

Charles Darwin University

**Submission to the
Joint Select Committee on
Northern Australia**

March 2014

1. INTRODUCTION

This submission addresses the Joint Select Committee on Northern Australia Terms of Reference relating to the potential for development of northern Australia's mineral, energy, agricultural, tourism, defence and other industries; links with the Asia Pacific; impediments to growth; the need for innovation; and the critical economic and social infrastructure needed to support long term growth.

Charles Darwin University (CDU) has the capacity to contribute at a national level to development of the north through education and research as knowledge based industries that complement and underpin cross-sectoral innovation. CDU not only provides the locally skilled workforce and knowledge northern development needs, it is increasingly becoming a focus for attracting people from elsewhere in Australia and the Asian region to northern Australia and to a north Australian education hub.

A successful shift in the northern economy to include education and smart specialisation will require investment in appropriate services and in robust connectivity. In a constrained funding environment it is also critical that there remains recognition of the importance of a funding regime that enables engagement and participation of regional and remote communities as key participants in northern development.

This Inquiry's Terms of Reference relate to specific areas of development, many of which CDU is equipped to address. CDU's capabilities provide a platform for further investment, by Government and potentially industry, in areas of need as new industries develop and existing industries undergo expansion in northern Australia.

CDU recommends that, in addition to the established sectoral dialogue, a series of workshops be held to explore potential for cross jurisdictional collaboration and alignment in major sectors, such as education and research, across northern Australia in order to contribute to development of an overarching policy and governance framework that would support the Government's vision for northern development.

CDU holds the view that any effective strategy for development of the north will require substantial cross jurisdictional effort, collaboration and alignment of interests across borders to succeed. The Top End of the Northern Territory and north Western Australia in particular, share significant similarities in terms of remoteness, resources, demographics and proximity to Asia that lend themselves to collaboration and alignment in relation to northern development.

As eloquently stated in the Northern Australia Land and Water Science Review 2009:

Northern Australia is vast, geographically diverse, alternately, and at times simultaneously, very wet and very dry. It accommodates great wealth and abject poverty. Extensive and extractive industries coexist with iconic environments. It is the cradle of Australia's human history and a crucible for an ingot of its future... The large scale, comparative lack of development and apparent abundance of natural resources in northern Australia periodically stimulates enquiry as to its development potential.

It is within this environment that Charles Darwin University and its predecessor institutions have, for the past 40 years, been an integral part of the development of the north, through the provision of tertiary education to meet the needs of the local community and to educate a workforce equipped to meet the challenges of life and work in remote northern Australia, while remaining connected nationally and internationally through strategic links and partnerships in education and research.

CDU is Australia's most northern university and the only university based in the Northern Territory. Working in partnership with the Territory and Federal governments, CDU has developed a Vocational Education and Training, Higher Education, and Research portfolio strongly focused on Northern Australia and the surrounding Southeast Asian region.

It is CDU's view that training, education and research, located in and drawing on deep knowledge of northern Australia, will be an essential component of unlocking the potential for development of northern Australia's mineral, energy, agricultural, tourism and defence industries, strengthening our ties with Asia and to addressing impediments to growth. Through its established history in the Northern Territory, CDU is uniquely placed to provide this service and has the capability, the partnerships, a history of innovation and the on the ground experience and know-how in northern Australia that will enable it to play a significant part in facilitating the Government's future plans for development. The University is instrumental to providing a skilled and educated workforce and knowledge for evidence based planning and implementation that will ensure the sustainability of northern development.

This submission outlines CDU's capability to support the Government's overall development agenda, key development areas and challenges including Indigenous employment and environmental sustainability, as well as the potential for development of tertiary education and research as proposed in the Coalition's *2030 Vision for Developing Northern Australia* with:

- Recognised world class research capability in the Menzies School of Health Research and the Research Institute of Environment and Livelihoods
- An outwardly focussed university that provides world-class higher education using the latest on-line technology, particularly to rural and remote Australia, and increasingly to Australia's northern neighbours; and
- As a dual sector university a wide range of vocational and technical skills that reflect the region's current and emerging economic development.

2. CDU CAPABILITY

This section outlines CDU's capability in relation to training, education, research and partnerships that enable the University to inform, respond to and facilitate government's aspirations for development of northern Australia. CDU has a history of adapting to change, of being innovative in its approach to education and research based on the reality of operating in a very remote part of Australia and in an environment that is in many ways physically and socially dissimilar to southern Australia and in many ways similar to our near northern neighbours.

CDU is a sizeable dual-sector university, headquartered in Darwin but with staffed locations in the Northern Territory, significant Higher Education delivery throughout Australia and active international partnerships in the region. Referring to the map:

- CDU has a student population of 22,300, with approximately 12,200 Vocational Education and Training students and 10,100 Higher Education students.
- 5,200 Higher Education students are enrolled from outside the Northern Territory, studying online.
- 4,300 Indigenous students, including Indigenous Higher Education enrolments – more than double the percentage of any other university.
- CDU is a research-intensive university, with research outputs evaluated well above world standard in areas of importance to Northern Australia, including a 5-star ERA rating in Clinical Sciences and 4-star ratings in Medical Microbiology and Environmental Sciences & Management.
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- The University maintains strong regional international partnerships, and an international student mix that reflects the local region (Indonesia, Timor Leste, Philippines) and the multicultural characteristics of Darwin.
- A world ranking in the THE top 400 universities, and among the top 50 for universities under 50 years of age.

2.1 World Class Vocational and Higher Education

As a dual sector institution CDU educates students from VET Certificate I courses through the full range of Higher Education degrees to Doctor of Philosophy and offers a suite of programs tailored through engagement with industry and the community to meet demand for a skilled workforce and the aspirations of Territorians. CDU is focused on enabling students to transition through VET to Higher Education qualifications and has the second largest tertiary enabling program in Australia, including a specific program to cater for Indigenous students from disadvantaged backgrounds.

CDU has, over the past five years, significantly expanded its infrastructure base to enable increased training and education in key areas of strategic importance for northern Australia, in particular related to the oil and gas industry, business, health and Indigenous education. In addition to CDU's already extensive reach across eight campuses in the Northern Territory, new infrastructure, based in Darwin, now includes:

- Engineering and trades training infrastructure to support major resource projects. Infrastructure includes the North Australian Centre for Oil and Gas, supported by industry partners and the NT Government, and an EIF-supported Trades Training Centre currently under development.
- Dedicated Indigenous education facilities, including the EIF-supported Australian Centre for Indigenous Knowledges and Education (ACIKE).
- Extensive health-related infrastructure, including for the Northern Territory Medical Program and for the Menzies School of Health Research, as well as new infrastructure to support Allied Health training in Darwin, Palmerston, and Alice Springs.
- The soon-to-be-completed Charles Darwin University Business School on the Darwin Waterfront, with a strong focus on meeting local business needs and Asian and regional business opportunities.
- Extensive Vocational Education and Training delivery across the Northern Territory.
- High-capacity networks linking this infrastructure, and the activities supported by it, to the rest of the nation. Charles Darwin University boasts some of the most modern IT infrastructure in the sector.

2.2 Contextualised Research

Charles Darwin University is a highly networked, multi-disciplinary institution with depth of research expertise closely tied to the needs of the Northern Territory and the Territory's immediate region: Timor Leste, Eastern Indonesia and the Arafura Sea. To achieve focus and align research with the changing economic profile of Northern Australia, the University has identified two broad fields of research critical to our region, to be maintained at world class standard: Environment and Livelihoods, and Human Health and Wellbeing. A limited number of research fields that are strategically important to Northern Australia, with potential to develop into world class fields of research, have also been identified including: Social and Public Policy, Education at the interface with Health, and Energy. Indigenous knowledges is a cross cutting research focus that is acknowledged as integral to all these research themes.

The adoption of a strong research focus and promotion of cross –disciplinary research teams has been a successful institutional strategy to build world-class research capability. Research capacity and capability

have also been built through key partnerships with the Menzies School of Health Research, with other universities particularly the Australian National University and the Innovative Research Universities group (IRU), as well as with government, industry and Indigenous organisations. Increasingly these research partnerships extend internationally.

CDU's research capability is centred around its three research institutes – The Northern Institute (TNI), the Research Institute for Environment and Livelihoods (RIEL) and Menzies School of Health Research. Knowledge gained through CDU research has and will inform evidence based policy to support sustainable development of the north in virtually all of the areas identified in the Committee's Terms of Reference.

The **Menzies School of Health Research** (www.menzies.edu.au) has established world class expertise to improve health outcomes and reduce health inequity for populations in Australia and the Asia-Pacific region, particularly Aboriginal and Torres Strait Islander communities, through excellence and leadership in research, education and capacity development. Menzies is the only medical research centre in Australia that has Indigenous health and wellbeing as a major focus. Its work in Indigenous health includes child health and development, lung and ear health, smoking and substance abuse, diabetes and kidney disease, cancer, mental and sexual health and primary health care systems.

The **Research Institute for Environment and Livelihoods** (<http://riel.cdu.edu.au/>) undertakes research across the terrestrial, aquatic, coastal and marine ecosystems of the north. RIEL's research expertise and outcomes will have particular application in assessing the environmental and livelihood opportunities and constraints associated with expansion of northern mineral, energy, agricultural and tourism sectors. Its strategic programs include renewable energy, catchment to coast planning and management of terrestrial, freshwater and estuarine ecosystems, marine ecosystems, environmental chemistry and microbiology, and bushfire management and research.

The **Northern Institute's** research program and activities (www.cdu.edu.au/the-northern-institute) provide evidence for policy development, generate informed debate, build the capacity of social researchers and respond to the needs of government and non-government agencies and communities in the region. The Institute brings together skilled researchers to undertake social and public policy research in desert, tropical, regional and remote contexts and to lead analysis of complex issues in regional and remote settings that impact on people, policy, practice and public awareness. This research is recognised nationally and internationally for innovative design and relevant outcomes, and will be a vital resource for Government in development of the human capital and appropriate policy and governance that will be essential to the success of its vision for northern Australia.

2.3 Partnerships

CDU has established strategic partnerships and collaboration with the community, Indigenous people and organisations, other tertiary education and research providers, Government and industry both within and outside Australia. The University has done this to build capacity, to enhance its ability to meet its charter as an education and research institution and to ensure that it remains connected to contemporary best practice as well as to the aspirations of Government, industry and the community.

CDU and Northern Territory Government Partnership Agreement, established in 2003 to ensure that the economic, social and environmental development of the NT is supported by a robust and resilient University working in partnership with government agencies and the wider community. The strategic agenda of the Partnership to 2017 is focused on the three hub economy of resources, tourism and international education.

CDU in collaboration with the Australian National University, James Cook University and the Australian Institute of Marine Science has formed the **Northern Research Futures (NRF)** partnership, under the Australian Government's Collaborative Research Network (CRN), that creates a national, multi-disciplinary program of collaborative social, coastal/marine and environmental research and innovation in the northern Australian region. The NRF CRN is establishing the research architecture essential to meeting the national challenges associated with development in the remote tropic zone and in the interfaces between community and the environment.

MOUs for **collaboration in oil and gas training** with Curtin University and with the Australian Centre for Energy Process Training (ACEPT) at Challenger TAFE, Western Australia, and proposals to create a collaborative virtual Australian LNG Centre. Industry partnerships in oil and gas, particularly with Conoco Phillips and Inpex, which have resulted in the establishment of the North Australian Centre for Oil and Gas (NACOG) at CDU Darwin and new training and degree programs specifically aimed at providing a skilled workforce for the oil and gas industry. NACOG has established research and testing facilities that are already delivering valuable results for industry, for example research on corrosion of metals in tropical marine environments.

Partnership with the Batchelor Institute of Indigenous Tertiary Education (BIITE) to form the **Australia Centre for Indigenous Knowledges and Education** at CDU Darwin, CDU and **Flinders University** to deliver the Territory's' medical program to educate doctors who are knowledgeable and skilled in the unique environmental and demographic conditions that affect health and health outcomes in northern Australia and our immediate region.

2.4 Indigenous Engagement

CDU places great importance on the fact that northern Australia supports a significant (>30%) Indigenous population and the University has developed depth of expertise in working collaboratively in education and training and in engaged research with Indigenous communities through relationships based on respect and trust to address Indigenous disadvantage. Issues that are a priority for Indigenous people, such as sustainable livelihoods, knowledge systems and their relationships to policy development are key areas of research for CDU researchers and their Indigenous partners.

CDU has a major focus on Indigenous education and engagement, now formalised in the Australian Centre for Indigenous Knowledge's and Education (ACIKE) and articulated in the University Strategic Plan and Reconciliation Action Plan. ACIKE aspires to international renown and excellence in its teaching and

learning programs, community engagement and research endeavours, through its innovative community and state-of-the-art learning hub. It creates opportunities to build social, human and economic identity for Indigenous peoples across Australia. With the establishment of ACIKE, CDU has grown Indigenous Higher Education commencing student numbers, as well as the percentage of the student body that identifies as Indigenous.

More than 6% of Higher Education and 30% of Vocational Education and Training students at CDU identify as Indigenous. Indigenous perspectives are included as a core element of Higher Education programs.

In Vocational Education and Training, the Northern Territory has the highest rate of Indigenous participation in the country. In 2012 CDU provided almost 60% of all NT training, delivering training to 3,572 Indigenous students, including 269 Indigenous apprentices and trainees. With new trade training facilities being constructed to support major resources projects, CDU will expand pathway programs for Indigenous students into training specifically focussed on areas of economic opportunity and occupational skills shortage. This will include pre-employment programs designed in partnership with prospective employers and VET in Schools programs for young Indigenous students from urban, regional and remote schools.

2.5 International linkages

International student enrolment at CDU, while currently relatively low for the sector at just over 1000 students, has been growing significantly over the past five years and is a potentially significant area of future expansion for CDU given its proximity to Asia and the linkages the University has developed. CDU is currently working with the NTG to develop an International Education Strategy that identifies potential priorities for growth but also identifies the critical supply-side needs that underpin aspirations for successful expansion, including stable and reliable air services, affordable student accommodation and part-time work opportunities in areas of workforce shortages.

CDU has well established partnerships and linkages throughout Asia in both education and research that have been developed over many years. As an example, CDU has active agreements with nine universities in Indonesia related to teaching, student exchange, research and capacity building. The University was recently successful in the New Colombo Plan pilot program gaining support for short term programs for law studies in Indonesia at our partner universities Universitas Gadjah Mada and Universitas Indonesia.

Collaborative research programs with Indonesia include:

- Environment – biodiversity, natural resource management, biosecurity, sustainability and livelihoods, ecosystems services, remote sensing
- Health – tropical health, malaria, rabies, maternal and infant mortality, health service delivery, health services infrastructure
- Marine science – marine ecosystems, blue carbon, molecular biology, marine habitat mapping, sustainable development, water quality
- Law – Intellectual Property Law, International Law and Human Rights Law.

CDU has retained a high level of commitment to capacity building in Eastern Indonesia and Timor Leste and is leading discussions on the role of universities in integrated sub-regional economic development.

Active agreements also exist with six universities in China for staff and student exchange, research and capacity building. Central to these are the NTG's sister province relationship with the resource rich Anhui Province and the associated partnerships established through the University's Confucius Institute with Anhui Normal University and Hainan University.

These programs build regional capacity that will underpin future engagement with Asia in relation to northern development and the consequent development of markets for commodities resulting from expansion of mineral, agricultural, energy and tourism industries. Asian engagement through education and research collaborations will also enhance opportunities for meeting workforce demands related to industry expansion in the north.

3 CHALLENGES FOR TERTIARY EDUCATION IN THE NT

Charles Darwin University is a multi-campus, multi-sector tertiary institution characterised by a high level of community engagement. Each year, approximately 10% of the local population over the age of 15 years enrolls for study at the University in either Vocational Education and Training (VET) or Higher Education.

Despite this high level of community engagement, CDU has a range of underlying sustainability challenges that stem from the small size of the NT population (approximately 240,000 people) relative to the population base needed to sustain a small comprehensive tertiary education institution (approximately 500,000 people). CDU has been critically dependent upon three innovations to remain viable as a NT-based institution:

1. Dual-sector (Higher Education and Vocational Education and Training) operations, where administration, overheads and some teaching and training is shared;
2. Online delivery, where flexible course offerings designed to meet NT needs are also offered nationally;
3. A strong and mutually-beneficial partnership with the Northern Territory Government, including the identification of regional opportunities for engagement and the growth of the international student population in the Northern Territory.

4 CDU CONTRIBUTION TO THE NT AND NORTHERN DEVELOPMENT

CDU makes a substantial contribution to the Northern Territory, over and above the education and research services it provides, related to the improved value of human capital. In 2011, CDU graduates were estimated to contribute increased economic value of around \$300 million. The total contribution of international students to the NT economy is \$33.1 million in value added.

As a business, CDU has become one of the largest contributors to the NT Gross State Product. In 2011 CDU contributed \$407.3 million (value add) to the Northern Territory economy, comprising \$233.1 million in direct and \$174.3 million in indirect benefit. This accounts for around 2.4% of the Northern Territory's gross state product (GSP).

Additionally, CDU directly employed 1421 FTE in 2011. Using the employment multiplier for the education sector, this created another 530 indirect jobs for a total of impact of 1,951 jobs. Capital investment spending creates jobs, especially in the construction sector. Spending by visiting students and business visitors creates jobs in the services sectors. Adding these factors, in 2011, CDU generated employment, totalling the direct and indirect effects, of 2,207 FTEs in the Northern Territory. This number equates to 1.33% of the Northern Territory population in the working age group of 15-64 years.

Northern Australia is experiencing a fundamental shift in economic profile, with a decreasing dependence on primary production and an increasing reliance on natural resources, construction and service industries. This is occurring in parallel with rapidly changing demographics, including fast growing young Indigenous and recent migrant populations with specific education needs. CDU has responded to this demographic by providing meaningful pathways for the local Territory and regional population in

terms of access to tertiary education which articulates into the workforce and meaningful roles in NT society.

In addition to resident workforce capacity, the Government's aspirations for northern development will require the import of significant skilled and unskilled labour and creation of a stable and sustainable population. A range of 'liveability' factors are needed to attract these workers to northern Australia and keep them here. Important amongst these will be access to the full range of education opportunities for workers and their families as are available elsewhere in Australia. CDU currently provides these opportunities and has considerable potential to expand its role in northern Australia by becoming an education hub for the north Australian and Asian region and developing education as a growth industry for northern Australia.

4.1 Education as a Growth Industry

Early in its development, it became apparent that for CDU to remain a viable tertiary education institution in such a small and remote location, it would need to supplement its revenue with income from activities outside of the NT.

In this context, over the last eight years, Higher Education course and enrolment planning at CDU has aimed to balance the development needs of the Northern Territory with the need to effectively expand its constituency. CDU offers courses that are directly linked to occupation skills shortages in a manner that supports the work-study-life balance needs of Territorians and also resonates with a national audience that is motivated to enrol at CDU from outside the NT. This business model has seen CDU become one of the fastest growing universities in Australia.

CDU has examined what motivates students from outside the NT to enrol at CDU. Many of the reasons align with what is known about the decision-making motivations of mature age students seeking to upgrade their skills – namely flexibility, recognition of past education and experience, a desire to have an adult-to-adult interaction with the institution, reduced travel times, the desire to study with “similar” students (not solely school leavers), and admissions criteria that had some meaning.

However, a unique motivating factor was also found – the desire to have a more “meaningful and authentic experience” through interaction with the Northern Territory, even if it is limited to workshops, field work and clinical training blocks. CDU is clearly ideally placed to cater for this type of demand.

These results indicate that education has potential to be a growth industry in northern Australia in its own right, and one that will have significant influence on other proposed growth industries for the north.

4.2 Smart Specialisation

There is also potential to shift the northern economy from an historically boom-bust cycle based on agricultural and resource development to a longer term sustainable knowledge economy based on smart specialisation in areas that would underpin productivity in industries such as mining, energy, agriculture, fishing and tourism in northern Australia, as well as expand export opportunities, particularly into tropical latitudes.

Development of smart specialisations in the north will be dependent on four critical requisites:

- Enhanced education and training – developing an educated and skilled population to create, share and use knowledge;
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- Dynamic information infrastructure – IT and other infrastructure to facilitate effective communication, dissemination and processing of information;
- Supportive economic incentives and institutional regimes – a regulatory and economic environment that enables free flow of knowledge, supports investment in information and ICT and encourages entrepreneurship;
- Creative innovation systems – access to and assimilation of global knowledge through networks including research centres and private enterprise, adapting knowledge to local needs and creating new knowledge.

Smart Specialisation concentrates resources in knowledge in particular areas in order to strengthen comparative advantage in existing or new areas and can leverage regional dynamism in innovation-led/knowledge-intensive economic development. It provides a regional policy framework for innovation driven growth.

The conceptual and policy implications of smart specialisation relate to the following

- the underlying role of scientific, technological and economic specialisation in the development of comparative advantage and more broadly in driving economic growth;
- policy intelligence for identifying domains of present or future comparative advantage and;
- governance arrangements that give a pivotal role to regions, private stakeholders and entrepreneurs in the process of translating specialisation strategies into economic and social outcomes.

CDU's research specialisations in Environment and Livelihoods, Human Health and Wellbeing, as well as the strategically important areas of Social and Public Policy, Education at the interface with Health, and Energy, can contribute in all of these areas to facilitate innovation driven growth in northern Australia.