

Australian Government Department of Industry, Innovation and Science

Office of Northern Australia



DEVELOPING NORTHERN AUSTRALIA

Implementation Report 2018

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- Geoscience Australia Government of Western Australia Interdepartmental Committee on Northern Australia James Cook University Joint Standing Committee on Northern Australia Ministerial Forum on Northern Development Indigenous Reference Group to the Ministerial Forum on Northern Development National Energy Resources Australia Northern Australia Advisory Council Northern Australia Alliance Northern Australia Infrastructure Facility Northern Regional Development Australia Alliance Northern Australia Senior Officials Networking Group Northern Australia Strategic Partnership National Health and Medical Research Council Northern Territory Government Queensland Government

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Our North, Our Future | 2018 Implementation Re

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Message from the Minister



Senator the Hon Matthew Canavan, Minister for Resources and Northern Australia

I am pleased to share this Implementation Report to showcase the achievements to date, and as an invitation to the journey ahead in developing northern Australia.

A strong and prosperous north is critical to Australia's economic future. The Australian Government's *Our North, Our Future: White Paper on Developing Northern Australia* has laid the right foundations for economic growth to maximise the north's potential. The north is already becoming an even more attractive place to live and do business, and its contribution to Australia's prosperity is growing.

Three years into our 20-year nation building agenda we have made strong progress, and the White Paper is on track. Thirty-eight of the 51 White Paper commitments are now delivered. We have invested over \$6.2 billion in a reinvigorated development agenda.

By delivering on roads and water infrastructure, and initiatives such as the Cooperative Research Centre for Developing Northern Australia and the Northern Australia Infrastructure Facility, the Australian Government is creating the environment that encourages business growth, jobs and investment.

There are exciting new opportunities for water storage arising from the Northern Australia Water Resource Assessments. This unprecedented work demonstrates that we can harness the water of our north and develop new, and even more successful northern frontier agricultural opportunities. Productivity improvements are being delivered in horticulture, aquaculture, transport industries, and logistics chains through the Cooperative Research Centre for Developing Northern Australia.

We have new leadership and cooperation between all levels of government, led by the Ministerial Forum on Northern Development, supported by the Indigenous Reference Group and the Northern Australia Advisory Council.

Transformative infrastructure is being rolled out. The northern roads packages in the White Paper are advanced and the government has committed a further \$1.5 billion for additional northern roads under the Roads of Strategic Importance initiative. The Northern Australia Infrastructure Facility has approved loans contributing to projects totalling more than \$1.35 billion and continues to build its project pipeline.

The people of northern Australia have an entrepreneurial drive and passion for economic development which is a great asset for the nation. As this Implementation Report shows, the north is well on its way, but there is more to do.

The Australian Government's commitment to northern Australia is to create the foundations for an economic powerhouse, using new research and technology, accessing new markets, and leveraging deep experience and traditional knowledge.

I encourage everyone to get involved in our transformative agenda.

October 2018

Senator the Hon Matthew Canavan, Minister for Resources and Northern Australia



Today's North

The challenge

Northern Australia comprises all of the Northern Territory and those parts of Western Australia and Queensland above the Tropic of Capricorn. It has a large, naturally beautiful and highly valued resource base; a diverse cultural landscape; and a growing workforce. It is also the nation's gateway to Asia. The north makes an enormous contribution to the Australian economy, particularly through mining, agriculture and tourism. While the region is already a productive part of Australia, there are big opportunities for targeted development, with room to grow existing and new industries. The challenge is to facilitate the north's vast economic potential.

The response

The government's plan to unlock the north, *Our North, Our Future White Paper*, was released in 2015. The White Paper includes commitments of over \$6 billion, spread across a 20-year implementation schedule, and outlined in 51 measures. This is an ambitious agenda that has set the foundation for the long-term development of northern Australia. The agenda is on track and gathering pace. Three years into implementation of the White paper, the government has delivered on 38 measures and longer-term initiatives are underway. The agenda is supported by aligned national initiatives such as the *Agricultural Competitiveness White Paper and the 2016 Defence White Paper*, and by agencies such as the Major Projects Facilitation Agency, which provides facilitation and coordination services to major project proponents in the north to help support an efficient Australian Government approvals process.

We recognise that unlocking the north's full potential is not without challenges. As a government we have made a long-term commitment and we are working in partnership across all levels of government, industry and community.

It is an ambitious agenda and there is still much work to be done.

Where we are today

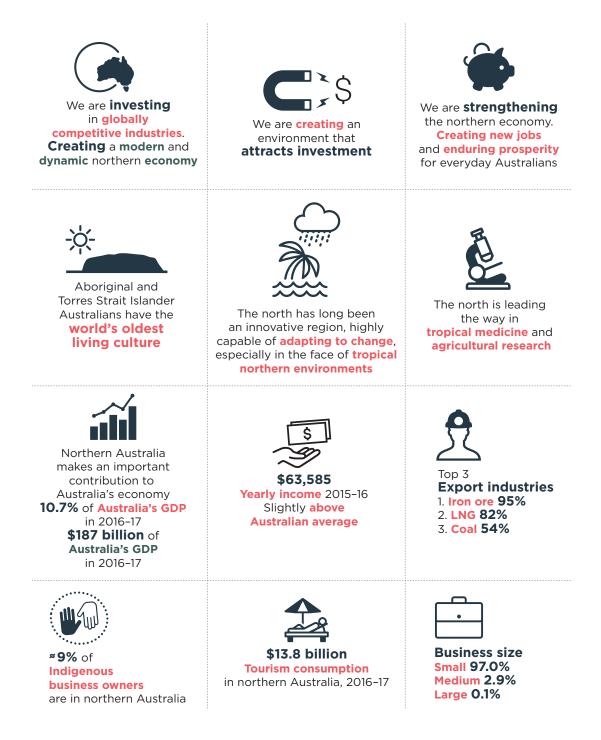
After three years of implementation we are seeing the impact of measures from the White Paper. Roads are being planned and built, concessional finance is supporting major new projects, industry-led research and innovation is driving increased productivity, and trade and investment links are being forged and strengthened. This Implementation Report outlines progress made to date.



White Paper Timeline



Spotlight on northern Australia





people call the north home 0.4% population increase over the past five years



The north has a young and diverse population with a medium age of 35-39 years and approximately **15%** of the population **born overseas**





 Health care and social assistance 13%
 Retail trade 10%
 Construction 9%



\$5 billion available for investment through the Northern Australia Infrastructure Facility



\$75 million Committed for industry-led research through the Cooperative Research Centre for Developing Northern Australia



Darwin has the busiest live cattle and buffalo export port in Australia



\$1.5 billion will be invested in Roads of Strategic Importance. \$700 million invested in Northern Australia Roads and Beef Roads



\$252 billion worth of sea exports
from northern Australian ports.
57% of total Australian sea exports in value terms

53% of Australia's land mass

8% of Australia's irrigated land



\$231 million invested in identifying and fast-tracking water infrastructure development

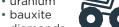


\$34.6 billion GDP Earnings from the Pilbara alone That's larger earnings than 115 of the world's countries

Northern Australia holds **world-class deposits** of:



- oil and gaslithium
- uranium



diamonds

1000

Harvesting northern water resources

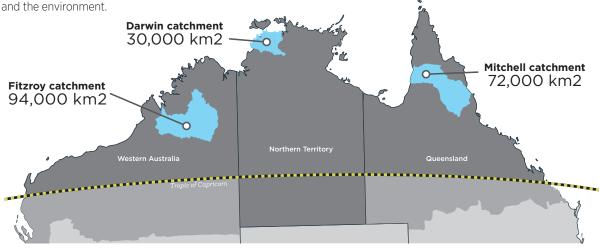
Facilitating project success

When embarking on major commercial and infrastructure projects, proponents navigate a large number of regulatory frameworks. To ensure that this process occurs as smoothly as possible, the Australian Government situated an office of the Major Projects Facilitation Agency in Darwin to better service the north. The Agency is working with a wide range of stakeholders to minimise barriers within government, and help prospective major projects in the north to be realised.

Making water count

Water is critical to the northern development agenda. The *Our North, Our Future* White Paper identified the need for a more efficient, modern and sustainable water industry. Predicting and meeting demand by new water users across the north requires further information and analysis. This work must also take account of the long-term needs of the community, industry and the environment. The Agricultural Competitiveness and *Our North, Our Future* white papers' commitments to support investment in northern water infrastructure has seen the establishment of the \$580 million National Water Infrastructure Development Fund (the fund) and the \$2 billion National Water Infrastructure Loan Facility. These measures are helping to secure water supplies and meet future demand while protecting the environment.

Over \$231 million of the fund has been allocated for northern Australia water projects. Fifteen water infrastructure feasibility studies have been commissioned, with nine studies already completed and all studies expected to be completed by the end of 2019. The Australian Government has committed \$176.1 million for the Rookwood Weir, \$3 million for the modernisation of the Nogoa Mackenzie Water Supply Scheme and \$11.6 million for the modernisation of the Mareeba-Dimbulah Water Supply Scheme in Queensland.



Map showing Fitzroy catchment, Darwin catchment and Mitchell catchment.

53% of Australia's land mass 8% of Australia's irrigated land



Across northern Australia agriculture is the biggest water user. In the Burdekin and the Ord, **urban users** account for just **1%** of water used. (Source: Bureau of Meteorology, *National Water Account 2017*)



Across northern Australia **^94%** of **annual rainfall** falls **November-April**. (Source: Northern Australia Land and Water Science Review)

Case study: Development through new water infrastructure

Organisation: CSIRO Location: Fitzroy catchment, WA; Darwin catchment, NT; Mitchell catchment. Qld

The push for water infrastructure development in northern Australia is gaining momentum. The government's White Paper committed \$15 million to the Northern Australia Water Resource Assessment (NAWRA) initiative, undertaken by the Commonwealth Scientific and Industrial Research Organisation (CSIRO). This landmark scientific analysis delivers unprecedented water catchment data, providing investors with enough information to de-risk their financial commitment to large scale infrastructure developments in the north.

The NAWRA focusses on the three most significant water catchments in northern Australia having the potential for irrigated agricultural development. These are the Mitchell River catchment in Queensland, the Fitzroy River catchment in Western Australia, and the Finniss, Adelaide, Mary and Wildman river catchments near Darwin in the Northern Territory (Darwin catchment). The NAWRA arms stakeholders with new knowledge about the potential of northern Australia's water resources to encourage regional development. It also underpins a push to attract new investment for up to six dams. Proposed dam sites are the Pinnacles site on the Mitchell River and the Rookwood site on the Walsh River; as well as sites on the upper and off-stream Adelaide, Palmer and Lynd rivers which have significant off-stream water harvesting opportunities.

CSIRO research has identified 387,000 additional hectares with the potential for agricultural crops such as sugar cane and cotton. The assessments also identify another 710,000 hectares of coastal land that could accommodate lined aquaculture ponds.

Any new water storage infrastructure will need to be developed in careful consultation with Indigenous interest groups and local communities. Working to create a more efficient, modern and sustainable water industry requires partnership s at all levels.

To find out more about the Assessment and its findings, go to: www.csiro.au/NAWRA.

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'What the report does—and what the work for us has done—is shows what's possible; how much land, how much water, and where do they come together that would allow developments to happen' explains Dr Chris Chilcott, CSIRO northern Australia research leader. 'And then it allows people to make decisions about how they might do that.'

Building visions. Creating reality.

Developing world-class infrastructure

We are building stronger infrastructure to benefit all who live, work, trade and travel in the north—locals and tourists alike. To underpin economic growth, the Australian, Queensland, Northern Territory and Western Australian governments are co-investing in critical road and water infrastructure, and are facilitating major projects across the north. These infrastructure projects are creating jobs and will support the region's economic growth.

Building better connections

The Northern Australia Roads Program and Northern Australia Beef Roads Program continue the government's commitment to developing world-class infrastructure. Together, these programs commit \$700 million across 37 projects to improve safety and access to services, and to better connect communities and businesses to domestic and international markets. Almost half of the projects are either completed or underway, with the majority of remaining projects to commence by early 2019. These initiatives are making an impact. On current estimates these road upgrades will create up to 2,400 direct local jobs, and will create significant employment opportunities for Indigenous people. Through the inclusion of Indigenous employment and business use targets these projects are providing Indigenous Australians with greater opportunities to access employment opportunities or to start or expand businesses.

In Budget 2018–19, the government announced a new initiative, Roads of Strategic Importance (ROSI), which invests an additional \$1.5 billion directly in northern Australia. These funds will upgrade key corridors across northern Australia to better connect industry and producers to markets, and provide more reliable and safer transport links for freight, tourism and community road users. In the north, extreme weather events can make roads impassable for weeks at a time leaving business and industry without a route to market, and so disrupting local and global supply chains.

ROSI will expand on the work done through the Northern Australia Roads and Beef Roads programs. Funding is available over a ten-year period from 2018–19 and will ensure a continuous pipeline of road upgrades after the current programs are complete. The Australian Government will work with jurisdictions and other stakeholders to identify strategic road corridors that will deliver maximum benefits for producers, businesses and residents of the north. This investment in road infrastructure will grow the northern economy and create jobs through to 2028.



Improved infrastructure makes practical differences to industries and businesses in the north. Speaking on the need for better roads, Sam Nastasi, a north Queensland mango producer says 'the difference it would make for us to have these highways sealed is that it would give us access to the southern markets at times of the year when we have the wet season when our mangoes are produced. At that time of year we have risks of flood.'

Case study: On the road to better infrastructure

Organisation: NAIF, Pilbara Minerals Ltd Location: Pilbara, WA

Lithium has recently become a globally significant commodity with demand rising sharply and prices tripling since 2010. Stronger conditions reflect rising demand for lithium batteries in electric vehicles, laptops, phones, medical equipment and renewable energy devices. The north has enormous potential to move to the centre of the global lithium supply chain given its geological advantages, its experience in rolling out mining investments and the skills of its workforce.

A NAIF loan worth \$19.5 million will boost lithium exports from the Pilbara. The loan is for upgrades to a 70 km section of public Pippingarra Road from Pilbara Minerals' Pilgangoora Lithium-Tantalum Project, one of the world's largest known deposits of lithium ore. The road will remain publicly owned and provide multi-use benefits for years to come.

NAIF CEO Laurie Walker says 'The project avoids traversing three significant railway crossings and provides a safer alternative to the current trucking by keeping heavy vehicles off a large part of the Great Northern Highway.' The Pippingarra Road upgrade will make transporting lithium from the mine to the port a safer and more efficient process. It will also improve safety and travel times for others, including local residents, tourists, pastoralists and Indigenous communities. NPJV, an Indigenous joint venture between Njamal Services Pty Ltd and Pilbara Resource Group Pty Ltd, has already been subcontracted on preliminary roadworks. Additional employment opportunities during construction and in ongoing maintenance will be offered to local Indigenous people and businesses.

This Investment Decision demonstrates NAIF's ability to improve productivity in northern Australia through its Investment Mandate. Commercial lenders were unable to provide the funding required to advance this project because Pippingarra Road is a publicly owned asset.



Case study: Djarindjin Aboriginal Corporation

Organisation: Djarindjin Aboriginal Corporation Location: Broome, the Browse Basin, Dampier Peninsula, WA

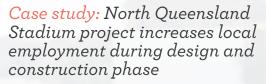
Airports play a significant role in economic development, moving people and goods across the north. The Djarindjin Aboriginal Corporation is an innovative Indigenous business operating a helicopter refuelling service in remote northern Western Australia. The airport is staffed solely by Indigenous workers and is one of a handful of airports in the country with a world-class hot refuelling service for helicopters.

The airport is an important link to natural gas projects in the Browse Basin. It is used for refuelling helicopters that carry supplies to offshore oil and gas rigs. The airport currently services up to 24 helicopters a day due to the commissioning of several major projects in the area. Djarindjin airport is also an important asset to surrounding communities because it facilitates patient transfers for the Royal Flying Doctor Service.

More information on the Djarindjin airport can be found: <u>http://www.broomeair.com.</u> au/bia-heliport/djarindjin/.

Caption: Djarindjin airport worker

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Organisation: NQ REO Location: Townsville, Qld Government: Department of Infrastructure, Regional Development and Cities: Queensland Government; Townsville City Council

Local Townsville business NQ REO Pty Ltd was awarded construction work packages for the \$250 million North Queensland Stadium. Since February 2018, NQ REO has employed an additional 38 people including five Indigenous apprentices.

The stadium project has delivered new business for local companies. 38 of the 45 trade packages have gone to local companies and a further 396 local businesses have been engaged in the extended supply chain. This equates to almost \$100 million going to local businesses during the design and construction phase and locals will continue to benefit during the operation of the stadium.

'The knock-on effects have been huge' says Cr Les Walker, Deputy Mayor of Townsville. 'The confidence, the investment, the jobs have really stepped up during this period and we have seen some great benefits for the region.'

The North Queensland Stadium was funded as part of the Townsville City Deal signed in December 2016. It is a joint project of the Australian and Queensland governments, and the Townsville City Council, and is supported by both the National Rugby League and North Queensland Cowboys. The project is a significant contribution to infrastructure expansion in northern Queensland.

Learn more about the North Queensland Stadium: https://www.statedevelopment.qld.gov.au/majorprojects/north-queensland-stadium-the-project.html

Northern Australia Infrastructure Facility (NAIF)

The Australian Government has provided \$5 billion over five years through the NAIF to encourage and complement private sector investment in infrastructure that drives economic and population growth in the north.

What is the NAIF?

The NAIF's primary purpose is to transform northern Australia by financing infrastructure that: generates public benefit (outside that captured by the project); facilitates longer-term economic and population growth in northern Australia; enables greater private sector participation in financing infrastructure; and ensures sustainable Indigenous participation, procurement and employment.

NAIF financing can assist in:

- opening new markets and developing new, more reliable supply chains
- reducing business costs through improved productivity and job creation, and encouraging population growth by helping to attract and retain workers
- making better use of existing infrastructure, for example by improving capacity, safety and usability to overcome seasonal and other supply chain constraints
- helping to overcome diseconomies of scale by developing pathways to co-sharing and multi-user access to infrastructure.

NAIF is accelerating development to help unlock economic and growth opportunities. It has been established to lend on different, more concessional terms than commercial lenders are able to offer. For example, NAIF can offer lower interest rates, defer the period when interest or principal is payable, and offer longer loan tenors—currently up to 28 years, compared to five to seven years from commercial lenders. These concessions fill gaps in the infrastructure financing market and help the viability of projects which otherwise, would be unlikely to proceed; would only proceed at a much later date; or would proceed with a more limited scope.

To drive economic development in northern Australia, NAIF must have regard to a preference for a diversified portfolio, including industry and geographic spread across the states and territory that comprise northern Australia.

Investment Mandate amendments

The Australian Government recently improved NAIF's ability to support projects that create economic opportunities in the north. In April 2018, the NAIF Investment Mandate changed to increase the portion of a project that NAIF can finance, and the types of infrastructure that are eligible for finance. NAIF can now lend up to 100 per cent of debt for eligible projects, provided there is appropriate risk sharing.

The NAIF can consider infrastructure reflecting the needs of regional and remote areas in northern Australia jurisdictions. Examples of eligible assets are: ports, airports, rail, roads, water, energy and communications networks, social infrastructure (including health, education and research facilities, training facilities and related accommodation), processing facilities (including abattoirs and agricultural processing plants) and transhipment vessels.

To date, Investment Decisions and Conditional Approvals made by NAIF have contributed to projects with a total capital value of \$1.35 billion.

Humpty Doo Barramundi, Northern Territory

Humpty Doo Barramundi is a family-run Northern Territory business. Since starting in 1993, it has grown to become the largest producer of farmed barramundi in Australia and the second-largest producer on a single site, globally. NAIF is financing the first of a three-stage infrastructure program, with an initial \$7.18 million commitment and a potential for \$30 million NAIF loan overall. The first stage includes the construction of a solar farm and a fish nursery, and the project will double the number of employees from 50 to 100, increasing recruitment and retention of Indigenous employees. The project will also generate renewable energy from the solar farm, and enable medium-sized fish to be sold to other barramundi farms, further establishing aquaculture in the north.

Onslow Marine Support Base, Western Australia

NAIF is providing \$16.8 million to the Onslow Marine Support Base project in the Pilbara to widen and deepen the Onslow channel and expand the wharf. The project will increase the capacity of the Onslow Base, which is being developed into a world-class service hub for vessels of any size operating throughout north-west Western Australia's offshore oil and gas fields. This project will open up regional and industry opportunities in the northern Carnarvon Basin region of Western Australia and will keep business in northern Australia that would otherwise go offshore.

Investing in Technology Innovation Complex, Queensland

The NAIF will invest up to \$98 million in the construction of the Technology Innovation Complex on James Cook University's (JCU) Townsville Campus, with the total JCU Enterprise Bundle valued at \$174 million. The Complex will provide contemporary facilities that create space for undergraduate students, industry partners, postgraduate researchers and start-up businesses to collaborate, as the University renews focus on engineering for the tropics. Public benefits attributable to the Enterprise Bundle will be around \$700 million over 30 years. JCU contributes to the regional economy of northern Queensland by employing more than 2,000 full-time equivalent staff, and produced over 2,600 graduates in 2016.

Upgrading critical Pilgangoora lithium project road, Western Australia

A \$19.5 million loan from NAIF will help boost exports of lithium from the Pilbara region. The loan to a subsidiary of Pilbara Minerals Ltd is for an upgrade to the public Pippingarra Road which also provides access to the Pilbara Minerals Ltd-owned Pilgangoora lithium mine.



"We are extremely pleased with the level of support shown by NAIF and the Federal Government as we progress the development of the Thunderbird Mineral Sands Project. NAIF's approval of a concessional loan on the terms and tenor defined in the term sheets is a significant milestone for Thunderbird and will underpin many hundreds of jobs in the Kimberley region over several decades."

Bruce McFadzean, Sheffield Resources Managing Director

Supporting Sheffield's Thunderbird mineral sands project, Western Australia

A \$95 million loan from NAIF will support a zircon and ilmenite mineral sands mining and processing project on the Dampier Peninsula in the Kimberley region. Of the \$95 million, \$30 million will fund capital expenditure for processing plant and other assets or facilities; and \$65 million will fund the construction of a power station, liquefied natural gas (LNG) receiving and storage facility, Derby Port upgrades, and sealed access roads.

Airports Infrastructure Package, Northern Territory

NAIF has announced conditional approval of \$150 million for major upgrades to airport infrastructure in Darwin, Tennant Creek and Alice Springs. The expansion package will include cold storage, an export hub at Darwin International Airport, solar energy farms at Darwin, Tennant Creek and Alice Springs with an offsite multi-use battery, and upgrades at the Alice Springs Airport. The prospective investment is likely to generate 1,000 jobs through the construction phase, support approximately 500 indirect jobs through the supply chain, and create 140 new ongoing positions.

The projects will create significant growth opportunities for the Northern Territory by increasing capacity which will support greater tourist numbers and also allow primary producers to export more fresh agriculture and aquaculture produce direct to market. NAIF's ability to provide an early indication of support for these projects will accelerate their construction and they are now scheduled to commence in early 2019.

Genex Power, Queensland

NAIF has provided an indicative term sheet for a long-term concessional NAIF debt facility for up to \$516 million for Genex's Kidston Stage 2 solar and pumped storage hydro project. This project is expected to create 500 jobs during construction and further demonstrates the capacity of NAIF to contribute to the creation of public benefit in northern Australia.

Building momentum

In 2018–19, the NAIF aims to make between five and ten Investment Decisions committing finance to eligible projects. The value of investments at the end of the year will be up to \$1.65 billion. Reflecting the multiplier effect of NAIF contributions, the total capital value of projects supported by the NAIF by that date is expected to be up to \$2.8 billion.

NAIF involvement has also meant proponents have been able to finance their projects during the planning and approvals phase. NAIF continues to work closely with proponents, investors and other stakeholders to move projects through the assessment process as quickly as possible.

Updated information on the NAIF and its investment pipeline is at: <u>www.naif.gov.au</u>



Looking beyond. Next steps.

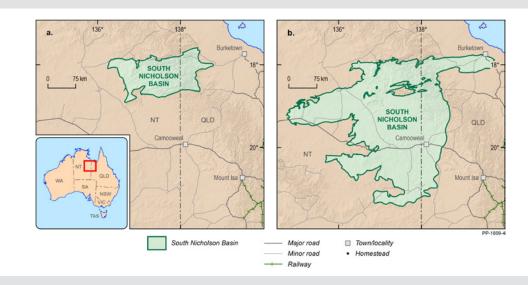
Knowledge is the competitive advantage to unlocking a modern and dynamic economy in Northern Australia. Both drive competitiveness by promoting investment in exploration, development of the North's abundant natural resources, and by increasing the scale of emerging northern industries. Through the White Paper and other aligned initiatives, the government is creating the right environment for industry to develop new innovations in the north.

Driving knowledge creation

Through the Exploring for the Future (EFTF) program, led by Geoscience Australia, the government has invested \$100.5 million over four years to develop new data and information about potential mineral, energy and groundwater resources. This knowledge will be used to increase investor confidence, promoting the north as an even stronger investment destination. Making such pre-competitive data available will secure the next wave of projects in the north and drive new industry and employment opportunities. The data will also inform decisions on exploration, policy and planning for both industry and government.

The first data set—from surveys of the South Nicholson Basin (Qld and the NT)—was released in October 2017. The EFTF has released several major datasets over the last 12 months that are already generating positive interest from industry, including the world's largest airborne electromagnetic survey. More data acquisition is continuing and further public data releases are planned through 2018 and 2019.

Case study: Exploring for the Future delivering results for northern Australia



Organisation and Government: Geoscience Australia Location: South Nicholson Basin, Qld and NT border

New geoscience data has revealed that the South Nicholson Basin is three times larger than previously thought. This is one of the first findings of a study—one of the largest of its kind ever undertaken in Australia—conducted by Geoscience Australia under the government's Exploring for the Future (EFTF) program.

Geoscience Australia and partners used innovative techniques to gather new data and information on a remarkable scale. The mining, equipment, technology and services sectors were contracted to assist, providing new jobs in northern regions.

Caption: Map comparing the old and new outline of the South Nicholson Basin

The study's first release of data dramatically increases geological understanding of this poorly understood region. The data also increases understanding of the potential mineral, energy and groundwater resources hidden underground. This study of the South Nicholson Basin showcases the economic potential of this untapped region and how it can significantly contribute to the northern economy.

This major data acquisition is one of the 17 projects underway in northern Australia. Over the next two years, more data will be collected, processed and compiled for public use. Sharing this transformative knowledge should encourage future investment in exploration and commodity projects, and will deliver real benefits to the north.

More information on the Exploring for the Future Program can be found: http://www.ga.gov.au/eftf

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Case study: Metal parts in minutes

Organisation: SPEE3D, Charles Darwin University Location: Darwin, NT (with application across the north) Partner: National Energy Resources Australia Government: Department of Industry, Innovation and Science

Leading technologies, like big data, advanced manufacturing and 3D printing, are critical to transforming the northern agenda. A world-first 3D printer that produces metal parts quickly and cheaply using a new metal deposition technique has been developed in Australia's north. This innovative technology could revolutionise industrial production in remote areas by producing metal parts on demand—saving time, preventing shutdowns and potentially saving operators up to a million dollars a day. The new 3D printing process could also change business operations by allowing parts to be printed as required rather than stockpiled in warehouses.

The developers knew their technology could be an industry game changer but needed support to demonstrate it could be effective on a larger scale. SPEE3D and Charles Darwin University (CDU) received \$437,000 in government funding to scale up the technology and develop new high-speed, low-cost metal 3D printing technology specifically for the oil and gas industry. The new funding was provided by the Oil, Gas and Energy Resources Growth Centre—also known as National Energy Resources Australia (NERA)—which is part of the Australian Government's Industry Growth Centres Initiative.

Funding has enabled SPEE3D 'to take its technology to the energy resources sector by approaching large oil and gas operators' explains Steven Camilleri, Chief Technology Officer at SPEE3D. He says they have been able to demonstrate that 'SPEE3D technology works in a robust and production feasible format in remote, heavily industrialised conditions'.

This successful project demonstrates the importance of investing in innovative strategic partnerships.

The government is committed to innovation in the north, and is supporting NERA's \$1 million Northern Territory Project Fund, which aims to increase the region's competitiveness by encouraging the oil, gas and energy resources sector to innovate and embrace new services and products.

Learn more: https://www.nera.org.au/NorthernTerritory

Caption: (L to R) Professor Lawrence Cram, Deputy Vice-Chancellor and Vice-President Research and Research Training, Charles Darwin University; Steve Camilleri, Co-founder and CTO, SPEE3D; Dr Rebecca Murray, Director, Advanced Manufacturing Alliance.



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Tapping the north's gas potential

Gas will play a pivotal role in shaping the north's economic future. Australia is forecast to become the largest LNG exporter in the world around the turn of the decade, overtaking Qatar. Growth in export volumes will be driven by the completion of the final two projects approved during Australia's recent wave of LNG investment—Ichthys LNG and Prelude FLNG—both located in northern Australia. Ichthys LNG announced the departure of its first shipment of condensate on 1 October 2018. LNG is forecast to overtake metallurgical coal as Australia's second most valuable resource and energy export in 2018–19.

Developing more onshore gas resources is critical to meeting domestic demand and harnessing economic opportunities in the north. The government invested \$26 million in the Gas Acceleration Program (GAP) to accelerate the development of onshore gas. The program targeted projects with the greatest potential to supply significant volumes of gas to domestic gas consumers by June 2020. GAP aims to increase domestic gas supply, boost competition and improve the transparency and efficiency of the gas market supply chain. Northern GAP projects include those operated by WestSide and Tri-Star Fairfields west of Gladstone in Queensland. Another demonstration of the government's commitment to northern onshore gas is the \$1 million Northern Territory Project Fund encouraging the oil and gas industry to innovate and embrace new services. The new funding has been made available through the industry-led growth centre, National Energy Resources Australia.

The north is perfectly positioned to expand on its existing range of diverse services and supply chains by value-adding through downstream processing, manufacturing, research and innovation. All of these are key to the development of the northern gas manufacturing industry.

The Australian Government's global vision for gas, with a local focus, will ensure that the north is poised to take advantage of the opportunities that await.

Caption: Courtesy of Inpex

Fostering collaboration

The government has introduced mechanisms for northern businesses and industry to help bring breakthrough ideas to market and increase the north's competitive advantage. Investment in research and development is fostering world-leading innovation such as smart supply chains; generating new ideas to leverage the north's strengths and address its challenges.



Northern Australia is already a region of excellence for research on tropical health and tropical environments. This role is expanding thanks to advancements in high-tech medical research.

Appetite for development, improving supply chains, and recreating new business opportunities are all driving stronger research and innovation in communities across the north.

These efforts are supported by the Cooperative Research Centre for Developing Northern Australia (CRCNA). With funding of \$75 million over ten years, the CRCNA is supporting industry-led research collaborations within the areas of agriculture and food (including aquaculture), northern Australian health service delivery and Traditional Owner-led business development.

The CRCNA is identifying ways to improve the competitiveness, productivity and sustainability of businesses and industries. Its projects aim to lower investment barriers and enable significant capital to flow. This leads to increased GDP and employment opportunities, improved supply chain efficiencies and improved capabilities. In turn, these flow-on effects will improve the wellbeing of the north Australian community.

To date, the CRCNA has announced funding for 12 industry-led projects totalling \$3.6 million with combined partner contributions valued at \$12 million. Each project seeks to address a priority issue identified by industry. Through research, the projects aim to increase investment, create jobs and training opportunities, and improve supply chain efficiencies. The projects also aim to enhance the capability and wellbeing of those communities engaged in, and impacted by, the research.

The CRCNA has already invested in projects to enhance growers' capacity for production and to transport their produce to markets more efficiently. The Smart Supply Chains project uses new technology to measure and gather data on growers' supply chains; simply, objectively and securely. The project aims to give consumers higher quality assurance and increase demand for northern produce.

The Transforming Mango Futures project is a collaboration between Queensland's Department of Agriculture and Fisheries, two commercial mango growers and the Australian Mango Industry Association to establish high-density mango orchard technologies for commercial scale research trials, to facilitate the transition to next-generation, high-productivity orchard systems. The Potential to Expand Horticultural Industries project will also increase knowledge about emerging opportunities for northern horticulture.

Growing demand for high-quality produce in countries to the north has led to new export opportunities. Two CRCNA initiatives are helping growers understand how to access new markets. The North Queensland Agricultural Market and Supply Chain Study and the Exporting Perishable Commodities to Asia project will also assist growers to understand the specific requirements of those markets.

Traditional Owner-led business development has already benefited through the CRCNA, by researching aquaculture production techniques in northern Western Australia. This project will build a nationally accredited training program to create an Indigenous workforce with transferable skills while establishing aquaculture projects to grow the Indigenous freshwater prawn known as Cherabin. The CRCNA is also supporting creation of a framework for northern Australian development and the fee-for-services sector across the Indigenous Estate, and building 'on Country' native food production.

These CRCNA projects are in addition to the \$13.9 million commitment made in October 2017 for seven collaborative projects to address industry challenges across the north with participant contributions of \$37 million.

Updated information on the CRCNA, including the projects supported across the north, is at: <u>www.crcna.com.au</u>.

<mark>Case study:</mark> Creating new pearls of wisdom on Juvenile Pearl Oyster Mortality Syndrome (JPOMS)

Organisation: Cygnet Bay Pearls, Ellies Pearling Pty Ltd and James Cook University

Location: Elizabeth Bay, Gove, East Arnhem Land, NT; Broome and Dampier Peninsula, WA; James Cook University, Darwin and Townsville Government: Department of Industry, Innovation and Science

In the north, innovation touches all areas of life and the pearling industry is no exception. The pearling industry is an important contributor to the socio-economic fabric of regional communities, particularly in the Northern Territory and Western Australia. Recently, the economic viability of the industry has been threatened by Juvenile Pearl Oyster Mortality Syndrome (JPOMS). The syndrome, which impacts young oysters, can induce mortality rates of more than 90 per cent in young seed stocks. Until recently, there were no collective efforts to conduct a selective scientific breeding program focussed on producing pearl oysters with a degree of resistance to JPOMS.

A Cooperative Research Centres Project grant of \$1.3 million has been awarded to Ellies Pearling, Cygnet Bay Pearls and James Cook University (JCU) to investigate possible causes of JPOMS, and to give industry the knowledge it needs to breed for JPOMS resistance in commercial stocks. Better understanding of JPOMS causative agents, in conjunction with selective breeding, will help predict future outbreaks and breed a pearl oyster less prone to succumbing to disease when JPOMS events occur.

Collaborative innovation is critical to this project. Ellies Pearling and Cygnet Bay Pearls are testing progeny from the same oyster brood stock in two different locations (NT and WA) to assess performance. This will be carried out using genetic techniques developed by JCU to identify families of pearl oysters that have greater survival rates. These families will be used in both locations to breed disease-resistant pearl oysters. JCU is playing a pivotal role providing the research expertise to ensure the project achieves its objective of helping the pearling industry overcome the effects of JPOMS.

This project will help to restore and develop the pearling industry in the north. It will increase investor confidence, boost revenue and employment, and encourage the activation of dormant pearling leases. The Cooperative Research Centres Project grant aims to establish the north's reputation for developing cutting-edge approaches to tropical aquaculture.

Caption: Image courtesy of Cygnet Bay Pearls



Sustainable development

Northern Australia is renowned globally for its pristine environmental assets. Australia has competitive advantages in biosecurity as an exporter of high-quality, clean and safe agricultural produce, and as a tourism destination for its natural and cultural destinations and experiences. Balancing development with the preservation of environmental assets and biosecurity—through the innovative use of emerging technologies—is a priority.

The Australian Government funds the Northern Australia Environmental Resources Hub to support sustainable development in northern Australia. It is assisting decision makers to understand, use, manage and safeguard northern Australia's outstanding natural environment through world-class science. The Hub focusses on:

- landscape-scale studies covering savanna and freshwater ecosystems and biodiversity
- land and water planning for new developments such as agriculture and infrastructure
- Indigenous land management including Indigenous Protected Areas.

The \$24 million Hub collaborates with government, Indigenous, environment and industry bodies, and their projects build on past work by the Tropical Rivers and Coastal Knowledge Research Hub and the National Environmental Research Program, and link with other research in northern Australia.

More information on the Northern Australia Environmental Resources Hub is at: http://www.nespnorthern.edu.au/

Biosecurity

Northern Australia is a unique environment and a growing source of agricultural wealth in its own right. The north's 183 million hectares of agricultural activity represents 46 per cent of Australia's total agricultural area and are at risk from pests and diseases arriving from all directions. Wind, water and animal threats are increasing as the region faces growing biosecurity pressures from pests, weeds and a range of high-risk plant and animal diseases. Biosecurity threats to northern Australia include novel tropical pests and diseases arriving at and through remote areas along the sparsely populated 10,000 km northern coastline.

The northern Australia projects funded under the Agricultural Competitiveness and *Our North, Our Future* white papers are practical, cooperative and future-looking actions that are important to maintaining Australia's clean and green competitive advantage. Initiatives include: improved animal/plant/aquatic surveillance; modern diagnostics; better data (moving from manual to digital systems—even in remote areas); community engagement; and the Indigenous Rangers program that recognises the skills and knowledge of Aboriginal and Torres Strait Islander Rangers to undertake a wide range of biosecurity work and surveillance across northern Australia especially in remote areas.

Shaping the north. Creating the future.

Empowering through policy development and planning

Strategic priorities set the stage for work that must be done to achieve goals, as well as setting the direction for long-term stewardship of the north. Nation-building efforts are underway to create and realise the full potential of northern Australia.

The northern agenda remains responsive to the evolving needs of the north, and is ensuring that those with a vision are able to harness opportunities that transform visions into reality. One factor critical to the White Paper's success is the ongoing ownership of, and contribution to, the northern agenda from industry, business, Indigenous leadership and local communities.

Investing in the future

The November 2017 Northern Australia Investment Forum was a high-level event that connected senior leaders from international and Australian companies with opportunities in the north. The forum showcased to the world opportunities available in resources and energy, agriculture and food, and tourism infrastructure. It linked 179 investor delegates, and over 100 companies from 24 countries to the exciting range and scale of investment opportunities in the north. The forum brought in new investors who actively engaged with Indigenous and government representatives, industry experts and project proponents. The forum was held in Cairns with companies travelling from China, Hong Kong, Japan, Indonesia, Singapore, the United States of America, India and Taiwan, among others.

Indigenous Prescribed Bodies Corporate (PBC)

The north will only maximise its full potential with the participation of all its people so those who live and work in the north benefit from this growth agenda.

Aboriginal and Torres Strait Islander Australians of the north share these ambitions for a thriving and diverse economy and for strengthening culture and intergenerational prosperity. Indigenous Australians bring to this shared economic growth agenda – their significant land holdings, contemporary and traditional knowledge and skills, unique tourism products and offerings, and drive and determination to secure better futures. Indigenous leaders and government are committed to further developing the Indigenous business sector, increasing Indigenous land owner involvement in development, and supporting Indigenous innovation.

The Australia Government, in consultation with Indigenous Australians, jurisdictions, businesses and stakeholders, is developing a range of options to improve the efficiency of the native title system through a simplified Indigenous Land Use Agreement process. This is improving the transparency and processes around native title claims that will lead to better outcomes for Traditional Owners and investors.

The determination of native title can provide a valuable income stream for Indigenous people through Indigenous land related payments. These funds can be instrumental in supporting Indigenous economic independence, including business development and job creation.

The strengthening of native title bodies is also supporting native title land holders to achieve strong economic outcomes from their interests. Direct funding for PBCs is available to manage native title on behalf of native title holders.

More information can be found at: www.nativetitle.org.au/

Case study: Sweet investment in growing mango industry

Organisation: NAIF, CSIRO, CRCNA, NT Farmers Location: Darwin, NT Government: Department of Industry, Innovation and Science; Northern Territory Government

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 for the international and domestic markets. There are 4,400 hectares of irrigation in this region, much of it mangoes. The White Paper has made a major contribution to the development of this important industry through a number of interconnected measures.

The NAIF has provided conditional approval for construction of cold storage and an export hub at the Darwin International Airport. The project will also construct solar energy farms at Darwin International Airport and the Alice Springs and Tennant Creek airports, and a multi-user storage battery to be located 80 kilometres from Darwin. This builds on an earlier \$4.8 million government investment in a Freight and Education Hub under the Building Better Regions Fund—which will see a vapour heat treatment plant and cool rooms constructed to enable export of quality horticultural goods through the facility.

The Northern Australia Water Resource Assessment conducted by the CSIRO on the Darwin region catchment identified the potential for new in-stream water storage that could support up to an additional 40,000 hectares of irrigated mangoes. While this would comprise just two per cent of the total catchment area, it has the potential to add \$2.3 billion and 2,500 jobs to the regional economy. The CRCNA is funding the Smart Supply Chains project for the horticultural sector. The project will allow northern Australian mango producers in the Burdekin and Katherine regions to collect and utilise data on their supply chain, value-add to their businesses and capture new markets. The project's initial focus is on mango supply chains, but it will have application across other sectors. Other CRCNA research projects are examining existing and future international demand for agricultural products, to improve farmers' ability to export agricultural produce to Asia.

The CRCNA is also funding the Transforming Mango Futures project to establish high-density mango orchard technologies for commercial scale research trials to facilitate next-generation, high-productivity orchard systems in the north.

The northern mango industry relies on a seasonal workforce and makes a concerted effort to engage local workers. When local Australian workers are not available, the Seasonal Worker Programme offers employers in the agricultural sector a reliable returning workforce from participating Pacific Island countries and Timor-Leste. The White Paper expanded and streamlined the Seasonal Worker Programme, and reducing costs to businesses through greater participation. The NT Farmers Association and Northern Territory Government have conducted a pilot project leading to policy changes to further streamline the Seasonal Worker Program, also adopted in the Pacific Labour Scheme.

The government's northern agenda fosters an environment where private sector investors and business are motivated to drive export capacity.



Marie Piccone – Australia's unofficial "mango queen" and founder of Manbullloo Limited, Australia's leading producer of Kensington Pride mangoes says "business opportunities and rewards in north Australia outweigh the challenges". Marie believes research and innovation has helped to improve her company's performance. They are supplying directly to their Australian retailers and exporting to global customers, and are focused on improving supply chain performance to increase efficiencies.

Marie Piccone, Manbulloo Ltd Founder

Case study: Cairns Aquarium

Organisation: Cairns Aquarium Location: Cairns, Qld Government: Department of Industry, Innovation and Science and various other government programs

The north Australian landscape is big, bold and breathtaking. Tropical north Queensland is the only place on earth where two World Heritage-listed areas sit side by side. The Great Barrier Reef and the Wet Tropics ecosystems are stunning tourist attractions prized for their environmental significance and exceptional natural beauty.

Cairns Aquarium is an enterprise that embodies the entrepreneurial 'can-do' spirit of the north. 'We noticed a lot of international tourists were not going into the water' explains entrepreneur, Daniel Leipnik. Their market research pointed to an opportunity to create an experience that showcased the unique environment of tropical north Queensland, but was close to CBD hotels and was air conditioned, safe, family-friendly and affordable.

By combining tourism and environmental research, Cairns Aquarium is playing a pivotal role in educating visitors and conserving the environment. Visitors have the opportunity to learn about some of the most elusive animals and rarest habitats on earth through exhibits and experiences. The enterprise is a local environmental research hub with a large team of fisheries ecologists and marine biologists, and significant aquatic husbandry facilities. Marine research is underway to develop novel reproductive biotechnology (breeding and rearing) procedures for key northern Australia fish and crustacean species. Cairns Aquarium also plans to participate in coral propagation solutions to restore and preserve the health of the Great Barrier Reef.

The Cairns Aquarium has helped the local economy. 'The business was a catalytic project for the region. When the project was being built, the \$50 million investment involved over 650 staff and crew over a two-year period; with substantial economic flow-on to dozens of goods and services suppliers,' says Daniel Leipnik. The business site employs approximately 100 people and supports the employment of professional, semi-professional and skilled staff in the marine and biological sciences areas.

Government has played a key role. 'The project involved six years of development, commissioning and commercialisation and would not have been possible without government funding and assistance' Leipnik says. The aquarium has been supported with funding from all three levels of government through direct assistance and competitive grants programs. The project also showcases how the Australian Government's Entrepreneurs' Program can assist businesses. Through it, Cairns Aquarium has received assistance to develop business plans and obtained funding for IT consulting costs.

However, government alone cannot develop business in northern Australia. Government programs are really about creating the right opportunities for people and businesses to prosper. Northern Australia is now a great place to do business and there are abundant opportunities for entrepreneurs.

Defence

Northern Australia is strategically important to the Australian Defence Force, both for national defence and as a base for regional engagement. The defence industry makes a substantial contribution to the northern economy through the creation of direct and indirect employment, and by generating demand for local goods and services.

The Australian Government's 2016 Defence White Paper outlined significant expenditure and focus on investment in defence infrastructure in northern Australia for the next decade. This investment under the Defence White Paper's Integrated Investment Plan will upgrade Defence bases and facilities in Darwin, Cairns, Townsville, Katherine and northern Western Australia. This investment brings together all elements of the Australian Defence Force, including equipment, facilities, workforce, and information and communications technology as well as major weapons, platforms and systems. Australian industry now has the clarity and certainty to invest in the people and infrastructure required to make these capability plans a reality.

Australia works closely with other countries to promote security and stability in the immediate region and globally. International military partnerships have been established with Singapore and the United States. Australia has long-term links with New Zealand, and growing ties with Indonesia, Japan and the Republic of Korea which are all increasingly valuable to the pursuit of common strategic interests.

Strategic partnerships Ministerial Forum on Northern Development



Members (L to R) Hon Selena Uibo; Hon Coralee O'Rourke; Hon Michael Gunner; Senator, the Hon Matt Canavan; Hon Alannah MacTiernan, Hon Rita Saffioti and Hon Nicole Manison

The Ministerial Forum on Northern Development is committed to a shared vision and is working collaboratively to increase productivity, encourage investment and create new jobs in northern Australia. The forum is made up of Australian Government ministers with responsibility for northern development, and their counterparts from the Northern Territory, Western Australia and Queensland. The forum has developed a shared vision and goals for creating new jobs and enduring prosperity right across the north. The Ministers are working together to diversify and strengthen the north's economy by: capitalising on the north's strategic location in the Indo-Pacific region and proximity to Asia; encouraging investment; optimising resources; developing natural and economic assets; increasing the participation of Indigenous Australians in the economy; and ensuring that vital infrastructure is world-class and fully funded.

Indigenous Reference Group (IRG) to the Ministerial Forum on Northern Development.



For full membership details see (Missing Fiona Jose) http://bit.ly/northernadvisorygroups

The IRG are Indigenous leaders from across northern Australia who bring specialist business expertise to the broader northern development agenda and facilitate Indigenous engagement with the Ministerial Forum. The IRG helps to align Indigenous policy outcomes with broader government objectives for the north.

Northern Australia Advisory Council (NAAC)



For full membership details see (Missing Peter Long) http://bit.ly/northernadvisorygroups

The NAAC creates a direct link between the Minister for Resources and Northern Australia and key northern sectors such as Indigenous affairs, local government, small business, resources, tourism and agriculture.

Case study: Indigenous Reference Group (IRG) to the Ministerial Forum on Northern Australia

A stronger economy in the north cannot be achieved without the full economic participation of Indigenous Australians. Across the north, 66 per cent of Qld, 80 per cent of the NT and 94 per cent of WA is either communal freehold Indigenous land, or is claimed or determined native title land. Indigenous people make up about 15 per cent of the population in northern Australia, and over 25 per cent in the Northern Territory.

The 2017 Implementation Report identified Indigenous leadership and involvement as a key success factor for the northern agenda. The participation of senior Indigenous leaders was identified as an important step by the 2017 Ministerial Forum on Northern Development.

The Ministerial Forum established the IRG to provide advice on developing the Indigenous business sector, enabling Indigenous land owners to engage in development, and supporting Indigenous innovation in northern Australia.

Eight business leaders make up the IRG: Mr Peter Yu (WA), Mr Lawford Benning (WA), Mr Joe Morrison (NT), Dr Donna Odegaard AM (NT), Mr Nigel Browne (NT), Adjunct Professor Colin Saltmere (Qld), Ms Vonda Malone (Qld), and Ms Fiona Jose (Qld).

The IRG is supported by the Department of the Prime Minister and Cabinet and the Office of Northern Australia, with financial support from the three northern jurisdictions.

The IRG uses its collective business experience to refocus policy to achieve greater Indigenous economic participation in the north. The IRG's knowledge and experience is supported by assessments of current government policy and programs including an audit of Indigenous business programs, direct engagement with key government agencies, and policy forums with senior officials from northern jurisdictions. The group has produced a set of 36 recommendations which focus:

- 1. creating jobs, fostering labour participation, entrepreneurship and business acumen
- 2. knowledge management systems and research and development to support Indigenous commercial end users
- 3. infrastructure investment to support Indigenous economic development
- 4. access to capital and domestic and international markets
- 5. activating the economic value of land, water, sea and cultural resource rights
- 6. institutional arrangements that work to activate, accelerate, and optimise Indigenous economic development across northern Australia.

These aim to help get people into jobs, help get the right support for entrepreneurs and help Traditional Owners realise the economic potential of their land, sea and cultural assets.

Many of the recommendations can be achieved within existing resources and with improved collaboration.

Ministers have agreed to an initial 16 recommendations, and governments are working towards an agreed approach to implementation. To achieve this, IRG members hosted workshops in each northern jurisdiction, which identified clear actions to implement the first 16 recommendations.

The Ministerial Forum has also asked the IRG to prepare further advice about how to progress the remaining 20 recommendations. This work will continue throughout 2018–19.



Emerging opportunities

The *Our North, Our Future* White Paper sets the stage for northern Australia to capitalise on locational advantage and engage with emerging regional and global opportunities. It positions the north to seize opportunities presented by emerging trends such as the growing Asian middle class, expanding tropical economies, and to diversify the economy through rising demand for tech metals like lithium. Trade and investment, diversifying the economy, Indigenous entrepreneurship, new economic infrastructure and world class research and innovation remain key priorities in the northern agenda.

Strong growth ahead for tropical regions

Australia is the largest developed country and the leading advanced economy in the tropical zone. Presently, tropical economies produce 20 per cent of global economic output and the tropical zone is growing at a much faster rate than the rest of the world. By 2025, the sum of the world's tropical economies is projected to reach US\$40 trillion. By 2050, half of the world's population will live in the tropical zone, much of it young. Northern Australia is well positioned to take advantage of this forecasted economic and demographic trend.

Rising Asian middle class underpins trade and investment opportunity

The north's proximity to emerging Asian markets creates significant trade opportunities for Australian businesses and producers, along with investors. These markets are closer to northern ports than southern capital cities, emphasising the north's developing role as a trade and investment gateway.

By 2019, Asian economies are expected to account for 42 per cent of global output, double the level in 1980. By 2020, more than half of the world's middle class will be in Asia, resulting in a growing demand for high-quality food products, healthcare, aged care, education, household goods, tourism, and banking and financial services. By 2050, an extra three billion people across Asia are likely to have living standards similar to those in Europe today.

The north is well positioned to be an energy export hub for our Asian neighbours. It is equipped with strong port infrastructure, has experience in rolling out energy investment and technology, and enjoys strong geological advantages.

Free trade and other economic agreements with China, Korea, Japan, India, Singapore, and Indonesia are in place, and an agreement with Hong Kong is being negotiated. There is significant opportunity for trade with Australia's northern neighbours.

Diversifying the economy: the rise of battery commodities and new energy markets

The demand for batteries has changed the game for producers of lithium, cobalt and graphite. Lithium, for example, has recently become a globally significant commodity, with demand rising sharply and prices tripling since 2010. Australia is the largest producer of lithium and holds the world's fourth-largest known lithium reserves. In addition, there are modest reserves of graphite, sizable reserves of cobalt, and significant untapped potential. Investment in projects to mine these minerals is increasing rapidly during a time of declining investment in Australian commodities. Lithium demand is forecast to be strong in the short term, and the long-term prospects for battery technology continue to evolve.

Given its geological advantages, ports, and existing and planned lithium projects, northern Australia has clear potential to value-add to these resources, and there are already two major lithium ion battery manufacturing proposals in the north. Cementing the north's position in the battery supply chain through early and high-level refining will depend on an ability to attract skilled workers and investment in research and development. The potential opportunities are vast, and the investment and production decisions of today will be instrumental in shaping the north's future.

New markets for energy are also emerging, and innovators in the north are making plans to tap into these opportunities. For example, in the Pilbara region of Western Australia plans are in place to construct a renewable energy hub that could not only power the region, including new and expanded mines, mineral processing and hydrogen production, but could also export energy to South East Asia through undersea high voltage transmission cables.

Building momentum with infrastructure

More investment and substantial infrastructure development is required to take advantage of the trade opportunities to Australia's north. The White Paper initiated a Northern Australia Pipeline of Projects to identify potential infrastructure projects. It is now published so that clear user-friendly information is available to potential investors. The next Infrastructure Australia Audit due in June 2019 will include an update on northern Australia and its evidence base will support the ongoing development of Infrastructure Australia's rolling 15-year Australian Infrastructure Plan as well as its Infrastructure Priority List. The pipeline of new northern economic infrastructure projects is strong and remains a key priority for action.

Exporting northern expertise in tropical superbugs; the need for world class research and innovation

Fostering a high-tech medical research industry and encouraging productivity improvements in northern-based businesses and industries will increase the north's competitiveness. Northern Australia is already a centre of excellence for tropical health and tropical environment research.

A White Paper commitment to invest in tropical medicine has seen the Australian Government partner with the Menzies School of Health Research to research life-threatening tropical illnesses such as antibiotic-resistant tuberculosis, malaria and other vector-borne diseases. In Townsville, the Australian Tropical Science and Innovation Precinct, is bringing multiple partners together to advance tropical research through collaboration and knowledge sharing.

These investments will help to prevent major public health emergencies and will combat destructive disease threats that could cripple agriculture. Government initiatives are growing northern Australia into a centre of world-renowned excellence in tropical superbug research.



"the people that live up here, are people who create opportunity for themselves – but more importantly for the communities in which they live and exist. And I think that community spirit is what will make northern Australia a really vibrant and important place going into the future."

Nicole Roocke Northern Australia Advisory Council

Closing statement

There has been good progress in implementing the northern agenda, through new roads, research and innovation through the CRCNA, a strongly developing knowledge base on water resources and geoscientific data, and through NAIF concessional financing. Exciting opportunities to grow the northern economy abound, and while the right environment for development has been created through the government's *Our North, Our Future: White Paper on Developing Northern Australia*, there is more to be done. Producers, industry, research bodies, investors and Indigenous leaders are taking up the opportunity to work with governments to drive this bold agenda. Northern Australia is indeed a great place to live and do business.

How we help

The Office of Northern Australia leads the development of northern Australia through:

- promoting the importance of developing northern Australia
- being a policy leader for northern Australia, providing direction and driving outcomes for the Commonwealth
- encouraging and attracting development and investment
- enhancing our understanding of northern Australia

The Office of Northern Australia works in partnership with governments, industry and business to achieve its commitments.

Contact details W: <u>northernaustralia.gov.au</u> E: <u>NorthernAustralia@industry.gov.au</u> P: +61 8 8923 4403

Caption: Darwin Aboriginal Art Fair 2018 fashion show From Country to Couture (back cover column 1 row 3)



northernaustralia.gov.au