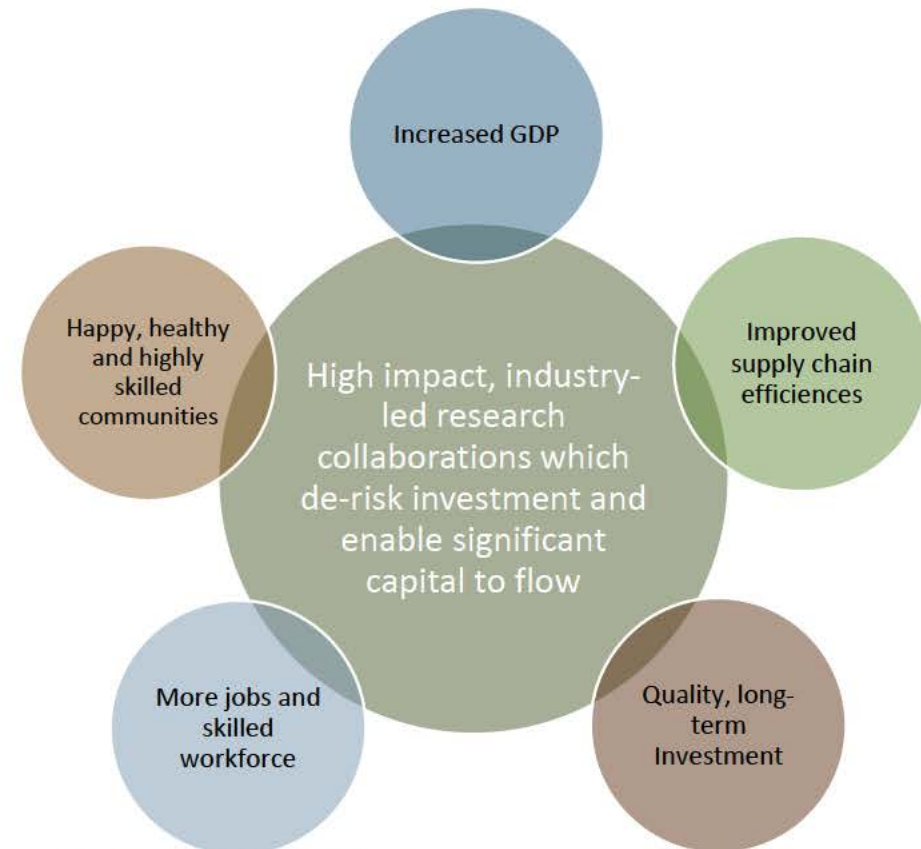


Figure 3 CRCNA strategic objectives

The CRCNA is firmly positioned to be a voice for the north - its research outcomes are communicated clearly to the Northern Australian Senior Officers Networking Group (NASONG), which supports and advises the Federal Ministerial Forum on Northern Development.

7. Research programs

Table 1 outlines the CRCNA's six research programs and how they align with the CRCNA's broader strategic objectives and investment prioritisation.

Research program	Objective
1. Building potential in northern Australia	<ul style="list-style-type: none"> • To find the policy and regulatory solutions to facilitate northern Australian development, particularly in the areas of agriculture, health service delivery, and Traditional Owner-led business. • Progress de-risking of agricultural investment. • Identify priority investors • Deliver emerging market and sector capacity situational analysis for cropping, beef, rice, horticulture, forestry, aquaculture, Indigenous agriculture, health service delivery and communications. • Support regional development by investing in projects which deliver supply chain gap analysis and identify critical infrastructure needs in regional contexts.
2. Supporting new and developing industries in northern Australia	<ul style="list-style-type: none"> • Grow and improve emerging industry sectors and help establish new industries in northern Australia.
3. Investing in production and supply chain innovation in northern Australia	<ul style="list-style-type: none"> • Improve specific industry supply and production chains. • Deliver research which develops new technologies, efficiencies, and approaches which are game-changers for northern Australia.
4. Building industry and community capacity in northern Australia	<ul style="list-style-type: none"> • Build workforce skills and capacity, develop sectors and create a prospectus which enhances investment in agriculture and food, health service delivery and Traditional Owner-led business development.
5. Developing northern Australian service delivery innovation	<ul style="list-style-type: none"> • Create strategic breakthroughs which deliver innovation in logistics, business models and health service delivery models.
6. Developing and delivering an Industry-focused education and training program	<ul style="list-style-type: none"> • Build the strategic research skills and capacity in northern Australia in the areas of agriculture and food (including aquaculture), health service delivery sectors and Traditional Owner-led business sectors.

7.1 Initial investment profile



Figure 4 CRCNA investment prioritisation

Figure 4 provides an overview of how the organisation has structured its initial investment planning. This pyramid is informed by the White Paper, open funding calls, and feedback from CRCNA stakeholders and strategic partners.

The White Paper and the work leading to its development identified several impediments and barriers to investment and development in the north. The CRCNA seeks to resolve these barriers by developing and investing in research collaborations focused on informing strategic policy development.

An initial open funding call identified opportunities to resolve long-standing challenges facing individual industries through trialling and adopting new technologies, systems or models.

The CRCNA has used this initial funding call to identify common challenges and barriers across sectors, which have required a whole of sector analysis.

7.2 Contracted research projects

7.2.1 Developing solutions at a strategic policy level – de-risking the investment landscape of northern Australia

The Northern Australian Senior Officers Networking Group (NASONG) and the CRCNA have reached a broad agreement about three priority areas of policy-focused research effort which could assist the northern Australian agricultural development agenda. These include:

- **Priority 1: De-risking investment opportunities for agricultural development**
- **Priority 2: Pan-Northern industry sector development priorities**
- **Priority 3: Progressing Austrade and other preferences for attracting quality investment**

Informing policy : Project name and description	Project participants	Research locations	Total CRC funding	Total project value
Capturing the ASEAN agricultural opportunity for northern Australia working with AustCham ASEAN in Singapore to identify markets and Industry commodities in ASEAN	Australian Chamber of Commerce ASEAN Singapore	Townsville, ASEAN	\$110,000	\$110,000
Communications (digital inclusion) situational analysis project will investigate the impacts and relevance of digital inclusion for developing northern Australia.	Queensland Univesity of Technology, Premise, James Cook University, Charles Darwin University, Centre for Appropriate Technology, Regional Development Australia – Northern Territory	Brisbane, Toowoomba, Cairns, Alice Springs, Darwin, Karratha	\$145,000	\$288,933
Re-framing northern Australian supply chains will develop a case for a freight equalisation scheme	James Cook University, Charles Darwin University	Darwin, Cairns, Mackay, Rockhampton, Broome, Townsville, Dampier, Karratha, Mt Isa	\$110,000	\$155,000
Northern Australian investor identification and analysis working with Austrade, trade commissions & WA, NT and Qld Govt to identify possible agriculture development investment	Austrade, PwC	Darwin, Brisbane, Perth	\$175,000	\$215,000
Business on Country: Land use diversification on the Indigenous Estate focuses on developing a framework for north Australian development and fee for services sector across the Indigenous Estate.	North Australian Indigenous Land and Sea Management Alliance, Charles Darwin University, Nature Conservation Australia Trust	Darwin, Broome, Cairns	\$363,636	\$1,000,177

7.2.2 Sector and regional supply chain development – clarifying the problem, framing the issues and solutions

Expected outcomes from research collaborations

Some of the expected outcomes and outputs from the sector and regional development collaborations include:

- Identifying common 'pain points' across sectors
- Informing discussions on further policy, investment, research and development issues for the Ministerial Forum consideration
- Advising new partnerships, alliances, or collaborations
- Identifying further research and development opportunities

Industry sector development: Project name and description	Project participants	Research locations	Total CRC funding	Total project value
Beef industry situational analysis project will examine current northern Australian beef industry SWOT.	CSIRO, Northern Territory Cattleman's Association, Catt'e Council of Australia, Kimberley Pilbara Cattleman's Association, AgForce, Meat and Livestock Australia	Townsville, Darwin, Broome, Brisbane, Canberra	\$181,163	\$470,146
Aquaculture industry situational analysis project will examine current northern Australian aquaculture industry SWOT.	James Cook University, CSIRO, Blueshift, Australian Prawn Farmers Association, Australian Barramundi Farmers Association, Indigenous Land and Sea Council	Townsville, Darwin, Broome, Torres Strait	\$199,948	\$420,192
Rice industry situational analysis project will examine current northern Australia rice industry including wild rice and northern Australian specific domestic rice.	Queensland Alliance for Agriculture and Food Innovation – University of Queensland, Charles Darwin University, Olive Vale Pastoral, Savannah Ag, WA Primary Industry and Regional Development, SunRice	Darwin, Cairns, Mareeba, Brisbane, Kununurra	\$100,000	\$505,136
Forestry industry situational analysis project will examine current northern Australia forestry industry SWOT.	Timber Qld, NT Department of Primary Industry and Resources, Qld Department of Agriculture and Fisheries, Sunshine Coast University	Brisbane, Sippy Downs, Cairns, Darwin, Nhulunbuy, Broome, Kununurra	\$100,000	\$209,327

Project name and description	Project participants	Research locations	Total CRC funding	Total project value
Health services sector situational analysis will focus on improving digital health service delivery examine policies and planning to deliver enhanced communication infrastructure and health service delivery models in northern Australia.	James Cook University, Cairns and Hinterland Hospital and Health Service, on behalf of the Tropical Australian Academic Health Centre, Northern Territory of Australia - Top End Health Service, the Rural Clinical School of Western Australia, University of Western Australia	Townsville, Cairns, Weipa, Thursday Island, Mt Isa, Mackay, Longreach, Darwin, Tennant, Creek, Katherine, Nhulunbuy, Alice Springs, Broome, Kununurra, Karratha, Port Headland	\$149,534	\$249,597
Building the Traditional Owner-led bush products sector will develop a strategic sector development and research priority framework and investment plan which will guide future place-based sector development and research.	CSIRO, Kimberley Land Council, Girrigun Aboriginal Corporation, Tropical Indigenous Ethnobotany Centre, IN-Group Investments, Australian Native Food and Botanicals	Canberra, Darwin, Cairns, Broome, Cardwell, Townsville, Brisbane	\$70,909	\$266,738
Evaluation of the potential to expand horticultural industries in northern Australia will examine avocado, lychees and mango sectors.	Queensland Alliance for Agriculture and Food Innovation – the University of Queensland, Qld Department of Agriculture and Fisheries, NT Department of Primary Industry and Resources, WA Primary Industry and Regional Development,	Mareeba, Dimbulah, Bowen, Ayr, Rockhampton, Brisbane, Kununurra, Carnarvon, Darwin, Katherine, Mataranka, Singapore, China, South Korea	\$181,818	\$437,720
Exporting perishable commodities to will examine the nature of and processes involved with stakeholder's collaboration in planning and investment for exporting high-value perishable products of northern Australia to Asian markets.	Central Queensland University, Growcom, Rockhampton Regional Council, Tropical Pines, Passionfruit Aust, Qld Department of Agriculture and Fisheries, Qld Department of State Development	Rockhampton, Bowen, Emerald	\$235,455	\$550,910



Regional development: Project name and description	Project participants	Research locations	Total CRC funding	Total project value
North Queensland agricultural market and supply chain study – An examination of emerging markets and supply chains to improve NQ agricultural sector access to markets. Completed	Townsville Enterprise, North Qld Region of Councils	Townsville, Ayr, Charters Towers, Ingham, Palm Island	\$227,273	\$427,273
Mackay, Whitsundays, Isaac region export supply chain study will examine market opportunities for CQ agricultural commodities.	Greater Whitsunday Alliance, Bowen Gumlu Growers' Association, North Qld Bulk Ports, Regional Development Australia: Mackay-Isaac-Whitsunday	Mackay, Prosperine, Bowen, Clermont	\$96,000	\$196,904
FNQ export supply chains will examine market opportunities for FNQ agricultural commodities.	Advance Cairns, Cairns airport, FNQ Ports, Airfreight Handling Services, Qld Department of Agriculture and Fisheries, James Cook University, Far North Qld Region of Councils	Cairns, Mareeba, Atherton, Mourilyan, Cooktown, Karumba, Weipa	\$200,000	\$426,000

7.2.3 Industry-led research collaborations – understanding the issues, challenges, and barriers to investment

Expected outcomes and outputs from industry-led research collaborations:

- A new technology
- A new model of service delivery or care
- Proof of concept/s
- Implementation and adoption strategies
- New partnerships, alliances, or collaborations
- Foundation for further R&D investment

Industry-led research: Project name and description	Project participants	Research locations	Total CRC funding	Total project value
Developing a broadacre cropping sector in north Queensland will work with existing and new grain growers, and the agribusiness sector, within the Gulf River catchments to develop local cropping systems and agronomic skills.	Qld Department of Agriculture and Fisheries Brendan Fry, Grains Research and Development Corporation	Georgetown, Qld	\$299,989	\$1,581,959

Industry-led research: Project name and description	Project participants	Research locations	Total CRC funding	Total project value
Developing an oilseed industry in northern Australia aims to identify a range of adapted oilseed crops that can reach commercial capacity and be a high-value component of a north Australia cropping system.	Savannah Ag Consulting, Olive Vale Pastoral P/L, The Lakelands Farming Trust, MSF Sugar P/L Grains Research Development Corporation	Laura, Lakeland, Mareeba, Cairns, Innisfail, Walkamin	\$300,000	\$1,520,500
Strengthening northern Australia's horticultural sector through assessing protected cropping will bring industry stakeholders and government organisations across northern QLD, NT, and WA to help growers identify new investments to scale-up commercial protected cropping.	Qld Department of Agriculture and Fisheries, WA Department of Primary Industries and Regional Development, Carnarvon Growers' Association, NT Farmers Association, Cravo Australia P/L, Port of Townsville Ltd, Pirrone Brothers Produce	Townsville, Bowen, Gumlu, Ayr, Perth, Carnarvon, Lake Bennett (NT),	\$100,000	\$443,045
Smart supply chain mangoes will focus on developing and implementing a solution to measuring the quality of food as it moves through the supply chain using blockchain technology.	T-Provenance, Growcom, Manbulloo Ltd	Adelaide, Katherine, Burdekin, Mareeba	\$272,727	\$427,273
Transforming mango futures will trial commercial-scale new intensive orchard techniques.	Qld Department of Agriculture and Fisheries Manbulloo Ltd, BJM Enterprises, Aust. Mango Industry Association	Mareeba, Ayr, Katherine	\$500,000	\$1,182,179
Biosecurity in northern Australian prawn aquaculture is a comprehensive biosecurity audit of prawn aquaculture farms seeking to identify known and unknown pathogens and develop risk management strategies for industry.	JCU, Australian Prawn Farmers Association	Mossman, Cardwell, Ayr, Logan	\$309,091	\$690,755

Industry-led research: Project name and description	Project participants	Research locations	Total CRC funding	Total project value
Sustainable export supply chains for Calypso mangoes to China will identify and see to resolve quality constraints which impact on supply chain confidence and profitability into China.	Perfection Fresh, DAF, UQ	Katherine, Mataranka, Litchfield Shire, Mareeba, Dimbulah, Ayr, Bundaberg	\$952,471	\$2,245,551
Building horticulture production knowledge and capacity within Indigenous enterprise will train Indigenous workforce to grow market crops and transfer knowledge to traditional bush foods.	Growcom, Mungalla Aboriginal Business Corporation, Gudjuda Aboriginal Reference Group	Home Hill, Ingham	\$52,363	\$185,091
Establishing eye screening services to prevent avoidable blindness will implement new eye screening cameras and train staff in remote health service locations.	CSIRO, Qld Dept Health, Laynapuy Homelands Aboriginal Corporation, Marthakai Homeland and Resource Centre Aboriginal Corporation	Mt Isa, Thursday Island, Yirrkala, Nhulunbuy, Galiwinku	\$800,000	\$1,636,362
Northern Australia Tropical rock oyster research and development (Northern Territory and Western Australia) this project will focus on identifying best performing tropical rock oyster species for Northern Territory and northern Western Australia and developing local hatchery and grow-out systems and capabilities as a means of establishing a northern Australian rock osier industry.	NT Department of Primary Industry and Resources (NTDPIR), DigsFish Services Pty Ltd, Yagbani Aboriginal Corporation, Anindilyakwa Land Council WA Department of Primary Industry and Regional Development (WADPIRD), Maxima Rock Oyster Company, Athair Aquaculture (Albany Shellfish Hatchery), Murujuga Aboriginal Corporation, Hexcyl Systems Pty Ltd, ZAPCO Aquaculture, SEAPA	Darwin, South Goulburn Island, Groote Eylandt, Townsville Dampier, Cone Bay, Hillarys (Perth),	\$1,200,000	\$4,124,090

7.2.3 Enabling a future-ready workforce – building education, training, and research capacity across northern Australia

The CRCNA's Education Program focuses on building this strategic capacity in the areas of agriculture, food, and health service delivery and aims to attract, upskill and retain researchers to ensure the local agricultural and health industries maintain their competitive advantage. The CRCNA Program is delivered across three key areas, as outlined below:

1. Postgraduate students	2. Workforce development	3. Vocational or Undergraduate student development
Providing generous scholarships for Postgraduate research students (Masters and PhD) to study in northern Australia. Scholarship amounts are up to \$50,000 p.a.	Providing professional development opportunities for current students or early and mid-career researchers.	Providing opportunities for Work Integrated Learning experiences in northern Australia for vocational or undergraduate students

8. Project pipeline (CRCNA has committed funds to the project but is yet to finalise contracts)

Project name and description	CRCNA funding commitment
Identifying policy and regulatory barriers to development – Queensland, Northern Territory and Western Australia Governments will work with the NASONG to examine critical constraints and propose innovative policy solutions which facilitate agricultural development while achieving significant environmental and social outcomes for northern Australian communities.	\$200,000
Developing NT cropping sector will coordinate and accelerate the establishment of large scale broadacre irrigating cropping in the NT.	\$310,257
Improving supply chains of Kimberley barramundi will seek to enhance the genetics of fingerlings.	\$600,000
Bushfoods industry situational analysis project will undertake SWOT of current industry & examine future opportunities	\$150,000
Growing high-value food and fibre exports from northern Australia develop technical support across a range of crops & products to grow exports from Darwin airport.	\$1,000,000
Co-mapping on Country will work Traditional Owners to identify place-based development opportunities for Traditional Owners in the Northern Territory.	\$400,000
Northern Australia broadacre cropping situational analysis will deliver a supply chain gap analysis and sector capacity baseline study to assist in guiding future investment, strategy development and planning.	\$250,000
North Queensland supply chain study – Phase 2 will deliver an action plan to implement the outcomes and recommendations from the three regional supply chain projects with Greater Whitsunday Alliance, Advance Cairns and Townsville Enterprise.	\$180,000



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