

**Charles Darwin University**  
Submission to the  
Minerals Development Taskforce Final Report

July 2023



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## **Australia's most connected university**

Charles Darwin University's vision is to be Australia's most connected university by being courageous and making a difference in the Northern Territory (NT), Australia and beyond.

Charles Darwin University (CDU) is a dual sector university with around 7,500 higher education and 3,000 vocational full time equivalent students. Around seven per cent of higher education and 25 per cent of vocational education students are First Nations students, and CDU has the highest proportion of remote students in higher education in Australia.

At the heart of CDU is to engage First Nations students and support their attainment of vocational and higher education. The NT spans approximately one sixth of Australia's landmass and yet is home to just one per cent of the population, of whom 30 per cent are First Nations peoples.

Being a dual sector university allows CDU to meet the education needs of Territorians in campuses in Darwin, Alice Springs, Palmerston and Katherine and in study centres in Nhulunbuy, Jabiru and Tennant Creek. CDU has a proud history of delivering on country in some of the NT's most remote locations, bringing training to communities who need it in places such as Galiwinku, Maningrida, Borroloola, Wadeye and Hermannsburg.

We embrace the vitality and resilience of the Northern Territory, which is the focus of the nation's most ambitious plans for future development – to unlock the vast potential of Northern Australia and to engage with our neighbours in the Asia Pacific. Due to our location, we are in an enviable position to contribute to the future prosperity of Northern Australia through innovative and impactful training, education and research.

CDU supports the NT Government's ambitious goal of reaching a \$40 billion economy by 2030 by leveraging the strengths of the NT and its people.

CDU has established itself as an exciting and progressive research-intensive university with a regional focus that prioritises the complex issues facing Northern Australia. Research Institutes at CDU including the Research Institute for the Environment and Livelihoods, the Menzies School of Health Research, the Northern Institute, Energy and Resources Institute and their collaborative research networks, provide a strategic framework for research engagement.

CDU's research outputs consistently outperform for its size and are evaluated as being well above world standards in areas of importance to Northern Australia.

## **Summary of submission and recommendations**

In line with the invitation to provide feedback on the Mineral Development Taskforce Final Report, this submission focuses on key recommendations where CDU has the potential to contribute significantly to the relevant actions.

Broadly, CDU supports the NT Government's approach to consider the growth of the mining sector, alongside the renewable energy sector, and to ensure that growth is underpinned by environmental, economic and social sustainability. The demonstration of such sustainability requires rigorous monitoring, and only through such monitoring is social license likely to be achieved.

## Recommendations

CDU recommends that:

1. *With respect to Taskforce Recommendation 1.b.1*, the NT Government consider Projection Augmented Landscape Models, already deployed for several minesite rehabilitation projects across Northern Australia, be adopted as an effective communication method.
2. *With respect to Taskforce Recommendation 1.c.1*, to further build trust in mining industry regulators, the Report include further specific actions to strengthen monitoring and transparency.
3. *With respect to Taskforce Recommendation 1.c.3*, an additional action be included to expand joint industry, Government and CDU collaboration to develop new research tools and data for strategic regional environmental planning that will provide relevant environmental information to the industry before the environmental assessment process.
4. *With respect to Taskforce Recommendation 1.d.2*, an additional specific action be included to acknowledge the capacity of VET in schools to support new and emerging career pathways in a growing NT economy.
5. *With respect to Taskforce Recommendation 1.f.3*, the NT Government support the further development of expertise based at CDU for minesite rehabilitation, either directly or through leveraging industry-based funding.
6. *With respect to Taskforce Recommendation 3.3*, the NT Government supports the CDU REMHART microgrid facility for the planning and design of renewable energy infrastructure.

### Access to land: Taskforce Recommendation 1.b.1

#### *1.b.1 Increase process clarity and transparency for access to land.*

CDU strongly supports the collaboration with land councils, industry and regulators foreshadowed in this section of the report and agrees that communication to support the broader understanding of the mining industry and activities is critical.

CDU's Northern Institute and Research Institute for the Environment and Livelihoods have unparalleled experience in First Nations engagement and have deep engagement with Land Councils and communities across the NT. Studies include land management (including minesite rehabilitation), demographics, workforce development, Indigenous knowledge and governance, and industry opportunities such as blue carbon and fisheries.

Clear communication and informed consent, particularly with traditional owner groups, is critical throughout the life cycle of any mining project.

An interactive communication tool to convey landscape activities and changes (Projection Augmented Landscape Models) has been successfully utilised to communicate with First Nations people and other groups regarding mining projects, especially for minesite rehabilitation. The projection-augmented models provide a powerful way to visualise current and post-mine landscapes. It also supports the clear communication of a complex array of mine site data, including cultural heritage and modelled biophysical processes.

CDU recommends the NT Government consider this communication mechanism, already deployed for several minesite rehabilitation projects across Northern Australia, be adopted as an effective communication method.

## Recommendation 1

That the NT Government consider Projection Augmented Landscape Models, already deployed for several minesite rehabilitation projects across Northern Australia, be adopted as an effective communication method.

### Regulatory reform: Taskforce Recommendation 1.c.1

#### *1.c.1 Build trust in mining industry regulators.*

In order to further embed trust and confidence in regulatory settings, CDU recommends more robust possible actions relating to this Taskforce Recommendation.

Trust could be assisted by the NT Government making the rehabilitation and closure status of mined lands publicly available so that the NT community can see that mined lands are achieving Certificates of Closure.

In addition, rehabilitation outcomes that are described in project proposals should be realistic rather than optimistic, and sufficient detail should be provided to show that they are achievable. Performance indicators that signal successful rehabilitation should be clearly specified, including for the appropriate level of ecosystem restoration. Knowledge gaps limiting the achievement of rehabilitation goals could be identified and appropriate research plans developed and resourced. Any new knowledge from such research should be made publicly available.

CDU's Research Institute for Environment and Livelihoods has experience in investigating ecological and hydrological factors affecting mine site rehabilitation, and in developing and implementing best-practice monitoring programs. Publicly available long-term studies of ecological development and recovery are important to demonstrate factors that affect mining rehabilitation success. It is important that quantitative long-term studies are available on existing mines to aid the identification of risks and give surety of the effectiveness of NT Government rehabilitation requirements.

Detailed quantitatively supported long-term studies would facilitate the successful understanding and promotion of outcomes. Such studies should include indicators that can be used to assess cultural values, with guidance sought from Traditional Owners. The lack of detailed studies of long-term recovery of vegetation, ecological and cultural attributes on mine sites in the NT leads to broad confidence intervals and uncertainty about particular management actions achieving specific long-term outcomes.

Regular reports detailing rehabilitation activities could be made available by the NT Government to future owners of mine sites so that past management and rehabilitation actions are known and can inform decisions about management of future rehabilitation areas, or other new mine sites.

Best practices in mining rehabilitation could be informed by the rehabilitation standards developed by the Australian and International Society for Ecological Restoration.

To further build trust in mining industry regulators, the Report could include further specific actions to strengthen monitoring and transparency. In summary, this could include:

- Making the rehabilitation and closure status of mined lands publicly available.
- Ensuring that rehabilitation outcomes in accepted proposals are realistic and detailed, or where outcomes are not clear, the resourcing and timeframe to gain required knowledge is explicit.

- Publicly available long-term studies of ecological development and recovery are important to demonstrate factors that affect mining rehabilitation success and should be sought as part of monitoring conditions on mine rehabilitation sites. These should be developed with guidance on cultural attributes sought from Traditional Owners.
- Past records and regular reports on rehabilitation activities at a site should be made available to future owners of the site.

These recommendations could also aid 1.c.2 in achieving greater understanding of risks and enabling better implementation of risk-based approaches to guiding mining rehabilitation.

## Recommendation 2

That to further build trust in mining industry regulators, the Report include further specific actions to strengthen monitoring and transparency.

### Regulatory Reform: Taskforce recommendation 1.c.3

*1.c.3. Streamline mining industry regulatory processes to secure a red carpet approach to project development and facilitation*

CDU is working with the mining industry, the NT, Western Australia and Queensland Governments, Parks Australia and other organisations to develop new tools, data and workflows for more efficient environmental assessment of mining proposals that will lead to increased certainty for environmental approvals and better outcomes for industry and the environment.

Currently, the environmental approvals process for mining proposals can present a serious time and financial cost to the industry because developers are required to obtain approval from the state or territory government in which they wish to operate, including providing details of the presence/or potential presence of threatened species or other environmental risks (resulting from database searches and on-ground surveys) and the actions that will be taken to remove or reduce the identified potential impact.

If the project is deemed likely to significantly impact a federally listed threatened species, the proponent is required to refer the project to the Environmental Protection Agency who assesses whether the proposed action requires formal assessment and approval under the *Environmental Protection and Biodiversity Act 1999* (EPBC Act). This process is reliant on being able to accurately determine impact of that action on a particular species, both by the proponent and the government regulator, but a paucity of data can result in delays in decisions while awaiting further information and decisions being made on incomplete information. These delays are costly to the developer and ultimately to the economy.

CDU is working with a major mining company in the NT, NT Department of Environment, Parks and Water Security and other agencies at Territory, State and Commonwealth levels to develop new research tools and data for strategic regional environmental planning that will provide relevant environmental information to the industry before the environmental assessment process so that the industry is on the front foot regarding environmental planning, risks and mitigation for the regulatory process. It will also reduce delay and uncertainty in the approvals process due to lack of data to inform impact assessment and mitigation.

CDU currently has some industry funding for this initiative, strong participation from NT Department of Environment, Parks and Water Security, and has submitted proposals for research funding to the Australian Research Council (currently under review). CDU seeks to further develop funding for this program with the NT Government and industry to improve the environmental regulatory processes for better industry and environmental outcomes. This has the potential to further drive efficient regulatory processes by improving timeliness and providing better outcomes for the mining industry by taking account of relevant environmental planning.

### Recommendation 3

That an additional action be included to expand joint industry, Government and CDU collaboration to develop new research tools and data for strategic regional environmental planning that will provide relevant environmental information to the industry before the environmental assessment process.

## Skills and Workforce: Taskforce Recommendation 1.d.2

*1.d.2 Focus on building local skills and growing our own for the mining industry, recognising the growing workforce paradigm of remote jobs*

CDU supports the focus of the Taskforce on providing local skills and workforce opportunities and for those opportunities to take precedence over Fly-in Fly-out workers. While these opportunities sit across the spectrum of skilled labour, the Vocational Education and Training (VET) sector is well placed to design and deliver many of the skills needs.

Thin and ultra-thin markets define the NT's operating environment – impacting the delivery of training, education and research, with higher travel costs, supply chain interruptions and workforce scarcity. Economies of scale are almost impossible to realise with Australia's most dispersed population base, of only 250,000 people. Many of the challenges students face are related to historical disadvantage, our location and the sparse population base. Data shows that NT school students have the lowest or near-lowest levels of literacy and numeracy in Australia, compounded by remoteness.

Despite the challenging operating context, data also shows that training in the NT leads to real jobs. According to the latest Productivity Commission Report on Government Services data, 76.5 per cent of NT students increased their employment status from training and 72.5 per cent of First Nations students increased their employment status from training. No other jurisdiction had a better overall employment outcome, and only the ACT and Tasmania, with much smaller proportions of First Nations people, achieved a higher outcome for First Nations students.<sup>1</sup>

For CDU, the launch of CDU TAFE in 2023 highlights a renewed focus on vocational training with a more streamlined structure and expanded offerings. CDU TAFE aims to better meet the needs of those in regional and remote communities, and the development of new direct pathways from its VET courses into CDU's higher education degrees. The TAFE model provides CDU agility to pursue growth opportunities, including mining, in a rapidly changing training environment and includes training pathways for high school students, and apprentices.

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<sup>1</sup> Table 5A.19 of Productivity Commission 2023 Report on Government Services, available here <https://www.pc.gov.au/ongoing/report-on-government-services/2023/child-care-education-and-training/vocational-education-and-training>.

CDU would like to see further acknowledgment in the Taskforce Report of the capacity of VET in schools to support new and emerging career pathways in a growing NT economy. CDU undertakes extensive VET delivery in schools through CDU TAFE. Across the last five years, on average, 1,122 students (by headcount) studied a VET in school course. More than 30 per cent of those students were First Nations students across the last five years.

This means almost seven per cent of all secondary students in the NT studied a Vocational course with CDU in 2022.<sup>2</sup> In 2022, CDU taught VET in schools to students from 48 different Middle or Senior Schools. The spread of courses is already diverse – with skill sets and qualifications having direct pathways into future training and jobs.

#### Recommendation 4

That an additional specific action be included to acknowledge the capacity of VET in schools to support new and emerging career pathways in a growing NT economy.

### Social Licence: Taskforce Recommendation 1.f.3

*1.f.3 Harness expertise, commitment and experience to be a mine rehabilitation centre of excellence.*

CDU welcomes the Report's discussion on the need to harness further expertise on minesite rehabilitation and views rehabilitation as critical to the success of any future mining projects.

Responding to the needs of industry, within the Bachelor of Science/Bachelor of Environmental Science and in the Masters of Environmental Management, CDU currently teaches units on ecological restoration with a focus on mining rehabilitation in the NT. In addition, CDU's Bachelor of Science can include a Landscape Restoration Major.

CDU currently leads minesite rehabilitation research in a number of areas in direct collaboration with industry, Government and First Nations organisations. Current research and service provision areas include development of new eDNA technology for environmental monitoring of minesite remediation, and high accuracy water quality testing for environmental compliance.

CDU continues to monitor opportunities in remediation projects across the NT, especially in key CDU knowledge areas of savannah ecology, endemic pest management, agroforestry and Indigenous participation.

With respect to a Centre of Excellence, CDU recommends the NT Government support the further development of expertise based at CDU for Minesite Rehabilitation, either directly or through leveraging industry-based funding. One option, under active consideration, would be for CDU to seek to join the existing Cooperative Research Centre for Transformations in Mining Economies (CRCTIME), which currently has eight existing partner universities, but none based in the NT.

#### Recommendation 5

That the NT Government support the further development of expertise based at CDU for Minesite Rehabilitation, either directly or through leveraging industry-based funding.

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<sup>2</sup> Using the NT enrolment data for secondary years of 16,027 in 2022, Table 4A.3 of Productivity Commission 2023 Report on Government Services available here <https://www.pc.gov.au/ongoing/report-on-government-services/2023/child-care-education-and-training/school-education>.



## Downstream value-add opportunities: Taskforce Recommendation 3.3

### *3.3 Secure the availability of reliable and cost competitive energy.*

The Taskforce's Report appropriately recognises the role of renewable energy in ensuring the feasibility and success of future mining projects. More broadly, renewable energy's role in the future prosperity of the NT is critical and CDU notes the NT Government's aspiration to achieve 50 per cent renewable energy by 2030.

CDU's Renewable Energy Multi-technology Hub for Applied Research and Training (REMHART) is an industry-focused innovation hub enabling real-world studies to provide an understanding of interactions between various generation, storage, transmission and load technologies and their potential impact on an electricity network. The transition to renewable energy is driving a change to the way power systems, technology, people and businesses interact. REMHART's Grid Testing Facility is highly configurable and it is planned to incorporate a hydrogen generator, 8kWh of storage and fuel-cell system in 2023.

A partnership between CDU and Power and Water Corporation gives students opportunities to gain industry experience while they study an engineering degree, and ensures Power and Water has a pipeline of fresh talent by providing engineering graduates. REMHART is utilised for research and training for undergraduates and also utilised through internships, postgraduate and Higher Degree by Research (HDR) student placements.

REMHART is also a partner in the Future Grid Project in Alice Springs which aims to provide a pathway to 50 per cent renewable energy by 2030; informing what may need to change in the Alice Springs electricity system to accommodate increasing amounts of renewable energy.

Industry partnerships, such as CDU's recent MOU with critical minerals company Tivan, include joint training and research opportunities, scholarship opportunities, and other projects that may utilise REMHART. CDU is the leading trainer of electrical engineers in the Northern Territory, many of whom will work directly with renewable energy project proponents.

### **Recommendation 6**

That the NT Government supports the CDU REMHART to become a Centre of Excellence serving the NT industry and government in the planning, designing, testing and demonstration of renewable energy and green hydrogen infrastructure.

## **Conclusion**

CDU again commends the NT Government on providing the Mineral Development Taskforce Report for further public consultation. The report provides a thorough roadmap of 28 Recommendations and specific actions across a range of necessary areas. While CDU appreciates the key audience for these actions are project proponents, CDU also recommends the NTG provide further detail on the expected delivery timeframes for the recommendations for the benefit of industry and other stakeholders.

CDU looks forward to continuing to work with the NT Government and industry to deliver the training, education and research needed to underpin the NT's future economy.